

# GrayBox™

Electronic Instrument Enclosures  
for Rack-mounted or Free-standing Applications



LANSING

---

## The GrayBox™ Enclosure Design Concept

Lansing GrayBox Electronic Enclosures offer significant value in a rack-mounted or free-standing enclosure, including design and engineering elements typical of fine custom-made products – without the high cost and lead time of custom fabrication.

The premise behind the design is a simple one: Create a rigid structural frame using aluminum extrusions (modified I-beams). Enclose top and bottom with sheet metal covers. Keep part count to a minimum. Assure that styling and finish are consistent with the concept of “industrial neat.” Do this at a reasonable price.

In the following pages, you’ll see that attention has been paid to even the small details to ensure a design of the highest quality, and a finished product you can be proud of.

## The GrayBox Advantages...

**Save you time.** Their proven, pretested designs deliver ready-to-use reliable performance, reducing the lead time and prototyping problems associated with designing from scratch. Using GrayBox Enclosures also simplifies the transition from prototype to full production. And they’re designed for fast, efficient assembly.

**Save you money.** Low-volume buyers benefit from our economical, established designs and proven performance. High-volume buyers save even more. Whichever the case, we’ll work with you to achieve the solution that’s most economical for you – one that takes into account not only the initial price of the enclosure, but related production costs as well.

### **Meet your specific requirements.**

GrayBox Enclosures are designed to make the addition of your product details fast and economical throughout prototyping and production – whether we do it for you, or you do it yourself.

**Add value to your product.** Sturdy, carefully engineered design and quality construction provide maximum protection for your electronics. And best of all, GrayBox Enclosures give your product a solid, precision-manufactured look and feel that tells your customers – in a way facts and figures never can – that yours is a quality instrument.

### **Reflect your product’s unique personality.**

GrayBox’s basic designs are simple and unobtrusive. It’s your choice of style, options, finish, custom machining and graphics that determines your product’s personality. GrayBox offers three distinct styles, many sizes, and a variety of finishes and options. Customizing is also available. The result is an enclosure that becomes as much a part of your product as a custom fabrication.

### **Accommodate your growing product line.**

GrayBox provides a comprehensive enclosure family – complementary in appearance and construction – to make future product changes simple and economical. And as you add new products to your line, the look you’ve already established can be maintained (both within the same style and across styles), minimizing the need for additional development costs and building on the equity of your earlier product.

**Get to you fast.** We keep a range of standard enclosure sizes in stock for immediate shipment anywhere in the world. And our personal attention ensures that even customized enclosures are shipped in a minimum of time – generally less than 15 to 23 working days.

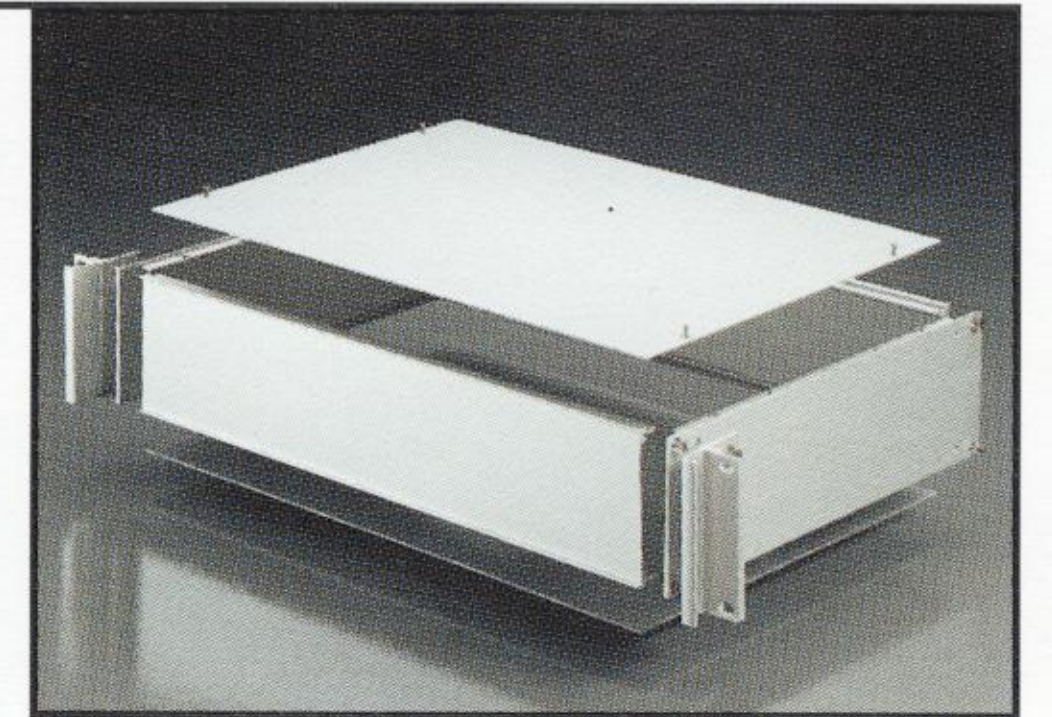
## We Want to Make You a No-risk Offer.

There’s no substitute for having the “real thing” in your hands. That’s why we offer our new customers the opportunity to obtain one or more GrayBox Enclosures at special prices. Details can be found under the back flap.

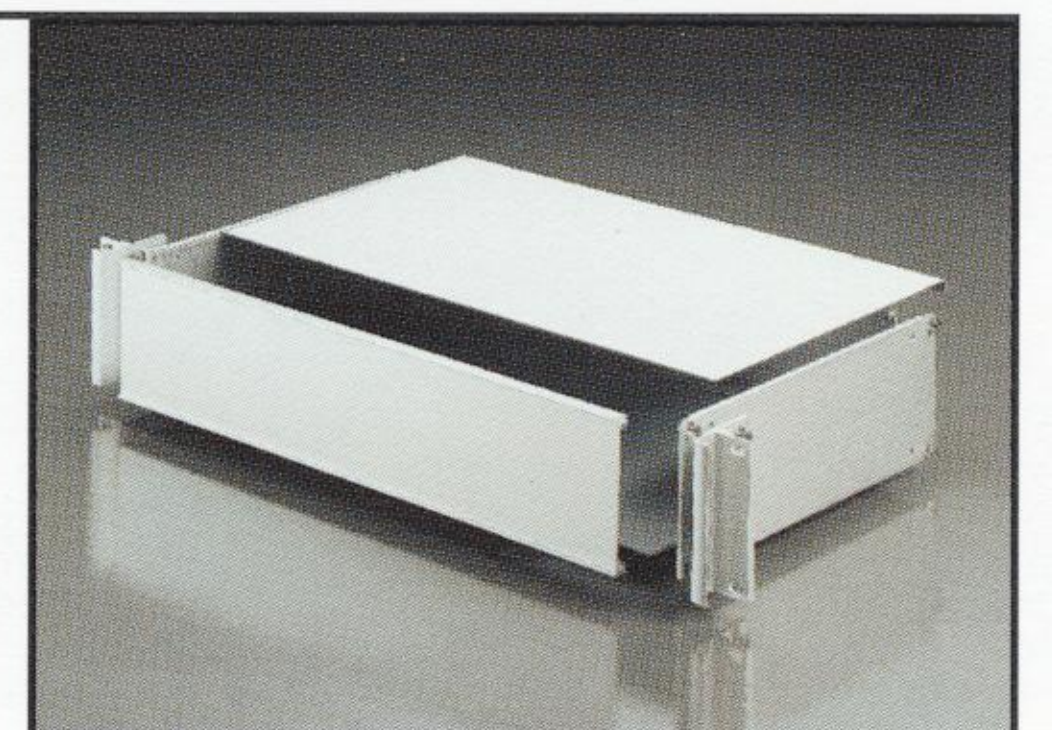
# GrayBox Enclosures Index

**Choosing a GrayBox style that meets your size, panel, access and rack mounting requirements.**

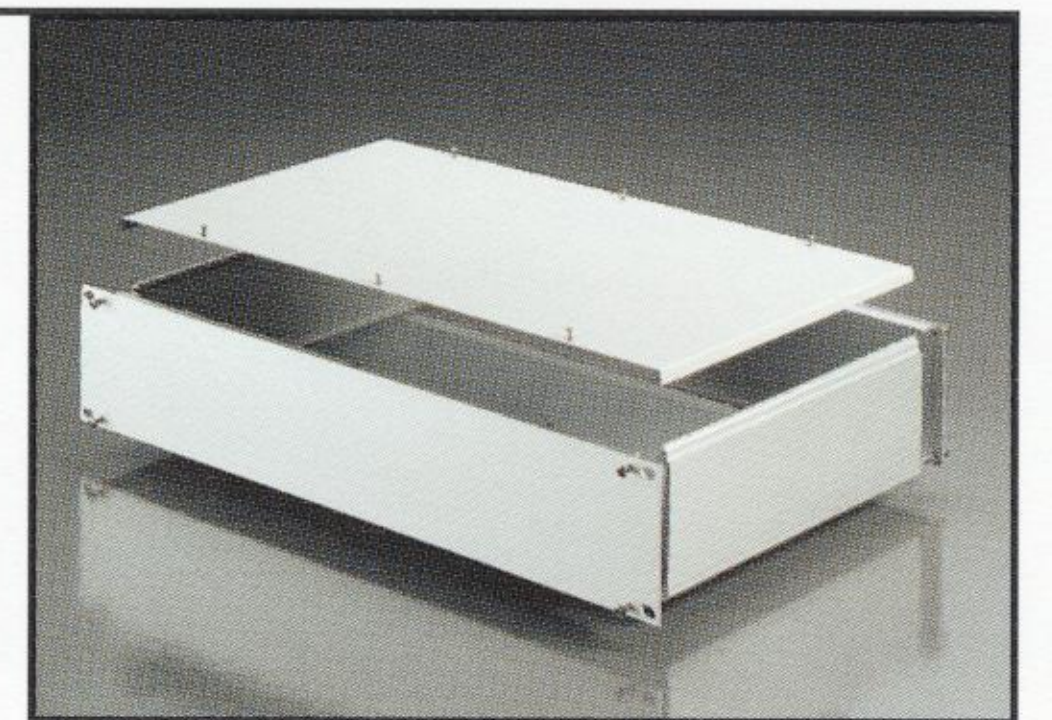
- **B Style GrayBox — Pages 4-7**  
Our most versatile enclosure design for rack-mounted or free-standing applications.



- **P Style GrayBox — Pages 8-11**  
An optimum thin enclosure design for rack-mounted or free-standing applications.



- **A Style GrayBox — Pages 12-15**  
Our most economical enclosure design exclusively for rack-mounted applications.



**Finishing the job...  
Making a GrayBox part of your product**

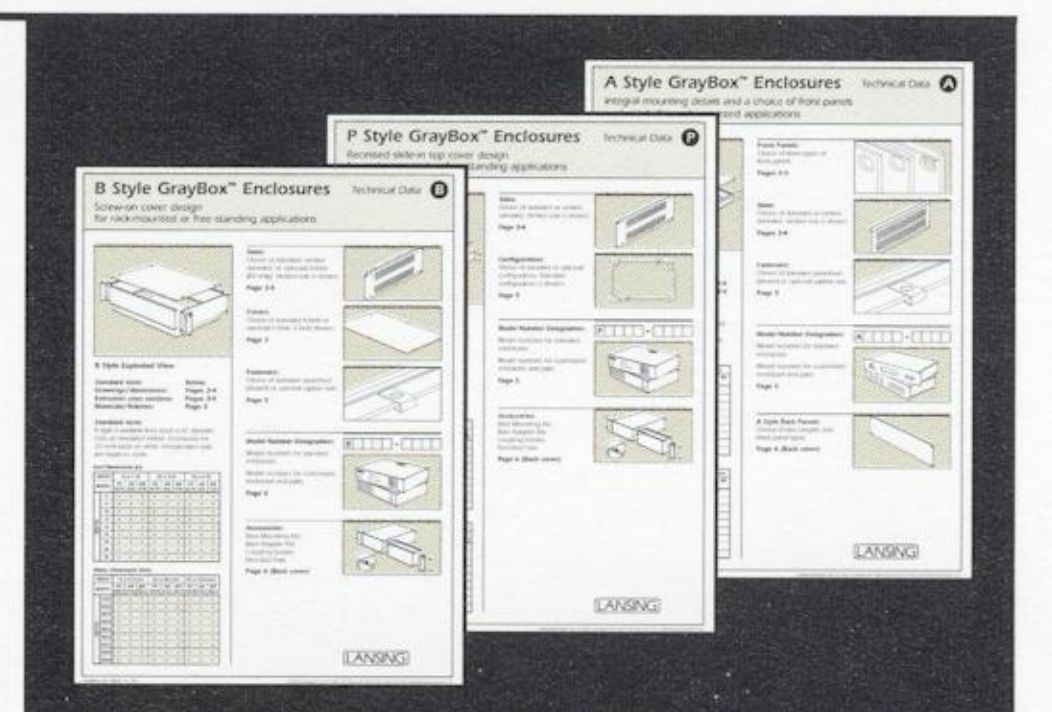
- Customization — Pages 16-17**  
Level 1: Special sizes, machining and graphics.  
Level 2: Higher level customization.



**Technical Support — Page 18**

**Technical Literature — Under Back Flap**  
Specifications, engineering drawings and other technical details for each GrayBox style.

**Price List — Under Back Flap**  
Prices, order form and sample offer.



**Doing business with Lansing — Page 19**

# B Style GrayBox Enclosures

Our most versatile enclosure design  
for rack-mounted or free-standing applications

The B Style GrayBox, suitable for rack-mounted or free-standing applications, is our most versatile enclosure. Its distinguishing **details**

*B Style GrayBox Enclosures are characterized by identical front and rear panels that are recessed and surrounded by a thin attractive bezel. Access to the interior is through identical top and bottom covers that are flush and screw on from above and below. Rack mounting is accomplished with an optional rack mounting kit (shown).*



## Remember the GrayBox Advantages...

- Proven designs save you both development and production time.
- Reasonable pricing at any quantity saves you money.
- Flexible design readily adapts to your specific requirements.
- Quality construction and attractive appearance add value to your product.
- Simple, unobtrusive design allows your product to take on its own unique personality.
- Extensive range of sizes accommodates your growing product line.
- We get it to you fast.

For the full story, please read the inside front cover.

include all aluminum construction, a rugged extruded frame, recessed front and rear panels and removable top and bottom covers.

The B Style **family** has 81 standard sizes – three heights (one, two and three standard rack units), three widths (full, half and quarter rack) and nine depths (six to 22 inches in two-inch increments).

Each B Style Enclosure is composed of six precision-machined, interchangeable parts – two panels, two sides and two covers. Panels and sides are modified I-beam cross sections that assemble to form a rigid structural frame. The mating covers screw on from above and below and fit flush with front, rear and side panels for maximum available height inside.

The identical front and rear panels have an attractive thin bezel and permit either silkscreening or the use of overlays for graphics. The bezel detail protects the edges of the overlay.

Standard **options** can enhance the functionality of GrayBox: vented sides for airflow, 6-hole covers for secure fastening and heavier loads, and captive fasteners in place of speednuts.

Standard **finishes** are clear anodize and black anodize. Optional finishes include clear or gold iridite, paint and powdercoat. Unmodified enclosures of standard size and finish are shipped from stock.

The standard B Style Enclosure, with its overlapping joints and all aluminum construction, exhibits **shielding** characteristics suitable for most applications. For more demanding requirements, a variety of optional enhancements is available.

Select from a group of **accessories** to add to the versatility of the standard B Style GrayBox Enclosure. Rack Mounting Kits mount enclosures in standard 19-inch racks. Coupling Screws securely fasten two enclosures side-by-side. Rack Adapter Kits extend sub-rack enclosures to full-rack width. Self-adhesive Non-Skid Feet are available.

GrayBox Enclosures can take on a function and personality that is all yours. Whether it be machining or graphics, our experienced staff can provide the **customizing** details you need and deliver quality, ready-to-use enclosures at a reasonable cost.

At Lansing, **technical support** is part of the product. It's our philosophy of working with you to arrive at the optimum packaging solution for your product at the best final price to you. We'll work hard to help you turn your concept into a reality whether for one enclosure, an initial prototype or full production.

