

VENTILATOR FRAME FABRICATION & ASSEMBLY

This document contains a brief description for the fabrication and assembly process for the ventilator frame. The frame is constructed using $\frac{3}{4}$ " thick birch plywood, and is screwed together using 1-1/4" zinc plated No. 8 flat head screws, then is painted with RUST-OLEUM 5300 SYSTEM WATER-BASED EPOXY (White). Attached are sketches for individual components, listed in back are descriptions of materials, hardware and tools required for fabrication.

Wooden frame:

Using $\frac{3}{4}$ " thick birch plywood sheet, individual pieces are cut using a table saw to rip to width, a chop saw to cut length. After sawing, all edges are slightly radiused using a router table, installed with a $\frac{1}{4}$ " radius corner rounding bit. The individual pieces were sanded using an orbital sander with 120 grit sandpaper.

Frame Sides:

The frame sides are fabricated to specifications from the frame side sketch. With the use of a milling machine, a stop is set on the vice in order to easily repeat multiple parts. Next using a No. 8 drill counter sink bit, set to the proper depth for flush mounting No. 8 flat head screws, 6 holes are drilled.

Pneumatic Air Cylinder Mount Top Plate:

The pneumatic air cylinder mount top plate is fabricated to specifications from its drawing. With the use of a milling machine, a stop is set on the vice in order to easily repeat multiple parts. A $\frac{5}{8}$ " diameter through hole is drilled, then with a 1-3/8" diameter smooth finish wood drill bit, a counter bore is made forming a pocket for the washer and mounting nut during assembly.

AMBU Guides:

The AMBU guides are fabricated to the specifications from its drawing. With the use of a milling machine, a stop is set on the vice in order to easily repeat multiple parts. Mounting holes are drilled using a No. 8 drill counter sink bit adjusted for depth, then a slot will be made by first drilling a through hole with 1-3/8" diameter hole saw. Next the part is removed from the vice, parallel lines are drawn to the O.D. of the 1-3/8" hole and the slot is cut using a band saw. The part then is placed back in the milling machine and the slot is completed using

1-1/2" diameter sanding sleeve, mounted to the appropriate arbor, and a finish cut is made by moving the sanding sleeve back towards the 1-3/8" hole, creating a smooth finish. The slot is then fully radiused using the router table and 3/8" corner rounding router bit. The outer edges are radiused using a 1/4" corner rounding router bit.

Cylinder Compression Puck:

The compression puck is fabricated from 3-1/2" diameter HDPE. The puck is cut to a roughing length on a horizontal band saw. Next a 4" diameter 5C collet which is machined to accept a 3-1/2" diameter to a 3/8" depth, this allows the puck to be safely held while machining in the lathe. Using the puck sketch for specifications, the puck is faced to thickness, then drilled and tapped for a Key locking insert. With the use of radius forming tools, the appropriate radius is formed, and the 5/16-24 key locking insert is installed.

Preassembly of frame:

The frame is now prepared to assemble, with use of the assembly sketch, the pieces must have pilot holes drilled for assembly, this will prevent the plywood from splitting during screw installation. Pilot holes drilled for attaching the 1-1/4" long No. 8 square drive flat head screws, align the piece and hold in position, start a screw using a #2 square bit driver installed in a hand drill, drive the screw in about a 1/4" deep, this will mark the position of the hole for drilling pilot holes. Install a 7/64" diameter drill bit and drill a 1" deep pilot hole. Once all the pilot holes have been drilled, the pieces are ready for painting.

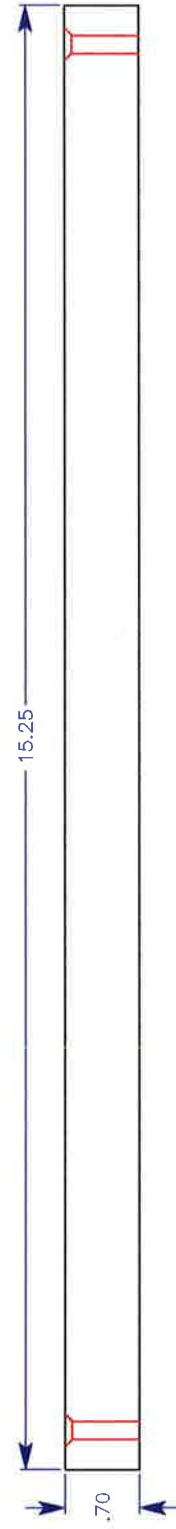
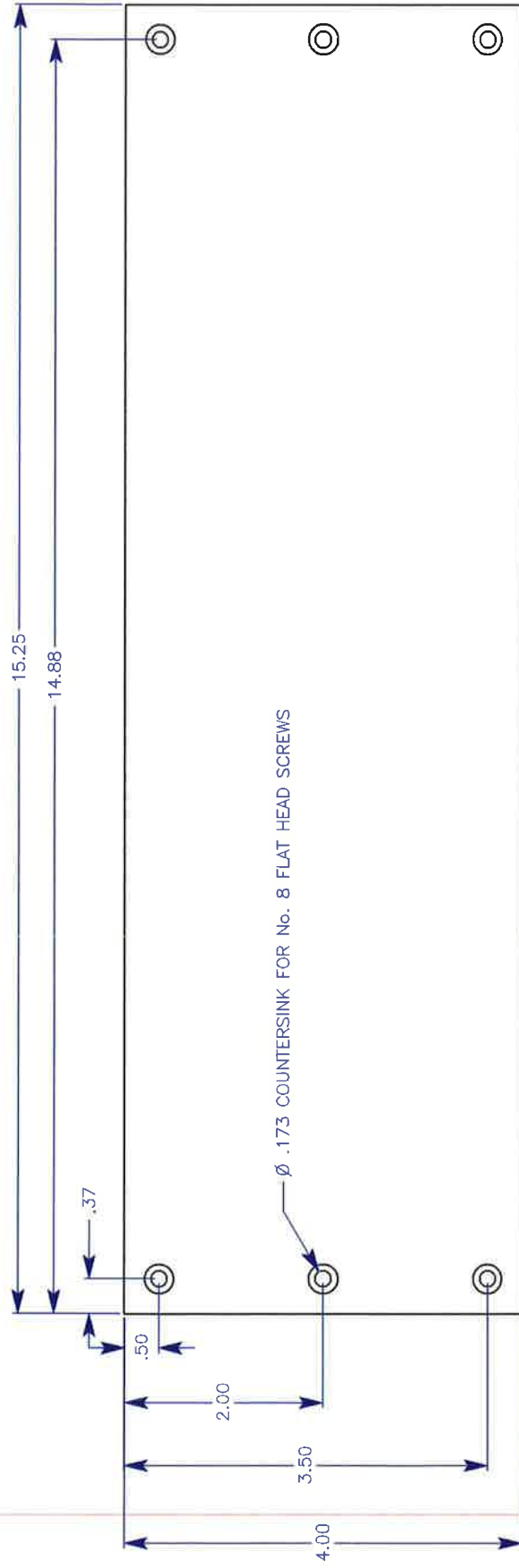
Painting:

