

# Fiberglass Enclosures – Triton Series

## NEMA Type 1 and 3R Single Door with Twist-Lock Latches



**T483612RT**

### Construction

- Hot compression molded fiberglass reinforced polyester, hand layup FRP
- Poured polyurethane seamless gasket provides watertight, dust-tight environmental seal
- 304 stainless steel used on all external hardware
- Panel mounting capability for fixed rear panel
- Bosses with threaded brass inserts accept 3/8-16 screws
- Integral mounting feet
- Rounded edges, minimal protrusions or exposed pocket areas for accumulation of dust or debris
- Rain shield protection against incidental water ingress
- Dust-tight, watertight, non-corrosive environmental design
- Door has stainless steel hinge and twist-lock latches for easy entry
- Built-in padlock hasp
- Non-conductive, UV resistant
- 216 lb-in impact resistance per UL746C
- Smooth surface, no color variations, swirls or color pockets, no voids
- Color: Gray

### Listings

- UL/cUL File E64358
- NEMA Ratings 1, 3R (UL508A, UL50 & UL50e)
- CSA Std. C22.2 File LR069014
- Temperature Range (-76°F to +274°F) (-60°C to +134°C)
- Flammability Rating UL94-5V
- Self Extinguishing Non-Halogenated, Non-flame propagating
- NFPA No. 101 Flame Spread Class A (1)
- Impact Rating IK10
- Certifications UL, IEC, CSA, REACH, RoHS
- Outdoor UV Exposure (UL 746C) (f1) Rated



| Enclosure Shipping Schedule |            |             |             |
|-----------------------------|------------|-------------|-------------|
| Same day                    | 1 - 5 days | 1 - 15 days | 1 - 20 days |

Color indicates shipping lead time in business days.

| Triton Series Fiberglass Enclosures - NEMA Type 1 and 3R Single Door with Twist-Lock Latches |            |  |          |             |                       |                   |
|--|------------|--|----------|-------------|-----------------------|-------------------|
| Part Number  | Price      | Enclosure Overall Size HxWxD             | Wt. (lb) | No. Latches | Carbon Steel Subpanel | Aluminum Subpanel |
| T242410RT  | \$462.00   | 27.00 x 25.24 x 11.90 [686 x 641 x 302]  | 36.2     | 2           | BPT2424CS             | BPT2424A          |
| T30208RT   | \$465.00   | 32.86 x 20.99 x 9.89 [835 x 533 x 251]   | 30.9     | 2           | BPT3020CS             | BPT3020A          |
| T302010RT  | \$552.00   | 32.86 x 20.99 x 11.89 [835 x 533 x 302]  | 31.5     | 2           | BPT3020CS             | BPT3020A          |
| T302410RT  | \$495.00   | 33.41 x 26.32 x 11.95 [849 x 668 x 304]  | 45.7     | 2           | BPT3024CS             | BPT3024A          |
| T302412RT  | \$524.00   | 33.41 x 26.32 x 13.79 [849 x 668 x 350]  | 44.9     | 2           | BPT3024CS             | BPT3024A          |
| T36308RT   | \$668.00   | 39.31 x 32.50 x 10.05 [999 x 826 x 255]  | 52.7     | 3           | BPT3630CS             | BPT3630A          |
| T363010RT  | \$676.00   | 39.31 x 32.50 x 12.05 [999 x 826 x 306]  | 57.1     | 3           | BPT3630CS             | BPT3630A          |
| T363012RT  | \$712.00   | 39.31 x 32.50 x 14.05 [999 x 826 x 357]  | 59.7     | 3           | BPT3630CS             | BPT3630A          |
| T483612RT  | \$1,301.00 | 51.29 x 36.62 x 14.43 [1303 x 930 x 367] | 85.6     | 3           | BPT4836CS             | BPT4836A          |
| T483616RT  | \$1,420.00 | 51.29 x 36.62 x 18.43 [1303 x 930 x 468] | 94.2     | 3           | BPT4836CS             | BPT4836A          |

Notes: Subpanels must be ordered separately.  
Dimensions in inches (millimeters).

See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings.