## B Style Family

B Style Standard Sizes — Inch Dimensions (in)

| HEIGHT |    | 1U = 1.72" |    |    | 2U = 3.47" |    |    | 3U = 5.22" |    |    |
|--------|----|------------|----|----|------------|----|----|------------|----|----|
| WIDTH  |    | FR         | HR | QR | FR         | HR | QR | FR         | HR | QR |
| DEPTH  | 6  | ■          | ■  | ■  | ■          | ■  | ■  | ■          | ■  | ■  |
|        | 8  | ■          | ■  | ■  | ■          | ■  | ■  | ■          | ■  | ■  |
|        | 10 | ■          | ■  | ■  | ■          | ■  | ■  | ■          | ■  | ■  |
|        | 12 | ■          | ■  | ■  | ■          | ■  | ■  | ■          | ■  | ■  |
|        | 14 | ■          | ■  | ■  | ■          | ■  | ■  | ■          | ■  | ■  |
|        | 16 | ■          | ■  | ■  | ■          | ■  | ■  | ■          | ■  | ■  |
|        | 18 | ■          | ■  | ■  | ■          | ■  | ■  | ■          | ■  | ■  |
|        | 20 | ■          | ■  | ■  | ■          | ■  | ■  | ■          | ■  | ■  |
|        | 22 | ■          | ■  | ■  | ■          | ■  | ■  | ■          | ■  | ■  |

B Style Standard Sizes — Metric Dimensions (mm)

| HEIGHT |       | 1U = 43.7 mm |    |    | 2U = 88.1 mm |    |    | 3U = 132.6 mm |    |    |
|--------|-------|--------------|----|----|--------------|----|----|---------------|----|----|
| WIDTH  |       | FR           | HR | QR | FR           | HR | QR | FR            | HR | QR |
| DEPTH  | 152.4 | ■            | ■  | ■  | ■            | ■  | ■  | ■             | ■  | ■  |
|        | 203.2 | ■            | ■  | ■  | ■            | ■  | ■  | ■             | ■  | ■  |
|        | 254.0 | ■            | ■  | ■  | ■            | ■  | ■  | ■             | ■  | ■  |
|        | 304.8 | ■            | ■  | ■  | ■            | ■  | ■  | ■             | ■  | ■  |
|        | 355.6 | ■            | ■  | ■  | ■            | ■  | ■  | ■             | ■  | ■  |
|        | 406.4 | ■            | ■  | ■  | ■            | ■  | ■  | ■             | ■  | ■  |
|        | 457.2 | ■            | ■  | ■  | ■            | ■  | ■  | ■             | ■  | ■  |
|        | 508.0 | ■            | ■  | ■  | ■            | ■  | ■  | ■             | ■  | ■  |
|        | 558.8 | ■            | ■  | ■  | ■            | ■  | ■  | ■             | ■  | ■  |

Enclosures for 23-inch racks or other nonstandard sizes are made to order.

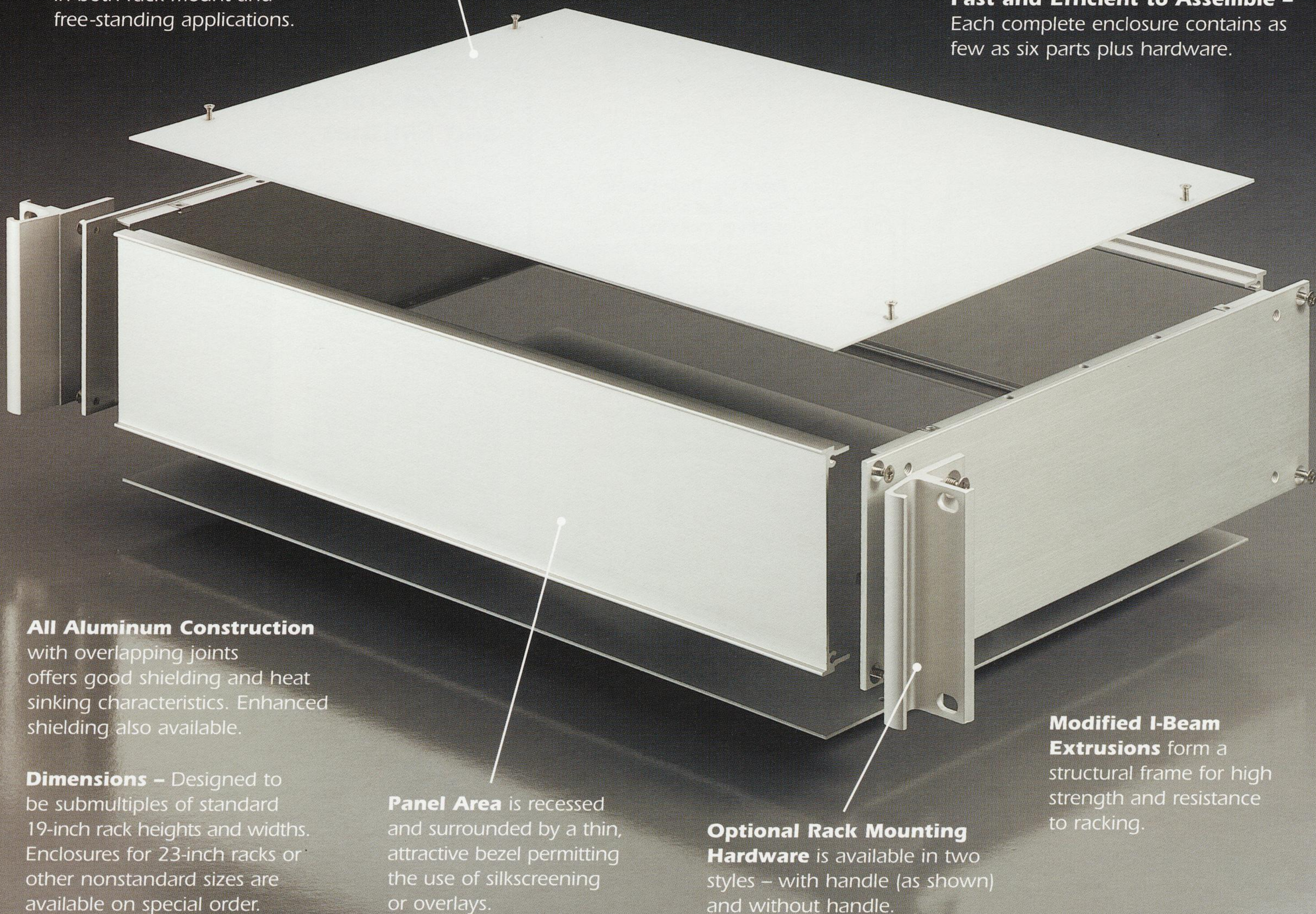
**B Style Sizes**  
The entire GrayBox family (consisting of B, P and A Styles) is available in 81 standard sizes defined by the height, width and depth combinations displayed on the right.  
  
The B Style is available from stock in all 81 sizes – three heights (one, two and three standard rack units), three widths (full, half and quarter rack) and nine depths. Widths and depths other than these are made to order with 2-3 week delivery.

**Clean Styling** looks good in both rack mount and free-standing applications.

**Removable, Screw-On Covers** provide fast, easy access for servicing.

**Precision Interchangeable Parts** have close mechanical tolerances.

**Fast and Efficient to Assemble** – Each complete enclosure contains as few as six parts plus hardware.



**GrayBox Enclosures accommodate your growing product line** by providing a comprehensive family of enclosures with complementary appearance and construction across all styles (B, P and A). The B Style, characterized by removable screw-on covers, is available in both standard and nonstandard sizes. There are 81 standard sizes in stock – all available in a clear or a black anodize finish. Nonstandard sizes are made to order.

Your first GrayBox will demonstrate how accommodating its design can be, how simply and quickly one can go from prototype to production and how much it can enhance the presentation of your product. And as you add new products to your line, the look you've already established can be maintained (both within the B Style and across styles), minimizing the need for additional development costs and building on the equity of your earlier product. When rack mounted, the B and P Styles appear identical.

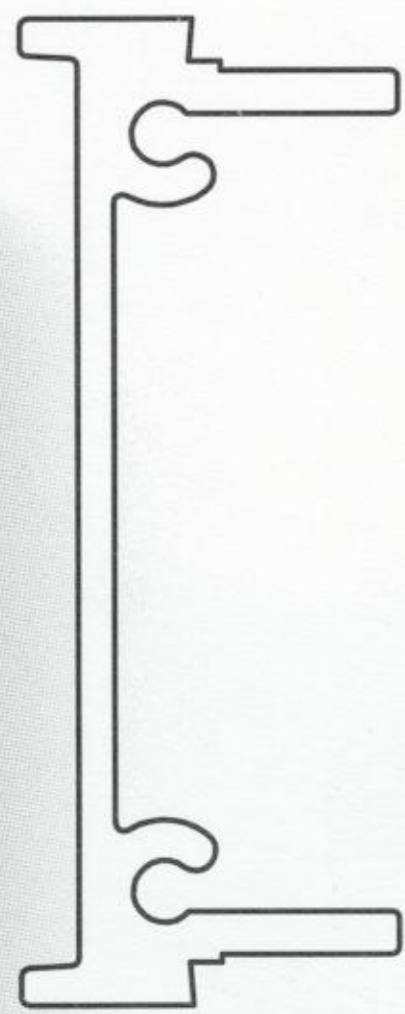


## B Style Details

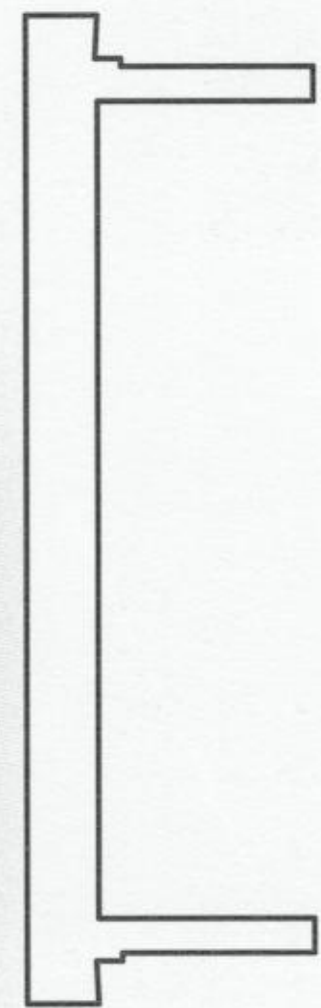
The B Style GrayBox consists of six parts (2 panels, 2 sides and 2 covers) plus hardware. Front and rear panels are identical, as are top and bottom covers. The extruded parts, shown below in actual size, convey the strength and ruggedness of the GrayBox design as well as show specific details.



B1 height enclosure parts (shown actual size).



**Front and Rear Panels** are identical and easy to machine, including the selective removal of the screw slot detail when additional interior working space is required. The interior flanges, that support the covers, can accept screws when extra mounting hardware is desirable. Overlays are particularly suitable since edges are protected by flanges. Silkscreening can also be done.



**Sides** are made from a rugged one-eighth inch (3.2 mm) thick extrusion. They are easily machined and contain the threaded screw holes that receive rack mounting hardware. The interior flanges, that support the covers, have mounting holes on two-inch (50.8 mm) centers and hold the cover fasteners.

## B Style Standard Materials and Finishes

(B1 shown actual size)

**Clear Anodize**



**Black Anodize**



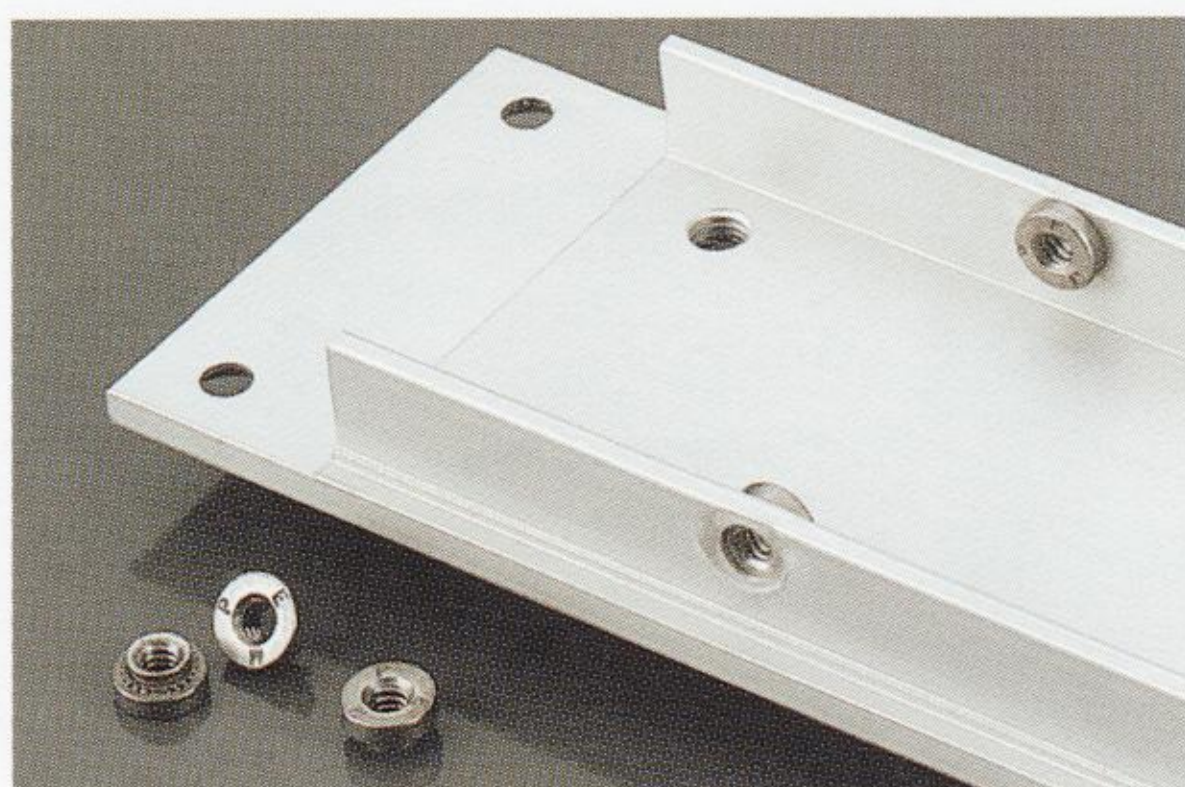
Panels, sides and standard 4-hole covers are aluminum.

**Phillips Flat Head Screws** (shown actual size) are used throughout and provided in silver for clear anodized enclosures or black for black anodized enclosures.

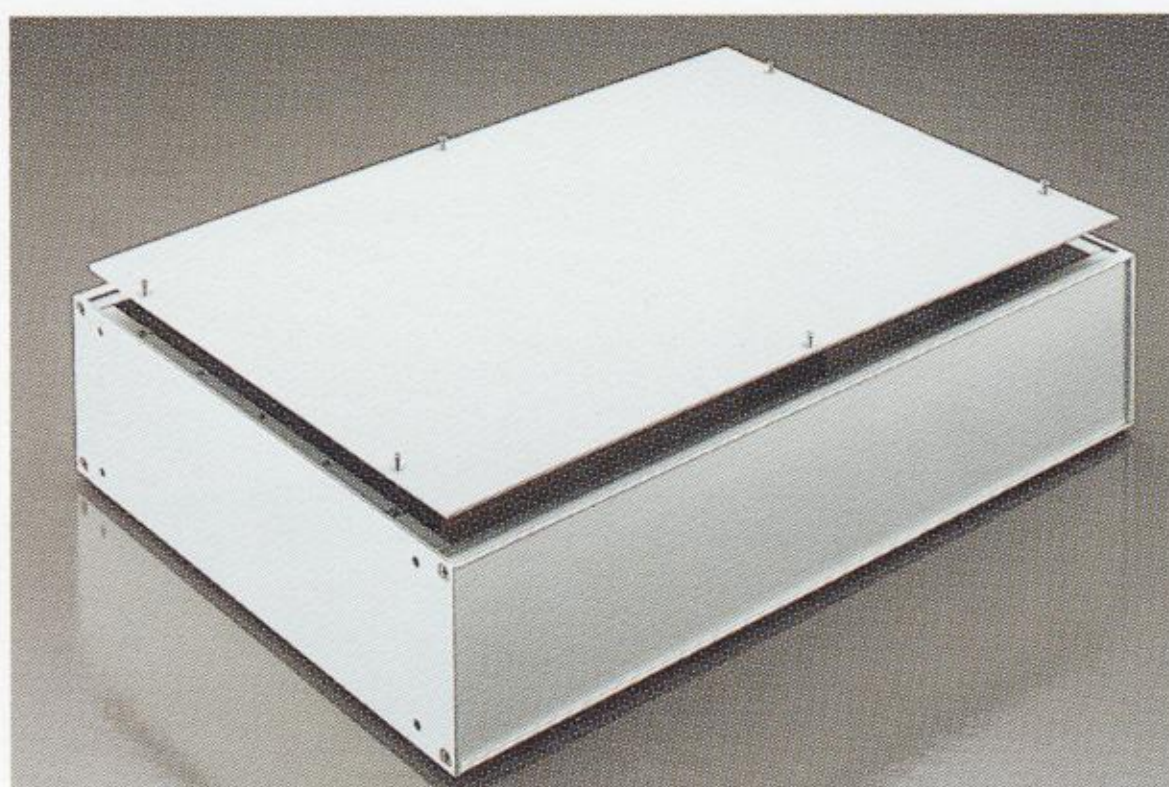


## Options

**Captive Fastener Option.** Captive nuts can be substituted for the standard speednuts. This eliminates the possibility of speednuts falling off or getting lost and provides a means of electrically grounding the side plates.



