

# OPTIMIZE YOUR SUPPLY CHAIN WITH DIVERSE ELECTRONICS

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# BUD

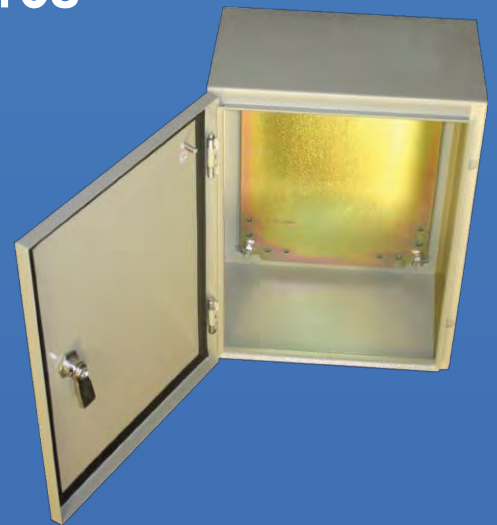
Bud Industries, Inc.



## NEMA/IP Catalog

*ENCLOSURES Right Now, Right Price.*

### NEMA/IP Rated Watertight Enclosures



From steel to aluminum, plastic to fiberglass, the Bud line of NEMA enclosures is affordably priced and available fast, with many enclosures shipping on the same day they are ordered.

440-946-3200 • [www.budind.com](http://www.budind.com)

## Screw-Down Plastic Enclosures

See more styles at [www.budind.com/NEMAplastic](http://www.budind.com/NEMAplastic)

Our plastic NEMA boxes feature some of our best-selling enclosures, which provide superior (IP65) moisture protection for sensitive electronics, including tablets. The BT Series offers the first completely transparent NEMA 4X enclosure in the industry, allowing inspection and indication without the need to open the cover.

**Series:** PN, PNR, BT, TBG

**Sizes:** 2.56" × 2.28" × 1.18" to 12.68" × 9.13" × 3.39"

**Material:** ABS, polycarbonate, and other plastic

**Features:** IP65 and NEMA 1, 2, 4, 4X, 12, and 13 protection with screw-down covers. The PN Series boxes come with clear or opaque covers. Covers for the PNR Series feature a recessed area. Wall-mount brackets are optional. Most have guides or bosses for mounting PCBs.



See video on polycarbonate NEMA boxes.

[www.budind.com/plastic-video](http://www.budind.com/plastic-video)

## Hinged Plastic Enclosures

See more styles at [www.budind.com/NEMAplastic](http://www.budind.com/NEMAplastic)

Our plastic NEMA enclosures with hinged covers provide a tight seal yet convenient access. They are ideal for wet, dirty and corrosive environments. Choose from a wide variety of options, including a choice of materials and opaque or see-through covers.

**Series:** NBA, NBB, NBC, NBD, NBF, NBE

**Sizes:** 5.11" × 3.93" × 2.75" to 32.05" × 24.18" × 11"

**Material:** ABS, polycarbonate, and other plastic

**Features:** In addition to NEMA 1, 4, and 4X ratings, most of these enclosures are also rated to IP66. All-plastic construction (including hinges and latches). Most of these enclosures come with your choice of clear or opaque covers, as well as indoor or outdoor versions.



## Polycarbonate 10% Glass-Fiber Filled Boxes

See more styles at [www.budind.com/NEMAplastic](http://www.budind.com/NEMAplastic)

Made with polycarbonate plastic that is 10% glass-fiber filled, these enclosures offer tight tolerances, impact resistance, and a smooth finish. They are rated IP67 and meet UL 508/NEMA 1, 2, 4, and 4X type 6 specifications. The PIP Series and PTS Series feature a screw-down cover, while the PTQ Series features a hinged cover and latches. Clear polycarbonate plastic cover is an option on PTQ and PTS.

**Series:** PIP, PTQ, PTS

**Sizes:** 2.56" × 1.97" × 2.17" to 22.05" × 20.87" × 10.04"

**Material:** Polycarbonate plastic 10% glass-fiber filled

**Features:** Suitable for outdoor use with respect to ultraviolet light, water exposure and immersion in accordance with UL 746C. UL industrial controls and CE Low Voltage Directive 2006/95/EC listed. Non-chlorinated and non-brominated flame retardant with UL-94 V0 (for PIP) or UL-94 5VA (for PTQ) rating. Covers made of polycarbonate plastic.



See video on PIP Series NEMA enclosures.

[www.budind.com/pip-video](http://www.budind.com/pip-video)



## Die-Cast Enclosures

See more styles at [www.budind.com/NEMAalum](http://www.budind.com/NEMAalum)

These boxes offer NEMA 1, 2, 4, 4X, 12, and 13 protection and give electronics superior protection from atmospheric and marine corrosion. Some even meet IP68 submersible ratings. Options for Bud's line of aluminum NEMA 4 enclosures include mounting brackets, hinged covers, and EMI/RFI shielding. They are offered with a natural finish or powder coated.

