

Individualised standard cases-  
the unmistakable casings





Sometimes it is low quantities, but sometimes it is also a lack of time that makes customers resort to a standard solution. Nevertheless, it is possible to turn a standard case into a customised solution with a high recognition value.

#individualisedstandardcases

Cases are an indispensable part of our everyday lives. Almost every electronic device needs a case; and this case not only has the task of protecting. It must look good, feel good and be as individual as possible.

Case manufacturers have adapted to these needs. Based on standard cases, customised case solutions are offered from a single source.

Around 80 percent of the cases at Fischer Elektronik leave the company with a customised finish.

## The Perfect Basis

The most important requirement for a customised case is that there is sufficient space in it for the electronics. The type of construction and material play an important role here.

Case manufacturers offer a wide range of cases in different sizes and materials. These cases can be constructed in a variety of ways. The construction plays an important role in the installation of the electronics as this often only allows a specific assembly sequence.

In order to be able to serve as many customers as possible with one solution, manufacturers design their cases universally. This means that they have suitable openings for the installed electronics, for example, for inputs and outputs or connecting elements for circuit board assemblies, which are inserted later.

Visually, too, the cases are often designed to be plain and unobtrusive in order to give the customer the freedom for individualisation.

The customer often has several options to choose from for these and other adaptations based on the manufacturer's manufacturing capabilities.

The production-related possibilities differ from manufacturer to manufacturer. This is mainly due to the fact that every case manufacturer has specialised in certain types of cases, such as plastic or aluminium cases.

Accordingly, openings for inputs and outputs or displays, for example, can be made in the case in various ways.

## Milling, Lasering, Punching

Milling is a metal-cutting process in which a milling cutter is used to cut a desired contour into the workpiece. Milling, which is often used for decoratively demanding parts, has the advantage that it can be used to create any desired contours in almost all case parts and

case materials. Even three-dimensional cut-outs for displays or buttons can be made with ease. Clean cut edges and a high degree of accuracy are the result. The disadvantage here is the obligatory radii in contour corners.

Low quantities are also usually associated with high costs due to high set-up costs and machine hourly rates.

Laser cutting is used where complex contours require precise and fast processing. Narrow kerfs and high precision are achieved using the laser. A wide range of materials can be cut almost burr-free.

A cost-effective alternative to milling or lasering is punching. In punching, the material is separated from, for example, the sheet metal using a punch and a die after the shearing process. Modern machines can combine several punch geometries in order to punch out the desired contour. This process is also called nibbling. As with a punch, nibbling separates material from the sheet piece by piece. Besides nibbling, these machines can also emboss, mark, bend and form threads. The so-called nibbled

## Different Methods for High Recognition Value

Colour concepts or distinctive logos increase the recognition value of the end product on the market. Visual as well as sensory stimuli are decisive for the first impression. This is often created in the first second and is particularly important when it comes to making a purchase.

There are several possibilities for the colour design of plastic cases. One is to colour the plastic granulate using a masterbatch before injection moulding. Another possibility is to subsequently paint the case. The subsequent painting is associated with additional effort, as the plastic parts must be pre-treated with special adhesion promoters. In addition to aesthetics, the paint layer also serves as weather protection.

Bare aluminium is very sensitive to contact and tends to corrode quickly. To counteract this natural process, aluminium cases are anodised. The anodising process creates a layer on the metal surface that forms an artificial oxide lay-

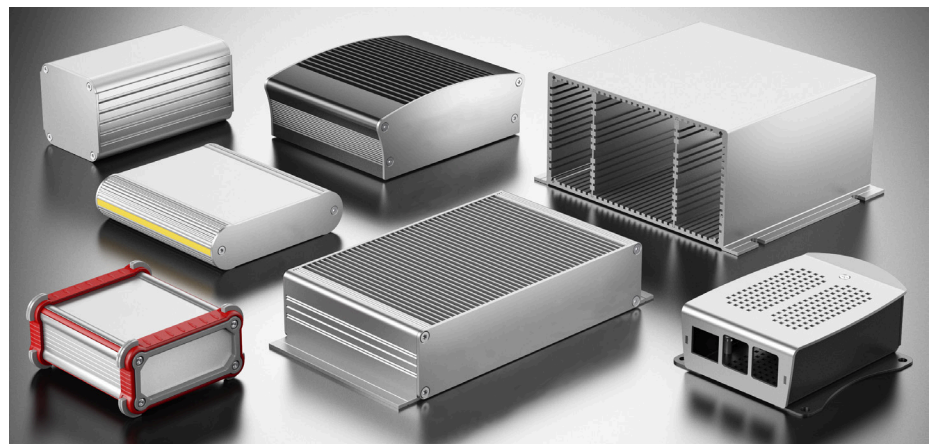


Illustration 1:

Standard cases, as the picture shows here, can be individually designed using a variety of methods.

edges are a disadvantage here. These occur at the overlaps of the punchings and can be seen with the naked eye.

Therefore, punching should not be used for decoratively demanding parts. Many cases offer the customer different mounting options for the circuit board or other components. These include guide slots, slots for square nuts or threaded holes. If, however, the assembly of the components in the case is not possible at the first attempt, additional threaded bolts or nuts can be attached by means of joining or welding techniques.

er which can be easily coloured using special anodising dyes. This means that aluminium cases can also be coloured as desired. After the compaction process, the anodised layer is more resistant than the aluminium underneath.

When painting metal cases, a distinction is made between wet painting and powder coating.

In wet painting, the paint is sprayed onto the part in liquid form. The advantages here are that paint can be applied in several layers and the choice of colours and paints is very large.

For powder coating, the surfaces to be painted must have an electrically conductive surface. Aluminium cases are provided with an electrically conductive conversion layer before powder coa-

ting. During painting, an electrostatically charged powder paint is sprayed onto the part. The powder particles are attracted to the surface of the case and adhere to it. The strength is achieved by baking the paint at about 150 °C. The coating is resistant to mechanical stress and UV light. Compared to wet painting, powder coating is more environmentally friendly because no solvents or thinners are used.

With plastic cases, the surface structure is determined in the injection mould. The toolmaker works the desired structure into the tool. With metal cases, the manufacturer is more flexible in this respect as the surface treatment often comes at

## Cooperation spares surprises

The possibilities for customising cases are many. Early cooperation with the case manufacturer is important in order to avoid later surprises and the associated modification measures. In addition to free advice, case manufacturers also offer 3D models that can be used in advance to construct and test the assembly groups in the CAD system.



Illustration 2:  
The basis of the individually constructed cases is a standard case.

the end of the production chain. Glass bead blasting or grinding, for example, is used to create a uniform structure on the desired surfaces. This improves not only the visual but also the sensory perception.

Different printing methods are available for labelling the inputs and outputs at the openings in the case or for applying the company logo. Among these, screen printing is a common process when the number of colours is low. Digital printing is used for 3D logos. Laser engraving is also a method that is often used for individual case design.



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