**6-Hole Cover Option.** For more secure fastening, covers may be ordered with six, rather than the standard four holes. The additional holes are center front and center rear. 6-hole covers are made from vinyl-clad aluminum with conductive interior surfaces.



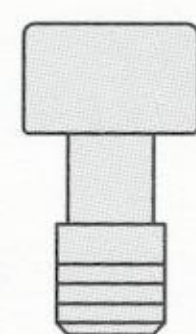
**Vented Side Option.** Sides are available with a standard ventilation pattern. Refer to the B Style Technical Data Sheet for specifics concerning slot size and location. In rack mount applications, sideways airflow is often the most efficient and unobstructed.



**Ribbed Side Plate Option** (not shown). Ribbed side plates are available on B2 enclosures. They contain a series of integral tracks for carrying printed circuit boards or horizontal mounting planes and generally are most useful in half-rack and narrower enclosures. Refer to the B Style Technical Data Sheet for cross section and dimensional information.

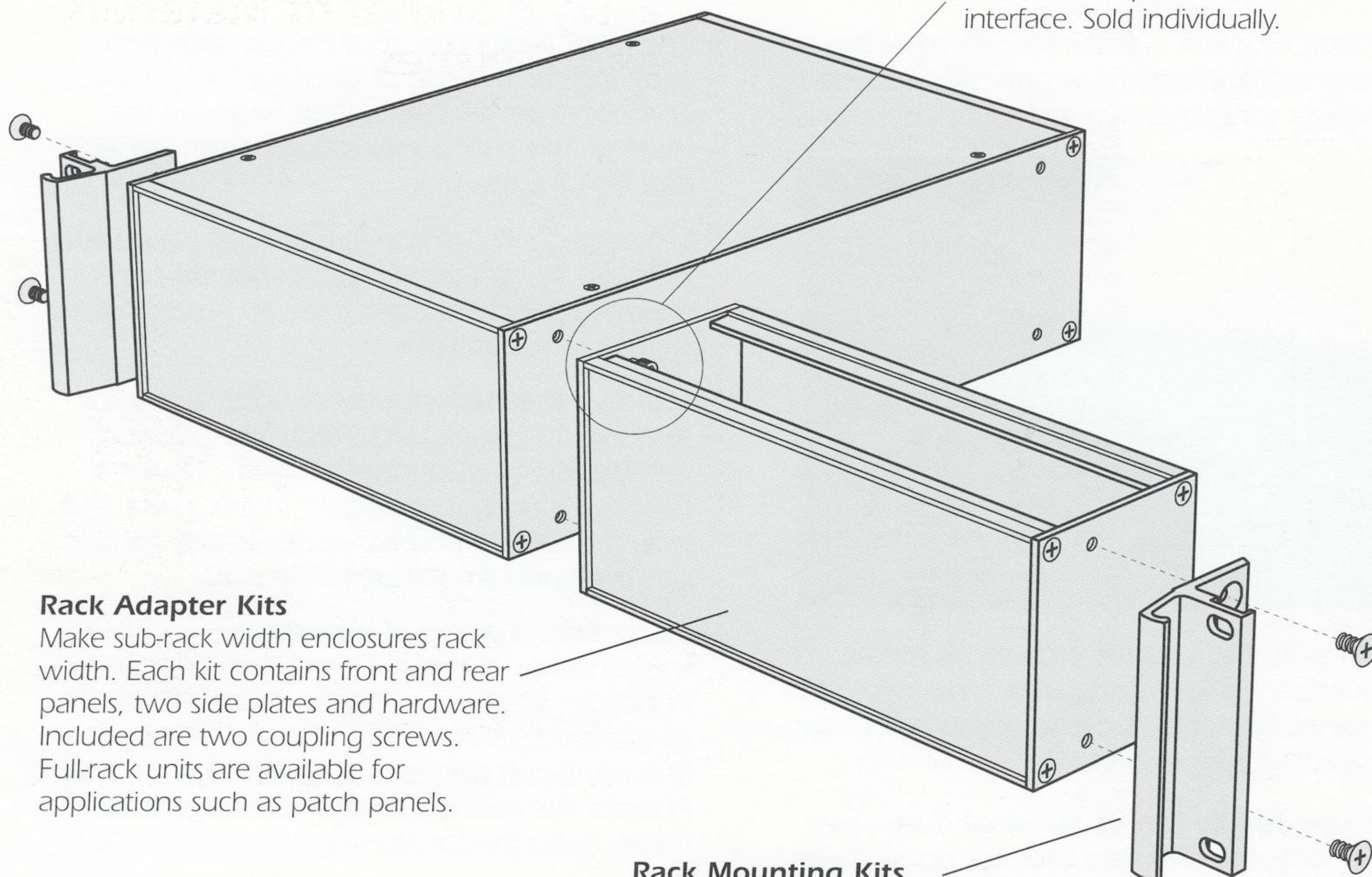
## Accessories

The accessories displayed are available for B Style Enclosures and must be ordered separately.



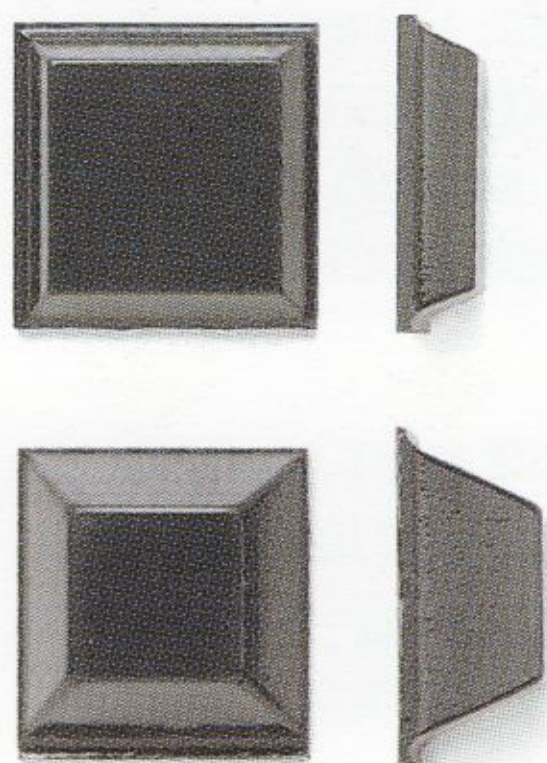
### Coupling Screws

Special shoulder screws that fasten two GrayBox Enclosures side-by-side. Two screws are required at each interface. Sold individually.



### Rack Adapter Kits

Make sub-rack width enclosures rack width. Each kit contains front and rear panels, two side plates and hardware. Included are two coupling screws. Full-rack units are available for applications such as patch panels.

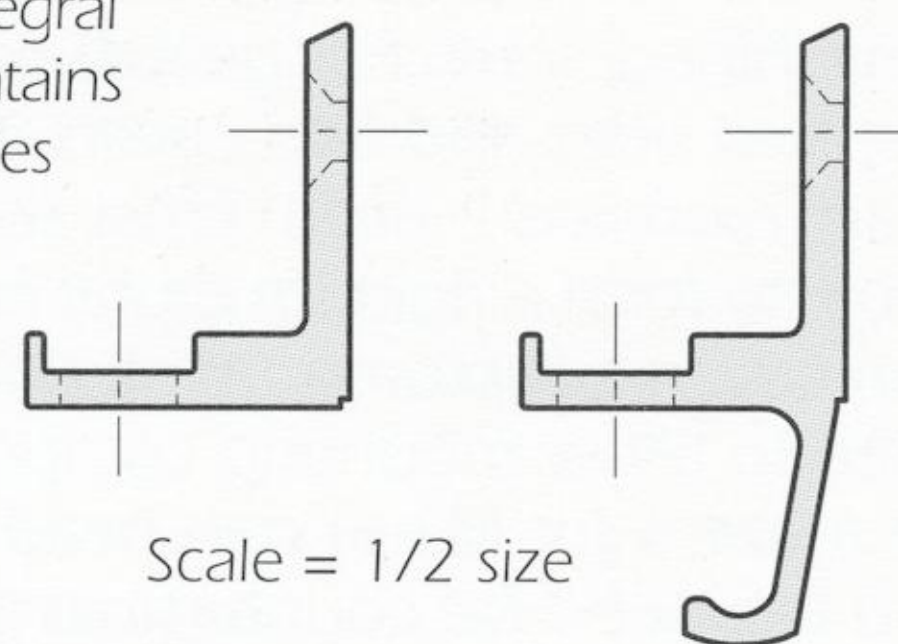


### Non-Skid Feet

(shown actual size)  
Self-adhesive black feet for free-standing applications. Sold individually.

### Rack Mounting Kits

Mount GrayBox Enclosures in standard 19" racks. The rack mount angles are available in two styles – with and without integral handles. Each kit contains two rack mount angles and four screws.



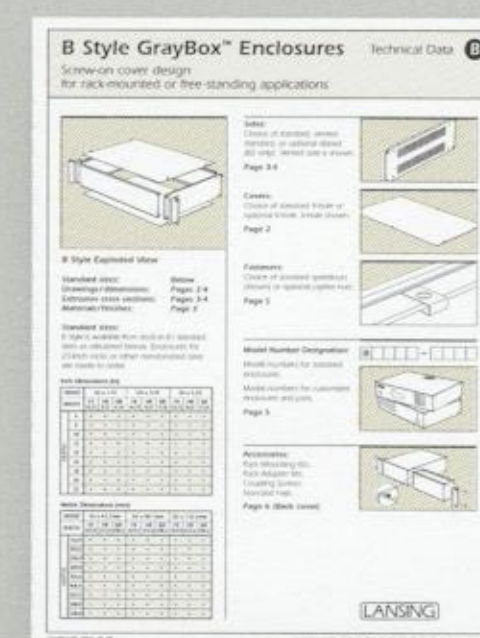
## Customization (see pages 16-17)

Find out what you can do to have us make a GrayBox distinctly yours.



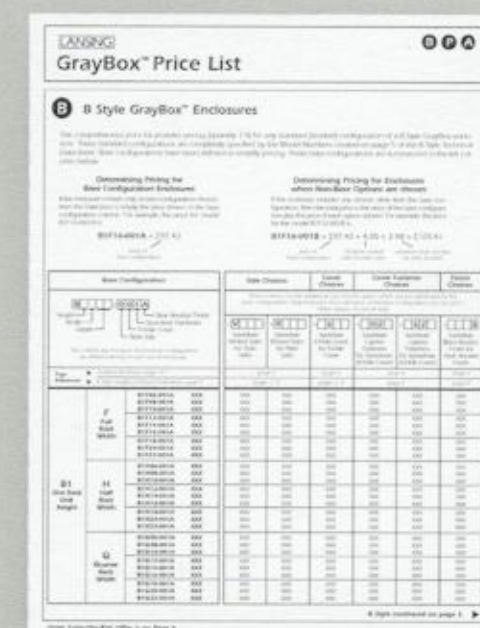
## B Style Technical Data Sheet (inserted under back flap)

Find specifications, engineering drawings and other technical details.



## Price List (inserted under back flap)

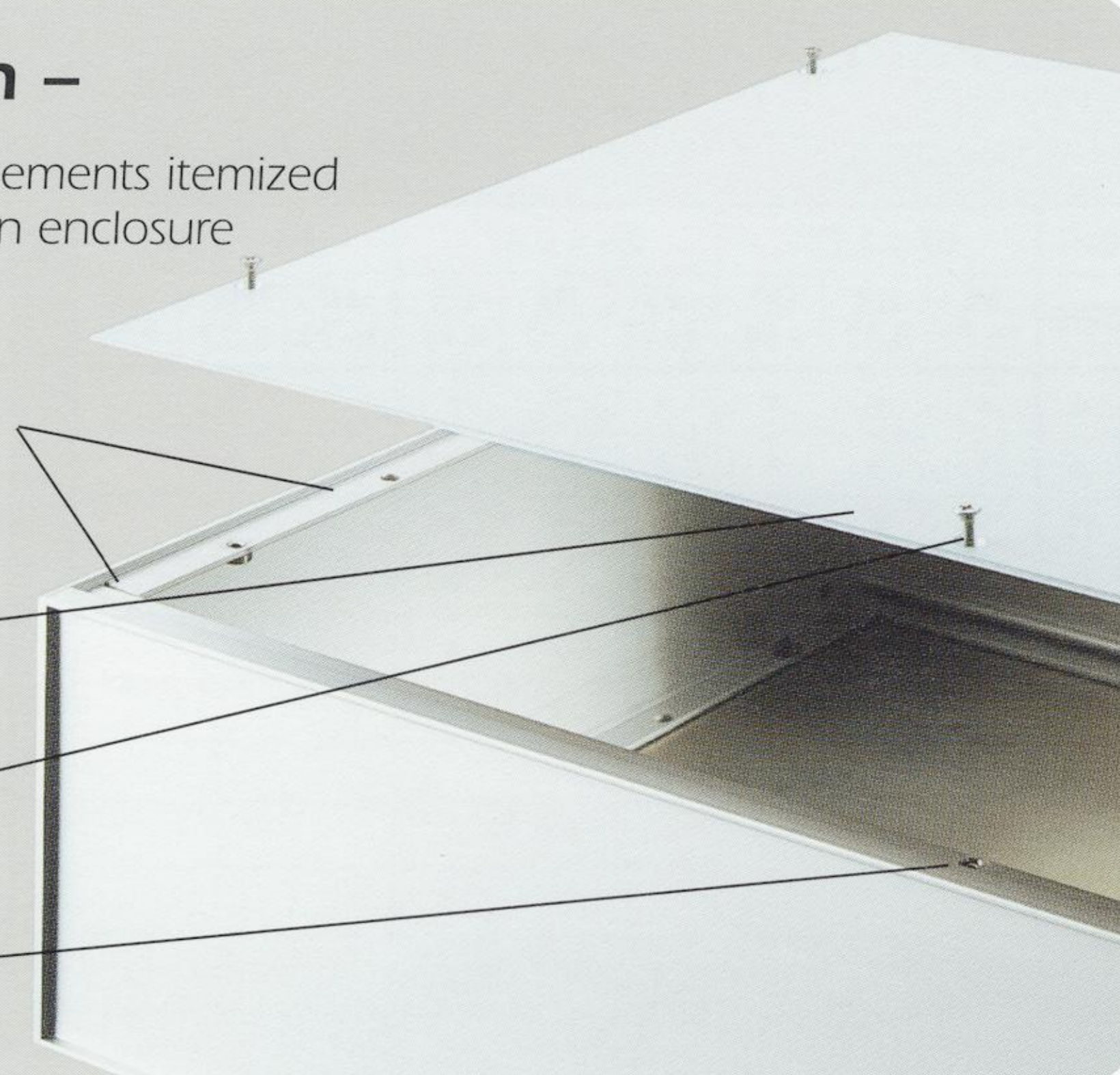
Find GrayBox prices.



## Enhanced Shielding Option –

This option, which includes the four enhancements itemized below, converts the standard GrayBox into an enclosure with outstanding shielding characteristics.

1. Remove the nonconductive anodize finish from flanges. Replace with clear iridite (8 places – 2 flanges per part).
2. Substitute vinyl-clad aluminum for anodized aluminum covers. Entire inside surface has iridite finish.
3. Add two screws per cover to enhance electrical contact. (Located center front and center rear.)
4. Substitute captive nuts for speednuts (12 places – 6 top and 6 bottom).



## Order Form/Sample Offer

Place an order or purchase a sample GrayBox at a special introductory no-risk offer price.

## Technical Support (see page 18)

Learn how our experienced staff can answer your technical questions.