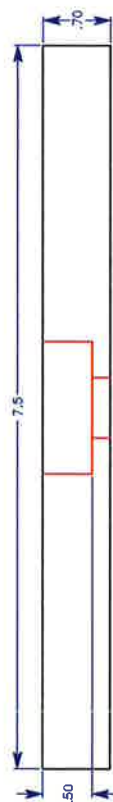
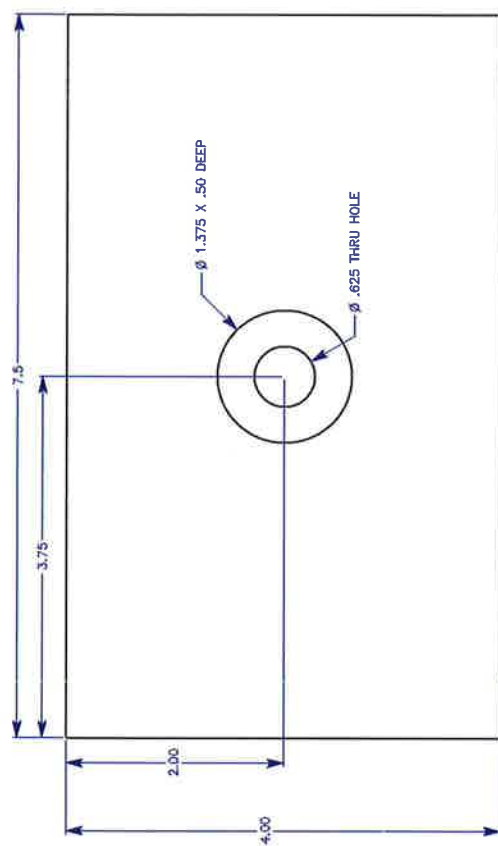
Review the RUST-OLEUM 5300 water based epoxy technical data sheet to understand the application procedure, this covers surface preparation, application and equipment.

Assembling Frame:

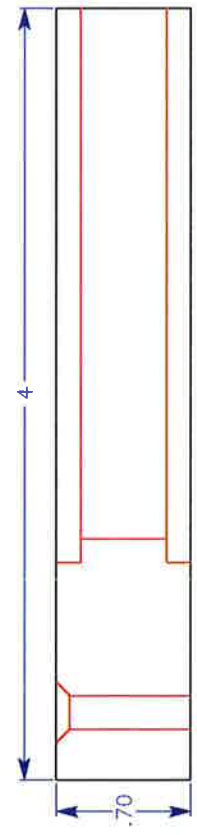
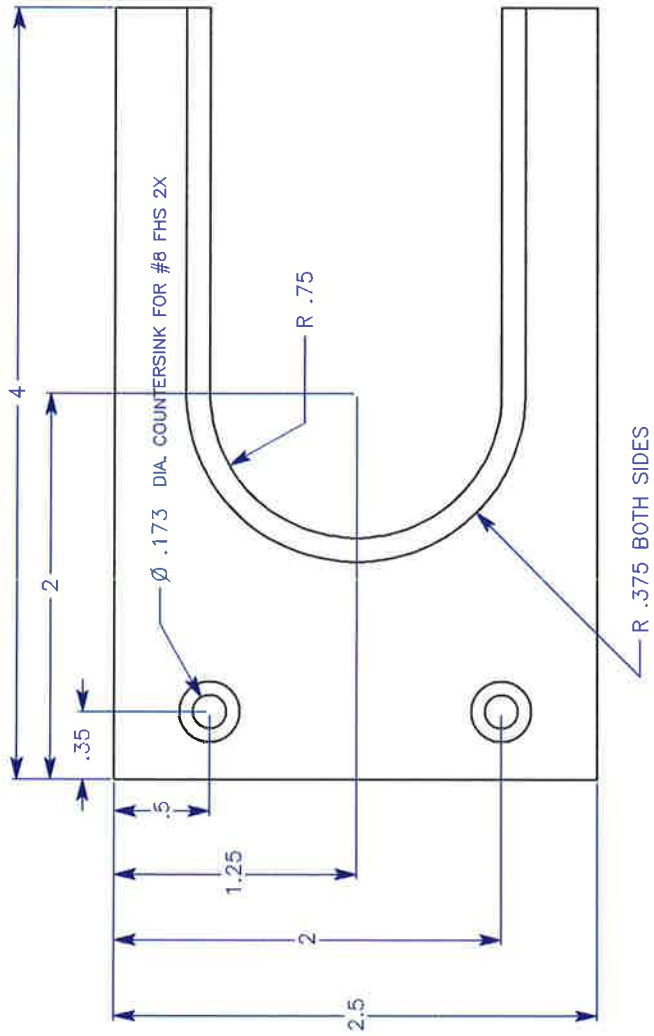
The frame is assembled by coupling the individual pieces with pilot holes together using 1-1/4" long No. 8 square drive flat head screws. Install a #2 square bit drive to a hand drill and adjust the torque to prevent over tightening, drive a couple of practice screws on scrap wood. The cylinder is installed and mounted to

frame using a 5/8" flat washer X 1/16" thick X 1-3/16" O.D. under the mounting nut and securely tightening, the air inlet hole should be positioned for proper connection. The puck is then installed by placing a 5/16" external tooth lock washer under the jam nut, screwing on the puck then tightening the jam nut to secure the puck.

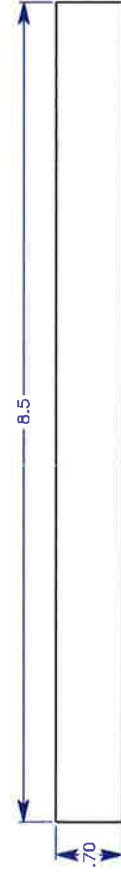
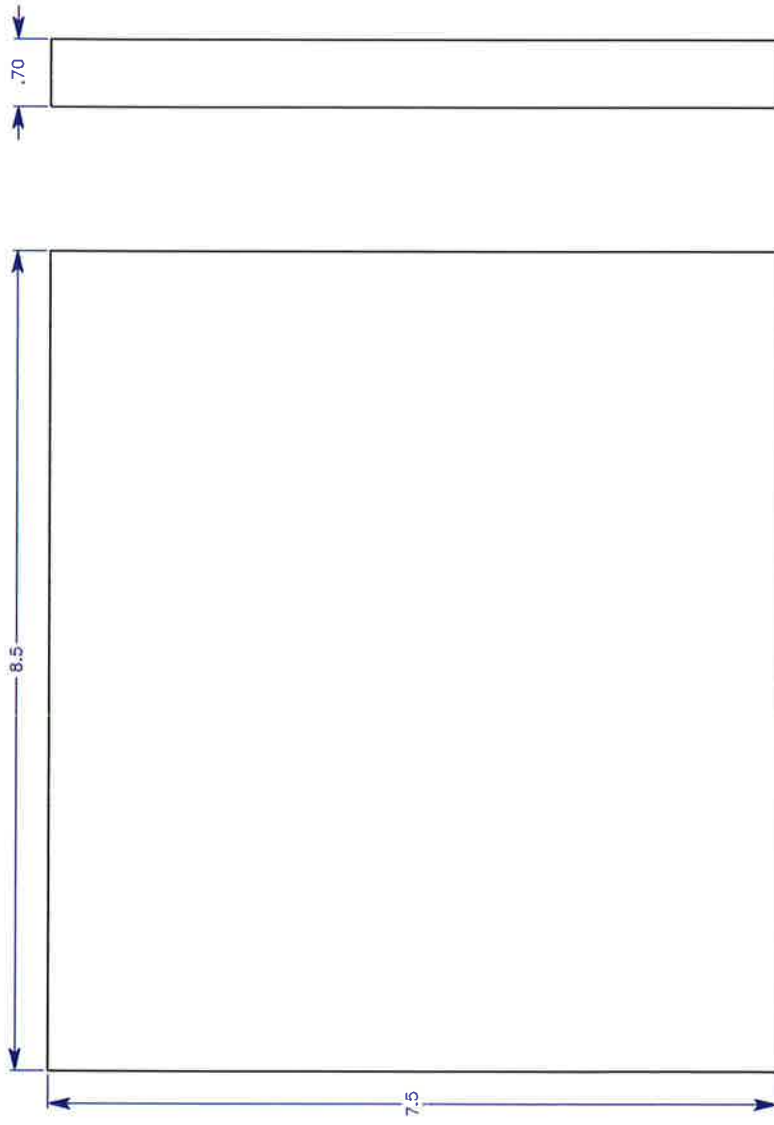