# Fiberglass Enclosures – Triton Series

NEMA Type 1, 3, 3R, 4X and 12 - Single Door with Twist-Lock Latches



**T483612HWT**

## Construction

- Hot compression molded fiberglass reinforced polyester, hand layup FRP
- Poured polyurethane seamless gasket provides watertight, dust-tight environmental seal
- 304 stainless steel used on all external hardware
- Panel mounting capability for fixed rear panel
- Bosses with threaded brass inserts accept 3/8-16 screws
- Integral mounting feet
- Rounded edges, minimal protrusions or exposed pocket areas for accumulation of dust or debris
- Dust-tight, watertight, non-corrosive environmental design
- Stainless steel, hinged door with twist-lock latches for easy entry
- Built-in padlock hasp on enclosure sizes 20x16 and larger
- Non-conductive, UV resistant
- 216 lb-in impact resistance per UL746C
- Smooth surface, no color variations, swirls or color pockets, no voids
- Color: Gray

## Listings

- UL/cUL File E64358
- NEMA Ratings 1, 3, 3R, 4X, 12 (UL508A, UL50 & UL50e)
- CSA Std. C22.2 File LR069014
- IEC 60529 Ratings IP66
- UL 1741 File E333478
- Temperature Range (-76°F to +274°F) (-60°C to +134°C)
- Flammability Rating UL94-5V
- Self Extinguishing non-Halogenated, Non-flame propagating
- NFPA No. 101 Flame Spread Class A (1)
- Impact Rating IK10
- Certifications UL, IEC, CSA, REACH, RoHS
- Outdoor UV Exposure (UL 746C) (f1) Rated



| Enclosure Shipping Schedule                          |            |             |             |
|--|------------|-------------|-------------|
| Same day   | 1 - 5 days | 1 - 15 days | 1 - 20 days |
| Color indicates shipping lead time in business days. |            |             |             |

| Triton Series Fiberglass Enclosures - NEMA Type 1, 3, 3R, 4X, and 12 - Single Door with Twist-Lock Latches |            |  |          |             |                       |                   |
|--|------------|--|----------|-------------|-----------------------|-------------------|
| Part Number  | Price      | Enclosure Overall Size HxWxD             | Wt. (lb) | No. Latches | Carbon Steel Subpanel | Aluminum Subpanel |
| T16107HWT  | \$315.00   | 18.75 x 10.96 x 9.03 [476 x 278 x 229]   | 8.9      | 2           | BPT1610CS             | BPT1610A          |
| T201612HWT   | \$386.00   | 22.75 x 16.87 x 13.77 [578 x 429 x 350]  | 20.5     | 2           | BPT2016CS             | BPT2016A          |
| T24126HWT  | \$427.00   | 26.95 x 13.72 x 7.98 [685 x 348 x 203]   | 23.7     | 2           | BPT2412CS             | BPT2412A          |
| T241210HWT   | \$415.00   | 26.95 x 13.72 x 11.99 [685 x 348 x 304]  | 22.7     | 2           | BPT2412CS             | BPT2412A          |
| T24208HWT  | \$471.00   | 27.00 x 21.24 x 9.90 [686 x 539 x 252]   | 26.9     | 4           | BPT2420CS             | BPT2420A          |
| T242410HWT   | \$546.00   | 27.00 x 25.24 x 11.90 [686 x 641 x 302]  | 32.6     | 4           | BPT2424CS             | BPT2424A          |
| T242412HWT   | \$621.00   | 27.00 x 25.24 x 13.90 [686 x 641 x 353]  | 37.2     | 4           | BPT2424CS             | BPT2424A          |
| T30206HWT  | \$496.00   | 32.86 x 20.99 x 7.89 [835 x 533 x 200]   | 27.9     | 5           | BPT3020CS             | BPT3020A          |
| T30208HWT  | \$503.00   | 32.86 x 20.99 x 9.89 [835 x 533 x 251]   | 30.9     | 5           | BPT3020CS             | BPT3020A          |
| T302010HWT   | \$610.00   | 32.86 x 20.99 x 11.89 [835 x 533 x 302]  | 31.5     | 5           | BPT3020CS             | BPT3020A          |
| T302012HWT   | \$618.00   | 32.86 x 20.99 x 13.89 [835 x 533 x 353]  | 34.7     | 5           | BPT3020CS             | BPT3020A          |
| T30247HWT  | \$564.00   | 33.41 x 26.32 x 8.81 [849 x 668 x 224]   | 42.8     | 5           | BPT3024CS             | BPT3024A          |
| T302410HWT   | \$571.00   | 33.41 x 26.32 x 11.95 [849 x 668 x 304]  | 40.3     | 5           | BPT3024CS             | BPT3024A          |
| T302412HWT   | \$601.00   | 33.41 x 26.32 x 13.79 [849 x 668 x 350]  | 44.9     | 5           | BPT3024CS             | BPT3024A          |
| T36308HWT  | \$732.00   | 39.31 x 32.50 x 10.05 [999 x 826 x 255]  | 53.0     | 5           | BPT3630CS             | BPT3630A          |
| T363010HWT   | \$739.00   | 39.31 x 32.50 x 12.05 [999 x 826 x 306]  | 57.1     | 5           | BPT3630CS             | BPT3630A          |
| T363012HWT   | \$793.00   | 39.31 x 32.50 x 14.05 [999 x 826 x 357]  | 59.7     | 5           | BPT3630CS             | BPT3630A          |
| T483612HWT   | \$1,322.00 | 51.29 x 36.62 x 13.93 [1303 x 930 x 354] | 89.4     | 10          | BPT4836CS             | BPT4836A          |
| T483616HWT   | \$1,462.00 | 51.29 x 36.62 x 17.93 [1303 x 930 x 456] | 94.2     | 10          | BPT4836CS             | BPT4836A          |
| T603612HWT   | \$1,713.00 | 63.50 x 36.50 x 14.12 [1613 x 927 x 359] | 108.4    | 11          | BPT6036CS             | BPT6036A          |
| T603616HWT   | \$1,875.00 | 63.50 x 36.50 x 18.12 [1613 x 927 x 460] | 113.4    | 11          | BPT6036CS             | BPT6036A          |

