



FREQUENTLY ASKED QUESTIONS (FAQ'S)

Q: What is included with a standard Integra enclosure?

A: Each enclosure is shipped assembled with the base, cover with the gasket installed with four threaded inserts on the back of the base, four for cover attachment, and four for back panel attachment. Also included is a packet with four mounting feet and four mounting feet screws.

Q: Are the enclosures watertight (NEMA 4)?

A: Yes. all Integra enclosures are NEMA 4X. As opposed to many competitors' products, Integra enclosures are 4X with latches only or with two screws (in the case of a hinged cover).

Q: What colors are available?

A: Standard colors are matte grey for the JIC Line, semi-gloss black for the Telecom Line, and gloss grey for the Premium Line. Custom molded color is available. Call for a quote.

Q: Are the enclosures UL-listed? How about Canada?

A: Premium Line and JIC Line enclosures are listed as UL-50, Cabinet and Cutout Boxes. Our file number is E207562. Per UL, UL-50 is a more stringent standard than UL-508, which is widely referenced by other manufacturers. Integra is also C-UL Listed for use in Canada and we are Marine Listed for coastal or marina applications.

Q: I notice that the covers and sidewalls are not flat. Why is that, and does the shaping preclude the installation of hubs and components?

A: The covers and sidewalls of all Integra enclosures are slightly convex. This was done to ensure that the covers and the base will resist warping, which is a problem that plagues non-metallic "flat" enclosures. A warped cover or base will not seal properly, and watertightness fails as a result. Another benefit of the shaping is to provide a stronger box. Therefore standard hubs and components can be installed and seated on the surfaces of the enclosure, using standard gaskets.

Q: Are modifications available?

A: Yes, modifications such as machined holes or slots are available. Integra can also provide latch installation, DIN-rail installation, or back panel installation. We can also provide EMI/RFI shielding. Please contact us with your requirements.

Q: Are back panels available from Integra?

A: Yes, we offer back panels in coated steel, bare aluminum and polycarbonate.

Q: If I use DIN-rail mounted components, will I need a back panel?

A: Probably not. All Integra enclosures feature molded-in mounting bosses on the bottom of the enclosure at intervals of approximately 1 inch, located around the entire perimeter of the enclosure. This allows you to install DIN rails at virtually any location, avoiding the need and expense of a back panel.

Q: How does the Integra Back Panel Adjustment System work?

A: The Integra Back Panel Adjustment System consists of four mounting pads that slide on T-shaped rails molded into the four corners of the enclosure base. The mounting pads, which are provided with brass threaded inserts for panel attachment, are held in place by inserting a set screw. The set screw, which can be adjusted with the back panel in place, is inserted into a channel in the mounting pad which causes the set screw to engage with the T-rail, providing a positive attachment. The kit includes four mounting pads, eight set screws, an allen wrench, four back panel attachment screws, and an instruction sheet. (PN's BPAKG and BPAKB)



FAQ'S (CONT.)

Q: What are the advantages of the Integra product over the fiberglass product I am buying now?

A: There are several important advantages:

1. The engineered thermoplastic enclosure has dramatically better impact resistance. For example, the Premium Line enclosure has an impact resistance of over 900 lb/in, while fiberglass typically has an impact resistance of less than 220 lb/in.
2. Thermoplastic enclosures are available with a clear cover. For a fiberglass product, an expensive and potentially leaky window installation is required.
3. Thermoplastic enclosures feature a 100% non-metallic hinge design. Fiberglass products normally feature a steel hinge pin that will eventually corrode.
4. Thermoplastic enclosures tend to offer more features inside the enclosure to support component installation. For example, fiberglass products tend to have only four mounting bosses on the base of the box. Integra products feature those same four mounting bosses, plus molded-in mounting bosses surrounding the perimeter of the enclosure (see the DIN-rail comment above). Integra also offers the patented Back Panel Adjustment System, which eliminates the need for expensive stand-offs or allows the installation of multiple panels.
5. Thermoplastic enclosures are much easier and safer to machine, with none of the dust and splintering associated with fiberglass.
6. Fiberglass enclosures will “bloom” when exposed to sunlight. In fact, manufacturers of FRP enclosures recommend painting their products. This is not necessary with Integra thermoplastic enclosures.

Q: How are thermoplastics better than steel?

A: Steel is the industry standard at this point in time, but we see that changing for the following reasons.