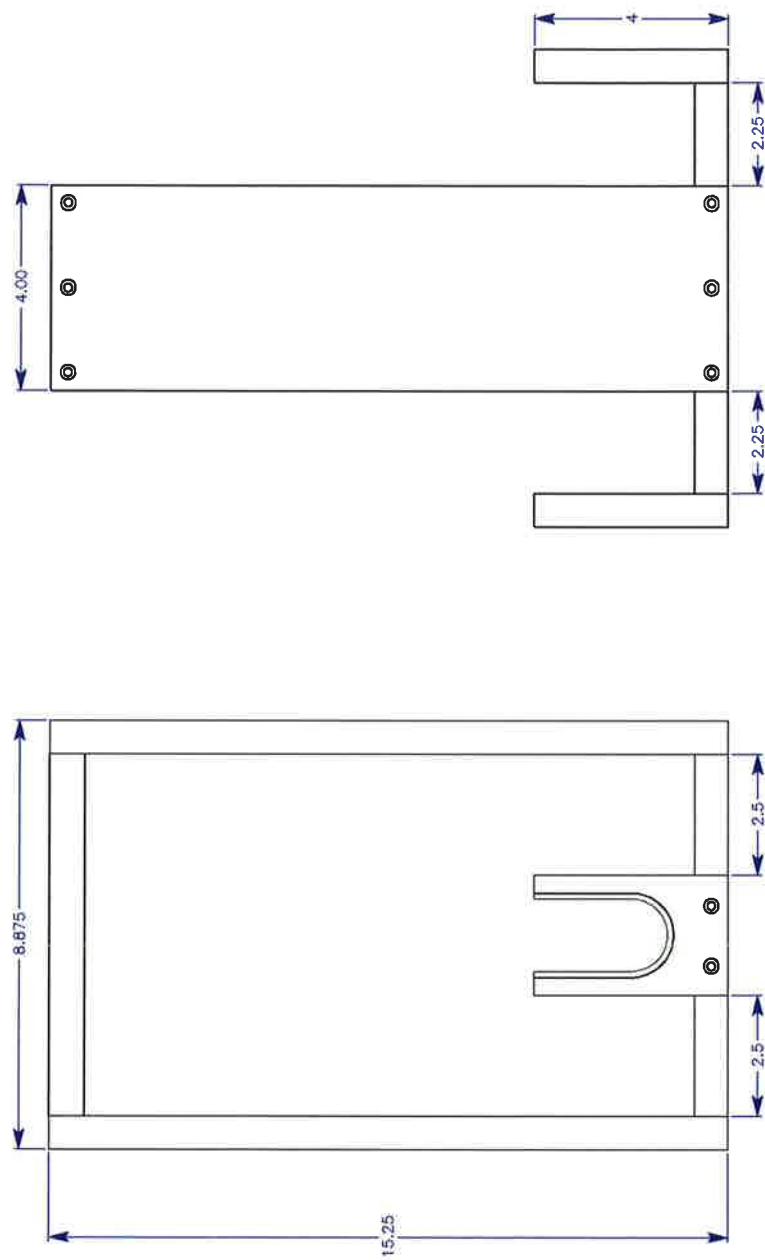
CYLINDER TOP PLATE 1 EA. 3/4" BIRCH PLYWOOD



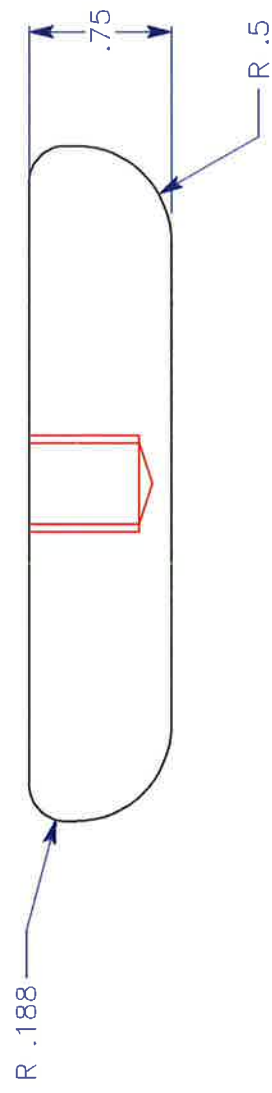
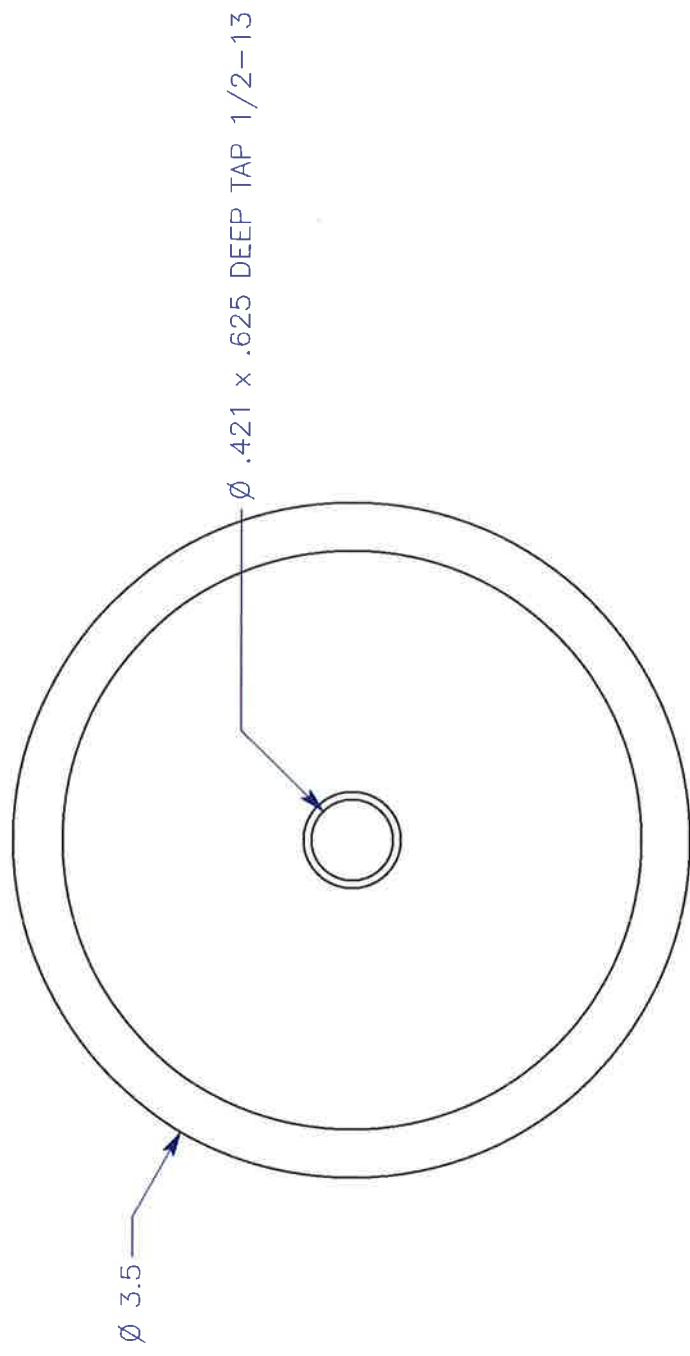
AMBU GUIDES: 2 EA. 3/4" BIRCH PLYWOOD