Notes: Subpanels must be ordered separately.  
Dimensions in inches [millimeters].

# Fiberglass Enclosures – Triton Series

NEMA Type 1, 3, 3R, 4X and 12 - Single Door with Acrylic Window and Twist-Lock Latches



**TW483612HWT**

## Construction

- Hot compression molded fiberglass reinforced polyester, hand layup FRP
- Poured polyurethane seamless gasket provides watertight, dust-tight environmental seal
- 304 stainless steel used on all external hardware
- Panel mounting capability for fixed rear panel
- Bosses with threaded brass inserts for 3/8-16 screws
- Integral mounting feet
- Rounded edges, minimal protrusions or exposed pocket areas for accumulation of dust or debris
- Dust-tight, watertight, non-corrosive environmental design
- Stainless steel, hinged door with twist-lock latches for easy entry
- Non-conductive, UV resistant
- 216 lb-in impact resistance per UL746C
- Smooth surface, no color variations, swirls or color pockets, no voids
- Scratch- and abrasion-resistant, UVA acrylic flush-bonded window
- Color: Gray

## Listings

- UL/cUL File E64358
- NEMA Ratings 1, 3, 3R, 4X, 12 (UL508A, UL50 & UL50e)
- CSA Std. C22.2 File LR069014
- UL 1741 File E333478
- Temperature Range (-76°F to +274°F) (-60°C to +134°C)
- Flammability Rating UL94-5V
- Window Temperature Range (-26°F to +170°F) (-32°C to +76°C)
- Window Flammability Rating UL94-HB
- Self Extinguishing Non-Halogenated, Non-flame propagating
- NFPA No. 101 Flame Spread Class A (1)
- Impact Rating IK10
- Certifications UL, CSA, CE, REACH, RoHS
- Outdoor UV Exposure (UL 746C) (f1) Rated



| Enclosure Shipping Schedule |            |             |             |
|-----------------------------|------------|-------------|-------------|
| Same day                    | 1 - 5 days | 1 - 15 days | 1 - 20 days |

