

Plastic Equipment Cases

What should you consider when investing in an item that is protecting some of your most valuable assets?

From first glance an equipment case may seem a basic product designed to do a job with little comparable features to set it aside from others. Hardigg UK have given us an insight into what actually goes into producing a case and what you should consider when investing in an item that is ultimately protecting some of your most valuable assets.

There are basic differences in rotomold and injection mold products and process.

Rotational molding, or rotomolding, is a cost-effective way to produce large parts. Plastic resins are loaded into a mold that is heated as it is rotated slowly on both the vertical and the horizontal axis. This simultaneous heating and rotation distributes the material on the inner surfaces of the mold and fuses it.

Rotomolding is a four-phase process, which comprises loading,

heating, cooling, and unloading the mold. Several molds may be loaded on a given machine at the same time.

Compared to the injection molded process, roto-molding production process is a longer cycle, low pressure process that allows for a lower level of cosmetic detail. The combination of process and material offer inherent performance benefits – thick corners, excellent impact resistance and shock / vibration absorption.

Injection molding process is generally a fast cycle, high volume process. During this process the material (molten plastic) is injected at high pressure into a mold, which is the inverse of the desired shape. The mold is made from metal, usually either steel or aluminum, and precision-machined to form the features of the desired part. The tooling is much more costly than Roto. However, this method allows for a high level of product detail.

Performance features, such as thicker walls and corners, stiffening ribs, etc., have to be designed in the tooling and are not inherent in the process.

Rotomolded Cases

Hardigg rotationally molded cases are manufactured from proprietary blended Polyethylene that provides high-level performance at wide temperature ranges and exceptional impact resistance. The color is integrally blended into material, so the cases cannot be peeled, scraped or scratched away.

During the rotomolding process consistent one piece parts are produced that maintain airtight / watertight integrity. Due to the specifics of the production process, all cases have enhanced corner thickness, which accounts for exceptional drop performance. Case corners and edges are 15-20% thicker than flat surfaces, and provide additional protection where it's needed most.

The Cut & Weld process allows for unique size solutions with little or no performance loss.

During a proprietary manufacturing process hardware inserts are molded into the body of the case, which provides for extremely strong hardware attachment points.

Molded-in anti-shear base-to-lid interlock prevents lid separation on impact and minimizes stress on hardware upon impact.

Interlocking ribs provide stability when cases are stacked.

Purge or fill valves maintain equilibrium through changes in temperature and altitude.

All Hardigg rotomolded containers are recyclable for ecologically sound disposal.

Injection Molded Cases

Hardigg injection molded cases, Storm Cases, are manufactured from a custom-developed HPX®



high performance Polypropylene resin. During internal testing HPX® resin consistently shows high impact resistance, especially under low temperature conditions. Some manufacturers use a blowing agent in the shell molding process, which aids in reducing material shrinkage in thicker sections. However, the downside is that bubbles and small voids form in the part, which can cause failures when the case suffers impact.

“Strong, snap fit, and an easy release with the press of a button”

The Press & Pull latch designed for the Storm Case is a pain free easy to open and close system that does not rely on case/gasket compression to hold shut. It is a mechanical latch that allows for a strong, snap fit, and an easy release with the press of a button.

All Storm Cases come with a Vortex® Valve, an automatic pressure relief valve that regulates air with changing altitude and temperature, while keeping water out. Storm Case pressure equalization vents are the result of a unique molded housing





is less drag than in a similar wheel with plain bearings.

The silicone gasket material for the Storm Case line does not take as much compression to set at low temperatures as compared to the neoprene foam rubber used by the competitors.

This means leaks are less likely to develop with the silicone gasket.

Options like wheels or casters, extra handles, shoulder straps, bezel mounts

and lid stays not only add ease to moving sensitive and delicate equipment, but also confidence while using them in any environment. Whether you are a hobbyist, professional or industrial business owner there will be a range of Hardigg case sizes and security to match your equipment for long-term performance and protection.

Equipment that is particularly sensitive to shock or vibration or that has uniquely shaped

components may have special packing requirements to ensure secure transport. Hardigg cases can be fitted with foam lining, multilayer polyurethane or solid polyethylene foam, or custom-cut polyethylene foam.



and a special "Gortex" gas-permeable micro-porous membrane that can repel liquids and micro-particles while allowing gas (air) molecules to pass right through the membrane. Liquids, dust and dirt particles are repelled while pressure differentials are automatically equalized by the exchange of air through the membrane. The self-regulating Vortex® valve is completely automatic, so there are no push buttons or moving valve parts.

One of the features that distinguishes the Storm Case handle is the comfort grip. Hardigg uses an over-molding process that places a softer, durable cushioning layer on top of an ultra-stiff, ultra-strong core to provide a comfortable grip without compromising strength.

To enable ease of transport, some of the cases—known as the Storm Trak® Series—feature in-line wheels and extended handles. The extended telescoping handle extends or locks away with the simple push of a button. Storm Case extended handles are a wide-tubular design, sleek and exceptionally strong. Hardigg's in-line wheels are rugged urethane wheels with shielded bearings, offering a long life of smooth operation. The core of the wheel is made from nylon and the outer tread or tire is made from polyurethane, which provides a smoother, quieter rolling action than hard plastic. Shielded ball bearing wheels are also low-friction, which means rolling the case for long distances is easier because there

All Hardigg cases are continually tested to ensure they satisfy the toughest standards.

Many of Hardigg rotomolded cases have been certified under various MIL-SPEC testing procedures, including fungus resistance, 48-inch free-fall drop, salt/fog, cargo bounce, submersion,

temperature and humidity, vibration limits, and low pressure (altitude).

Storm Cases have been tested for endurance and performance in extreme temperatures and the table below shows a few tests that are done to meet and exceed, the many worldwide standards.

Test	Description
Drop Test	A series of 26 drops, one on each corner, edge, face, from 19" to 30", depending on the gross weight of the case with loads of 15 lbs to 70 lbs (depending on case size).
Falling Dart Impact	A dart weighing 13.22 lbs with a 1.25" hemispherical end was dropped on each case from 19.68".
Vibration (loose cargo)	Each case was vibrated for 20 minutes per axis. 1-inch peak to peak at approximately 4.50 Hz.
Vibration (sweep)	Vibration Test for Category I containers - Vibration tests shall be conducted within the range of 5 to 50 cycles per second for a period of not less than two hours.
Simulated Rainfall	Four inches of rain per hour for 20 minutes each side. This was followed by a 4-hour test at 4" per hour on the top, with the case initially heated to 18°F higher than the water temperature.
Immersion	A 1 meter (3.281 feet) immersion for 1-hour, with the case initially heated to 40°F higher than the water temperature.

Hardigg UK is a European subsidiary of a US-based parent company Hardigg Industries, one of the largest manufacturers of reusable plastic containers. For over half a century, Hardigg has been designing transport systems to protect sensitive equipment under the most severe conditions imaginable. Today, everyone from scientists and photographers to major military, defense, and aerospace contractors trusts their critical gear to Hardigg cases.