BASE PLATE 1 EA. 3/4" BIRCH PLYWOOD



ASSEMBLY



PUCK: 1 EA. .75 THICK HDPE

Carbon Steel Drill-Bit Countersink
for Number 8 Screws, 3/8" Body Diameter\$8.42 Each
2785A24

| | |
|-------------------------------|----------------------------------|
| Material | Uncoated Carbon Steel |
| Number of Flutes | 4 |
| Countersink Angle | 82° |
| For Screw Size | No. 8 |
| For Drill Bit Size | 11/64" |
| Body Diameter | 3/8" |
| Overall Length | 7/8" |
| Number of Countersinking Ends | 1 |
| For Use On | Plastic, Wood |
| Individual/Set | Individual |
| RoHS | Not Compliant |
| REACH | Not Compliant |
| Country of Origin | United States |
| Related Product | Optional Collars |

Only for use on wood and plastic, these countersinks attach to a drill bit (sold separately) to countersink and drill holes at the same time. They attach to the drill bit with two set screws and the position can be adjusted for different screw lengths. The 82° countersink angle is compatible with the profile of flat- and oval-head inch screws.

FOR NO. 8 SCREWS COUNTER SINK

TiN-Coated High-Speed Steel Drill Bit

11/64" Size, 3-1/4" Overall Length

1-11 Each \$3.93
12 or more \$3.34
29115A718



ATTACH TO DRILL BIT
COUNTER SINK

FOR NO. 8 SCREWS

| | |
|-------------------------|--|
| System of Measurement | Inch |
| Material | Titanium-Nitride (TiN) Coated High-Speed Steel |
| Size | 11/64" |
| Decimal Size Equivalent | 0.1719" |
| Overall Length | 3 1/4" |
| Maximum Drilling Depth | 1.86" |
| Length Class | Jobbers' Length |
| Shank Type | Round |
| Shank Size | 11/64" |
| Bit Style | Spiral Flute |
| Point Style | Split |
| Point Angle | 135° |
| Flute Direction | Right Hand |
| Specifications Met | NAS907 Type B |
| For Use On | Steel, Hardened Steel, Tool Steel, Iron, Stainless Steel, Nickel, Aluminum, Brass, Bronze, Plastic |
| Individual/Set | Individual |
| RoHS | RoHS 3 (2015/863/EU) Compliant |
| REACH | REACH (EC 1907/2006) (01/16/2020, |

Corner-Rounding High-Speed Steel Router Bit Carbide-Tipped, Rounded, 1" Cutting Diameter

\$29.71 Each
35455A31



Rounded Corner Style (Carbide-Tipped High-Speed Steel)

FOR RADIUSING FRAME
EDGES.

| | |
|--------------------------------|---|
| Material | Uncoated Carbide-Tipped High-Speed Steel |
| Cut Style | Corner Rounding |
| Corner Style | Rounded |
| Cutting Diameter | 1" |
| Cut Radius | 1/4" |
| Length of Cut | 7/16" |
| Shank Type | Straight |
| Shank Diameter | 1/4" |
| Overall Length | 1 29/32" |
| Pilot Type | Ball Bearing |
| Ball-Bearing Pilot Diameter | 1/2" |
| Number of Flutes | 2 |
| Flute Type | Straight |
| For Tool Type | Hand Router, Router Table |
| For Use On | Wood, Particleboard, Plywood |
| Individual/Set | Individual |
| RoHS | RoHS 3 (2015/863/EU) Compliant |
| REACH | REACH (EC 1907/2006) (01/16/2020, 205 SVHC) Compliant |
| Country of Origin | Peoples Republic of China |

Choose from bits that cut rounded, cove, wavy, or Roman ogee corners along the edges of your workpiece.

Carbide-tipped high-speed steel bits are for use on wood. A ball-bearing pilot helps position the bit for straight cuts.

1/2" Diameter Reduced-Shank Drill Bit

Black-Oxide High-Speed Steel, 5/8" Size

\$24.33 Each
2933A28



FOR CYLINDER MOUNTING
THRU HOLE

| | |
|-------------------------|---|
| System of Measurement | Inch |
| Material | Black-Oxide High-Speed Steel |
| Size | 5/8" |
| Decimal Size Equivalent | 0.625" |
| Overall Length | 6" |
| Maximum Drilling Depth | 2.1" |
| Length Class | Reduced Shank Length |
| Shank Type | Reduced Round |
| Shank Size | 1/2" |
| Bit Style | Spiral Flute |
| Flute Direction | Right Hand |
| For Use On | Steel, Iron, Stainless Steel |
| Individual/Set | Individual |
| Point Angle | 118° |
| Point Style | Standard |
| RoHS | RoHS 3 (2015/863/EU) Compliant |
| REACH | REACH (EC 1907/2006) (01/16/2020, 205 SVHC) Compliant |
| Country of Origin | Brazil |

The shank has a smaller diameter than the tip, allowing you to drill large holes with machines that have small-

Smooth-Finish Drill Bit for Wood 1-3/8" Size

\$28.07 Each
3216A29



FOR CYLINDER MOUNT
COUNTER BORE

| | |
|-------------------------|---|
| System of Measurement | Inch |
| Material | Uncoated High-Speed Steel |
| Size | 1 3/8" |
| Decimal Size Equivalent | 1.375" |
| Overall Length | 3 1/2" |
| Maximum Drilling Depth | 3" |
| Shank Type | Round |
| Shank Size | 3/8" |
| Bit Style | Multi-Tooth |
| Point Style | Standard |
| Flute Direction | Right Hand |
| Features | Center Guide Point |
| For Use On | Wood |
| Individual/Set | Individual |
| RoHS | RoHS 3 (2015/863/EU) Compliant |
| REACH | REACH (EC 1907/2006) (01/16/2020, 205 SVHC) Compliant |
| Country of Origin | Germany |

Bore clean, flat bottom holes in soft wood, veneer, and laminates. The center guide point prevents the bit from wandering. Also known as Forstner bits.

1-3/8" Diameter Hole Saw with Built-in Arbor\$11.43 Each
4008A283

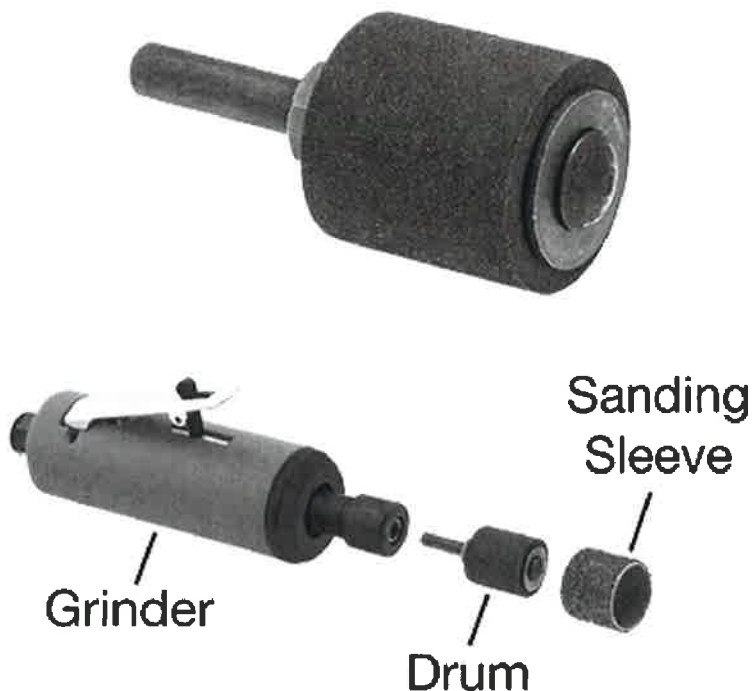
| | |
|------------------------|---|
| For Use With | Drill, Drill Press |
| For Use On | Aluminum, Brass, Bronze, Cast Iron, Plastic, Stainless Steel, Steel, Wood |
| Cutting Depth | 1 15/16" |
| Diameter | 1 3/8" |
| ID | 1 1/4" |
| Arbor Shank Size | 3/8" |
| Arbor Shank Shape | Hex |
| Material | |
| Body | Steel |
| Tooth | High-Speed Steel |
| For Pipe Size | 1 |
| For Conduit Trade Size | 1 |
| For Copper Tube Size | 1 |
| Includes | Pilot Drill |
| Features | Built-In Arbor |
| RoHS | RoHS 3 (2015/863/EU) Compliant |
| REACH | REACH (EC 1907/2006) (01/16/2020, 205 SVHC) Compliant |
| Country of Origin | United States |