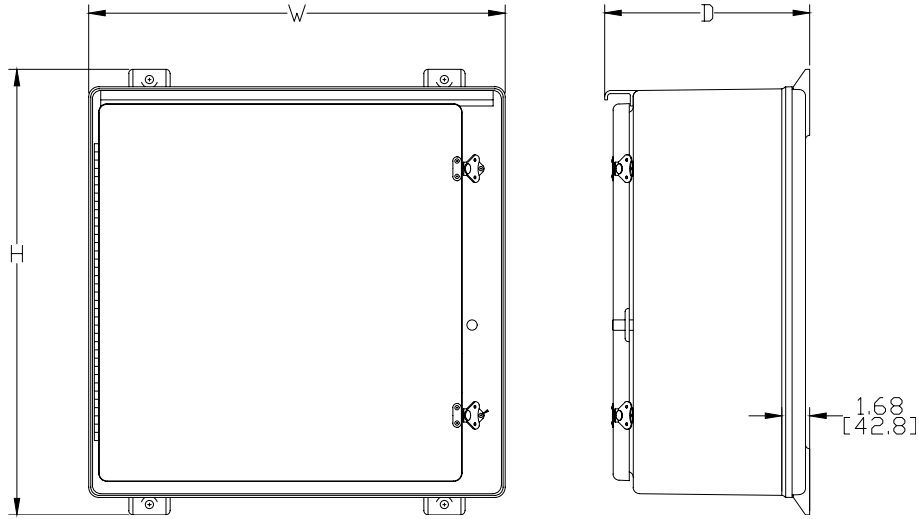
Color indicates shipping lead time in business days.

| Triton Series Fiberglass Enclosures - NEMA Type 1, 3, 3R, 4X and 12 - Single Door with Acrylic Window and Twist-Lock Latches |            |   |          |             |                       |                   |
|--|------------|---|----------|-------------|-----------------------|-------------------|
| Part Number  | Price      | Enclosure Overall Size HxWxD                | Wt. [lb] | No. Latches | Carbon Steel Subpanel | Aluminum Subpanel |
| TW201610HWT  | \$699.00   | 22.75 x 16.87 x 11.77<br>[578 x 429 x 299]  | 19.9     | 2           | BPT2016CS             | BPT2016A          |
| TW241210HWT  | \$784.00   | 26.95 x 13.72 x 11.99<br>[685 x 348 x 304]  | 19.8     | 2           | BPT2412CS             | BPT2412A          |
| TW24208HWT   | \$845.00   | 27.00 x 21.24 x 9.90<br>[686 x 539 x 252]   | 47.1     | 4           | BPT2420CS             | BPT2420A          |
| TW242410HWT  | \$972.00   | 27.00 x 25.24 x 11.90<br>[686 x 641 x 302]  | 34.1     | 4           | BPT2424CS             | BPT2424A          |
| TW30208HWT   | \$1,007.00 | 32.86 x 20.99 x 9.89<br>[835 x 533 x 251]   | 31.9     | 5           | BPT3020CS             | BPT3020A          |
| TW302410HWT  | \$1,043.00 | 33.41 x 26.32 x 11.95<br>[849 x 668 x 304]  | 45.2     | 5           | BPT3024CS             | BPT3024A          |
| TW363012HWT  | \$1,482.00 | 39.31 x 32.50 x 14.05<br>[999 x 826 x 357]  | 59.7     | 5           | BPT3630CS             | BPT3630A          |
| TW483612HWT  | \$2,559.00 | 51.29 x 36.62 x 13.93<br>[1303 x 930 x 354] | 85.6     | 10          | BPT4836CS             | BPT4836A          |

*Notes: Subpanels must be ordered separately.  
Dimensions in inches [millimeters].*