1. Thermoplastics are non-corrosive. A steel box will eventually rust.
2. Thermoplastics are non-conductive. This eliminates a shock hazard.
3. Thermoplastics are lighter. This is important in instrumentation or robotic applications.
4. Steel boxes do not offer many mounting options. A thermoplastic, like the Integra product, offers many mounting options molded right into the box.
5. Steel enclosures require a window kit if you want a clear cover. Thermoplastics do not require a window kit.
6. If you want NEMA 4 or 4X, steel enclosures are extremely expensive. A thermoplastic enclosure can provide NEMA 4X at half the price.

Q: What if I buy an opaque cover enclosure and decide later that I really want a clear cover?

A: You can order clear covers, with gaskets installed, and easily replace it in the field.

Q: What about modifications?

A: Contact us for more information and a quote. Also, we do have our CAD drawings downloadable from our website. Use those to define the shape and location of your modifications and e-mail that to us at sales@integraenclosures.com.

Q: I notice that the enclosures are not metric. Why not, and how do you address this concern?

A: Integra provides “dual-dimension” data for our line of enclosures. Also, note that our “DIN rail friendly” design speaks directly to the need for European-designed components and the spreading use of DIN rail mounted components.

Q: Can Integra enclosure products be mounted underwater or underground?

A: Integra’s screw-closed configurations, including the hinged versions as well as the non-hinged versions, are now UL-Type 6P rated when the four provided attachment screws are used.



NEMA / UL-50 TYPE RATINGS

Definition: An Enclosure is a surrounding case constructed to provide a degree of protection against incidental contact with the enclosed equipment and to provide a degree of protection to the enclosed equipment against specified environmental conditions.

Type 1 – Intended for indoor use primarily to provide a degree of protection against limited amounts of falling dirt.

Type 2 – Intended for indoor use primarily to provide a degree of protection against limited amounts of falling water and dirt.

Type 3 – Intended for outdoor use primarily to provide a degree of protection against rain, sleet, wind blown dust, and damage from external ice formation.

Type 3R – Intended for outdoor use primarily to provide a degree of protection against rain, sleet, and damage from external ice formation.

Type 3S – Intended for use primarily to provide a degree of protection against rain, sleet, windblown dust and to provide for operation of external mechanisms when ice laden.

Type 4 – Intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, hose-directed water, and damage from external ice formation.

Type 4X – Intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, hose-directed water, and damage from external ice formation.

Type 5 – Intended for indoor use primarily to provide a degree of protection against settling airborne dust, falling dirt, and dripping non-corrosive liquids.

Type 6 – Intended for indoor or outdoor use primarily to provide a degree of protection against hose-directed water, and the entry of water during occasional temporary submersion at a limited depth and damage from external ice formation.

Type 6P – Intended for indoor or outdoor use primarily to provide a degree of protection against hose-directed water, the entry of water during prolonged submersion at a limited depth and damage from external ice formation.

Type 12/12K – Intended for indoor use primarily to provide a degree of protection against circulating dust, falling dirt, and dripping non-corrosive liquids.

Type 13 – Intended for indoor use primarily to provide a degree of protection against dust, spraying of water, oil, and noncorrosive coolants.

Marine Use – For use in or around marine and coastal environments to provide a degree of protection from corrosion, rain, dust, splashing and hose-directed water, and damage from external ice formation.



TECHNICAL INFORMATION

Chemical Resistance

WARNING! Variations in chemical behavior during handling due to factors such as temperature, pressure, and concentration can cause equipment to fail, even though it passed an initial test. **SERIOUS INJURY MANY RESULT!** Use suitable guards and/or personal protection when handling chemicals. The information in this chart has been supplied by reputable sources and is to be used **ONLY** as a guide in selecting equipment for appropriate compatibility. Before permanent installation test the equipment with the chemicals and under the specific conditions of your application. Ratings of chemical behavior listed in this chart apply to a 48-hr exposed period. There is no knowledge of possible effects beyond this period. This does not warrant (neither express nor implied) that the information in this chart is accurate or complete or that any material is suitable for any purpose.