Quickly connect these saws to your drill or drill press with the built-in arbor. Saws have high-speed steel teeth for cutting wood, plastic, and metal. A 1/4" diameter pilot drill is included.

FOR AMBU BAG GUIDE SCOTTING

Drum for Sanding Sleeves with 1/4" Diameter Shank, 1-1/2" Diameter, 1" Long

\$2.97 Each
4650A25



| | |
|-------------------|--|
| Drum | |
| Diameter | 1 1/2" |
| Length | 1" |
| Shank Type | Straight |
| Shank Diameter | 1/4" |
| Drum Material | Rubber |
| Mount Type | Shank |
| Maximum Speed | 14,000 rpm |
| For Use With | Grinders for Bits and Burs, Hand-Held Power Drills |
| For Holding | Sanding Sleeves |
| RoHS | Not Compliant |
| REACH | Not Compliant |
| Country of Origin | People's Republic of China |

FOR AMBU GUIDE SLOT
FINISHING

Slide a sanding sleeve on the drum and tighten the nut or screw to securely hold the sleeve. Secure the shank into the collet or chuck of your tool. A drum is required to use a [sanding sleeve](#).

Sanding Sleeve

for Aluminum, Non-Soft Metal, for Rough Finish, 1.5" ID, 1" Long

\$12.20 per pack of 25
4756A198



| | |
|---------------------------|--|
| For Finish | Rough |
| ID | 1 1/2" |
| Length | 1" |
| Form | Sleeve |
| Abrasive Material | Silicon Carbide |
| Abrasive Backing Material | Cloth |
| Sanding Properties | Clog Resistant |
| For Use On | Aluminum, Brass, Bronze, Copper, Plastic, Rubber |
| For Use With | Grinders for Bits and Burs |
| Grit | 36, 50, 80 |
| RoHS | RoHS 3 (2015/863/EU) compliant |

A coating prevents dust and debris from building up on the abrasive surface. These sleeves shape, debur, and sand edges and internal surfaces. Also known as spiral bands. Use with a [drum](#) (sold separately).

FOR AMBU GUIDE
SCOT FINISHING

Corner-Rounding High-Speed Steel Router Bit
Carbide-Tipped, Rounded, 1-1/4" Cutting Diameter

\$32.04 Each
35455A32



Rounded Corner Style (Carbide-Tipped High-Speed Steel)

AMBU R4G SLOT
FULL RADIUSING

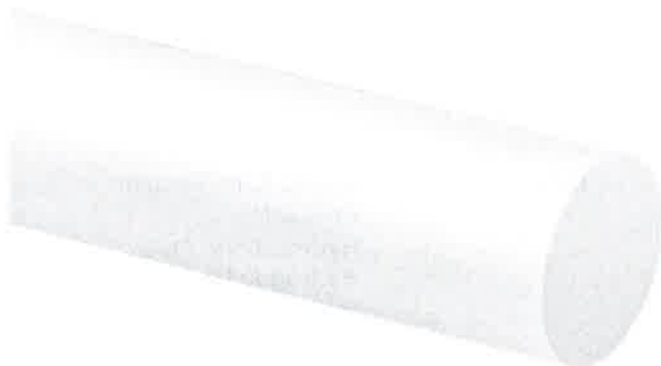
| | |
|--------------------------------|---|
| Material | Uncoated Carbide-Tipped High-Speed Steel |
| Cut Style | Corner Rounding |
| Corner Style | Rounded |
| Cutting Diameter | 1 1/4" |
| Cut Radius | 3/8" |
| Length of Cut | 5/8" |
| Shank Type | Straight |
| Shank Diameter | 1/4" |
| Overall Length | 2 1/32" |
| Pilot Type | Ball Bearing |
| Ball-Bearing Pilot Diameter | 1/2" |
| Number of Flutes | 2 |
| Flute Type | Straight |
| For Tool Type | Hand Router, Router Table |
| For Use On | Wood, Particleboard, Plywood |
| Individual/Set | Individual |
| RoHS | RoHS 3 (2015/863/EU) Compliant |
| REACH | REACH (EC 1907/2006) (01/16/2020, 205 SVHC) Compliant |
| Country of Origin | Peoples Republic of China |

Choose from bits that cut rounded, cove, wavy, or Roman ogee corners along the edges of your workpiece.

Carbide-tipped high-speed steel bits are for use on wood. A ball-bearing pilot helps position the bit for straight cuts.

Moisture-Resistant HDPE Rod 3-1/2" Diameter

In stock
\$29.90 per ft.
8624K48

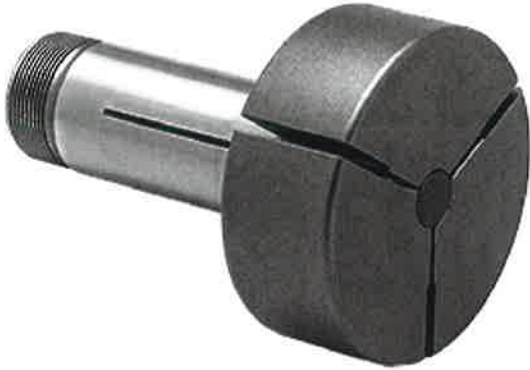


FOR FABRICATING
PUCKS

| | |
|-------------------------|--|
| Material | HDPE Plastic |
| Shape | Rod and Disc |
| Texture | Smooth |
| Diameter | 3 1/2" |
| Diameter Tolerance | Not Rated |
| Tolerance Rating | Oversized |
| Length | 1 ft., 2 ft., 3 ft., 4 ft., 5 ft., 6 ft., 7 ft., 8 ft. |
| Length Tolerance | 0" to 1/4" |
| Hardness | Rockwell R40-R80 |
| Hardness Rating | Medium |
| For Use Outdoors | No |
| Temperature Range | -40° to 200° F |
| Impact Strength | 1.1-1.94 ft.-lbs./in. |
| Impact Strength Rating | Poor |
| Tensile Strength | 3,920-4,200 psi |
| Tensile Strength Rating | Poor |
| Color | White |
| Clarity | Opaque |
| Specifications Met | ASTM D4976, UL 94HB |
| Performance Properties | Chemical Resistant, Electrical Insulator, Low Water Absorption, Multipurpose, Slippery, Wear Resistant |
| For Use With | Acetic Acid, Bleach, Chlorine, Coolant, Fuel Oil, Gasoline, |

Large-Diameter Machine-Your-Own 5C Collet 4" Head

\$101.75 Each
3208A33



FOR MACHINING
PICKS

| | |
|-----------------------|------------------|
| Collet Type | 5C |
| Face Type | Machine Your Own |
| Head Diameter | 4" |
| Head Thickness | 1 3/16" |
| Maximum Bore Diameter | 3 1/2" |
| Body Diameter | 1 1/4" |
| Overall Length | 4 33/64" |
| External Thread Size | 1.238"-20 |
| Thread Direction | Right Hand |
| Material | Hardened Steel |
| Head Material | Steel |
| For Use With | Lathes |
| For Holding | Workpieces |
| RoHS | Not Compliant |
| REACH | Not Compliant |
| Country of Origin | India |

Also known as step collets, their wide head can be machined to hold large workpieces that won't fit in a standard collet. They have external threads.