**Series:** AN, CN, ANS, IPS

**Sizes:** 3.54" x 1.42" x 1.18" to 9.85" x 9.85" x 4.01"

**Material:** ADC-12 die-cast aluminum alloy

**Features:** Covers incorporate a recessed gasket on AN and CN enclosures. The AN Series offers mounting bosses and card guides while the CN offers only card guides. The ANS Series provides NEMA and EMI/RFI shielding.



**See video on IP67 Enclosures.**

[www.budind.com/ip67-video](http://www.budind.com/ip67-video)



## Sheet Metal Enclosures

See more styles at [www.budind.com/NEMAmetal](http://www.budind.com/NEMAmetal)

These IP65/NEMA enclosures are ideal for a wide variety of applications ranging from industrial equipment to medical devices. Options include stainless steel for harsh environments.

**Series:** Steel NEMA Boxes (SN, SNB, SNC), stainless-steel NEMA Boxes (SNB-SS), Junction Boxes (JB)

**Sizes:** Steel NEMA Series: 6" x 4" x 3" to 24" x 24" x 10"  
Junction Boxes: 4" x 4" x 3" to 10" x 10" x 6"

**Material:** 14 ga. steel (SN, SPB), 16 ga. steel (JB, SNB, SNC), 304 stainless steel (SNB-SS)

**Features:** The SN, SNB, and SNC offer IP65, NEMA 1, 2, 4, 4X, 12, and 13 protection. These series offer various locking mechanisms from clamps (SN) to a unique tool lock (SNB) to screw-down covers (SNC). SN, SNB, and SNC have bonding studs and wall mounting provisions. Junction Boxes are available with a NEMA 1 protection rating and come with or without knockouts.



**See video on Stainless Steel Enclosures.**

[www.budind.com/stainless-video](http://www.budind.com/stainless-video)



**See video on SNB and SNC NEMA Enclosures.**

[www.budind.com/snb-snc-video](http://www.budind.com/snb-snc-video)



**See video on SN Series Enclosures.**

[www.budind.com/sn-video](http://www.budind.com/sn-video)





## Fiberglass Enclosures

See more at [www.budind.com/fiber](http://www.budind.com/fiber)

Our fiberglass line offers low-cost chemical-resistant protection to be used in all types of industrial applications. These are used in washdown environments, terminal wiring applications, control housings, and junction box applications.

**Series:** NF, NFL

**Sizes:** 7.75" × 7.75" × 4.80" to 15.78" × 13.90" × 6.80"

**Material:** Fiberglass

**Features:** IP65 and NEMA 1, 2, 4, 4X, 12, and 13 protection. The NF Series uses two captive stainless-steel screws to lock. The NFL has a quick-release stainless steel latch. Both have a hinged cover and a light gray finish and include a removable 14 ga. powder-coated steel inner panel.



See video on fiberglass enclosures.

[www.budind.com/fiber-video](http://www.budind.com/fiber-video)



## Explosion Proof Boxes

See more at [www.budind.com/atex](http://www.budind.com/atex)

Die-cast aluminum enclosures carry an IP66 rating and are intended for use in explosive environments. They are ATEX rated for intermittent Explosive atmospheres (excludes mining) such as Gas (Category: II, Zone: 1&2) Grain Dust and conductive dust (Category: III, Zones 21&22).

**Series:** ATX

**Sizes:** 2.95" × 3.15" × 2.24" to 14.17" × 6.30" × 3.54"

**Material:** Die-cast aluminum

**Features:** These corrosion-resistant boxes feature heavy duty construction, powder coating, captive screws, and continuous silicone gaskets. They are UL Listed Type 6P.



## Push Button Boxes

See more at [www.budind.com/push-button](http://www.budind.com/push-button)

Our NEMA-rated push button boxes have gasketed covers to seal out dust, water and oil. Choose from sturdy steel or cost-effective plastic. They come with machined cut-outs designed to fit one to four 22.5-mm or 30.5-mm push buttons.

**Series:** SPB, PBB

**Sizes:** 3.5" × 2.5" × 2.75" to 10.25" × 3.25" × 2.75"

**Material:** 14 gauge steel, polycarbonate plastic/polycarbonate 10% fiber filled

**Features:** Steel boxes are made of heavy-duty 14-gauge steel and welded seams. Plastic boxes are made of polycarbonate 10% glass-fiber filled (cover made of polycarbonate). Steel box has oil resistant gasket to achieve NEMA and UL-508A Type 4, 12 and 13 ratings. Plastic box uses continuous gasket to achieve IP67, as well as NEMA 4X and 6 ratings. Both are suitable for outside use.