# Fiberglass Enclosures – Triton Series

## Dimensions for Triton Series Enclosures



*Note: Mounting hole is .50" [1.27mm]*

*See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings.*

# Subpanels for Triton Series Fiberglass Enclosures



## Carbon steel subpanels

| Subpanel Part Number | Price    | Subpanel Size HxWxD                      | Enclosure Nominal Size HxW | Panel Type | Wt. (lb) |
|----------------------|----------|--|----------------------------|------------|----------|
| <b>BPT1610CS</b>     | \$21.50  | 13.00 x 8.50 x 0.105 [330 x 216 x 2.7]   | 16 x 10                    | Flat       | 3.3      |
| <b>BPT2016CS</b>     | \$37.00  | 17.00 x 13.00 x 0.105 [432 x 330 x 2.7]  | 20 x 16                    | Flat       | 6.7      |
| <b>BPT2412CS</b>     | \$36.00  | 21.00 x 9.00 x 0.105 [533 x 229 x 2.7]   | 24 x 12                    | Flat       | 8.7      |
| <b>BPT2420CS</b>     | \$73.00  | 21.00 x 17.00 x 0.105 [533 x 432 x 2.7]  | 24 x 20                    | Flat       | 11       |
| <b>BPT2424CS</b>     | \$90.00  | 21.00 x 21.00 x 0.105 [533 x 533 x 2.7]  | 24 x 24                    | Flat       | 13       |
| <b>BPT3020CS</b>     | \$93.00  | 27.00 x 17.00 x 0.105 [686 x 432 x 2.7]  | 30 x 20                    | Flat       | 14       |
| <b>BPT3024CS</b>     | \$115.00 | 27.00 x 21.00 x 0.105 [686 x 533 x 2.7]  | 30 x 24                    | Flat       | 17       |
| <b>BPT3630CS</b>     | \$179.00 | 33.00 x 27.00 x 0.105 [838 x 686 x 2.7]  | 36 x 30                    | Flat       | 27       |
| <b>BPT4836CS</b>     | \$260.00 | 33.00 x 45.00 x 0.105 [838 x 1143 x 2.7] | 48 x 36                    | Formed     | 41       |
| <b>BPT6036CS</b>     | \$322.00 | 57.00 x 33.00 x 0.105 [1448 x 838 x 2.7] | 60 x 36                    | Formed     | 60       |

Note: Dimensions in inches [millimeters].

| Subpanel Specifications |                  |                               |
|-------------------------|------------------|-------------------------------|
| Subpanel                | Material         | Finish                        |
| Carbon Steel            | Carbon Steel     | White polyester powder Finish |
| Aluminum                | 3003H14 Aluminum | Mill Finish                   |

