Model PIAD
Purgeable Instrument Access Doors

For Panel or Surface Mounted Devices in Purged, Pressurized, Outdoor or Corrosive Area Enclosures

Technical Bulletin PIAD TB-R2 **© 03.20.2021**

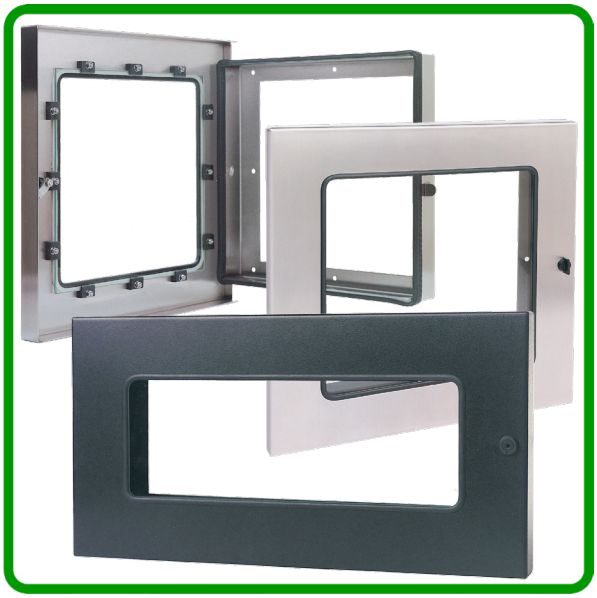
PIAD Description

Model PIAD Purgeable Instrument Access Doors are custom built doors with mounting frames manufactured to meet or exceed NEMA 12 (IP 52) or NEMA 4 or 4X (IP 56) ratings.

They are intended for any application, and come in an array of sizes and features, manufactured to your exact specifications. Our PIADs are designed to cover electrical devices which penetrate the surface of an enclosure and are unsuitable for exposure to the surrounding corrosive, hazardous or classified atmosphere.

Designed for rugged duty, all Best Purging Systems PIADs feature 14 gauge carbon steel or 304 or 316 grade stainless steel mounting frames and doors, removable stainless steel hinges, 1/4" Laminated Safety Glass, Lexan™ Margard™ MR-10 or Wire Reinforced Safety Glass windows with a proprietary shock-resistant mounting system, and replaceable, life-time warranty door gasket, with an NFPA496 purged enclosure warning nameplate, mounting sealant and mounting hardware.

Standard finishes include vertical or horizontal brush finishes for the stainless steel mounting frame and door materials or a black or custom color powder coat finish on any material. Door fastening options include hand, key or tool actuated vice action compression latches in black polyester powder coated die cast zinc or electro-polished 316 grade stainless steel materials.



NEMA 12 Rating

PIAD NEMA Ratings

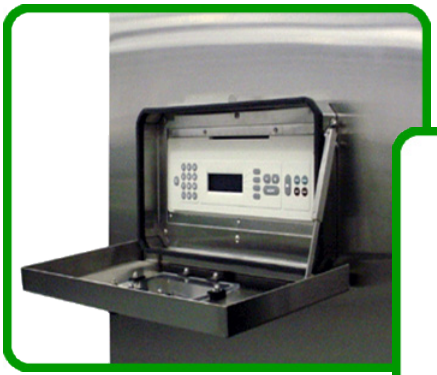
Purgeable Instrument Access Doors from Best Purging Systems Corporation are manufactured to meet or exceed NEMA 12, 4 or 4X and corresponding IP Ratings, as noted below. These ratings satisfy increasingly harsh indoor or outdoor applications, along with exposures to rain, wash-down and corrosive chemicals.

NEMA Rating	Material Options & Resistance Parameters	IP Rating
12	**14 Gauge Carbon Steel** PIAD constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment and to provide a degree of protection against the ingress of dust, dirt, and dripping non-corrosive liquids, oil and lubricants.	52
12	**14 Gauge 304 or 316 Grade Stainless Steel** PIAD constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against the ingress of dust, dirt, and dripping non-corrosive liquids, oil and lubricants, and to resist damage caused by exposure to atmospheres containing corrosive gases, dusts or vapors. *	52
4	**14 Gauge Carbon Steel** PIAD constructed for indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, and hose-directed water; and that will be undamaged by the external formation of ice on the PIAD.	56
4X	**14 Gauge 304 or 316 Grade Stainless Steel** PIAD constructed for indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, hose-directed water and corrosion; and that will be undamaged by the external formation of ice on the PIAD.	56

*** IMPORTANT NOTE**

The stainless steel material option for corrosive atmosphere resistance is an enhancement by Best Purging Systems Corporation to the published National Electrical Manufacturers Association definition for a NEMA 12 rating.