# P Style GrayBox Enclosures

Optimum thin enclosure design  
for rack-mounted or free-standing applications.

*P Style GrayBox Enclosures are characterized by a recessed front panel that is surrounded by a thin attractive bezel. Access to the interior is through a recessed slide-in top cover. A different rear panel allows the top cover room to slide. The bottom cover is recessed and captured on all sides. Rack mounting is accomplished with an optional rack mounting kit.*



**Remember the GrayBox Advantages...**

- Proven designs save you both development and production time.
- Reasonable pricing at any quantity saves you money.
- Flexible design readily adapts to your specific requirements.
- Quality construction and attractive appearance add value to your product.
- Simple, unobtrusive design allows your product to take on its own unique personality.
- Extensive range of sizes accommodates your growing product line.
- We get it to you fast.

For the full story, please read the inside front cover.

The P Style GrayBox, suitable for rack-mounted or free-standing applications, is optimally designed for shallow (one and two rack unit) enclosures.

The front panel has an attractive thin bezel, allowing for the use of overlays for graphics. The bezel detail protects the edges of the overlay. The rear panel is flush. Both panels can be silkscreened.

Vented sides for airflow are a standard **option**. An optional configuration that uses the same extruded panel front and rear can be considered for special applications.

Standard **finishes** are clear anodize and black anodize for panels and sides, and platinum and black vinyl-clad steel for covers. Optional finishes include clear or gold iridite, paint and powdercoat. Unmodified enclosures of standard size and finish are shipped from stock.

Select from a group of **accessories** to add to the versatility of the standard P Style GrayBox Enclosure. Rack Mounting Kits mount enclosures in standard 19-inch racks. Coupling Screws securely fasten two enclosures side-by-side. Rack Adapter Kits extend sub-rack enclosures to full-rack width. Self-adhesive Non-Skid Feet are available.

GrayBox Enclosures can take on a function and personality that is all yours. Whether it be machining or graphics, our experienced staff can provide the **customizing** details you need and deliver quality, ready-to-use enclosures at a reasonable cost.

At Lansing, **technical support** is part of the product. It's our philosophy of working with you to arrive at the optimum packaging solution for your product at the best final price to you. We'll work hard to help you turn your concept into a reality whether for one enclosure, an initial prototype or full production.

Its distinguishing **details** include all metal construction, a rugged extruded frame, recessed front panel, flush rear panel, removable top cover and captured bottom cover.

The P Style **family** has 36 standard sizes – two heights (one and two standard rack units), three widths (full, half and quarter rack) and six depths (six to 16 inches in two-inch increments).

Each P Style Enclosure is composed of six precision-machined, interchangeable parts – two panels, two sides and two covers. Panels and sides are modified I-beam cross sections that assemble to form a rigid structural frame. The bottom cover is captured on all sides and recessed to allow mounting components with up to a size 6 (or M3.5) pan head screw (eliminating the need for countersinking). The top cover, also recessed, slides in from the rear to allow easy access to the interior.

## P Style Family

P Style Standard Sizes — Inch Dimensions (in)

| HEIGHT |    | 1U = 1.72" |      |      | 2U = 3.47" |      |      | 3U = 5.22" |      |      |
|--------|----|------------|------|------|------------|------|------|------------|------|------|
| WIDTH  |    | FR         | HR   | QR   | FR         | HR   | QR   | FR         | HR   | QR   |
|        |    | 16.73      | 8.37 | 4.18 | 16.73      | 8.37 | 4.18 | 16.73      | 8.37 | 4.18 |
| DEPTH  | 6  | ■          | ■    | ■    | ■          | ■    | ■    |            |      |      |
|        | 8  | ■          | ■    | ■    | ■          | ■    | ■    |            |      |      |
|        | 10 | ■          | ■    | ■    | ■          | ■    | ■    |            |      |      |
|        | 12 | ■          | ■    | ■    | ■          | ■    | ■    |            |      |      |
|        | 14 | ■          | ■    | ■    | ■          | ■    | ■    |            |      |      |
|        | 16 | ■          | ■    | ■    | ■          | ■    | ■    |            |      |      |
|        | 18 |            |      |      |            |      |      |            |      |      |
|        | 20 |            |      |      |            |      |      |            |      |      |
|        | 22 |            |      |      |            |      |      |            |      |      |

P Style Standard Sizes — Metric Dimensions (mm)

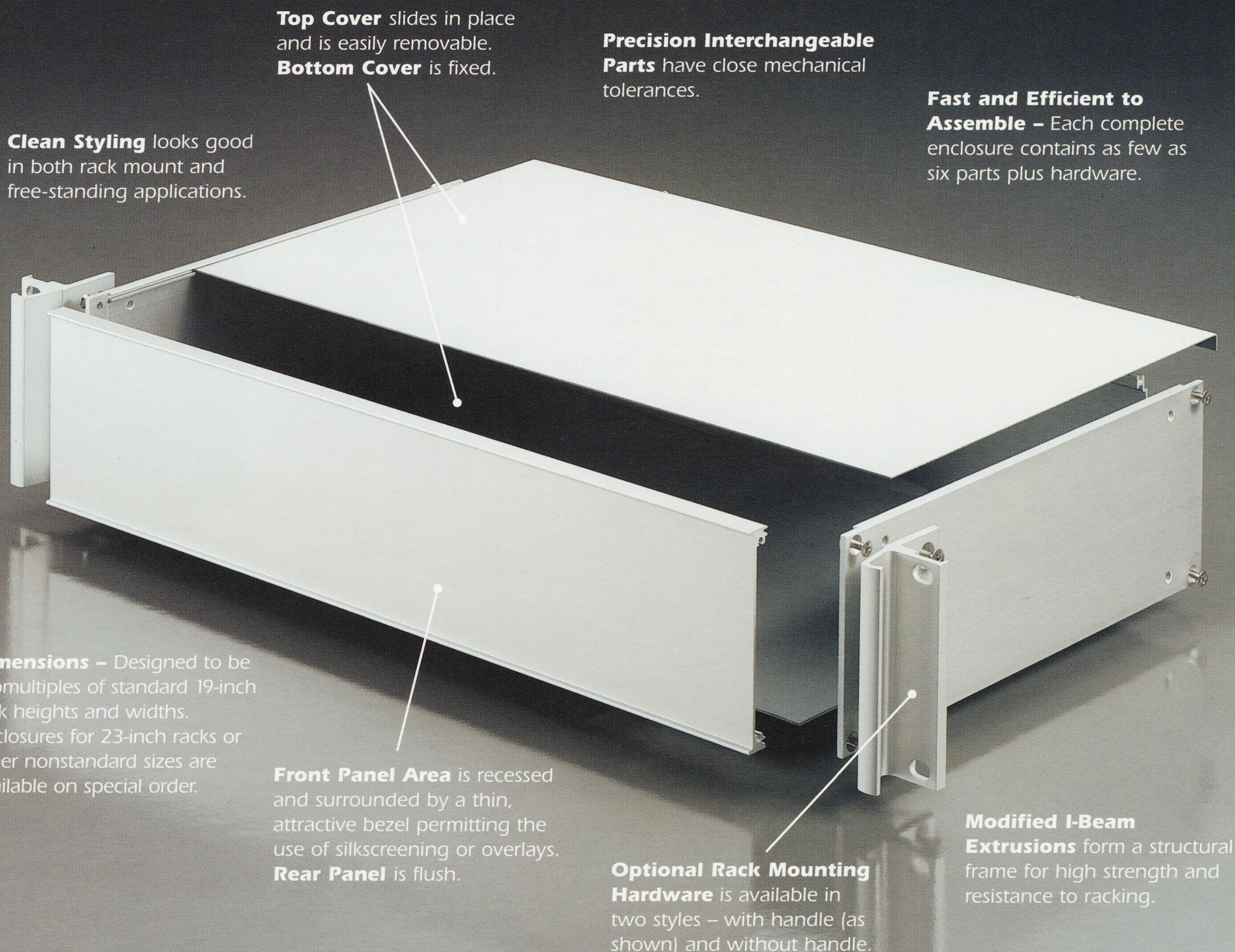
| HEIGHT |       | 1U = 43.7 mm |       |       | 2U = 88.1 mm |       |       | 3U = 132.6 mm |       |       |
|--------|-------|--------------|-------|-------|--------------|-------|-------|---------------|-------|-------|
| WIDTH  |       | FR           | HR    | QR    | FR           | HR    | QR    | FR            | HR    | QR    |
|        |       | 424.9        | 212.6 | 106.2 | 424.9        | 212.6 | 106.2 | 424.9         | 212.6 | 106.2 |
| DEPTH  | 152.4 | ■            | ■     | ■     | ■            | ■     | ■     |               |       |       |
|        | 203.2 | ■            | ■     | ■     | ■            | ■     | ■     |               |       |       |
|        | 254.0 | ■            | ■     | ■     | ■            | ■     | ■     |               |       |       |
|        | 304.8 | ■            | ■     | ■     | ■            | ■     | ■     |               |       |       |
|        | 355.6 | ■            | ■     | ■     | ■            | ■     | ■     |               |       |       |
|        | 406.4 | ■            | ■     | ■     | ■            | ■     | ■     |               |       |       |
|        | 457.2 |              |       |       |              |       |       |               |       |       |
|        | 508.0 |              |       |       |              |       |       |               |       |       |
|        | 558.8 |              |       |       |              |       |       |               |       |       |

Enclosures for 23-inch racks or other nonstandard sizes are made to order.

**P Style Sizes**

The entire GrayBox family (consisting of B, P and A Styles) is available in 81 standard sizes defined by the height, width and depth combinations displayed on the right.

The P Style is available from stock in the 36 sizes indicated – two heights (one and two standard rack units), three widths (full, half and quarter rack) and six depths. Widths and depths other than these are made to order with 2-3 week delivery.



**GrayBox Enclosures accommodate your growing product line** by providing a comprehensive family of enclosures with complementary appearance and construction across all styles (B, P and A). The P Style, characterized by slide-on top cover and captured bottom cover, is available in both standard and nonstandard sizes. There are 36 standard sizes in stock – all available in a clear anodize/platinum vinyl or a black anodize/black vinyl finish. Nonstandard sizes are made to order.

Your first GrayBox will demonstrate how accommodating its design can be, how simply and quickly one can go from prototype to production and how much it can enhance the presentation of your product. And as you add new products to your line, the look you've already established can be maintained (both within the P Style and across styles), minimizing the need for additional development costs and building on the equity of your earlier product. When rack mounted, the P and B Styles appear identical.



# P Style Details

The P Style GrayBox consists of six parts (front panel, rear panel, 2 sides, top cover and bottom cover) plus hardware. Front and rear panels are different, as are top and bottom covers. The extruded parts, shown below in actual size, convey the strength and ruggedness of the GrayBox design as well as show specific details.

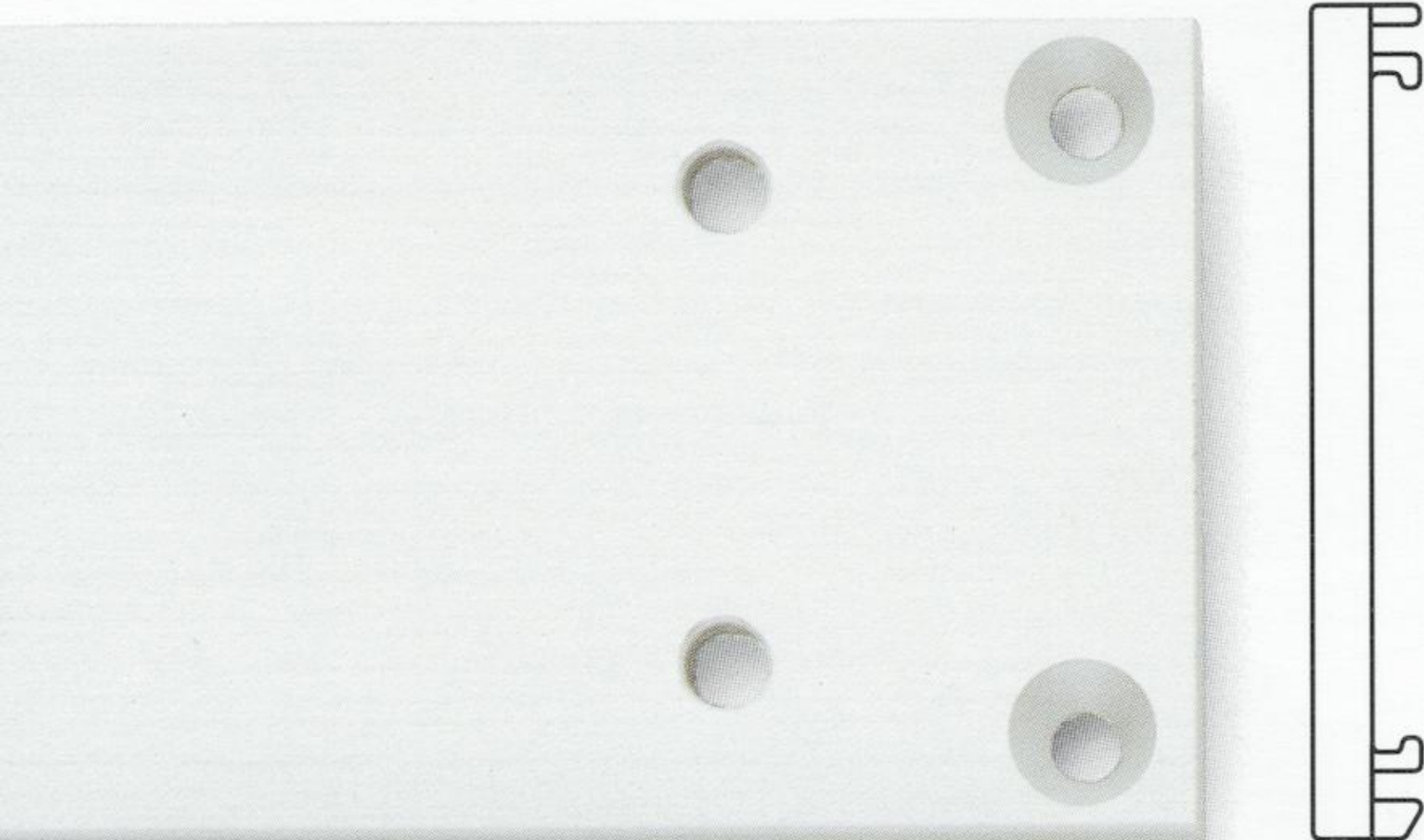


**Front Panels** are easy to machine, including the selective removal of the screw slot detail when additional interior working space is required. The upper and lower tracks support the front edges of the top and bottom covers. Overlays are particularly suitable since all edges are protected by flanges. Silkscreening can also be done.



**Rear Panels** are easy to machine, including the selective removal of the lower screw slot detail when additional interior working space is required. The recess at the top allows for the fastening of the sliding top cover. The lower track supports the back edge of the bottom cover. The flat rear surface is particularly suitable for silkscreening.

P1 height enclosure parts (shown actual size).



**Sides** are made from a rugged one-eighth inch (3.2 mm) thick extrusion. They are easily machined and contain the threaded screw holes that receive the rack mounting hardware. The upper track supports the sliding top cover, while the lower track supports the captured bottom cover.

