

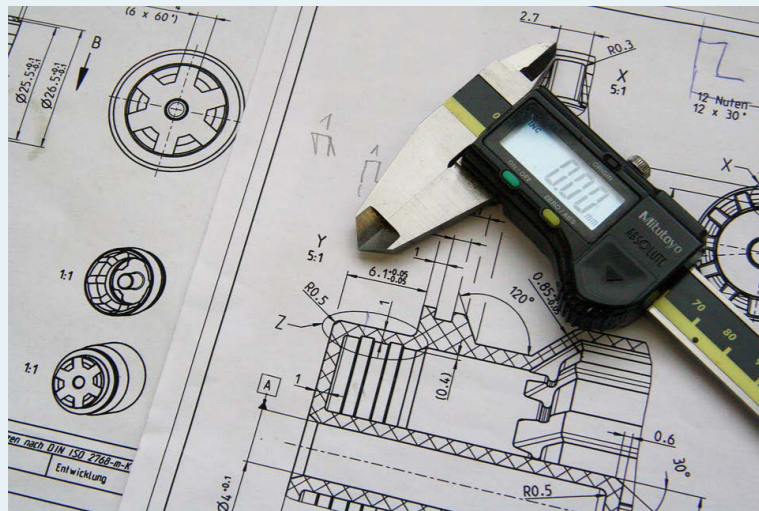


## Interpreting engineering drawings

Designers and engineers use engineering drawings to convey information and details about the product to be manufactured or constructed.

Engineering drawings include details such as:

- sizes of parts or elements to be made
- details on materials
- information on finishes
- various views of the product
- tolerances
- scale
- details of complex parts.



**Scale** informs the engineer what scale should be used when using the drawing. A scale of 5:1 indicates that the drawings are five times smaller than the original product should be. This allows engineers to take dimensions (sizes) directly off the engineering drawings. Care must be taken when doing this to ensure the correct scale is applied.

**Finishes** information gives details on what the finish of the part or product would look like, for example, a knurled finish on a tightening clamp.

**Detail views** are sometimes used by engineers to explain the details of more complex parts in an engineering drawing.

**Title blocks** are used to display key sections of information about the drawing, i.e. scale, who made the drawing, the date it was drawn, the drawing number.

**Orthographic views** are the standard views used to lay out a set of engineering drawings. They must conform to British standards (BS8888) to allow a common format of presenting information to various people such as manufacturers.

**Section views** show a drawing of a part that may have been cut through to allow the reader to see further details.

**Isometric views** are often used by engineers and designers to produce a three-dimensional representation of the product or part.

## Interpreting engineering information

Engineers need to interpret the information found on engineering drawings to assist them in manufacturing.

The information should be used to identify key areas in preparation for planning such as:

**Equipment** that will be required to manufacture the engineered product.

**Tools** that will also be required during the manufacturing should be identified.

**Tolerances** are the minimum and maximum limit that a part can be outside of the stated dimension (size) on a drawing. For example, a part that is 20mm long with a tolerance of  $\pm 0.3\text{mm}$  would be acceptable if it was 20.3mm or 19.7mm when finally tested.

## Presenting engineering information

Engineers and manufacturers need to know specific information about the product before they can manufacture it.

The people who will undertake the manufacturing must also understand specific details about how processes are carried out i.e.

- which speed should be used to drill a particular size hole in a particular material
- what speed is needed to cut a slot in a piece of aluminium
- which size hole should be drilled in a material to create a given thread size
- what finished must be applied to a material when it is manufactured
- what component parts are required in production (nuts, washers etc.).

