

PRODUCT DESIGN GLOSSARY

Written by James McInerny, Desitech
www.desitech.co.uk

Aesthetics	The look and feel of a product.
Assembly	A collection of parts and sub-assemblies.
Bevel	See <i>Chamfer</i> .
Bill of materials	A table of components used in an assembly and values associated with them. Eg Quantity, Weight, Material.
Blend	See <i>Fillet</i> .
BOM	See <i>Bill Of Materials</i> .
Brief	The documentation defining the specifications and standards which the final design outcome must meet.
CAD	Computer Aided Design.
Cavity	The part of an injection moulding tool which forms the outside of a part.
Chamfer	An angled cut at a corner or edge.
Coil	A spring like curve defined by pitch height and revolution.
Component	Part or sub assembly within an assembly.
Concept	A vision of how a product could be, often explained with hand sketches and rough models.
Constraint	See <i>Relation</i> .
Core	The part of an injection moulding tool which forms the inside of a part.
Crosshatch	A pattern of parallel lines applied to an area on a drawing such as section-views.
Cut	A feature which removes material from a part.
Cycle time	The time it takes to mould one part.

Detail view	A portion of a view on a drawing, usually larger scale than the view it originated from.
Dimensional tolerance	See <i>Tolerance</i> .
Direction of pull	The direction a mould tool opens in relation to the part it makes.
Draft	The angle measured between a face and the direction the mould tool opens. The bigger the draft, the easier a part can be manufactured.
Drawing	2D representation of a 3D part or assembly. Used to fully and clearly define requirements for manufacture.
Edge	Outer boundary of a feature.
Ejection points	Areas on a part which are used by ejector pins to push the part out of a mould tool.
Engineering drawing	See <i>Drawing</i> .
Ergonomics	Designing a product around the physical properties of its user.
Exploded view	A view of a product with all its components separated, usually to show how it is assembled.
Extrusion	A linear projection of a shape which either adds or removes material within the projected shape.
Face	See <i>Surface</i> .
Fastener	Component which mechanically joins two or more objects together. Eg Screw, Staple, Nail.
Feature	An individual shape contained within a part.
Fillet	A rounded corner or edge.
Flash	Excess plastic on a part found when the mould tool did not seal properly when the part was being moulded.
Flow marks	Visible marks left on a part by the moulding process.
Gate	The point from which molten plastic is forced into the mould. Gates often leave a visible mark where the part is cut from the moulding machine.
Hatching	See <i>Crosshatch</i> .
Helix	See <i>Coil</i> .
Hem	Sheet metal edge that is folded over. Eg closed, double or tear-drop hem.
Hole table	A table listing hole sizes and locations on a drawing.

Injection point	See <i>Gate</i> .
Interaction design	The consideration and design of the way users will interact with a product.
Interference	The area in which two or more parts obstruct each other when positioned in an assembly.
Knit lines -	During the injection moulding process, when the flow of material splits, a line where the material meets back up again is often visible.
Line of draw	See <i>Direction of pull</i> .
Loft	A part feature created by transitions between two or more profiles.
Lug	A small extrusion.
Manufacturing tooling	See <i>Mould tool</i> .
Mate	Geometric relationships between components in a assembly. Eg Perpendicular, Tangent, Coincident.
Mould tool	Tooling used to produce plastic parts, usually made from hardened steel or aluminium.
Mould flow analysis	Computer simulation which predicts how molten plastic will fill a mould tool during the injection moulding process. It can be used to identify potential manufacturing issues.
Multi-cavity mould	A mould with multiple copies of the same part.
Nesting	Placing components within one another to reduce cost when being rapid prototyped.
Part	A 3D object made up of features. In an assembly it can be referred to as a component.
Parting line	The line around a part where mould pieces come together. There is often a visible line left behind.
Prototype	Functional model of the proposed design.
Recess	An indentation into the body of a part.
Rendering	A product image generated either from a computer model, or by hand.
Revolve	A feature created by revolving a sketched profile around a centreline.
Rib	A reinforcing feature of a moulded part.
Round	See <i>Fillet</i> .
Screw boss	A feature designed for a screw to be fixed into.

Section view	A drawing view created by cutting through another drawing with a section line.
Short shot	A part that wasn't completely filled with resin, causing missing features.
Shrink	When a part is reduced in size as it cools after moulding. The shrink rate will be adjusted for based on material selection.
Side action	A sliding feature within the mould tool that allows complex forms to be created. The slide action moves out of the way before the tool is opened.
Sink marks	Unwanted depressions in the surface of a part which occur in thick sections of a part.
SLA	See <i>Stereolithography</i> .
Sliders	See <i>Side action</i> .
SLS	Used to create components with realistic movement.
Spline	A smooth 2D or 3D curve defined by a set of control points.
Sprue	The passage through which liquid material is introduced into a mould during casting or moulding. Material in the sprue will solidify and need to be removed from the finished part.
Stereolithography	A rapid prototyping technology used to create components with a realistic look.
Sweep	A feature created by moving a profile (section) along a path.
Tangent	Two lines or bodies which have point in the same direction where they meet.
Third angle projection	The convention used for displaying drawing views used in the UK.
Title block	A table located in the bottom right corner of a drawing which contains sections for providing quality, administrative and technical information. Eg Drawing number, material, finish.
Tolerance	The amount that part dimensions can be wrong by without affecting the performance. Each dimension can have its own specification for tolerance.
Undercut	A feature that cannot be moulded using a simple open and close mould tool because it would prevent the tool from re-opening. Side action features in the tool would be required.
Warp	A distorting of part dimensions as the part cools. The addition of ribs can help prevent this.
Weld lines	See <i>Knit Lines</i> .