Black-Oxide High-Speed Steel Drill Bit

27/64" Size, 5-3/8" Overall Length

1-5 Each \$9.62

6 or more \$8.17

2901A136



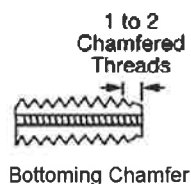
DRILL FOR TAPPING
PUCK FOR KEY INSERT
ON PUCK

| | |
|-------------------------|---|
| System of Measurement | Inch |
| Material | Black-Oxide High-Speed Steel |
| Size | 27/64" |
| Decimal Size Equivalent | 0.4219" |
| Overall Length | 5 3/8" |
| Maximum Drilling Depth | 3.3" |
| Length Class | Jobbers' Length |
| Shank Type | Round |
| Shank Size | 27/64" |
| Bit Style | Spiral Flute |
| Point Style | Split |
| Point Angle | 135° |
| Flute Direction | Right Hand |
| Specifications Met | NAS907 Type B |
| For Use On | Steel, Iron, Stainless Steel |
| Individual/Set | Individual |
| RoHS | RoHS 3 (2015/863/EU) Compliant |
| REACH | REACH (EC 1907/2006) (01/16/2020, 205 SVHC) Compliant |
| Country of Origin | United States |

General Purpose Tap

Bottoming Chamfer, Uncoated High-Speed Steel, 1/2"-13 Thread Size

\$17.41 Each
26955A96



FOR TAPPING KEY
INSERT HOLE ON PUCK

| | |
|-------------------------|--|
| Chamfer Type | Bottoming |
| Application | Through-Hole Threading, Closed-End Hole Threading |
| Thread Size | 1/2"-13 |
| Thread Length | 1 21/32" |
| Overall Length | 3 3/8" |
| Number of Tapping Ends | 1 |
| Maximum Tapping Depth | 1 21/32" |
| Drill Bit Size | 27/64" |
| Decimal Size Equivalent | 0.4219" |
| Thread Direction | Right Hand |
| For Use On | Steel, Iron, Stainless Steel, Nickel, Aluminum, Brass, Bronze, Copper, Plastic |
| Material | Uncoated High-Speed Steel |
| Flute Type | Straight |
| Number of Flutes | 3 |
| Thread Type | UNC |
| Pitch | |
| Diameter Limit | H3 |

18-8 Stainless Steel Key-Locking Inserts with Thick Wall, 5/16"-24 Thread Size

1-9 Each \$4.70
10 or more \$4.00
91731A071



KEY INSERT
FOR PUCK

| | |
|-------------------------------|---|
| For Use In | Metal |
| Threaded Insert Type | Key Locking |
| Comparable To | Keensert® |
| Material | 18-8 Stainless Steel |
| Passivation | Passivated |
| System of Measurement | Inch |
| Thread Direction | Right Hand |
| Thread Size | 5/16"-24 |
| Thread Type | UNF |
| Thread Spacing | Fine |
| Thread Fit | Class 2B |
| Key-Locking Insert Wall Style | Thick |
| For Tap Type | Standard (UN) |
| For Tap Thread Size | 1/2"-13 |
| Installed Length | 7/16" |
| For Min. Material Thickness | 7/16" |
| Drill Bit Size | 29/64" |
| For Maximum Hole Diameter | 29/64" |
| Number of Locking Keys | 4 |
| End Type | Open |
| External Locking Type | Key |
| Tensile Strength | Not Rated |
| RoHS | RoHS 3 (2015/863/EU) Compliant |
| REACH | REACH (EC 1907/2006) (01/16/2020, 205 SVHC) Compliant |
| Country of Origin | United States |
| Related Product | Installation Tools |

Made of stainless steel, these inserts have good corrosion resistance. Drive the keys into the surrounding material for a more secure hold than thread-locking inserts. Use them to repair or change threads in soft metals such as aluminum. Inserts may be mildly magnetic. They're comparable to Keensert® inserts. Installation requires a drill bit, a standard tap, an installation tool, and a hammer.

Choose inserts with a thick wall for greater strength than thin-wall inserts, or to fill a large hole.

18-8 Stainless Steel External-Tooth Lock Washer for 5/16" Screw Size, 0.32" ID, 0.61" OD

\$4.11 per pack of 50
95584A209



| | |
|-----------------------|---|
| Material | 18-8 Stainless Steel |
| For Screw Size | 5/16" |
| ID | 0.320" |
| OD | 0.610" |
| Thickness | 0.028"-0.034" |
| Washer Type | Tooth Lock |
| Tooth Location | External |
| System of Measurement | Inch |
| Hardness | Not Rated |
| Specifications Met | ASME B18.21.1 (Dimensions Only) |
| RoHS | RoHS 3 (2015/863/EU) Compliant |
| REACH | REACH (EC 1907/2006) (01/16/2020, 205 SVHC) Compliant |
| Country of Origin | India, Peoples Republic Of China, or Taiwan |

Teeth on the outside edge of the washer bite into the screw head and joint for a tight grip. Use with fasteners that have heads large enough to make contact with the teeth, such as pan, button, and binding head screws.

18-8 stainless steel washers have good chemical resistance and may be mildly magnetic.

LOCK WASHER FOR
INSTALLING JACK



Medium-Strength Steel Thin Hex Nut
Grade 5, Zinc-Plated, 5/16"-24 Thread Size

\$5.30 per pack of 100
94846A510



Jam NOT FOR
LOCKING NUT



| | |
|-----------------------|---|
| Material | Zinc-Plated Steel |
| Fastener Strength | |
| Grade/Class | Grade 5 |
| Thread Size | 5/16"-24 |
| Thread Type | UNF |
| Thread Spacing | Fine |
| Thread Fit | Class 2B |
| Thread Direction | Right Hand |
| Width | 1/2" |
| Height | 3/16" |
| Drive Style | External Hex |
| Nut Type | Hex |
| Hex Nut Profile | Thin |
| System of Measurement | Inch |
| Specifications Met | ASME B18.2.2 |
| RoHS | RoHS 3 (2015/863/EU) Compliant |
| REACH | REACH (EC 1907/2006) (01/16/2020, 205 SVHC) Compliant |
| Country of Origin | Taiwan |

Also known as jam nuts, these are about half the height of standard hex nuts. Use them in low-clearance applications or jam one against another nut to hold it in place. They're suitable for fastening most machinery and equipment when used in conjunction with a standard hex nut. A zinc plating provides corrosion resistance in wet environments.

