



U N R I V A L E D P R O T E C T I O N



# FRP TRANSIT CASES

## UNLIMITED CUSTOM SOLUTIONS

FRP, Fiberglass Reinforced Polyester containers, allow total design flexibility for military and industrial transit cases and reusable containers.

FRP Cases are designed and manufactured in extreme sizes and case configurations, removable lid designs, and hinged clam-shell designs. FRP containers are manufactured using proprietary FRP compression molding technology. High impact, light weight, FRP composite components are epoxy bonded to heavy-duty aluminum extrusions. Watertight FRP composite cases provide protection from moisture, salt spray, sand and dust throughout the world's climate extremes. Impervious to fuels, oils and solvents, they can also be decontaminated if exposed to chemical warfare agents.

FRP containers have protected valuable military, industrial and commercial equipment from the world's most challenging conditions.



## IDEAL CUSTOMER:

- MILITARY
- OVERSIZED EQUIPMENT
- COMMERCIAL

## FEATURES:

- LARGE TRANSPORTS
- ALMOST ANY APPLICATION
- DESIGNED TO MEET MIL-STD-810G
- LONG-TERM STORAGE

## UNLIMITED SIZE AND CUSTOMIZATION EXTREME CASES AND COMPLEX DESIGNS

FRP custom cases include the most complex designs and the largest transit cases and enclosures ever manufactured by ECS. Extreme cases and containers are manufactured using proprietary FRP compression molding technology. High impact, light weight, FRP composite components are epoxy bonded to heavy-duty aluminum extrusions. This fabrication method allows ECS to create extremely large transportable enclosures for oversized equipment.

## TOTAL PROTECTION FROM THE WORLD'S ENVIRONMENTS

Water tight FRP composite cases provide protection from moisture, salt spray, sand and dust throughout the world's climate extremes. Impervious to fuels, oils and solvents, they can also be decontaminated if exposed to chemical warfare agents. ECS FRP containers have protected extremely expensive military equipment, including \$100-million satellites, from the world's most challenging climatic and environmental conditions.

## STRENGTH TO MATCH THE APPLICATION

Light in Weight – The unique FRP molding process at ECS provides custom designed, hermetically sealed containers. Optional, premium priced, polyester/ fiberglass composites can be compression molded by ECS to achieve super-light transit case weights. FRP composite exteriors can be compression molded with a range of wall thicknesses and corner thicknesses capable of providing transportation durability, impact resistance and stacking strength for large military and commercial equipment.

## EXTREMELY DURABLE FRP THERMOSET COMPOSITE PARTS

Compression molded FRP parts have 60%-65% glass fiber reinforcement in a thermoset polyester resin base. Composite parts are compression molded on hydraulic presses with capacity up to 150-tons. High glass fiber content in the FRP case shells provides exceptional impact resistance and rugged durability at temperatures which exceed a range of -65° F to +185° F.

## UNLIMITED RANGE OF FABRICATED CASE SIZES

FRP materials allow total design flexibility for military and industrial transit cases and reusable containers. FRP molded shapes and FRP flat panels are routinely epoxy bonded together with heavy-duty aluminum extrusions shapes to manufacture much larger containers than the FRP case shells that can be molded in any of ECS's hundreds of FRP compression molding tools. With clever application of a wide range of aluminum extrusion shapes, hardware and custom fabricated parts, ECS is able to design and manufacture an FRP custom case or enclosure to satisfy the unique requirements of virtually any application.

## UNLIMITED RANGE OF HARDWARE AND OPTIONS

ECS maintains over 30,000 different items in inventory and has an impressive CAD/CAM machining capability for special parts. FRP cases can be molded with recesses for tote handles, casters, lifting handles, latches and other exterior hardware. Toteable FRP cases for electronic test sets can include molded-in EMI shielding and flanged extrusions for panel mounting equipment. FRP cases can be manufactured in virtually any color under the sun.

## EXTREME EQUIPMENT WEIGHT RANGE

FRP custom palletized designs can incorporate the features common to a hermetically sealed composite enclosure with the forklift handling features of a sea-going freight container. FRP custom cases and enclosures can be supplied with shock mounts to accommodate and protect unusually heavy equipment.

## UNLIMITED RANGE OF INTERIOR STRUCTURES

Fabricated aluminum platforms are frequently installed inside large FRP containers. Shock mounts, engineered by ECS to match the weight and fragility of the equipment, allow each platform to "float" inside its container. Shock mounted platforms assure that large electronic systems, antennas, satellites and other large military equipment will be protected from shock and vibration during shipment.

## SHOCK MOUNTS AND CUSHIONS FOR EQUIPMENT PROTECTION

Shock and vibration attenuation can be provided by elastomeric shock mounts, helical isolator (cable) mounts and custom fabricated foam cushions. The high impact absorption characteristics of FRP composite materials enhance shock and vibration protection for enclosed equipment. Custom designed foam cushions are manufactured by ECS using computer controlled equipment. Shock mounts are configured for the weight and center of gravity of the installed equipment, and they provide uniform performance in all three axes. Optional shock mount configurations and spring rates can be provided to support a broad range of equipment weights and equipment centers-of-gravity.

MATERIAL	FRP- FIBERGLASS REINFORCED POLYESTER	ROTATIONALLY MOLDED LLDPE
TENSILE STRENGTH	33,500 PSI - Also Customizable, Pending Customers Requirements	4,000 PSI
TENSILE MODULUS	2,431,000 PSI	75,000 PSI
FLEXURAL STRENGTH	46,900 PSI	N/A
FLEXURAL MODULUS	1,994,000 PSI	175,000 PSI
THERMAL DEFLECTION	Customizable up to 392 °F	122 °F
SIZES	Endless	Driven by tool size
CUSTOM FEATURES	Rapid Decompression Discs, Air Valves, Fork Tubes, Gaskets, Casters, Hoist Rings, Desiccant Holders, Specialized Isolation Systems, Specified Custom Options such as, I/O Panels, Louvers, EMI Shielding, Pull-out Drawers, Shelves & More	N/A