S = Satisfactory and completely unaffected M = Moderate resistance, surface change in glass but properties remain
 L = Limited resistance/some chemical attack over time. Exposure should be limited to occasional fumes or light splashing
 U = Unsatisfactory. Severe attack in a short time

Chemical	(Polycarbonate)					
	Premium Line	(ABS) Line	(Modified PPO)	Polyester Glass	Stainless Steel	Steel
Acetic Acid (10%)	S	L	S	S	U	U
Acetone	U	U	U	U	S	S
Aluminum Chloride (10%)	S	S	S	S	S	U
Aluminum Sulfate (10%)	S	S	S	S	S	U
Ammonia Gas			U	L	S	S
Ammonium Chloride	S	S	S	L	M	S
Ammonium Hydroxide (10%)	U	M	M	L	S	U
Ammonium Nitrate (10%)	U		S	L	S	S
Ammonium Phosphate (10%)	S	S	S	S	S	U
Ammonium sulfate		S	S	S	M	U
ASTM #1 Oil	M	L	S		S	S
ASTM #3 Oil	M	L	S		S	S
Axle Grease	M	L	S		S	S
Boric Acid (10%)	S	S	S	S	S	U
Calcium Chloride (10%)	S	M	S	S	L	L
Calcium Hydroxide (10%)	S		S	U	M	S
Carbolic Acid (25%) Phenol	U	U		L	M	U
Carbon Tetrachloride	U	U	U	S	M	U
Chlorine (water) 5-10 ppm	S	S		S	M	
Chrome Plating Solution	S	L			U	U
Chromic Acid		S	S	S	M	U
Citric Acid (10%)	S	U	S	S	S	U
Copper Sulfate					M	U
Cutting Fluid (Norton 205)	S	L			S	S
Ethyl Alcohol	M	M	S	M	S	S
Ethylene Glycol	S	S	S	S	S	S
Ferric Chloride	S	S	S	S	U	U
Formaldehyde		S	S	S	S	S
Formic Acid	S	M	M	L	S	U



Chemical	(Polycarbonate)					
	Premium Line	(ABS) Line	(Modified PPO)	Polyester Glass	Stainless Steel	Steel
Fuel Oil (#2)		S	S	U	S	S
Gasoline		U	U	S	S	S
Glycerin		L	S	S	S	S
Hydraulic Brake Fluid	U	U	S		S	S
Hydraulic Oil	M	U	S	S	S	S
Hydrochloric Acid (10%)	S	S	S	L	U	U
Hydrofluoric Acid (20%)	M	L	S	S	U	U
Hydrogen Peroxide		L		S	M	M
Hydrogen Sulfide		M			L	U
Isopropyl Alcohol	S	M			S	S
Kerosene	M	U	U	S	S	S
Lacquer Thinner	U	U			S	L
Liquid Dish Soap (10%)	S			S	S	S
Lubricating Oils		M		S	S	S
Magnesium Chloride (10%)	S	M	S	M	S	S
Magnesium Hydroxide (10%)	S	M	S	M	S	S
Methyl Ethyl Ketone		U	U	S	S	S
Methylene Chloride	U	U	U	U	S	S
Mineral Spirits	M	U	L	S	S	S
Motor Oil (10 weight)	S	L	S		S	S
Nitric Acid (10%)	L	M	S	M	L	L
Perchloroethylene	U	U			S	S
Phosphoric Acid (25%)	S	M	M	U		
Phosphoric Acid (50%)	S	M	S	U	U	U
Potassium Carbonate (10%)	S	S	L	L	M	L
Potassium Chloride (25%)	S	S	S	S	S	S
Potassium Hydroxide (25%)	U	S	S	L	S	S
Potassium Nitrate (10%)	S	S	S	S	S	S
Potassium Sulfate (10%)	S	S	S	S	S	S
Soap (Igepal) 10%	S	S	S	S	S	S
Sodium Bicarbonate (10%)	S	S	S	S	S	L
Sodium Bisulfate (10%)	S	S	S		U	U
Sodium Chloride (25%)	S	S	S	S	M	U
Sodium Hydroxide	U	M	S	U	M	M
Sodium Hypochlorite	S	S	S	L	L	U
Sodium Nitrate (10%)	S		U	S	M	M
Sodium Phosphate (10%)	S	S	S	L	M	U
Sulfuric Acid (25%)	S	S	M	U	U	U
Tannic Acid (10%)	S	S	S		M	L
Toluene	U	U	U		S	S
Trichloroethylene		U	U	U	M	M
Trisodium Phosphate		M	S		M	
Turpentine	S	U	U	S	S	S
Vegetable Oils		S	S	S	S	S
Xylene	U	U	U	S	M	M
Zinc Chloride	M	S	S		M	U



TERMS AND CONDITIONS OF SALE

1. Orders become effective only when accepted and approved by Integra. Integra's acceptance is expressly made conditional on the Customer's assent to the terms and conditions contained herein and to the terms and conditions of any proposal issued by Integra to the Customer, and Integra agrees to furnish the material covered by the order only upon such terms and conditions. Any of the terms or provisions of the Customer's order which are inconsistent with the terms and provisions contained herein are not agreed to by Integra and shall not be binding on Integra and shall not be considered applicable to the sale or shipment of the materials ordered.

