

Know-how for every application







Preface

Particularly sophisticated machining problems can often no longer be solved with standard tools. Rather, the manufacturing of highly complex components in shorter and shorter amounts of time require special tools.

Together with our customers, we here at TRUMPF face this challenge every day.

Here, you will profit from over 40 years of punching know-how, the widest range of tools on the market worldwide and our aspiration to also find intelligent solutions for new challenges.

We have compiled the most common applications for special punching tools for you in this catalog. From components which are completely machined on punching or punching and laser cutting machines and universally applicable joining techniques to special individual applications, such as tread plates or housings. Discover the variety of punching applications.

And if there should not be a solution for your problem, we will individually develop tailor-made special tools exactly according to your specifications. Regardless of whether or not your application can be realized with conventional steel, stainless steel or aluminum, our experts have the right experience in the area of non-metallic materials.

Thanks to our own in-house production and intensive tool testing on TRUMPF machines, we meet the toughest quality demands. Thanks to the availability of all necessary tool data, we also make sure that your tools are quickly ready to use.

We offer you the optimum conditions for the development and production of your own special tools. Let yourself be inspired by this application catalog!

TruServices Punching Tools: Know-how for every application



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1 Complete processing

In order to manufacture complex workpieces, often different, successive machining processes are required, which can be very time-consuming. Such components can therefore usually only be efficiently realized by means of complete processing, which means they are machined in one clamping operation. This considerably reduces the total processing time.

Punching or punching and laser cutting machines are optimally suited for the complete processing of workpieces, since several applications can be linked together: punching, tapping, forming, bending and marking of components. On the following pages, discover the possibilities of complete processing with punching tools on punching and punching and laser cutting machines.



TruMatic 6000 in action







2 Joining techniques

In many cases, components consist of several sheet metal parts, which only completely fulfill their function together. To join sheet metal parts together, there are various joining processes available, where, in addition to quality, economic aspects also play an important role.

Mechanical joining processes are less expensive than thermal processes while still providing the same strength – therefore, screw joints are often the top choice. If these are realized with punching tools, entire working steps might even be able to be eliminated. For example, you can replace rivets with simple clip connections and weld nuts with extrusions, which contain formed threads. On the next pages you will find suitable joining techniques for your application.



Sample sheet, joining techniques











3 Tread plates

This punching form is mainly used when the goal is to make surfaces, which were nearly smooth originally, slip-proof with a modified surface structure. Tread plates have an anti-slip effect and are therefore an indispensable element, especially in vehicle and machine construction. Thanks to the versatile options with regard to form and size, tread plates are also used as a decorative component in room furnishings.

In order to meet the different requirements of the respective areas of application, we offer a variety of solutions – from simple, prepunched contours, which might be used in water regulation, to complex special formed sections, which have a dirt-repelling effect thanks to their jagged structure. Below, you will find an overview of the most commonly used tread plate applications.



Tread plate with serrated countersink



1. Countersink









¹ Patented in acc. with DE102008048991B4



4 Housings

In industrial surroundings, housings are used, for example, to protect sensitive electric and electronic components from dirt, water or pressure. Housings not only safeguard the functionality of all components inside, however, but also play an important role as a structural part, since they are often further installed.

With punching tools, you can manufacture sturdy housings, which both ensure optimal protection of your components as well as provide attachment points for the installation of cables and other components. On the following pages, you will certainly find the right punching tool which can be used to realize a housing which meets your specifications.



Electronics housing











5 Fittings

Building fittings mainly serve for the introduction and transfer of forces, for example as window handles or in door-locking systems. Depending on the application, different types of fittings can be distinguished: turn and tilt fittings and shutter fittings. Furthermore, fittings can lend pieces of furniture a specific character as an ornamental element in the form of a flap, a key plate or a drawer guide.

The versatile applications of fittings are also reflected in our punching tools. Here, you will find both tools which can be used to join your components with one another, as well as tools with which you can bring forms, such as attachment points or spacers, into the sheet.



Door fitting











6 Trim panels

Trim panels are mainly used in the building industry. Here, they mainly fulfill important functions, such as energy regulation. Often, special trim panels are also used, however, to turn buildings into real eyecatchers. Complex forms and contours are also found as design elements on external facades.

There are a variety of punching tools available for implementing such applications. We would also be happy to help you realize your individual ideas and conceptions – so that your trim panel meets all requirements with regard to function and design.



Facade element







9. Latticework	10. Countersink	11. Bridge	12. Bridge



7 Other special forms

Independent of the actual application, punching technology offers countless processing options, even for very special requirements. The louvers shown in this chapter, for example, are used both in ventilation technology and as design elements. Likewise, the cups listed here not only function as step protection, but can also act as spacers.

This chapter offers some interesting insights into the nearly endless possibilities of form design with punching technology. The shown special forms should inspire you to develop your own solutions for specific applications.



Sample sheet, tools size 5

















25. Flange, multiple

26. Flange, multiple

27. Flange, multiple

28. Flange, multiple

















41. Center boss with punching
42. Countersink, form
43. Countersink, form
44. Countersink, form

Image: Countersink of the second s





50. Countersink, flat

49. Countersink, flat





52. Countersink in cup









66. Cup, ball with punching

65. Cup, perforated







73. Bridge, form	74. Bridge, form	75. Bridge, form	76. Bridge















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Company:	
Customer number:	Machine type:
Contact person:	Material:
Phone:	Sheet thickness s in mm:
Fax:	Delivery date:

Order

Request

Chapter	Application Number	Designation	Dimensions (mm)	Quantity

Comments

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