400 Series Stainless Steel External-Tooth Lock Washer
for 5/8" Screw Size, 0.641" ID, 1.07" OD\$8.14 per pack of 25
98438A035

| | |
|-----------------------|---|
| Material | 400 Series Stainless Steel |
| For Screw Size | 5/8" |
| ID | 0.641" |
| OD | 1.070" |
| Thickness | 0.042"-0.050" |
| Washer Type | Tooth Lock |
| Tooth Location | External |
| System of Measurement | Inch |
| Hardness | Rockwell C34 |
| Specifications Met | ASME B18.21.1 (Dimensions Only) |
| RoHS | RoHS 3 (2015/863/EU) Compliant |
| REACH | REACH (EC 1907/2006) (01/16/2020, 205 SVHC) Compliant |
| Country of Origin | India, or Taiwan |

Teeth on the outside edge of the washer bite into the screw head and joint for a tight grip. Use with fasteners that have heads large enough to make contact with the teeth, such as pan, button, and binding head screws.

400 series stainless steel washers have excellent wear resistance, but aren't as corrosion resistant as other stainless steel washers. They may be mildly magnetic.

LOCK WASHER FOR
INSTALLING CYLINDER

Square-Drive Flat Head Screws for Wood

Zinc-Plated Steel, Number 8 Size, 1-1/4" Long

\$11.65 per pack of 100
90610A201



SCREWS FOR
ASSEMBLING FRAMES

| | |
|--|---|
| Material | Zinc-Plated Steel |
| Screw Size | No. 8 |
| Screw Size Decimal Equivalent | 0.164" |
| Length | 1 1/4" |
| Head | |
| Diameter | 0.332" |
| Height | 0.1" |
| Drive Size | No. 2 |
| Drive Style | Square |
| Softwood Drill Bit Size | 5/64" |
| Softwood Drill Bit Size Decimal Equivalent | 0.078" |
| Hardwood Drill Bit Size | 3/32" |
| Hardwood Drill Bit Size Decimal Equivalent | 0.094" |
| Approximate Threads per Inch | 15 |
| Thread Direction | Right Hand |
| Threading | Partially Threaded |
| Min. Thread Length | 0.83" |
| Tapping Method | Thread Forming |
| Head Type | Flat |
| Flat Head Profile | Standard |
| Countersink Angle | 82° |
| Tip Type | Pointed |
| Shank Cross Section | Round |
| System of Measurement | Inch |
| For Use In | Wood |
| RoHS | RoHS 3 (2015/863/EU) Compliant |
| REACH | REACH (EC 1907/2006) (01/16/2020, 205 SVHC) Compliant |
| Country of Origin | Taiwan |

These steel screws are zinc plated to resist corrosion in wet environments. All are beveled under the head for use in countersunk holes. They press threads into material for a tight, secure hold. To prevent splitting, drill a pilot hole slightly smaller than the screw. Length is measured from the top of the head.



Black-Oxide High-Speed Steel Drill Bit
7/64" Size, 2-5/8" Overall Length

1-11 Each \$1.73
12 or more \$1.47
2901A114



DRILL FOR NO. 8 SCREW
PILOT HOLE

| | |
|-------------------------|---|
| System of Measurement | Inch |
| Material | Black-Oxide High-Speed Steel |
| Size | 7/64" |
| Decimal Size Equivalent | 0.1094" |
| Overall Length | 2 5/8" |
| Maximum Drilling Depth | 1.33" |
| Length Class | Jobbers' Length |
| Shank Type | Round |
| Shank Size | 7/64" |
| Bit Style | Spiral Flute |
| Point Style | Split |
| Point Angle | 135° |
| Flute Direction | Right Hand |
| Specifications Met | NAS907 Type B |
| For Use On | Steel, Iron, Stainless Steel |
| Individual/Set | Individual |
| RoHS | RoHS 3 (2015/863/EU) Compliant |
| REACH | REACH (EC 1907/2006) (01/16/2020, 205 SVHC) Compliant |
| Country of Origin | United States |

Square Bit

1/4" Hex Shank for Power Tools, Number 2 Size, 4" Overall Length

\$2.21 Each
7021A25



Hex Shank for Power Tools



BIT FOR INSTALLING
NO. 8 SCREWS

| | |
|-------------------|--------------------------------|
| For Drive Style | Square |
| Shank Type | Hex for Power Tools |
| Hex Shank Size | 1/4" |
| Size | No. 2 |
| For Screw Size | No. 8, No. 10 |
| Overall Length | 4" |
| Material | Steel |
| Tip Style | Standard |
| Driver Style | Bit |
| Individual/Set | Individual |
| RoHS | RoHS 3 (2015/863/EU) Compliant |
| REACH | Not Compliant |
| Country of Origin | Peoples Republic of China |

Designed for screws with a square recess in the head, these are also known as Robertson bits.

Hex shank bits for power tools have a groove in the shank and fit directly into power tools without an adapter. They offer more reach for recessed holes and less wobble compared to a hex shank bit used with an adapter.



5300 SYSTEM WATER-BASED EPOXY

DESCRIPTION AND USES

A low-odor, two-component, polyamine-cured water-based epoxy coating. Designed for use in moderate to severe industrial environments for protection of steel structures. It can also be used on non-ferrous and masonry surfaces. Provides excellent chemical, abrasion and corrosion resistance. Primers are formulated for use on clean, abrasive blasted, slightly rusted, or previously painted steel surfaces.

PRODUCTS

FINISHES

| 1-Gallon | 5-Gallon | Description |
|----------|----------|---------------|
| 5323408 | — | Marlin Blue |
| 5344408 | — | Safety Yellow |
| 5368408 | — | Tile Red |
| 5371408 | — | Dunes Tan |
| 5379408 | — | Black |
| 5382408 | — | Silver Gray |
| 5392408 | 5392388* | White |
| 5301604 | — | Activator |

TINT BASES

| 1-Gallon | 5-Gallon | Description |
|----------|----------|-------------|
| 5308421 | — | Deep Base |
| 5309404 | — | Light Base |

*Made to Order only. Contact Rust-Oleum Customer Service for details.

COMPANION PRODUCTS

RECOMMENDED PRIMERS

| | |
|---------|------------------|
| 5369405 | Red Primer |
| 5381405 | Gray Primer |
| 5303502 | Primer Activator |

COMPATIBLE TOPCOATS

High Performance Industrial High Solids Urethane
High Performance Industrial DTM Urethane Mastic

PRODUCT APPLICATION

SURFACE PREPARATION

ALL SURFACES: Remove all dirt, grease, oil, salt and chemical contaminants by washing the surface with Pure Strength® Cleaner/Degreaser item #3599402, commercial detergent or other suitable cleaner. Mold and mildew areas must be cleaned with a chlorinated cleaner or bleach solution. Rinse thoroughly with fresh water and allow to fully dry. All surfaces must be dry at time of application.

STEEL, GALVANIZED AND ALUMINUM: Hand tool (SSPC-SP-2) or power tool (SSPC-SP-3) clean to remove loose rust, mill scale, and deteriorated previous coatings. A brush-off abrasive blast (SSPC-SP-7) may be used as an alternative to scraping and wire brushing. Wire brushing or a brush-off blast is especially effective in removing white rust (oxidation) from galvanized steel. Abrasive blasting to a minimum Commercial Grade (SSPC-SP-6, NACE 3) with a 1-2 mil (25-50μ) surface profile is recommended for optimal performance. Abrasive blast cleaned steel requires two coats.

PREVIOUSLY COATED: Previously coated surfaces must be sound and in good condition. Smooth, hard, or glossy finishes should be scarified by sanding to create a surface profile. The High Performance Industrial Water Based Epoxy Finish is compatible with most coatings, but a test patch is suggested. **WARNING!** If you scrape, sand or remove old paint from any surface, you may release lead paint dust. LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear a NIOSH-approved respirator to control lead exposure. Carefully clean up with a wet mop or HEPA vacuum. Before you start, find out how to protect yourself and your family by contacting the U.S.EPA/Lead Information Hotline at 1-800-424-LEAD or log onto www.epa.gov/lead.