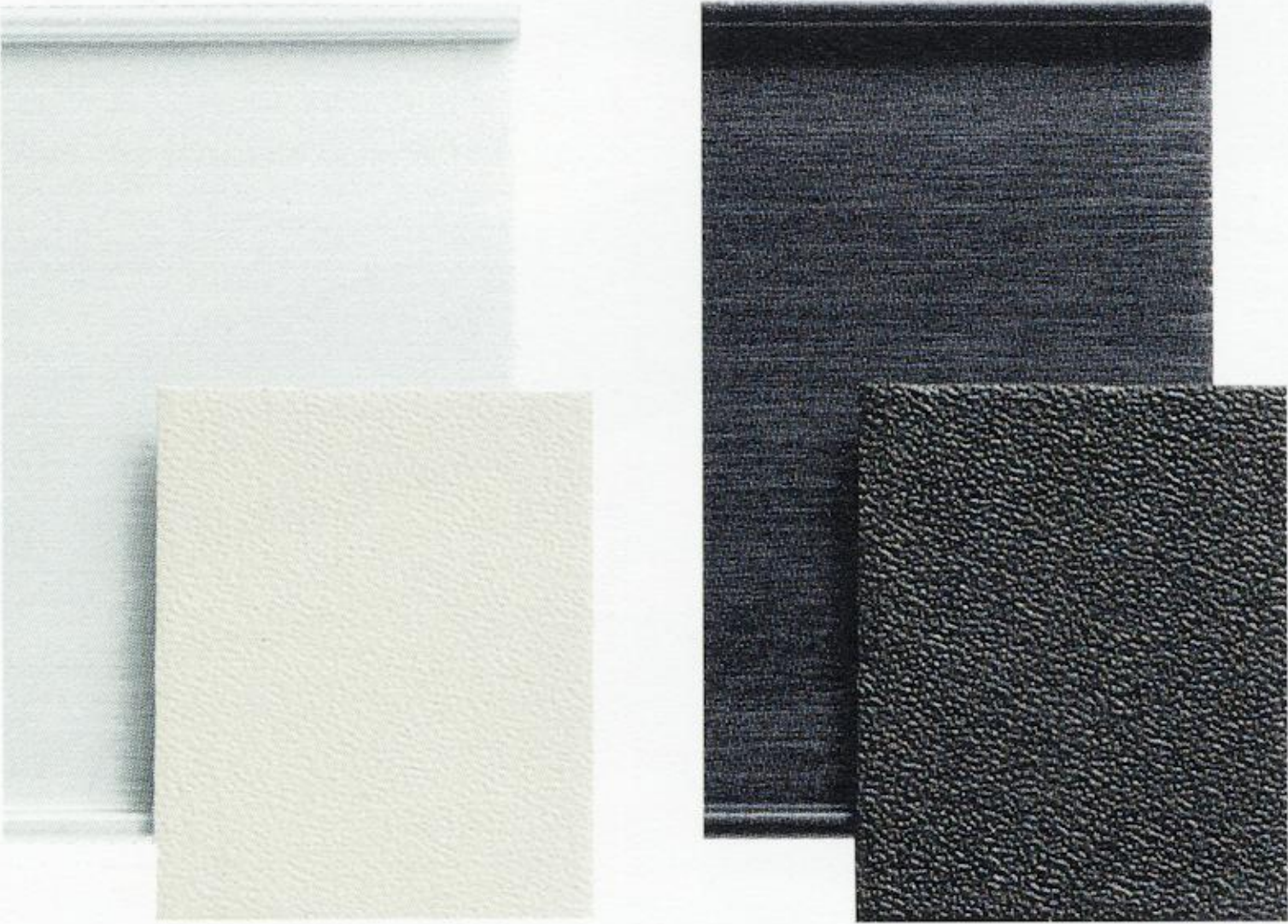
## P Style Standard Materials and Finishes

(P1 shown actual size)

Front panels, rear panels and sides are aluminum.

**Clear Anodize**

**Black Anodize**



**Platinum Vinyl**

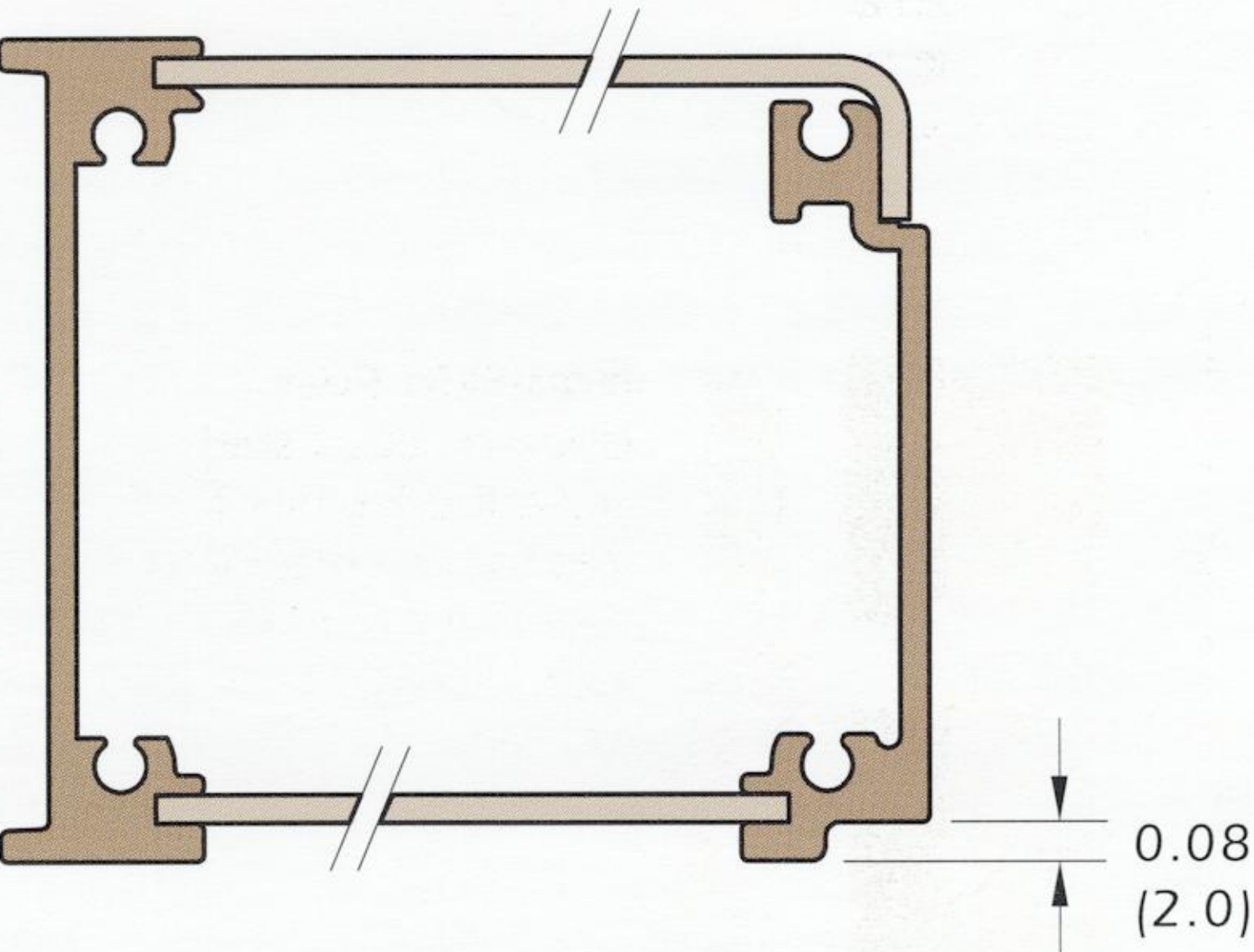
**Black Vinyl**

Standard top and bottom covers are vinyl-clad steel.

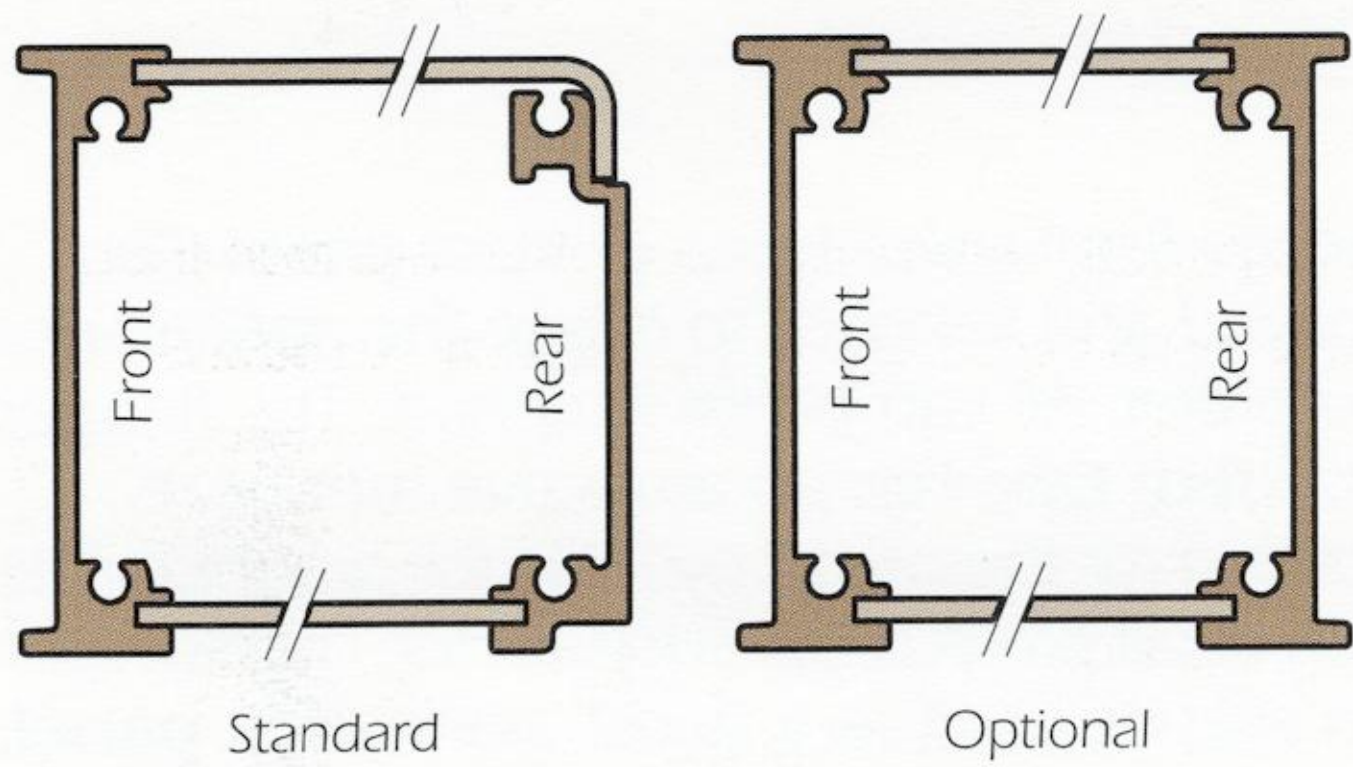
**Phillips Pan Head** and **Phillips Flat Head Screws** are used throughout and provided in silver for clear anodized/platinum vinyl enclosures or black for black anodized/black vinyl enclosures.



**Recessed Bottom Cover.** The bottom cover of a P Style GrayBox is recessed 0.080 in (2 mm) to allow for up to size 6 (or M3.5) pan head screws to be used for mounting components without having to countersink. The heads of these screws are contained entirely within the profile of the recess.



## Options



**Optional Configuration.** P Style Enclosures can be assembled with 2 front panels, 2 bottom covers and two sides – an option to consider when limited access to the interior is either acceptable or desirable and lowest price is important. In this configuration both top and bottom covers are captured.

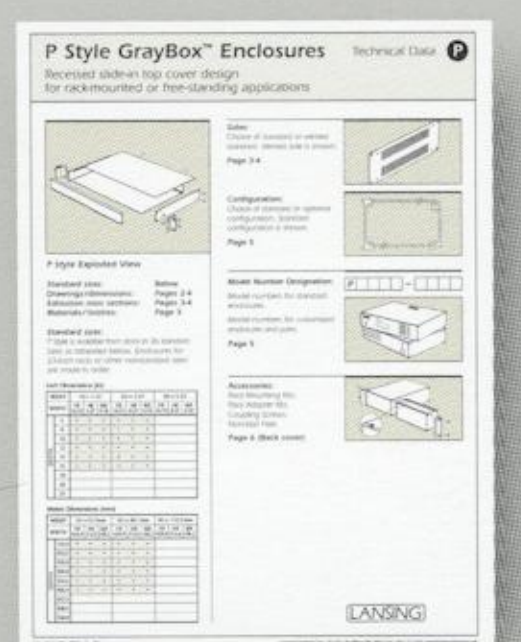


**Vented Side Option.** Sides are available with a standard ventilation pattern. See the Technical Data Sheet for specifics. In rack mount applications, sideways airflow is often the most unobstructed.

**Customization**  
(see pages 16-17)  
Find out what you can do to have us make a GrayBox distinctly yours.

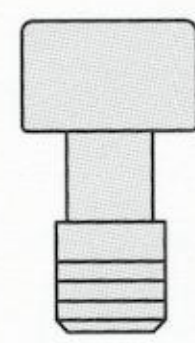


**P Style Technical Data Sheet**  
(inserted under back flap)  
Find specifications, engineering drawings and other technical details.

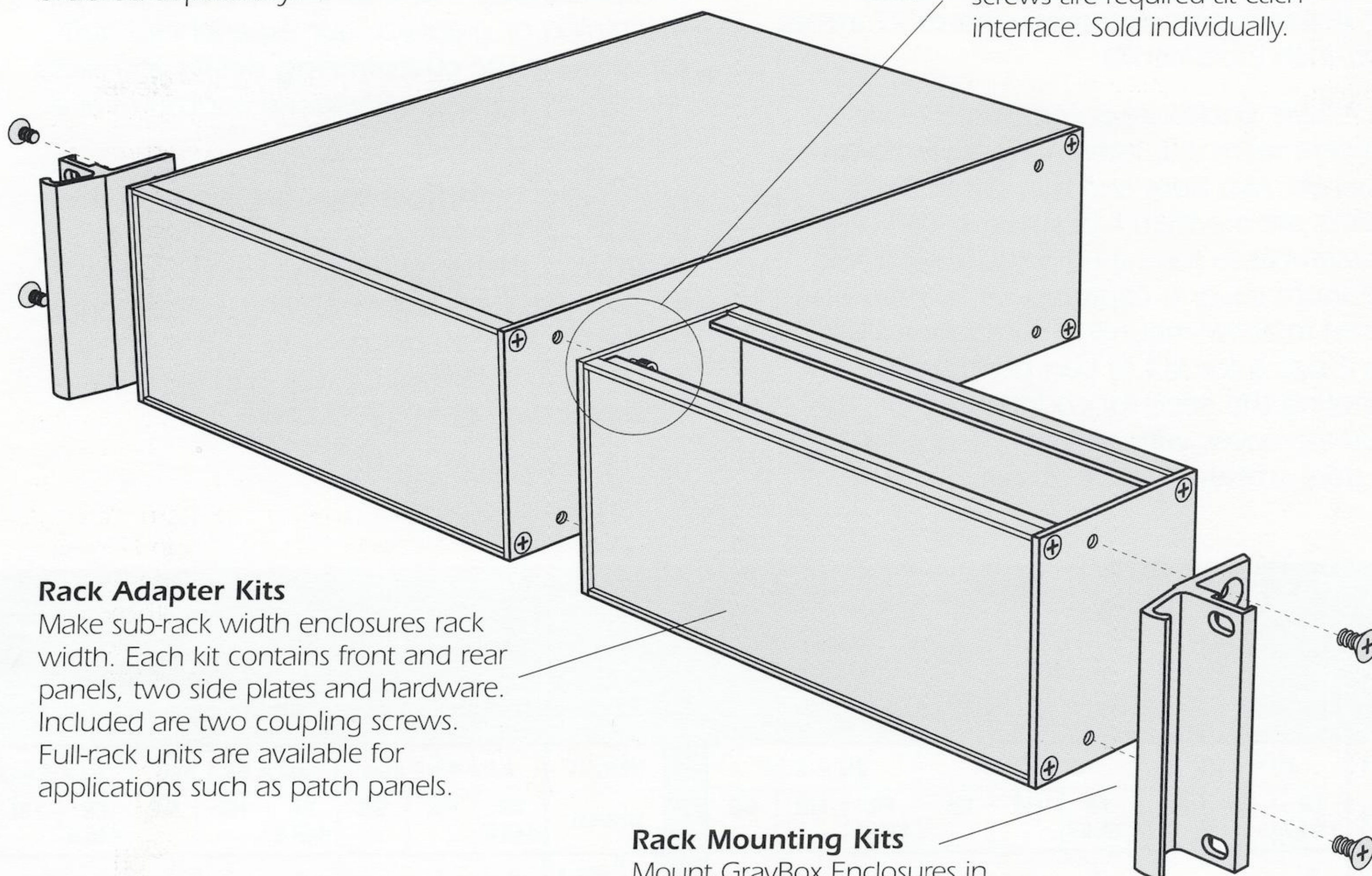


## Accessories

The accessories displayed are available for P Style Enclosures and must be ordered separately.