Furnished complete with Installation Manual, NFPA Purged Enclosure Warning Nameplate, Sealant & Mounting Hardware!



NEMA 4 & 4X Ratings

Shown with custom door positioning hardware!

Best Purging Systems
Enclosure Purging & Pressurization Solutions

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PIAD Construction Features

Best Purging Systems' unique method of securing the PIAD window utilizes Trim-Lok™ neoprene rubber molding and closed cell neoprene gasket placed between the laminated or wire reinforced safety glass or Lexan™ Margard™ MR-10 window and the PIAD door frame. The window is held in place with custom molded Santoprene™ rubber clips and stainless steel hardware.

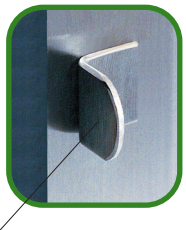
This unique method of attachment secures the window in a suspended fashion, allowing damaged windows to be easily removed and replaced, without the need for special tools or sealant application!

All Best Purging Systems PIADs incorporate removable stainless steel hinges to provide exceptional corrosion resistance, prevent door sagging and ensure proper door to frame alignment with each operation.

These high-quality leaf-style hinges are 316 stainless steel and screw fastened to the door and frame. This allows the door to be removed easily during installation and also during window replacement if necessary. The hinges feature a highly polished surface finish and non-removable pin, that requires no lubrication during many years of trouble-free service!

PIADS can be furnished with a reduced window size, an offset window position or no window upon request!

Model PIAD-AA-4X-2-SG-3-AH
INTERIOR VIEW



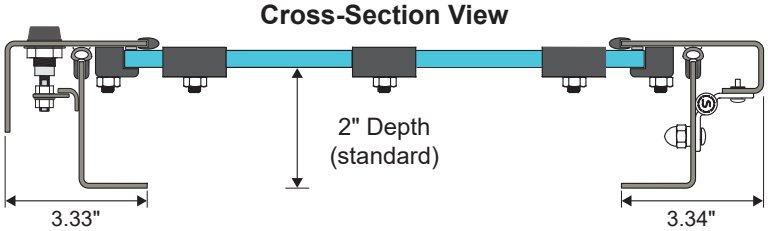
Latch Clips are formed from 12 gauge material and securely welded to the PIAD frame to ensure uniform compression on all sides.

Powder Coated Die Cast Zinc or Stainless Steel vice action compression latches secures the PIAD door firmly to the mounting frame in the closed position. Latches are available with hand, key or tool actuated operators, to provides quick and easy access to protected equipment.

Our Replaceable Door Gasket comes with a life-time warranty and will be shipped to you free of charge!

Utilizing Trim-Seal™ replaceable, life-time warranted door gasket provides a continuous positive seal between the PIAD door and mounting frame, which meets or exceeds NEMA 12, 4 and 4X standards, depending on the NEMA rating of the PIAD.

Cross-Section View



Selecting your PIAD Model Number

Please see Page 4 for all available options

Step 1 - Determine the Overall Dimensions of your Protected Devices
Measure the overall height and width of all protected devices, being sure to include all mounting bezels or trim.

Step 2 - Determine your PIAD Window Dimensions & Hinge Location
Add 1" to overall Height & Depth of your Device(s), to provide adequate mounting frame clearance, and then determine which side of the PIAD you prefer to hinge.

Step 3 - Determine your PIAD Size Range
We use two letters to specify the Hinged Side and Adjacent Sides Size Ranges.

Step 4 - Determine your PIAD NEMA Rating
We offer NEMA 12, 4 or 4X Ratings to meet your installation site conditions.

Step 5 - Determine your PIAD Depth
Measure the distance your device(s) will project or protrude from the surface of your enclosure to determine how much internal clearance is required.

Step 6 - Select a preferred material for your PIAD Frame and Door
304 or 316 Stainless Steel may be selected for any application, but Carbon Steel is not suitable for NEMA 4X ratings.

Step 7 - Select a preferred window material for your PIAD
Safety Glass or Lexan are suitable for any application, but we advise against selecting wire reinforced glass, unless required by the authority having jurisdiction.