## NEMA 3R Boxes

See more at [www.budind.com/3r](http://www.budind.com/3r)

These powder-coated galvanized steel boxes provide excellent corrosion protection. They meet IP54, NEMA 1, NEMA 3R and UL-50 ratings, making them well suited for a variety of outdoor applications. External mounting brackets allow installation on vertical surfaces without the need to open the cover and expose internal components.

**Series:** N3R

**Sizes:** 6" x 4" x 4" to 13" x 12" x 10.25"

**Material:** Galvanized steel

**Features:** Provides protection against rain, sleet, snow and dripping water. Heavy-duty 16-gauge galvanized steel with spot welded construction. Drip-shielded top and seam-free sides, back and front. Hinged cover with weather-resistant Neoprene gasket and padlockable latch. Knockouts on bottom for standard conduit sizes.



See video on NEMA 3R enclosures.

[www.budind.com/3r-video](http://www.budind.com/3r-video)



## Extruded Aluminum Enclosures

These versatile enclosures combine style with an IP66 protection rating. Aluminum bodies provides heat dissipation and slots for PCBs to slide in.

**Series:** EXN, DMX

**Sizes:** 2.7" x 1.39" x 1.93" to 6.99" x 2.41" x 8.23"

**Material:** Extruded aluminum, polycarbonate plastic or die-cast aluminum covers

**Features:** The DMX Series enclosures are designed for DIN rail mounting and offer optional clear or infrared covers. The EXN series enclosures come in five colorful anodized-aluminum finishes.



## Accessories

See more styles at [www.budind.com/accessories](http://www.budind.com/accessories)

Bud offers a full line of accessories for NEMA enclosures and electronics cabinets, including vents, cable glands, mounting panels, pole mount brackets, and locks.

**Series:** IPV, MPG, IPG, HPG, PIX, NBX, PBM



## Modifications in Only 5 Days

Get the exact enclosure you need, faster and at less cost. Bud makes simple modifications to most enclosures in only five days, at no extra cost for the expedited turnaround, assuming the standard enclosure is in stock.

That's two to three times faster than the industry standard. Bud's electronically programmed 5-axis robotic machine tool cuts holes, slots and custom cutouts in enclosures... quickly, cost-effectively, and to exacting standards.

Fully custom enclosures are also available with complete design support. Ask your Bud representative for details.



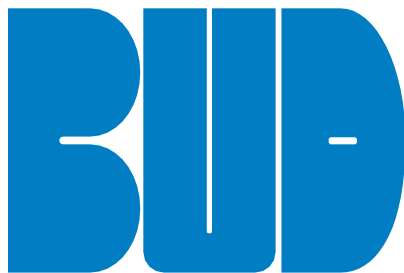
**See video on 5-Day Modifications.**

[www.budind.com/mods](http://www.budind.com/mods)

## Guide to Common NEMA Ratings

The National Electrical Manufacturers Association created NEMA ratings in order to provide a common set of standards for enclosure design and selection. They define the level of protection that an enclosure will provide. Many enclosures are specified incorrectly, resulting in either inadequate protection or overkill protection that increases cost unnecessarily.

- NEMA 1:** The enclosure protects against falling dirt and incidental contact with the internal equipment. This is a basic level of protection; it mostly prevents fingers from entering the enclosure.
- NEMA 3R:** Provides protection from falling dirt plus rain, snow, and sleet. NEMA 3R enclosures may be ventilated. They do not protect against windblown dust.
- NEMA 4:** Protects internal components from windblown dust, as well as rain, sleet, and snow. It also protects against hose directed water (washdown).
- NEMA 4X:** Protects internal components from windblown dust, as well as rain, sleet, and snow. It also protects against hose directed water (washdown), and corrosion.
- NEMA 6:** Protects internal components from windblown dust, hose-directed water (washdown) and temporary submersion, as well as rain, sleet, and snow.
- NEMA 6P:** Same as NEMA 6 but can withstand prolonged submersion.
- NEMA 12:** The most misunderstood rating. It provides protection against falling dirt, circulating dust, and dripping and lightly splashing water. It also protects against seeping and splashing oil and coolant. For indoor use only.
- NEMA 13:** Provides protection against falling dirt, circulating dust, and dripping and lightly splashing water. It also protects against seeping, splashing and spraying oil and coolant. For indoor use only.



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## Guide to Common IP Ratings

IP ratings are described by IEC Publication 60529. They serve the same function as NEMA enclosure ratings, but as the conditions tested are slightly different, the two ratings systems cannot be equated.

- IP65** Protection from total dust ingress and low pressure water jets from any direction.
- IP66** Protection from total dust ingress and high pressure water jets from any direction.
- IP67** Protection from total dust ingress and immersion between 15 centimeters and 1 meter in depth.
- IP68** Protection from total dust ingress and long term immersion up to a specified pressure.