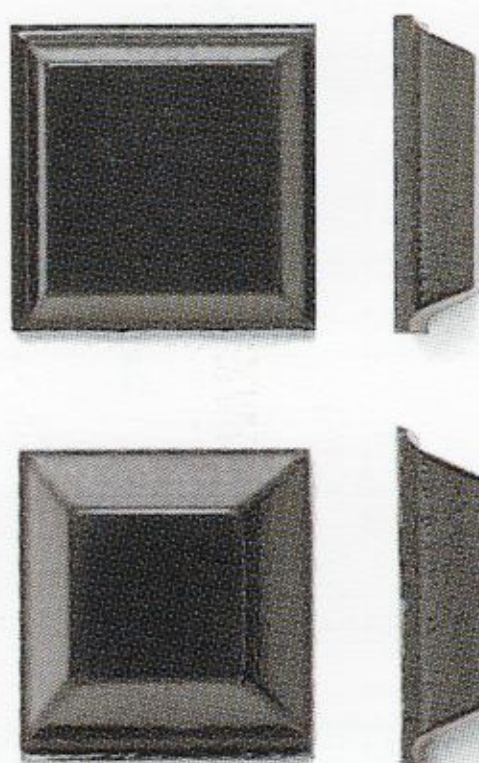


**Coupling Screws**  
Special shoulder screws that fasten two GrayBox Enclosures side-by-side. Two screws are required at each interface. Sold individually.



### Rack Adapter Kits

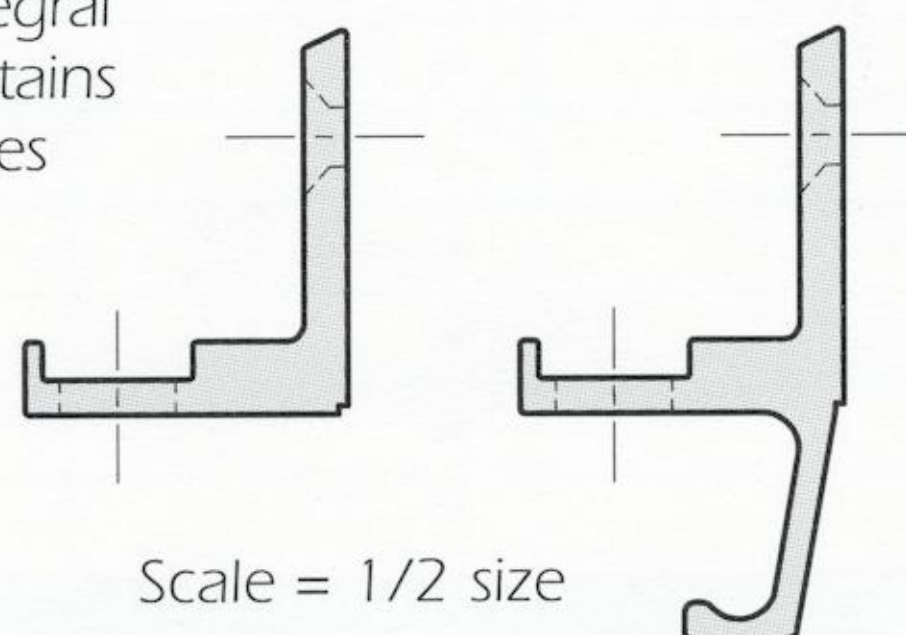
Make sub-rack width enclosures rack width. Each kit contains front and rear panels, two side plates and hardware. Included are two coupling screws. Full-rack units are available for applications such as patch panels.



**Non-Skid Feet**  
(shown actual size)  
Self-adhesive black feet for free-standing applications. Sold individually.

### Rack Mounting Kits

Mount GrayBox Enclosures in standard 19" racks. The rack mount angles are available in two styles – with and without integral handles. Each kit contains two rack mount angles and four screws.



Scale = 1/2 size

**Price List**  
(inserted under back flap)  
Find GrayBox prices.



**Order Form/Sample Offer**  
Place an order or purchase a sample GrayBox at a special introductory no-risk offer price.

**Technical Support**  
(see page 18)  
Learn how our experienced staff can answer your technical questions.

# A Style GrayBox Enclosures

Our most economical enclosure design exclusively for rack-mounted applications

The A Style GrayBox is our most economical enclosure exclusively for rack-mount applications. Its distinguishing **details** include all metal



*A Style GrayBox Enclosures are characterized by 19-inch wide front panels that include integral rack mounting details. Three styles of front panel are available ranging from flush to recessed. Access to the interior is through a flush screw-on cover that has stiffening flanges along each side. The bottom cover is recessed and captured on all sides.*

**Remember the GrayBox Advantages...**

- Proven designs save you both development and production time.
- Reasonable pricing at any quantity saves you money.
- Flexible design readily adapts to your specific requirements.
- Quality construction and attractive appearance add value to your product.
- Simple, unobtrusive design allows your product to take on its own unique personality.
- Extensive range of sizes accommodates your growing product line.
- We get it to you fast.

For the full story, please read the inside front cover.

Choose from three types of front panel (flat, grooved and flanged) to create the appearance you prefer. All can be silkscreened. The flanged (recessed) type has an attractive thin bezel, allowing for the use of overlays for graphics. The bezel detail protects the edges of the overlay. Each can also be used as a stand-alone **rack panel**, allowing one to construct a system of enclosures and rack panels with uniform appearance.

Standard **options** can enhance the functionality of GrayBox: vented sides for airflow and captive fasteners in place of speednuts.

Standard **finishes** are clear anodize and black anodize for panels and sides and platinum and black vinyl-clad steel for covers. Optional finishes include clear or gold iridite, paint and powdercoat. Consider a premium finish for the front panel since only it shows when mounted in a standard rack. Unmodified enclosures of standard size and finish are shipped from stock.

GrayBox Enclosures can take on a function and personality that is all yours. Whether it be machining or graphics, our experienced staff can provide the **customizing** details you need and deliver quality, ready-to-use enclosures at a reasonable cost.

At Lansing, **technical support** is part of the product. It's our philosophy of working with you to arrive at the optimum packaging solution for your product at the best final price to you. We'll work hard to help you turn your concept into a reality whether for one enclosure, an initial prototype or full production.

## A Style Family

**A Style Sizes.**

The entire GrayBox family (consisting of B, P and A Styles) is available in 81 standard sizes defined by the height, width and depth combinations displayed on the right.

The A Style is available from stock in the 18 sizes indicated – two heights (one and two standard rack units), one width (full rack) and nine depths. Widths and depths other than these are made to order with 2-3 week delivery.

A Style Standard Sizes — Inch Dimensions (in)

| HEIGHT |    | 1U = 1.72" |    |    | 2U = 3.47" |    |    | 3U = 5.22" |    |    |
|--------|----|------------|----|----|------------|----|----|------------|----|----|
| WIDTH  |    | FR         | HR | QR | FR         | HR | QR | FR         | HR | QR |
| DEPTH  | 6  | ■          |    |    | ■          |    |    |            |    |    |
|        | 8  | ■          |    |    | ■          |    |    |            |    |    |
|        | 10 | ■          |    |    | ■          |    |    |            |    |    |
|        | 12 | ■          |    |    | ■          |    |    |            |    |    |
|        | 14 | ■          |    |    | ■          |    |    |            |    |    |
|        | 16 | ■          |    |    | ■          |    |    |            |    |    |
|        | 18 | ■          |    |    | ■          |    |    |            |    |    |
|        | 20 | ■          |    |    | ■          |    |    |            |    |    |
|        | 22 | ■          |    |    | ■          |    |    |            |    |    |

A Style Standard Sizes — Metric Dimensions (mm)

| HEIGHT |       | 1U = 43.7 mm |    |    | 2U = 88.1 mm |    |    | 3U = 132.6 mm |    |    |
|--------|-------|--------------|----|----|--------------|----|----|---------------|----|----|
| WIDTH  |       | FR           | HR | QR | FR           | HR | QR | FR            | HR | QR |
| DEPTH  | 152.4 | ■            |    |    | ■            |    |    |               |    |    |
|        | 203.2 | ■            |    |    | ■            |    |    |               |    |    |
|        | 254.0 | ■            |    |    | ■            |    |    |               |    |    |
|        | 304.8 | ■            |    |    | ■            |    |    |               |    |    |
|        | 355.6 | ■            |    |    | ■            |    |    |               |    |    |
|        | 406.4 | ■            |    |    | ■            |    |    |               |    |    |
|        | 457.2 | ■            |    |    | ■            |    |    |               |    |    |
|        | 508.0 | ■            |    |    | ■            |    |    |               |    |    |
|        | 558.8 | ■            |    |    | ■            |    |    |               |    |    |

Enclosures for 23-inch racks or other nonstandard sizes are made to order.

**Top Cover** screws in place and is easily removable.  
**Bottom Cover** is fixed.

**Precision Interchangeable Parts** have close mechanical tolerances.

**Clean Styling** for rack mount applications.

**Fast and Efficient to Assemble** – Each complete enclosure contains as few as six parts plus hardware.

**Dimensions** – Designed to fit standard 19-inch racks. Available in heights of one and two rack units.

**Three Choices of Front Panel.** One of two flush versions is shown. Also available in a recessed version.

**Modified I-Beam Extrusions** form a structural frame for high strength and resistance to racking.

**Rack Mounting**, an integral feature of all front panel options, saves both cost and assembly time.

### GrayBox Enclosures accommodate your growing product line

by providing a comprehensive family of enclosures with complementary appearance and construction across all styles (B, P and A). The A Style, suitable only for rack mounting, is available in both standard and nonstandard sizes. There are 18 standard sizes in stock – all available in a clear anodize/platinum vinyl or a black anodize/black vinyl finish. Nonstandard sizes are made to order.

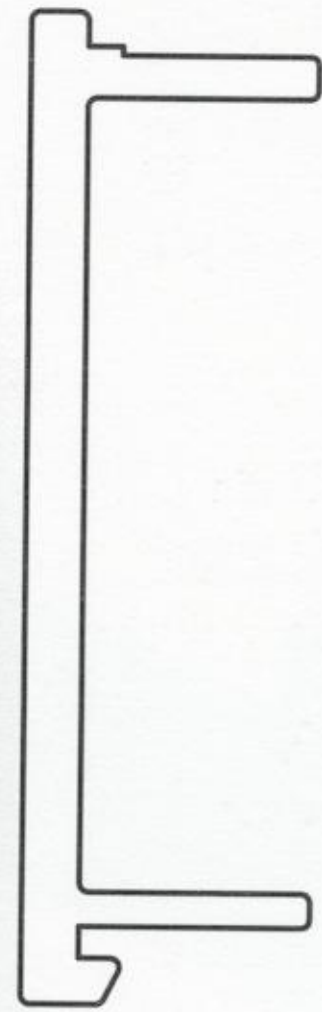
Your first GrayBox will demonstrate how accommodating its design can be, how simple and quickly one can go from prototype to production and how much it can enhance the presentation of your product. And as you add new products to your line, the look you've already established can be maintained (both within the A Style and across styles), minimizing the need for additional development costs and building on the equity of your earlier product.



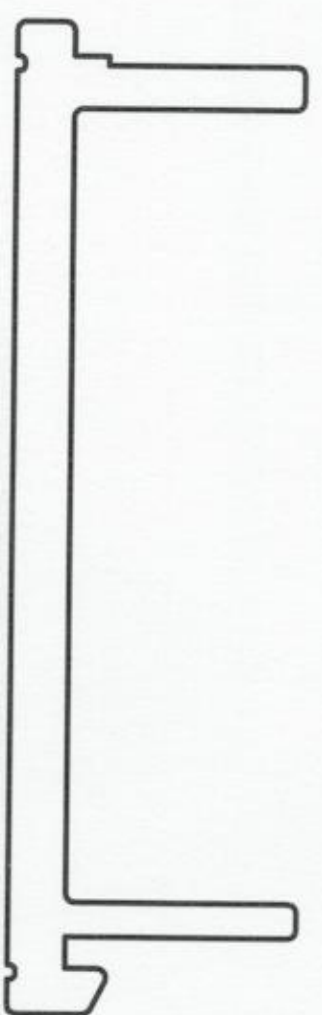
## A Style Choices and Details

The A Style GrayBox consists of six parts (front panel, rear panel, 2 sides, top cover and bottom cover) plus hardware. Front and rear panels are different, as are top and bottom covers. The extruded parts, shown below in actual size, convey the strength and ruggedness of the GrayBox design. Specific details, including differentiation of the three front panel types, are shown.

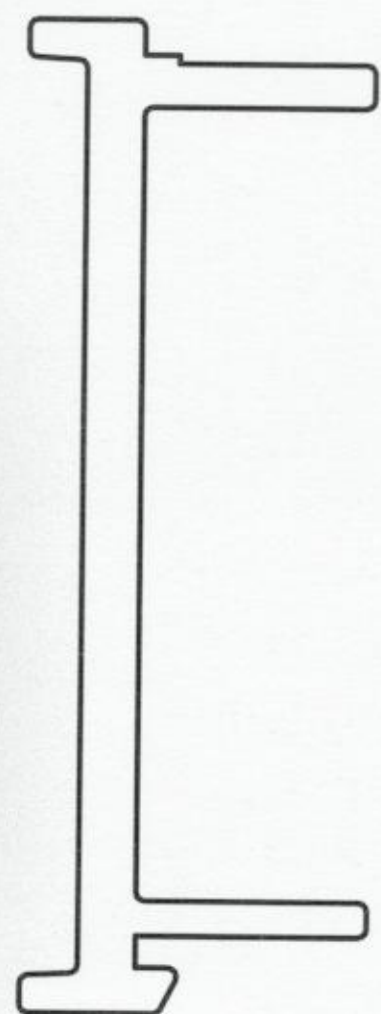
A1 height enclosure parts  
(shown actual size).



**Front Panel (Type 1)** is distinguished by a plain exterior surface void of detail. Being **flat**, it is ideally suited for silkscreening. It contains the rack mounting holes and is easily machined. The upper flange supports the top cover and accommodates the fastening screws. The lower track supports the front edge of the captured bottom cover.



**Front Panel (Type 2)** is distinguished by a flat exterior surface with **grooves** top and bottom that help frame the panel. Like Type 1, it is easily machined and ideally suited for silkscreening. The upper flange supports the top cover and accommodates the fastening screws. The lower track supports the front edge of the captured bottom cover.



**Front Panel (Type 3)** is distinguished by a **flanged** exterior surface similar to that of the B and P Styles. While it can be silkscreened, it is ideally suited for overlays. Two accompanying spacers that compensate for the recessed surface and allow for rack mounting complete the framing of the panel. Otherwise, the features are identical to Types 1 and 2 above.

**Rear Panel** is made from the same extrusion as the Front Panel (Type 1). It differs in that it is shorter (excluding the rack mounting holes). It is easily machined and ideally suited for silkscreening. The upper flange supports the top cover and accommodates the fastening screws. The lower track supports the rear edge of the captured bottom cover.

**Sides** are made from a rugged extrusion. They are easily machined and contain the screw slot detail that allows the front and rear panels to be assembled to them. The upper recess accommodates the stiffening flange of the top cover. The lower track supports the captured bottom cover.

## A Style Standard Materials and Finishes

(A1 shown actual size)

Front panels, rear panels and sides are aluminum.