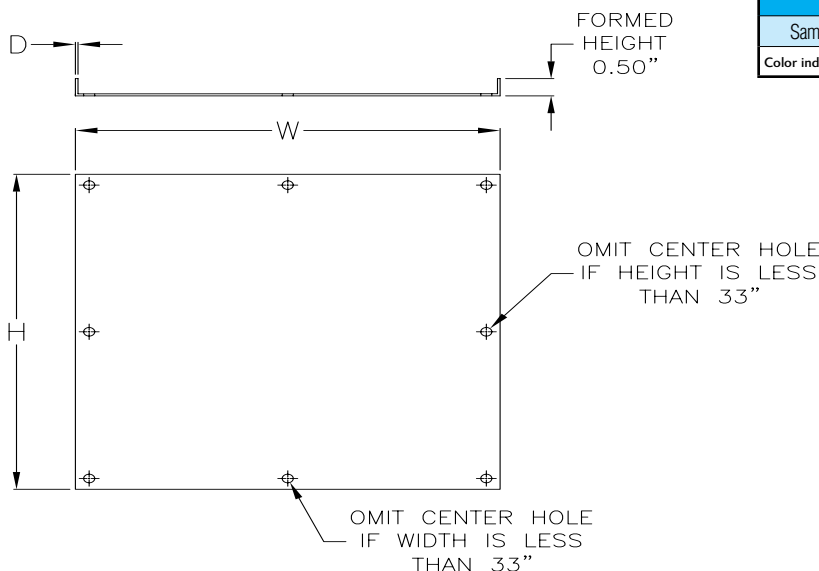
## Aluminum subpanels



| Subpanel Part Number | Price    | Subpanel Size HxWxD                      | Enclosure Nominal Size HxW | Panel Type | Wt. (lb) |
|----------------------|----------|--|----------------------------|------------|----------|
| <b>BPT1610A</b>      | \$33.00  | 13.00 x 8.50 x 0.081 [330 x 216 x 2.0]   | 16 x 10                    | Flat       | 1.0      |
| <b>BPT2016A</b>      | \$37.00  | 17.00 x 13.00 x 0.081 [432 x 330 x 2.0]  | 20 x 16                    | Flat       | 2.0      |
| <b>BPT2412A</b>      | \$36.00  | 21.00 x 9.00 x 0.081 [533 x 229 x 2.0]   | 24 x 12                    | Flat       | 4.5      |
| <b>BPT2420A</b>      | \$73.00  | 21.00 x 17.00 x 0.129 [533 x 432 x 3.3]  | 24 x 20                    | Flat       | 4.5      |
| <b>BPT2424A</b>      | \$90.00  | 21.00 x 21.00 x 0.129 [533 x 533 x 3.3]  | 24 x 24                    | Flat       | 5.5      |
| <b>BPT3020A</b>      | \$93.00  | 27.00 x 17.00 x 0.129 [686 x 432 x 3.3]  | 30 x 20                    | Flat       | 5.8      |
| <b>BPT3024A</b>      | \$115.00 | 27.00 x 21.00 x 0.129 [686 x 533 x 3.3]  | 30 x 24                    | Flat       | 7.0      |
| <b>BPT3630A</b>      | \$179.00 | 33.00 x 27.00 x 0.129 [838 x 686 x 3.3]  | 36 x 30                    | Flat       | 11       |
| <b>BPT4836A</b>      | \$260.00 | 33.00 x 45.00 x 0.129 [838 x 1143 x 3.3] | 48 x 36                    | Formed     | 22       |
| <b>BPT6036A</b>      | \$322.00 | 57.00 x 33.00 x 0.129 [1448 x 838 x 3.3] | 60 x 36                    | Formed     | 23       |

Note: Dimensions in inches [millimeters].

### Dimensions



| Enclosure Shipping Schedule                          |            |             |             |
|--|------------|-------------|-------------|
| Same day   | 1 - 5 days | 1 - 15 days | 1 - 20 days |
| Color indicates shipping lead time in business days. |            |             |             |

See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings.

# Enclosure Accessories - Hole Seals and Plugs



## Hole Plugs for Non-Metal Enclosures

Designed to seal extra pushbutton holes, conduit openings, and knockout openings in AttaBox fiberglass enclosures from dirt, dust, oil, and water. Conduit hole sizes are nominal trade sizes, not actual hole sizes. (Example: 1 in. conduit actual diameter = 1.315 in.)



| Hole Plugs           | Price   | Description   | Nominal Hole Diameter Range in [mm] | Wt. [oz] |
|----------------------|---------|---|-------------------------------------|----------|
| <b>REHPSERIES1</b>   | \$3.50  | AttaBox hole plug, fiberglass-reinforced polyester (FRP), closed-cell neoprene gasket, for 1/2- to 3/4-inch hole in non-metallic enclosure  | 0.50 - 0.81<br>[12.7 - 20.6]        | 2        |
| <b>REHPSERIES1.5</b> | \$4.75  | AttaBox hole plug, fiberglass-reinforced polyester (FRP), closed-cell neoprene gasket. For use with 1/2in conduit holes in non-metallic enclosures.                                 | 0.88<br>[22.4]                      | 2        |
| <b>REHPSERIES2</b>   | \$4.00  | AttaBox hole plug, fiberglass-reinforced polyester (FRP), closed-cell neoprene gasket, for 1/2- to 3/4-inch conduit holes and 22 or 30mm pushbutton holes in non-metallic enclosure | 0.88 - 1.28<br>[22.4 - 32.5]        | 2        |
| <b>REHPSERIES3</b>   | \$6.25  | AttaBox hole plug, fiberglass-reinforced polyester (FRP), closed-cell neoprene gasket, for 1 to 1-1/4 inch conduit holes in non-metallic enclosure                                  | 1.38 - 1.75<br>[35.1 - 44.5]        | 2        |
| <b>REHPSERIES4</b>   | \$8.00  | AttaBox hole plug, fiberglass-reinforced polyester (FRP), closed-cell neoprene gasket, for 1-1/2 to 2-inch conduit holes in non-metallic enclosure                                  | 2.00 - 2.56<br>[50.1 - 65.0]        | 2        |
| <b>REHPSERIES5</b>   | \$14.75 | AttaBox hole plug, fiberglass-reinforced polyester (FRP), closed-cell neoprene gasket. For use with 2-1/2in conduit holes in non-metallic enclosures.                               | 3.00<br>[76.2]                      | 2        |
| <b>REHPSERIES6</b>   | \$19.75 | AttaBox hole plug, fiberglass-reinforced polyester (FRP), closed-cell neoprene gasket. For use with 3in conduit holes in non-metallic enclosures.                                   | 3.62<br>[92.0]                      | 2        |
| <b>REHPSERIES7</b>   | \$25.50 | AttaBox hole plug, fiberglass-reinforced polyester (FRP), closed-cell neoprene gasket. For use with 3-1/2in conduit holes in non-metallic enclosures.                               | 4.12<br>[104.7]                     | 2        |
| <b>REHPSERIES8</b>   | \$33.00 | AttaBox hole plug, fiberglass-reinforced polyester (FRP), closed-cell neoprene gasket. For use with 4in conduit holes in non-metallic enclosures.                                   | 4.62<br>[117.4]                     | 2        |