Step 8 - Select a preferred finish for your PIAD Frame and Door
Black or Custom Color Powder Coatings are available for any Material, but brush finishes are only offered for Stainless Steel Materials.

Step 9 - Select a preferred Door Latch Style and Operator for your PIAD
Powder Coated Die Cast Zinc Latches are suitable for NEMA 12, 4 and 4X Ratings, and Stainless Steel Latches are available for highly corrosive areas.

PIAD Latch Operator Options

The vice action compression latches utilized on Best Purging Systems model PIAD provide a positive seal for the door gasket to meet NEMA 12, 4 or 4X standards. The compression latches are available in three different styles, as described below:

Hand Operated Latch - A black polyester powder coated die cast zinc or electro-polished 316 stainless steel knob allows easy operation of the compression latch with a thumb and forefinger. This latch is recommended when general or unregulated access to the PIAD is required and the enclosed equipment is not protected by Type X pressurization.

IMPORTANT NOTE: If utilized on Type X pressurized enclosures, an electrical interlock rated for the area is required to deenergize power to all non rated equipment to comply with section 5.5.2 of the NFPA 496-2017 edition.

Key Operated Latch - This latch requires a special key to operate. One key is supplied with each PIAD and additional keys are available upon request. This latch is recommended when authorized or regulated access to the PIAD is required and/or when the enclosed equipment is protected by pressurization.

IMPORTANT NOTE: When utilized with a Type X pressurized enclosure, the key operated latch complies with section 5.5.2 of the NFPA 496-2017 edition, eliminating the need for electrical interlock switches.

Tool Operated Latch - This latch requires a customer supplied 5/32" hex head tool to operate. This latch is recommended when authorized or regulated access to the PIAD is required and/or when the enclosed equipment is protected by purging or pressurization.

IMPORTANT NOTE: When utilized with a Type X pressurized enclosure, the tool operated latch complies with section 5.5.2 of the NFPA 496-2017 edition, eliminating the need for electrical interlock switches.

Window Size Calculation is Easy!

First, add 1" to the Height & Width of Your Device(s) and then determine where you want the hinge to be.

BE SURE TO MEASURE BEZEL CAREFULLY!

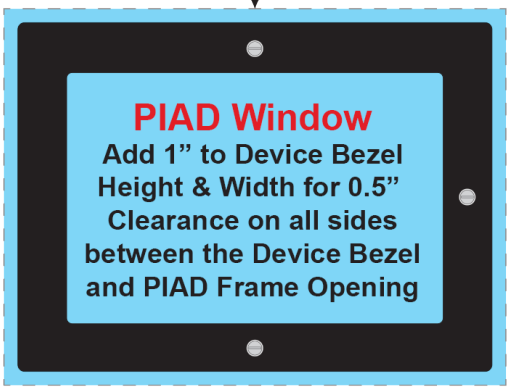
CALCULATION EXAMPLE:
Bezel Height: 11" + 1" = 12"
Bezel Width: 19"+ 1" = 20"
Preferred Hinge Position: Left Side
PIAD Window Size = AB
4-12" Hinge Side & 12-24" Adjacent Sides

PIAD Mounting Clearances

As illustrated above, it's critical to add 1" to the bezel or trim height and width dimensions of your protected device(s) to ensure your PIAD will fit easily around them and establish a window size. As illustrated below, it's also essential to add 10" to your bezel or trim dimensions to ensure you'll have adequate clearance around the perimeter of your PIAD. This will ensure it does not interfere with mounting other devices adjacent to your PIAD.

Free Space for PIAD Mounting

Add 10" to Device Bezel Height & Width for 1" Clearance on all sides of PIAD Door



Ventilation Requirements

When your PIAD is utilized on purged or pressurized enclosures, it is critical to satisfy NFPA Section 5.2.6 requirements regarding protection of compartments adjacent to the protected enclosure.

We provide complementary technical assistance in this situation by helping you determine if the device(s) your PIAD is protecting will adequately ventilate the sealed area created by the PIAD. If your devices do not provide adequate ventilation, we can recommend methods to 1) properly ventilate the sealed area within the PIAD (which NFPA 496 defines as an adjacent compartment); or 2) purge and/or pressurize the area created by the PIAD, either separately or in series with your protected enclosure, depending on the surrounding Area's Classification.

Please contact our Sales Associates and Technical Consultants for more information, guidance and recommendations.