**Clear Anodize**

**Black Anodize**

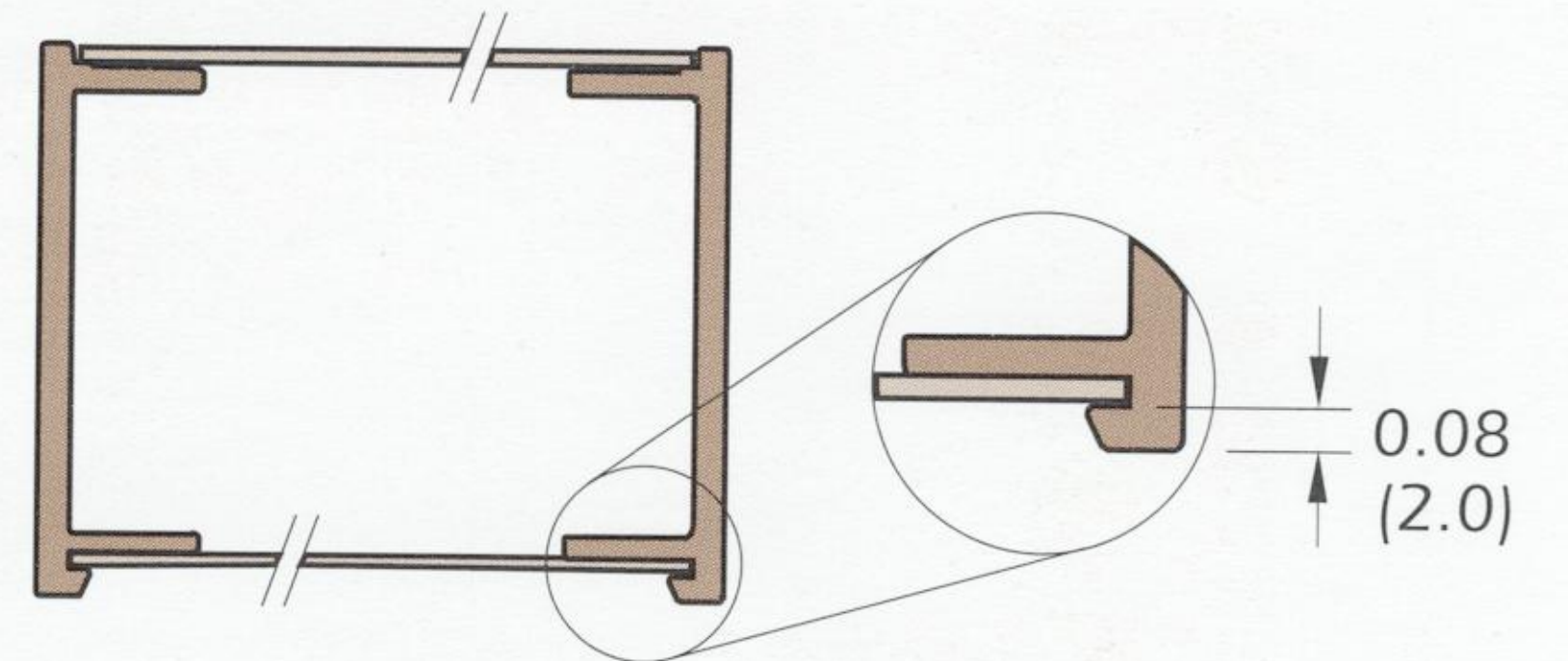


**Platinum Vinyl**

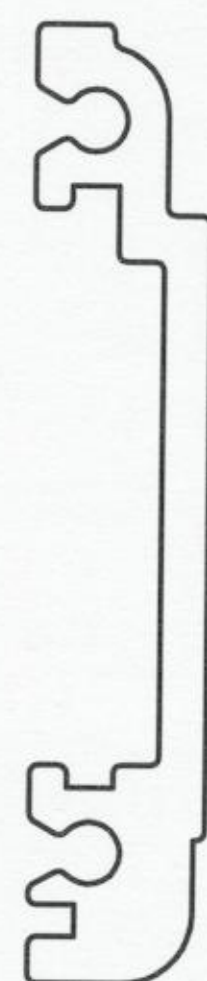
**Black Vinyl**

Standard top and bottom covers are vinyl-clad steel.

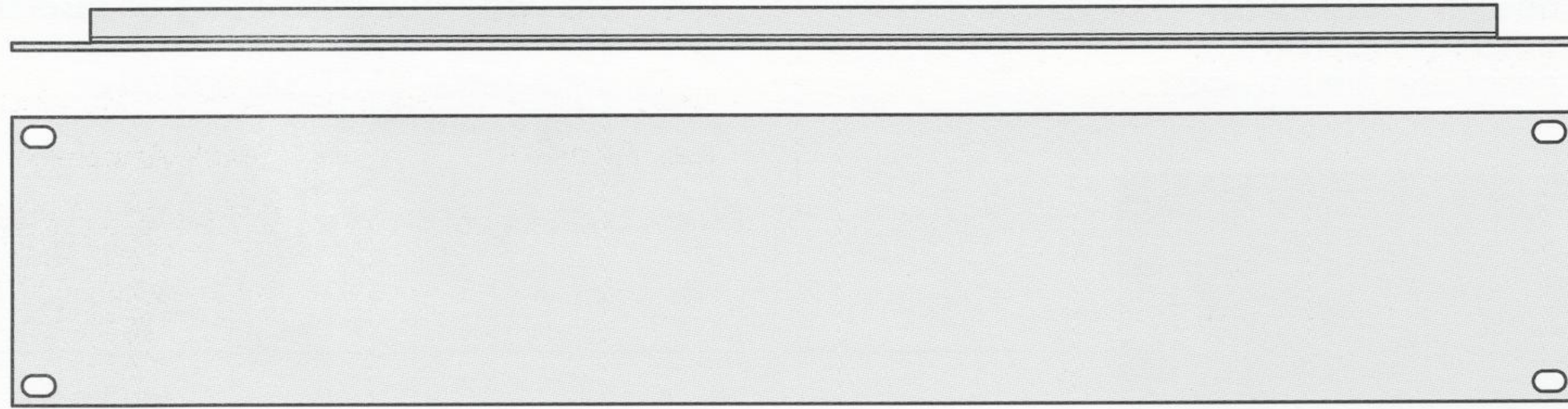
**Recessed Bottom Cover Detail.** The bottom cover of an A Style GrayBox is recessed 0.080 in (2 mm) to allow for up to size 6 (or M3.5) pan head screws to be used for mounting components without having to countersink. The heads of these screws are contained entirely within the profile of the recess.



**Phillips Pan Head** and **Phillips Flat Head Screws** are used throughout and provided in silver for clear anodized/platinum vinyl enclosures or black for black anodized/black vinyl enclosures.



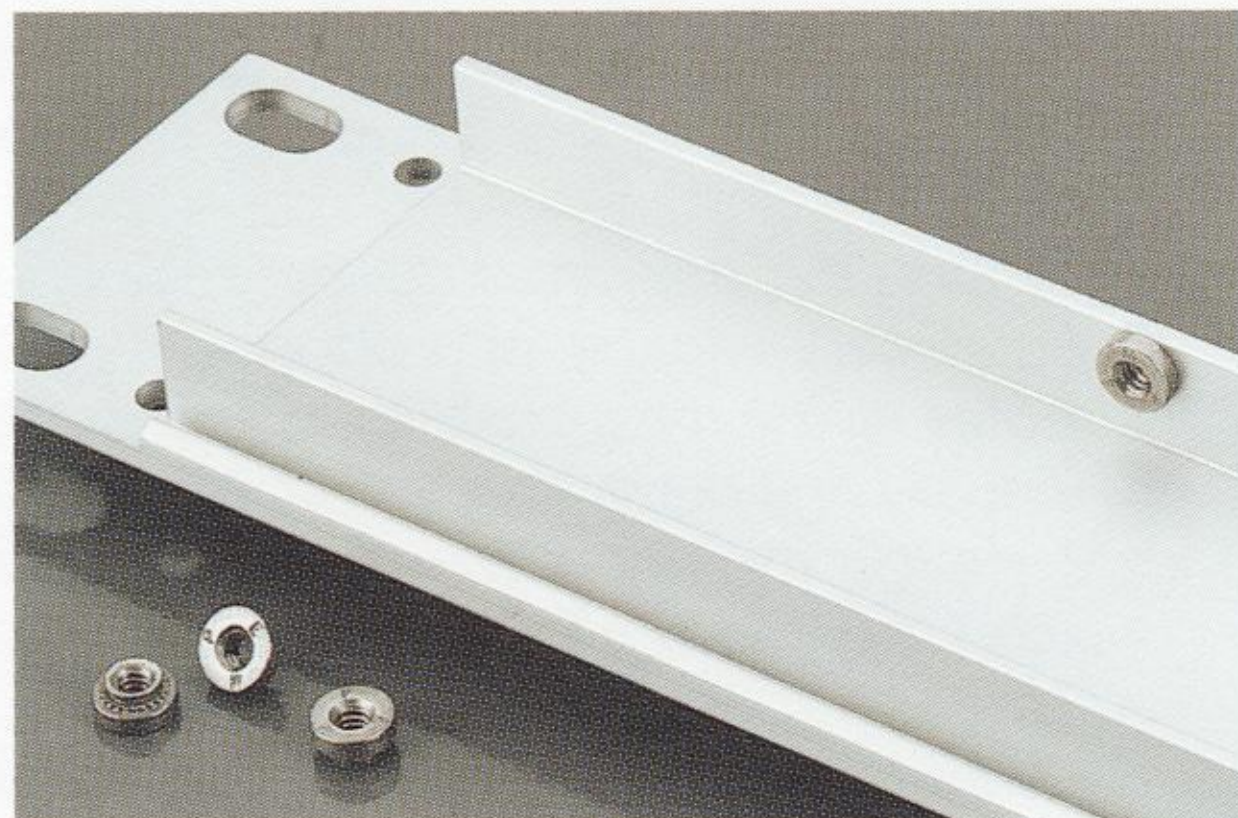
## A Style Rack Panels



K2RP1-001A A Style Rack Panel. (shown 25% actual size)

Rack Panels, either blank or customized to meet your specific needs (refer to pages 16-17), are available in any of the three types of A Style front panel extrusions. Whether used in conjunction with Lansing GrayBox Enclosures or by themselves, they provide a structurally stronger and aesthetically more pleasing alternative than simple sheet metal panels. Types 1 and 2 Rack Panels have a flat exterior surface that is ideal for silkscreening. Type 3, characterized by a recessed and flanged exterior surface, is supplied with two mounting spacers to compensate for the recess and is ideally suited for use with overlays. All are easily machined.

## Options



**Captive Fastener Option.** Captive nuts can be substituted for the standard speednuts. This eliminates the possibility of speednuts falling off or getting lost and provides a means of electrically grounding the side plates.



**Vented Side Option.** Sides are available with a standard ventilation pattern. Refer to the A Style Technical Data Sheet for specifics concerning slot size and location. In rack mount applications, sideways airflow is often the most unobstructed.



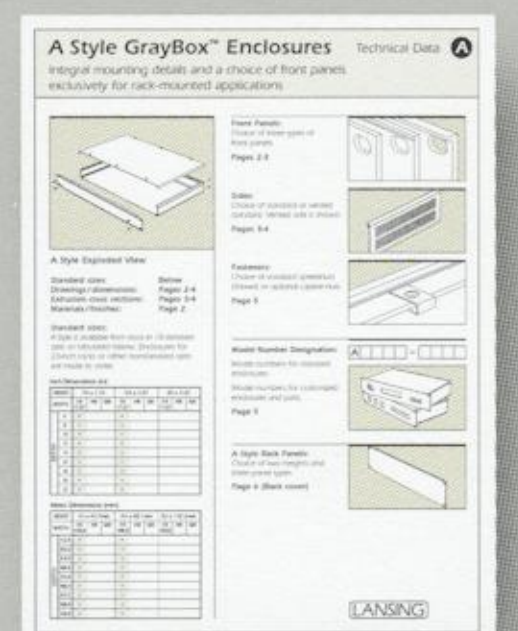
## Customization (see pages 16-17)

Find out what you can do to have us make a GrayBox distinctly yours.



## A Style Technical Data Sheet (inserted under back flap)

Find specifications, engineering drawings and other technical details.



## Price List (inserted under back flap)

Find GrayBox prices.



## Order Form/Sample Offer

Place an order or purchase a sample GrayBox at a special introductory no-risk offer price.

## Technical Support (see page 18)

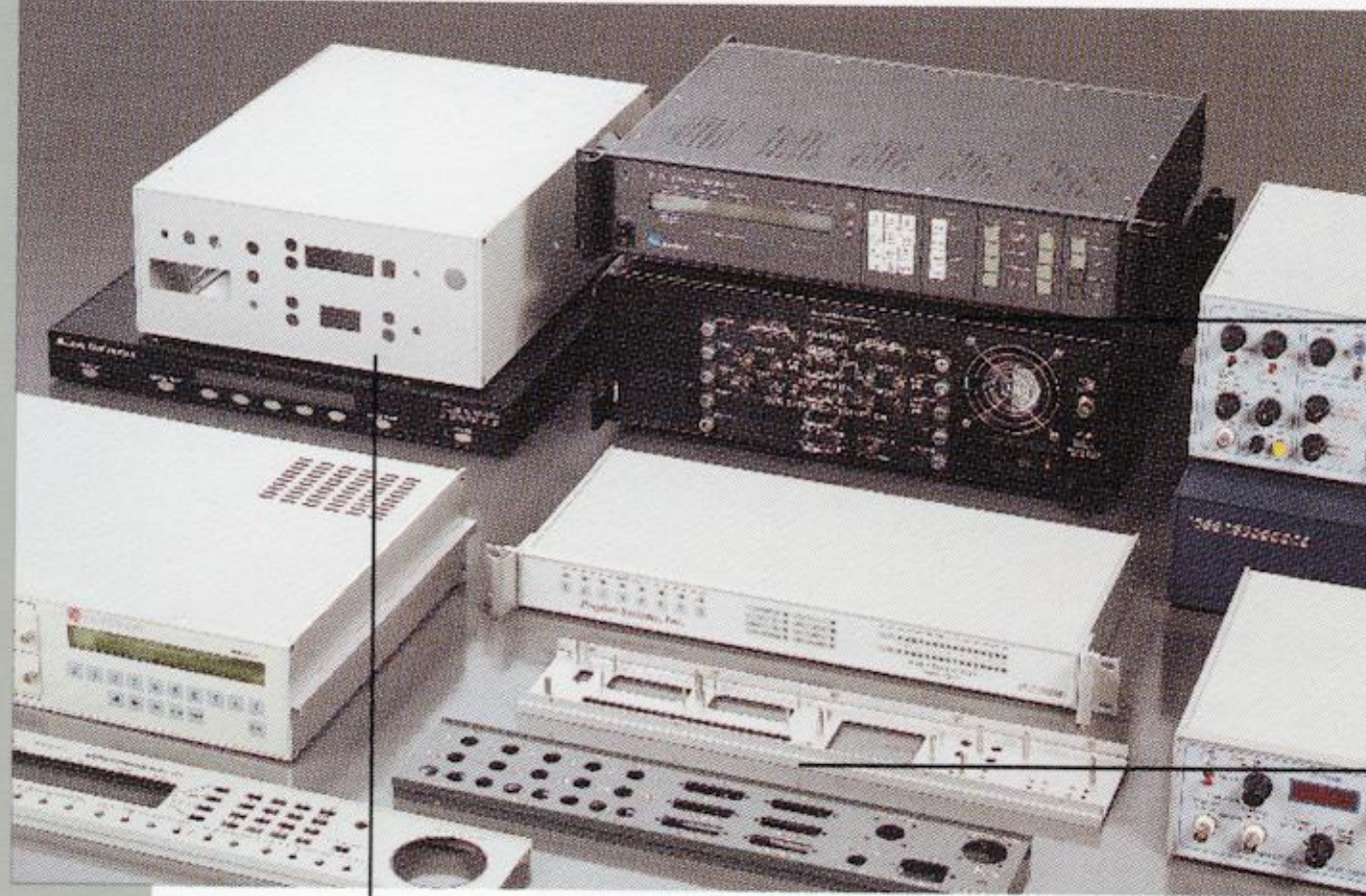
Learn how our experienced staff can answer your technical questions.

# Customization

Finishing the job...making a GrayBox part of your product

## LEVEL 1 ►

A variety of custom options including special dimensions, machining and graphics allows GrayBox to take on a personality that's all yours. And Lansing is uniquely qualified to do it for you. Our experienced staff can provide the customizing details you need and deliver quality results at a reasonable cost.



### Do you need a special size?

If our standard sizes don't work for you, special sizes are available.

### Do you need machining or inserts?

Interfacing to your electronics requires the addition of cutouts and other appropriate details.

### Why you should want Lansing to do your customization:

- Nobody knows our product better than we do.
- Experience. It's an everyday part of our business.
- Extensive inventory of machinery, fixturing and tooling. Includes proprietary equipment for working with extrusions.
- Multiple ways of manufacturing most parts – we can select the most appropriate.
- High quality consistent with the basic GrayBox. Finish goes on after machining.
- Fast delivery. 15 to 23 working days.
- We keep our delivery promises.
- Reasonable pricing.
- You get the quantity you order. No losses. No overruns.
- Option of scheduled releases.
- You get efficiency of one-stop shopping (single source).