## Agency Approvals

- Fiberglass hole plug for UL Types 1, 3R, 4, 4X, 6, 6P, 12 Industrial control panel enclosures. [UL File E64358]
- CSA Types 1, 12, 3, 3R, 4, 4X, 6, 6P: IEC Code IP66, IP67, IP68 [CSA File LR069014]

| Enclosure Shipping Schedule                          |            |             |             |
|--|------------|-------------|-------------|
| Same day   | 1 - 5 days | 1 - 15 days | 1 - 20 days |
| Color indicates shipping lead time in business days. |            |             |             |

# Vents and Louvers for Non-Metallic Enclosures



## Drain/Breather Vents



**REDVK3KIT**



**REBV4XKIT**

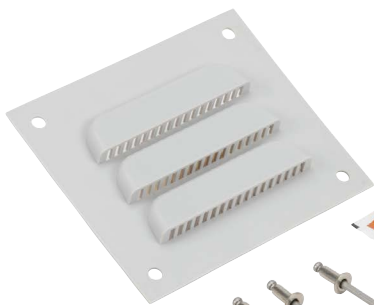


**REDV4KIT**

| Part Number      | Price   | Description  | Wt. [oz] |
|------------------|---------|--|----------|
| <b>REDV1PVC</b>  | \$7.00  | AttaBox single drain vent, PVC. For use on non-metallic enclosures. Includes drain vent and silicone adhesive/sealant. | 2        |
| <b>REDVK3KIT</b> | \$10.75 | AttaBox single drain vent kit, PVC. Includes drain vent and silicone adhesive/sealant.                                 | 2        |
| <b>REBV4XKIT</b> | \$36.00 | AttaBox single breather vent kit allows enclosure to "breathe" while maintaining UL Type 4X enclosure rating.          | 4.8      |
| <b>REDV4XKIT</b> | \$15.25 | AttaBox single drain vent kit properly drains unwanted moisture while maintaining UL Type 4X enclosure rating.         | 3.2      |

| Enclosure Shipping Schedule                          |            |             |             |
|--|------------|-------------|-------------|
| Same day   | 1 - 5 days | 1 - 15 days | 1 - 20 days |
| Color indicates shipping lead time in business days. |            |             |             |

## Louver Plate



**RELPK3KIT**

| Part Number      | Price   | Description   | Wt. [oz] |
|------------------|---------|---|----------|
| <b>RELPL1</b>    | \$10.50 | Louver plate, for ventilation in non-metallic enclosure, polypropylene, 4.5 inch wide x 4.0 inch high. For 3 inch x 3 inch cutout.  | 2        |
| <b>RELPK3KIT</b> | \$26.00 | Louver plate kit, for ventilation in non-metallic enclosure. Includes 4.5 inch wide x 4.0 inch high polypropylene louver plate, rivets and silicone adhesive/sealant. For 3 inch x 3 inch cutout. | 2        |