Custom Door Positioning Hardware

Available in Standard or Stainless Steel Materials!

As shown on Page 1, Best Purging Systems offers door positioning hardware in various styles and materials. In most circumstances, gas cylinders are ideal, but Best Purging Systems also offers more economical and passive devices, such as articulating stays or telescoping supports as shown to the left, that prevent hinges from being over-extended. This hardware is ideal for top or bottom hinged doors, for doors located offshore, or for doors in an area where strong prevailing winds require a door retainer to position your door securely in the open position.

Please contact a Sales Associate for more details regarding this option!

Material Specifications

Mounting Frame, Door & Removable Hinges

Door & Mounting Frame: ..... 14 Gauge Carbon Steel, 14 Gauge 304 Grade Stainless Steel or 14 Gauge 316 Grade Stainless Steel

Window: ..... 1/4" Laminated Safety Glass, 1/4" Lexan™ Margard™ MR-10 or 1/4" Wire Reinforced Safety Glass

Removable Hinges: ..... High Gloss Finish 316 Stainless Steel

Flat Head Door Screws: ..... 8/32 316 Stainless Steel Hex Drive

Door Screw Retainers: ..... Zinc-Plated Steel Heavy-Duty Rivet Nuts w/ Open End, 8-32 Interior Thread

Flat Head Mounting Frame Screws: ..... 8/32 316 Stainless Steel Phillips Drive

Mounting Frame Washers: ..... 0.052" Thick Rubber (blue)

Mounting Frame Cap Nuts: ..... 8/32 316 Stainless Steel

Vice-Action Compression Latches

Latch Housing: ..... Black Polyester Powder Coated Die Cast Zinc or Electro-Polished 316L Grade Stainless Steel

Latch Cam: ..... Dacrotized® Case Hardened 1075 Steel

Latch Sleeve: ..... Dacrotized® Case Hardened 1065 Steel

Latch Shaft: ..... Dacrotized® Zinc Alloy Plated 12L14 Steel or 316 Grade Stainless Steel

Latch Mounting Nut: ..... Dacrotized® Zinc Alloy Plated 12L14 Steel or 304 Grade Stainless Steel

Latch & Pawl Jam Nuts & Lock Washers ..... Zinc Plated 1010 Steel or Passivated 302 Grade Stainless Steel

Latch & Pawl: ..... Zinc Plated 1010 Steel or Passivated 304 Grade Stainless Steel

Latch Pin: ..... Zinc Plated Chromate Steel w/ Sealer

Latch Spring & Retainer: ..... Passivated 302 Stainless Steel

Latch O-Ring: ..... Buna-N Rubber, Black

Hand Operated Latch Knob: ..... Black Polyester Powder Coated Die Cast Zinc or Electro-Polished 316L Grade Stainless Steel

Tool Operated Latch Cap: ..... Black Polyester Powder Coated Die Cast Zinc or Electro-Polished 316L Grade Stainless Steel

Key Operated Latch Cap: ..... Black Polyester Powder Coated Die Cast Zinc or Passivated 303 Grade Stainless Steel

Key Operated Latch Key: ..... Nickel Plated Steel

Suspended Window Mounting System

Window Gasket: ..... Closed Cell Neoprene

Window Trim Molding: ..... Trim-Lok™ Extrusion Molded Neoprene

Window Retainer Clips: ..... Injection Molded 60 Durometer Santoprene™

Retainer Fastening Hardware: ..... 316 Stainless Steel Locking Nut and Washer

Replaceable Door Gasket

Base Material: ..... Dense EPDM Rubber, 70 Shore A Durometer

Embedded Retainers: ..... Flexible Aluminum Wire or Stamped Steel

Bulb Material: ..... Custom Formulated EPDM Sponge Rubber

Mounting Sealant & Hardware Kit *(shipped loose)*

Mounting Sealant: ..... Dow Corning 732 Silicone Sealant (3 oz. tube) Hardening Time: 20 Minutes /Full Cure Time: 24 Hours Tensile Strength: 325 psi /Temperature Range: -75° to 350° F

Sealing Screws: ..... 316 Stainless Steel 1/4-20 x 3/4" Phillips Head w/ Neoprene O-Ring

Sealing Washers: ..... 18-8 Stainless Steel w/ Neoprene Washer

Locking Nuts: ..... 316 Stainless Steel 1/4-20 Hex Nut w/ Nylon Insert

Please contact us for assistance, or select and purchase this product online!