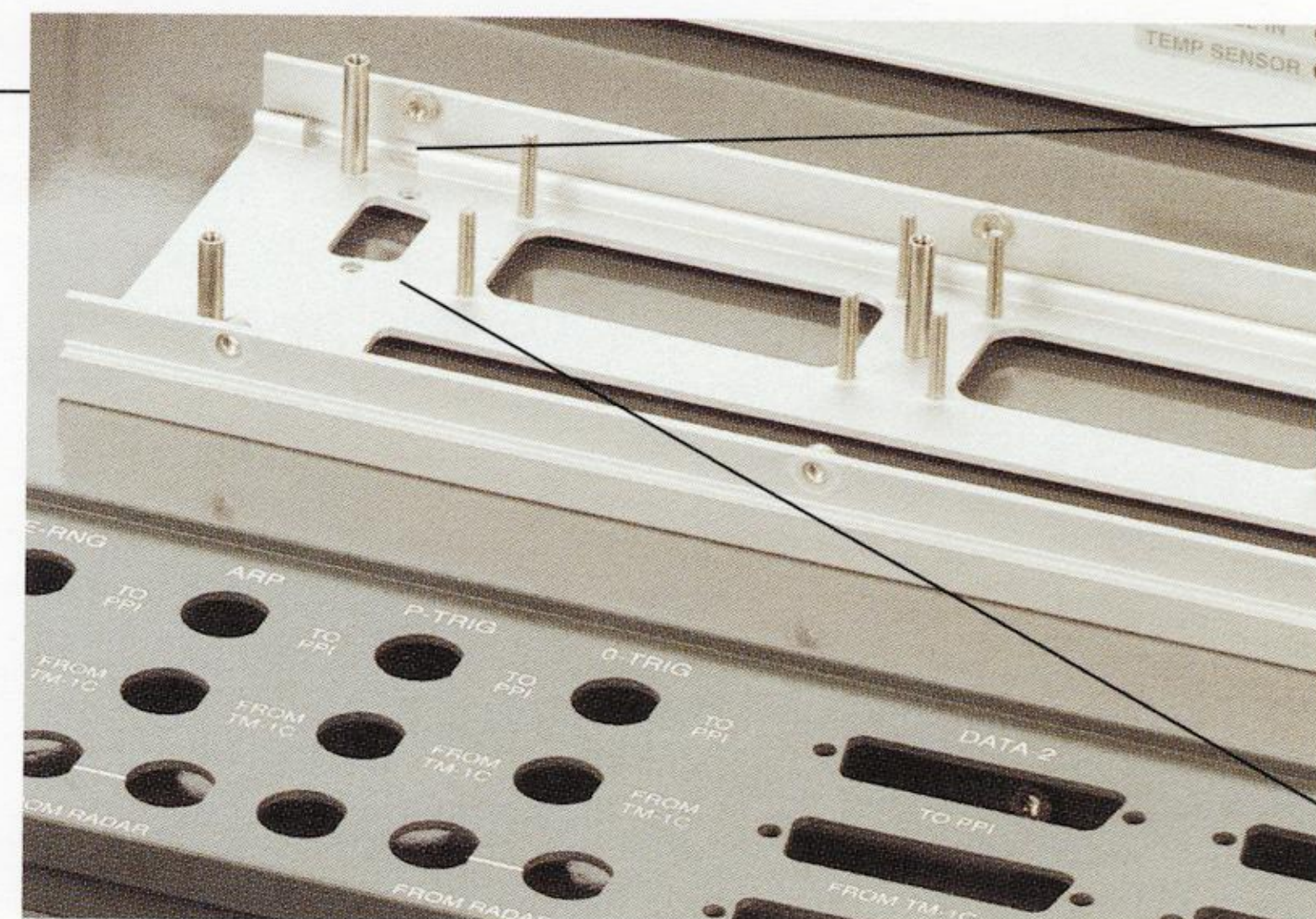
## 1. Special Sizes



The **width** (left to right) and **depth** (front to back) dimensions of any GrayBox Enclosure are easily varied. Whether your requirements are for rack standards other than 19-inch or simply an arbitrary size, they can be met at very reasonable cost in virtually any quantity.

Changes to **height** will require significant tooling costs and often become practical in quantities as small as 1000. The customer has the choice of preserving the standard GrayBox styling or altering the design details in order to create a unique appearance.

## 2. Machining/Self-Clinching Inserts



Interfacing your electronics with your choice of enclosure requires the addition of mechanical features. Whether those features require **machining** or the installation of **self-clinching inserts** to the enclosure, Lansing is well equipped and organized to satisfy your needs in a timely fashion and at a reasonable price.

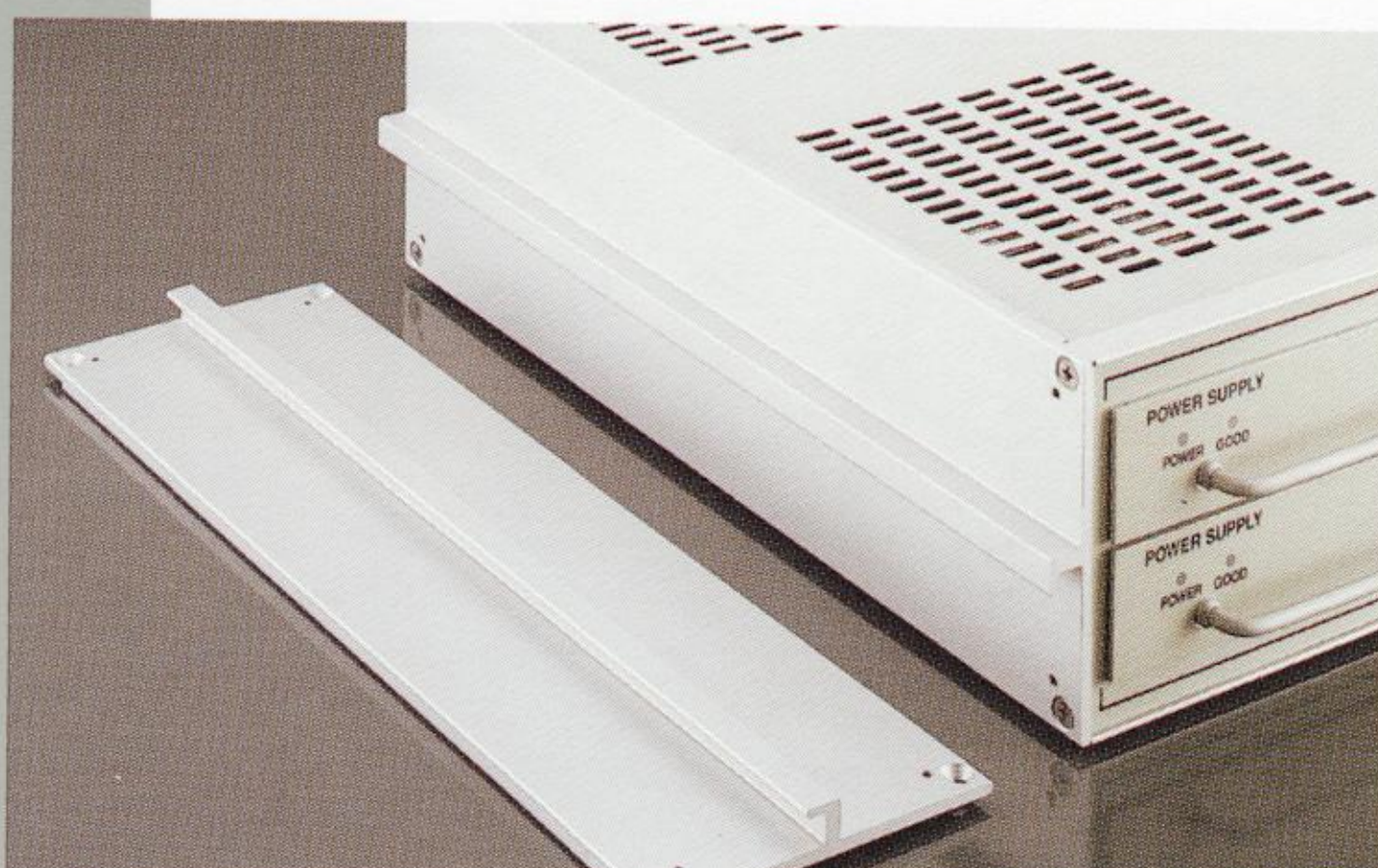
Lansing has dedicated drilling, milling and punching equipment capable of producing the simplest of round **holes** to the most complex **cutouts**. We can machine virtually any detail in any part. And if needed, we can complete this phase by installing PEM brand self-clinching inserts where you need them.

Usually, machining is done before metal finishing. After manufacturing, the parts have a uniform finish on all surfaces. In addition, you receive the net quantity you have ordered without having to allow for parts lost in production setup and scrap.

Because we have more than one way to customize most parts, we can look at your machining requirements and quantities and offer you an effective solution – not just any solution.

## LEVEL 2 ►

Your application may benefit, functionally and/or financially, from higher levels of customization such as optimized extrusions, special brackets, internal structures and even new designs.



### Can you benefit from custom extrusions?

Custom designed extrusions may offer significant advantages – including cost savings.

Imagine a swing-down front panel...a divided panel...or simply one that contains your special styling details. Consider a side extrusion that incorporates an external carrying handle, interfacing brackets, or cooling fins...or an internal detail to support printed circuit boards and other components. Whether you imagine needing only one or multiple extrusions, you will find the cost and lead times most reasonable. Contact Lansing to discuss your ideas and needs.

### Do you need graphics...special finishes, colors or materials?

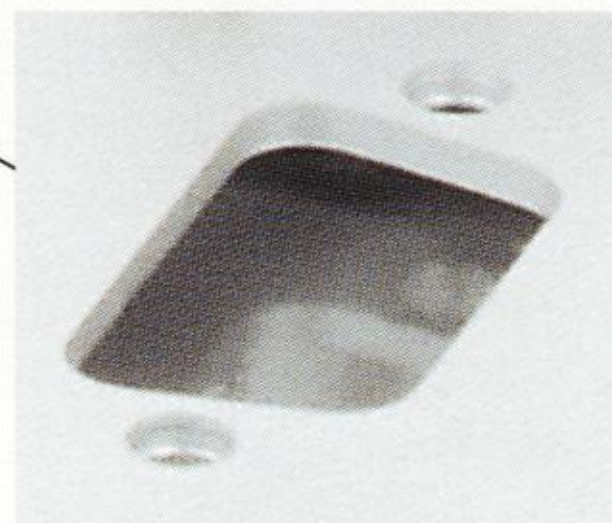
Your product isn't complete until your name and your graphics go on it – either by silkscreening or through the application of overlays. You may also require special finishes, colors and materials.

## 3. Graphics/Special Finishes, Colors and Materials



### Self-Clinching Inserts

Captive nuts, standoffs or studs.



### Machining

Cutouts of virtually any shape.



### Holes

Round or D-shaped. Plain, countersunk or counterbored.

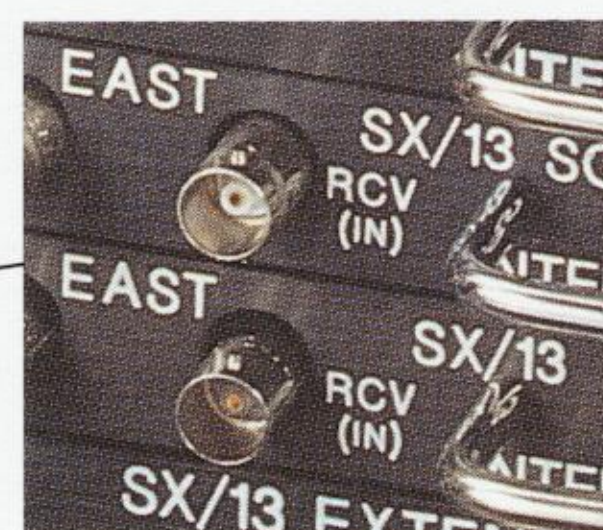


Beginning with camera-ready artwork, provided by you or created by us, Lansing can **silkscreen** any GrayBox part. The only limitation is that no graphics may fall within 0.150 in (3.8 mm) of a flange on recessed panels. The cost of one-color silkscreening is reasonable even in small quantities.

**Overlays** are a particularly elegant solution that, more than any other single element, allows your GrayBox to take on a distinctive appearance. Lansing can assist you with the design and specification of graphic overlays for your product. Although we do not manufacture overlays, we'd be happy to refer you to reputable vendors who do. Overlays can be shipped to Lansing for application and secondary mechanical operations. They become cost effective in relatively small quantities.

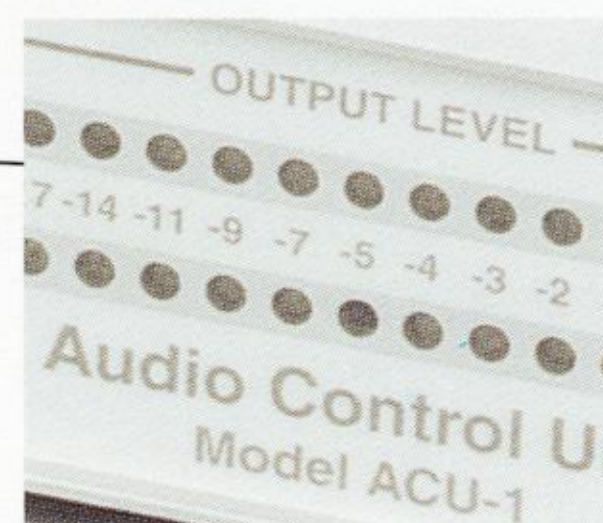
For those who require **special colors**, Lansing is prepared to work with you. We encourage customers first to look at overlays as a means of satisfying color needs. Beyond that we can paint and, if necessary, mask to your specification.

The standard GrayBox materials and finishes have been specified carefully, but may not be appropriate for all applications. **Special finishes** and **special materials** can be specified. Conductive clear iridite is available on special order – either on all or selective surfaces. Vinyl-clad aluminum can be substituted wherever vinyl-clad steel is standard.



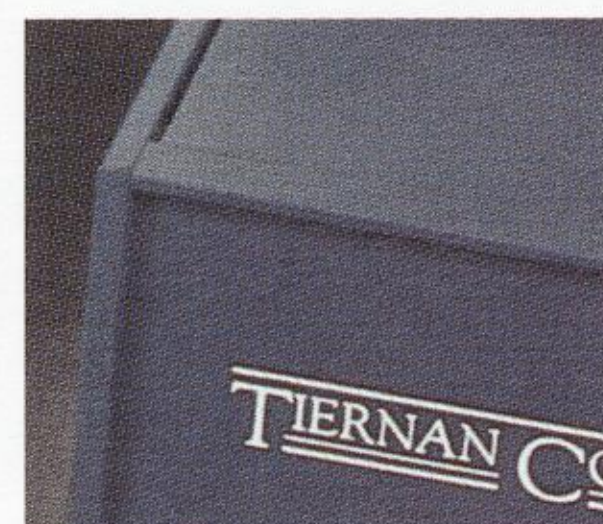
### Silkscreening

Available in one or more colors



### Overlays

High-impact graphics



### Special Colors

Meet company standards



### Special Finishes

Satisfy shielding requirements

### The quotation process:

**Informal estimate:** Call. We'll give you a realistic estimate based on your description. When appropriate, we'll offer alternatives you may not have considered.

**Formal quote:** Provide us with sketches (formal drawings not necessary) that accurately identify hole sizes. We will submit in writing a quote that itemizes on a part-by-part basis the cost of Non-Recurring Tooling, Setup and Unit Price for all major operations (machining, painting, silkscreening, etc.).

NR Tooling is a one-time charge (assuming no design changes). Most of the time, setup charges are applied once, but this may vary depending on commitment and release schedule. Unit price is usually independent of quantity.

### The standard manufacturing process:

- Assign Lansing part number to every part requiring customization. Cross reference to customer part number.
- We create a drawing that will control manufacturing and inspection.
- Drawings are submitted by fax for customer approval.
- Once approved, manufacturing begins using the most appropriate equipment (CNC mill, punch, CNC punch, etc.).
- Metal finishing is done after machining.
- Self-clinching inserts are installed if required.
- Silkscreening or other secondary operations are done.
- Inspection to approved drawings.
- Packaged for complete or scheduled shipments.

### Expediting:

Standard lead times are 15-23 working days depending on quantity, complexity and finishing. If faster delivery is required, we try to accommodate your need within our normal manufacturing schedule. If time is too short, we may be able to provide expedited delivery at a premium price.

### Can you benefit from an internal structure?

Special internal features may enhance the GrayBox concept for your application.

Imagine the simplicity of a central mounting plane with boards and components mounted on either side and easy access from above and below. Consider a more complex internal space frame...extrusion or sheet metal based. You may be pleasantly surprised at how quickly and reasonably your desires can be realized. Contact Lansing to discuss your ideas and needs.

### Do you need even more?

Lansing can work with you to realize a new design.

Lansing Enclosure designs have originated from real customer needs. We have an extensive experience base we are willing to share with you in an effort to find new designs that directly address your requirements. We look forward to a candid discussion of your needs and the appropriateness of Lansing working to meet them.