2. There shall be a minimum order amount of \$50.00 exclusive of freight.

3. Orders, shipments, and terms of payment are subject to the approval of Integra's Credit Department. Invoices shall be rendered when the materials are shipped. Terms of payment are net 30 days unless otherwise agreed by Integra. Interest may be charged on overdue accounts at the rate of 1.5% per month. Accounts that exceed 60 days may be placed on C.O.D. status at the discretion of Integra. Accounts that exceed 120 days shall be placed for collection. Payments shall be made to Integra Enclosures, P. O. Box 1870, Willoughby, Ohio 44061-1870.

4. Materials are sold FOB our plant and title shall pass upon delivery to the carrier. Integra is not responsible for any loss or damage incurred in transit and any claim must be made by the Customer. Integra shall assist in the filing of any claim, at the request of the Customer.

5. Shipment dates are given based on current inventories and production plans. However, Integra shall not be responsible for any partial or total failure to deliver or for any delay incurred caused by accidents, delays in transportation, fires, explosions, floods, earthquakes, or other acts of nature, riots, strikes, or other causes beyond Integra's reasonable control.

6. Orders for non-standard materials, such as modified product, are not cancelable and not returnable without Integra's prior consent. Should consent be given, Integra reserves the right to recover all direct costs incurred as a result of the cancellation.

7. Returns of compliant materials may be returned at the customers request only upon the approval of Integra. Materials must be in re-sellable condition and in their original packaging. Returns not accompanied by a new order of greater or equal value shall be subject to a restocking fee of 25 percent of the original sale price.

8. INTEGRA WARRANTS THAT THE MATERIALS SOLD TO THE CUSTOMER ARE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP AT THE TIME OF SHIPMENT. THE CUSTOMER SHALL NOTIFY INTEGRA IN WRITING WITHIN 30 DAYS OF RECEIPT FOR ANY CLAIMED DEFECTS OR NON-CONFORMING MATERIALS.

NO MATERIALS CAN BE RETURNED WITHOUT THE PRIOR CONSENT OF INTEGRA, AND IF APPROVED SHALL BE RETURNED TO INTEGRA FREIGHT PREPAID. INTEGRA'S LIABILITY FOR ANY BREACH OF THIS WARRANTY SHALL BE LIMITED TO EITHER REPLACEMENT OF THE MATERIALS OR, AT INTEGRA'S SOLE OPTION, THE REFUND OF THE PURCHASE PRICE. INTEGRA SHALL NOT BE HELD LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY BREACH OF THIS WARRANTY. THIS EXCLUSION APPLIES WHETHER SUCH DAMAGES WERE SOUGHT BASED ON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT LIABILITY IN TORT, OR ANY OTHER LEGAL THEORY. FURTHER, INTEGRA SHALL NOT BE LIABLE FOR LOSSES, DELAYS, LABOR COSTS, OR ANY OTHER COST OR EXPENSE DIRECTLY OR INDIRECTLY ARISING FROM THE USE OF MATERIALS. INTEGRA'S LIABILITY IS EXPRESSLY LIMITED TO THE REPLACEMENT OR REPAIR OF DEFECTIVE GOODS, OR THE TOTAL VALUE OF SUCH GOODS. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED, OR ORAL INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY, ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY IMPLIED WARRANTIES OTHERWISE ARISING FROM A COURSE OF DEALING OR TRADE.

9. Should any clause of this agreement be held unenforceable or unlawful, it is agreed that the clause in question shall be modified so as to eliminate the unenforceable element and as so modified, shall be binding on the parties. The remaining clauses and provisions shall not be affected.

10. Any assistance, suggestions, or technical advice given the Customer by Integra or any agent thereof, concerning dimensions, handling, installation, testing, storage, use or placement in service is an accommodation for which Integra shall have no liability unless expressly provided by Integra in writing and signed by an officer of the company.

11. This agreement is complete and contains the entire contract between the parties, and may not be modified except in writing by both parties. No employee, agent, or representative of Integra has the authority or power to add, waive, or amend this contract unless first authorized in writing by an officer of Integra. This agreement shall be construed under the laws of the State of Ohio. Waiver of Integra of any breach shall not thereafter be deemed a waiver of a subsequent breach of the same of any other provision hereof.