CONCRETE AND MASONRY: Hand or power tool clean to remove all loose or unsound concrete, masonry, or previous coating. Very dense, non-porous concrete should be acid etched or abrasive blasted to remove the laitance layer and create a surface profile. Allow new concrete to cure for 30 days before coating.



5300 SYSTEM WATER-BASED EPOXY

PRODUCT APPLICATION (cont.)

APPLICATION

Apply only when the air and surface temperatures are between 60-100°F (15-38°C) and the surface temperature is at least 5°F (3°C) above the dew point. The relative humidity should not be greater than 85%. Extremely high or low relative humidity can affect dry times and the final gloss of the coating. Mix thoroughly before applying. On bare concrete, thin first coat 25% with fresh clean water to maximize penetration into the concrete. Thin after the induction time has elapsed.

EQUIPMENT RECOMMENDATIONS

BRUSH: Use a good quality synthetic bristle brush.

ROLLER: Use a good quality synthetic cover.

AIR-ATOMIZED SPRAY:

| Method | Fluid Tip | Fluid Delivery | Atom. Pressure |
|----------|------------|--------------------------|----------------|
| Pressure | 0.050-.070 | 16 oz./min. | 40-60 psi |
| Siphon | 0.050-.070 | — | 40-60 psi |
| HVLP | 0.050-.070 | 8 oz./min. 10 psi at tip | |

AIRLESS SPRAY:

| Fluid Pressure | Fluid Tip | Filter Mesh |
|----------------|------------|-------------|
| 1,800-3,000 | 0.013-.017 | 100 |

THINNING

BRUSH/ROLLER: Normally not required. Use 5-10% fresh water if needed (approximately ½ pint per gallon).

AIR-ATOMIZED SPRAY: Fresh water. Use up to 10% as needed (approximately 1 pint per gallon).

AIRLESS SPRAY: Normally not required.

MIXING

Premix base component before adding appropriate activator. The 5303 Activator is pigmented, so it too must be mixed prior to combining it with the primer based component. Combine the base component and activator at the required mixing ratio by volume, mix for 2-3 minutes, then allow the material to set for the required induction time.

CLEAN-UP

Soap and water. Once the coating begins to cure it will be necessary to use 160 Thinner or Methyl Ethyl Ketone (MEK).

PERFORMANCE CHARACTERISTICS

System Tested

Topcoat: Industrial Water Based Epoxy

PENCIL HARDNESS

METHOD: ASTM D3363

RESULT: F (30 days)

CYCLIC PROMESION

Rating 1-10, 10=best

METHOD: ASTM D5894, 2 cycles, 672 hours

RESULT: 10 per ASTM D714 for blistering

RESULT: 9 per ASTM D1654 for corrosion

RESULT: 10 per ASTM D610 for rusting

IMPACT RESISTANCE (direct)

METHOD: ASTM D2794

RESULT: 100 in.-lbs.

TABER ABRASION

METHOD: ASTM D4060, CS-17 wheels, 1,000 gram load, 1000 cycles

RESULT: 118 mg. loss

GLOSS (60°)

METHOD: ASTM D523

RESULT: 80-95%

For chemical and corrosion resistance, see page 4 of the Rust-Oleum Industrial Brands Catalog (Form #206275).


5300 SYSTEM WATER-BASED EPOXY
PHYSICAL PROPERTIES

| | | PRIMERS | FINISH COLORS | TINT BASES |
|--|--------------------|---|---|---|
| Resin Type | | Polyamine epoxy | Polyamine epoxy | Polyamine epoxy |
| Pigment Type | | Talc, barium sulfate, red iron oxide, or titanium dioxide | Varies | Varies |
| Solvents | | Water, propoxyethanol, aromatic hydrocarbons | Water, propoxyethanol, aromatic hydrocarbons | Water, propoxyethanol, aromatic hydrocarbons |
| Weight* | Per Gallon | 11 lbs. | 10-11 lbs. | 9.5-10.5 lbs. |
| | Per Liter | 1.3 kg. | 1.2-1.3 kg. | 1.1-1.3 kg. |
| Solids* | By Weight | 53% | 51% | 45-52% |
| | By Volume | 36% | 38% | 36-40% |
| Volatile Organic Compounds* | | <250 g./l. (2.08 lbs./gal.) | <250 g./l. (2.08 lbs./gal.) | <250 g./l. (2.08 lbs./gal.) |
| Recommended Dry Film Thickness (DFT) Per Coat | | 1.5-2.5 mils (37.5-62.5µ) | 1.5-2.5 mils (37.5-62.5µ) | 1.5-2.5 mils (37.5-62.5µ) |
| Wet Film to Achieve DFT | | 4.0-6.5 mils (100-162.5µ) | 4.0-6.5 mils (100-162.5µ) | 4.0-6.5 mils (100-162.5µ) |
| Theoretical Coverage at 1 mil DFT (25µ) | | 600 sq. ft./gal. (14.8 m²/l) | 600 sq. ft./gal. (14.8 m²/l) | 575-640 sq. ft./gal. (14.1-15.7 m²/l) |
| Practical Coverage at Recommended DFT (assumes 15% material loss) | | 200-350 sq. ft./gal. (4.9-8.6 m²/l) | 200-350 sq. ft./gal. (4.9-8.6 m²/l) | 200-350 sq. ft./gal. (4.9-8.6 m²/l) |
| Mixing Ratio | | 3:1 base to activator (by volume) | 7:1 base to activator (by volume) | 7:1 base to activator (by volume) |
| Induction Period | | 30 minutes | 30 minutes | 30 minutes |
| Pot Life @ 77°F & 50% RH | | 8 hours | 6-8 hours | 3-5 hours |
| Dry Times at 70-80°F (21-27°C) and 50% rel. hum. | Tack-free | ½-1 hours | ½-1 hours | 1-2 hours |
| | Handle | 2-5 hours | 2-5 hours | 3-6 hours |
| | Recoat | 1-2 hours | 1-2 hours | 1-2 hours |
| Force Cure | | 20 minutes at 225°F (dry to handle after cooling) | 20 minutes at 225°F (dry to handle after cooling) | 20 minutes at 225°F (dry to handle after cooling) |
| Dry Heat Resistance | | 300°F (149°C) | 300°F (149°C) | 300°F (149°C) |
| Shelf Life | | 5 years; 2 weeks for tinted products (after coolant is added). Tint bases may shift slightly in color over time, affecting touch-up appearance; also bases must be used within two weeks after tinting. The tint bases use the 2030 colorants. Because a masstone base is not available, not all tint colors are available. Refer to the Tint System Color Card and Formula Book for details. | | |
| Safety Information | Flash Point | Base: 132°F (56°C) Activator: 141°F (61°C) | Base: 132°F (56°C) Activator: 141°F (61°C) | Base: 132°F (56°C) Activator: 141°F (61°C) |
| | Contains | Lead-free | Lead-free | Lead-free |
| | Warning! | COMBUSTIBLE. HARMFUL IF INHALED. MAY AFFECT BRAIN OR NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. CAUSES NOSE, THROAT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. FOR INDUSTRIAL USE ONLY. KEEP OUT OF REACH OF CHILDREN. SEE THE PRODUCT MATERIAL SAFETY DATA SHEET (MSDS) AND LABEL WARNINGS FOR ADDITIONAL SAFETY INFORMATION. | | |

*Activated material. Calculated values are shown and may vary slightly from the actual manufactured material.