Model Number Designations

PIAD-AA-12-2-CG-1-AH

Product Series

Window Size Range *1 (Hinge Side / Adjacent Sides)

AA - 4-12" / 4-12" **AB** - 4-12" / 12-24" **AC** - 4-12" / 24-36"
BA - 12-24" / 4-12" **BB** - 12-24" / 12-24" **BC** - 12-24" / 24-36"
CA - 24-36" / 4-12" **CB** - 24-36" / 12-24" **CC** - 24-36" / 24-36"

NEMA Rating

12 - NEMA 12 **04** - NEMA 4 **4X** - NEMA 4X *2

PIAD Depth

2 - 2" Depth (Standard) *3 **3** - 3" Depth **4** - 4" Depth

1st Digit: Body Material

C - Carbon Steel *4 **S** - 304 Stainless Steel
X - 316 Stainless Steel **U** - Custom Material *6

2nd Digit: Window Material

G - 1/4" Safety Glass **L** - 1/4" Lexan™ **X** - No Window
W - 1/4" Wire Reinforced Safety Glass *5 **U** - Custom Material *6

Body Finish

1 - Black Powder Coat (Standard)
2 - Custom Color Powder Coat
3 - Grain Parallel to Hinge (Stainless Steel only)
4 - Grain Perpendicular to Hinge (Stainless Steel only)
U - Custom Finish *6

1st Digit: Latch Style

A - Black Polyester Powder Coated Die Cast Zinc *7
X - Electro-Polished 316 Stainless Steel

2nd Digit: Latch Operator

H - Hand Operated **K** - Key Operated *8 **T** - Tool Operated *9

IMPORTANT MODEL NUMBER SELECTION NOTES:

1. Selection of PIAD Size Range is based on two letters. The first letter determines the span of the hinged side of your PIAD. The second letter determines the span of the adjacent sides. Please note this selection has no bearing on your actual hinge location.
2. Corresponding with selection of NEMA 4X, we recommend selection of Electro-Polished 316 Grade Stainless Steel Latch Material in Segment 7 for highly corrosive atmospheres.
3. Selection of PIAD Depth determines the internal clearance from the rear side of the window to the panel surface. 2" Depth is standard, and 3" and 4" Depths are available at a slightly higher cost.
4. Carbon Steel Material may not be selected in combination with a NEMA 4X Rating in Segment 3.
5. Wire Reinforced Safety Glass should only be selected when impact hazards are immanent, due to viewing obstructions created by wire.
6. Please provide custom mounting frame and door material, window material and mounting frame and door finish specifications in writing at time of order.
7. Die Cast Zinc Compression Latch Material is suitable for NEMA 12, 4 and 4X Ratings, but Stainless Steel Latch Material is recommended for highly corrosive atmospheres.
8. Key Operated Compression Latch Operators require a special key to operate. One (1) key is supplied with each unit, but extra keys are available on request.
9. Tool Operated Compression Latch Operator requires a 5/32" hex (allen) head tool to operate (not supplied)

ADDITIONAL INFORMATION REQUIREMENTS:

To request a quote or place an order, we will require four additional bits of information, as follows, that may be supplied as notes accompanying any RFQ or PO.

1. The actual Window Height you require in inches. Please note we accept increments as small as 0.125" (1/8"), but the size must be within a range of 4 to 36 inches maximum, unless you require a custom size PIAD.
2. The actual Window Width you require in inches. Like the height dimension, please note we accept increments as small as 0.125" (1/8"), but the size must be within a range of 4 to 36 inches maximum, unless you require a custom size PIAD.
3. The hinge location, specified as either the left or right side or the top or bottom.
4. As an option, if you selected a 304 or 316 Stainless Steel Material with a grain direction that will be parallel or perpendicular to the hinge, please specify the direction of the grain (as either horizontal or vertical) that you require to match the direction of your enclosure grain, if applicable.
5. We also encourage you to send us any drawings or documents that may assist us to ensure your PIAD will fit properly and meet your needs.

Please note that items 3 & 4 above are requested to ensure we build your PIAD in exact accordance with your requirements and to verify the PIAD Size Range and PIAD Finish you selected above. You may rest assured we'll send you a drawing for approval before we get started or contact you if we suspect any potential issues.

All specifications subject to change without notice. Warranty & Liability policies available upon request.