



From Idea to Product: Design



Design

Once you're happy that your product can be brought into the market of today and sell well, it's time to design it.

Designing a product is broken down into 3 separate design phases:

- 1 Aesthetic Design**
- 2 Mechanical Design**
- 3 Design for Manufacture**

Each area of design will fight for control over the look of your product. Aesthetic design is generally what most people consider first, how their design will look. However, this is often dramatically changed by the mechanical design limitations, and changed even further by manufacturing considerations. At this stage, it's incredibly important to begin talking to and hiring professionals that can help you with this process.

Research

Design

Prototyping

Manufacture

Assembly

Distribution

1 Aesthetic Design

From a sales point of view, aesthetic design is one of the most important aspects. The aesthetics of the product are the most obvious part of the design process and it's ultimately the first thing that customers (and co-workers and clients) will notice about the way the product has been designed. Before people look at the specifications of the product, the way it feels to use or the way it performs its task, they will notice how it looks. This is quite often the deciding factor in a purchase.

Stay up to date with design trends in your industry, as well as other industries. Understanding what customers want their products to look like is an important consideration. Take a look at your research and focus on the competitors in your market. Focus on the products from the companies, the brand styles and ethos of the businesses. Use these to capitalise on what works and what doesn't to produce something unique, but that resonates with your market.

Hire a product designer that can 3D model your preliminary drawings and create a design that looks like the product that you imagined in your mind from the start (and that resonates with your research).

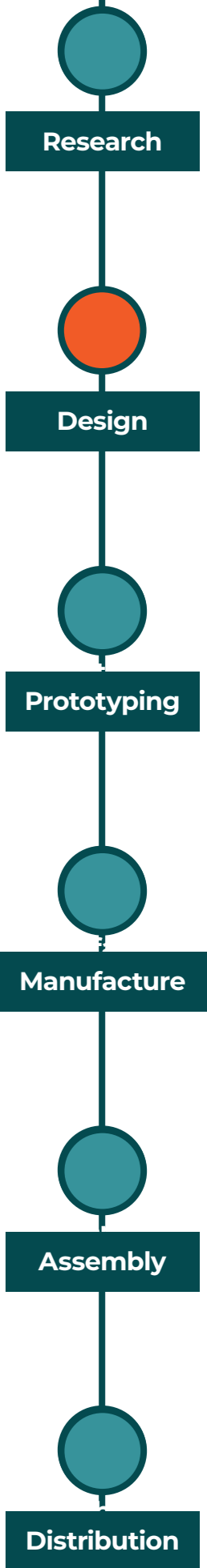
However, don't put aesthetic design ahead of everything else. Nothing will put a customer off faster than when it's clear to a company that "form" is more important than "function". This is where mechanical design comes in.

2 Mechanical Design

This is where it's important to put "function" first. Customers are very quick to forget about the beautiful aesthetic of a product if the product is painful and irritating to use.

Ensure that the product is as comfortable and as intuitive to use as possible. You want the product to be as enjoyable to use for as long as possible. If ergonomics come at the cost of some aesthetics, it's better to have a comfortable, easy to use but less than perfect looking product than one that looks amazing but is horrible to use.

Mechanical design also encompasses the inner workings of the product. Your mechanical designer should be able to meticulously design and model how your product should work.





EXAMPLE

We want our Coffee Shaker to look amazing. We want it to be a monolith to coffee lovers everywhere. However, our original monolithic design was prohibitive to the internal shaking matrix, so we had to redesign the aesthetics so that mechanics of the shaking mechanism were still operation.

Mechanical design also encompasses the design of the internal coffee shaking matrix to ensure optimal coffee brewing. We take into account our "Idea Validation" phase, and make it as perfect as possible through rounds of prototyping and R&D.

Mechanical design encompasses everything from how it works, through to what it's made from and what it's held together with. Your mechanical designer will pay attention to the material of everything, from the 'shell' of the product, down to the materials of the hardware such as screws, nuts and bolts. Hardware of the incorrect spec can cause a product to fail years before the product's expected lifecycle.

Additionally, they'll ensure that mixed materials – either used in the product or ones that the product is like to come in contact with – are compatible. Materials such as steel and aluminium, when used together, can cause galvanic corrosion and corrode prematurely. Certain plastics and rubbers will be degraded quickly in oily and greasy environments.

3 Design for Manufacture

This is where a company like MRT Castings comes in. You know the functionality and the aesthetics you need but unless your product can be manufactured economically, repeatably, reliably and within the correct timeframes then it will never achieve its full potential.

MRT's technical team have been designing successful cast components for many decades and what it boils down to for us is partnership. We like to work in partnership with your product designers to develop and adapt your product concept or design to optimise it for manufacture. We use our experience, expert knowledge, and the latest Solidworks CAD modelling software to help us achieve innovative designs which can be manufactured within the controlled parameters required.

Designing castings is a specialist skill. Die cast components require specific features such as draft taper, even wall thicknesses, and the avoidance of undercuts and isolated heavy sections. All of these issues can be easily overcome if you work directly with our team before you freeze your design. Costs of machining, surface finishing and assembly can also be dramatically reduced if we are consulted early in the design process.



Research



Design



Prototyping



Manufacture



Assembly

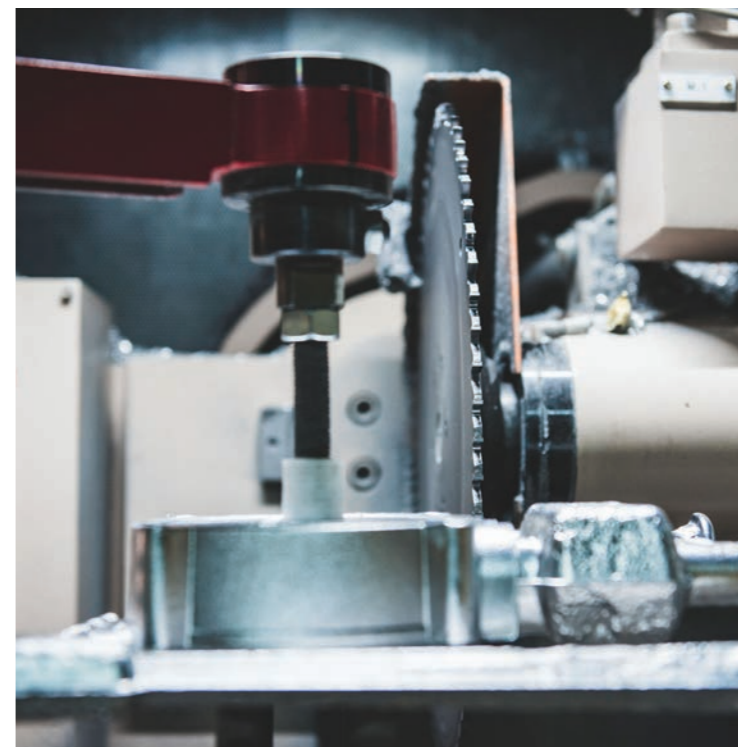


Distribution



EXAMPLE

The Coffee Shaker is fully designed and 3D modelled. It then gets sent to a potential manufacturer (MRT Castings), who look over the designs. They make a few design alterations to make it suitable for aluminium die-casting and offer a few additional changes based on their manufacturing experience that reduces the cost of manufacture by 5% and the manufacturing time by 10%. These savings mean that the Coffee Shaker could be Powder Coated within budget for a more premium feeling product.



Research

Design

Prototyping

Manufacture

Assembly

Distribution