

Anything else is punched

**herz**  
ÄTZTECHNIK


# ETCHING

**quick · clean · burr-free**

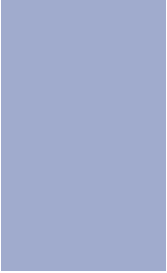


**Higher quality.  
Lower costs.**





Keeping an eye on costs doesn't mean you have to cut corners on quality. Reduce your costs with the aid of economical etching technology. Thanks to the innovative solutions from Herz, many companies are able to deliver products, which give them the decisive edge over their competitors. Rising demands, increasingly intricate components? Etching technology is the answer. It offers precision, consistently high standards and quality, as well as cleanliness in accordance with the German Association of the Automotive Industry (VDA) – and puts you one decisive step ahead. When will you give etching technology from Herz a try?

**You can rely on us:**

*At Herz your assignment is always in good hands, whatever the department; whether it's order acceptance and handling or administration, we are all working together to make your assignment a success.*

**Preparation of data:**

*You provide us with a drawing or CAD data, and we will prepare it for the etching process. A negative litho film created from CAD data serves as a master for the subsequent production process.*



# Machines do the job. Our teams provide the solutions.



Whether you talk to Sales first, which then answers your technical queries, draws up an offer for new parts or clarifies tricky technical processes with Production, at Herz you are dealing with employees who attend to you personally. It all starts with your initial contact with Herz, continues through the CAD construction stage, and is by no means over when it comes to quality management. Even if machines play an important role here at Herz, it's our people who take on your assignment.

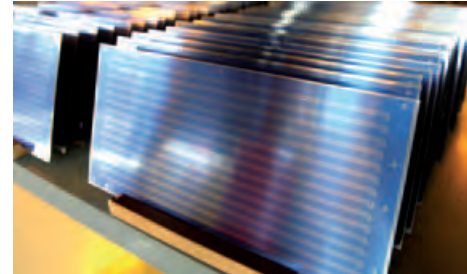


# Your success dictates the pace.

Whether single samples or larger batch sizes, etching technology lets you profit in each case from low tool costs, guaranteed absence of burrs and fast parts turnaround. Additional benefits: the manufacture of contour etched parts in sheet production is economical and produces impressive minimal tolerances and outstanding quality. Similarly, initial costs for reel-to-reel production of large-scale series are low, and automated subsequent processing on your premises is no problem. Take a look at just how easy it is: the pictures illustrate the process, and you can find more detailed information online at [www.aetztechnik-herz.de](http://www.aetztechnik-herz.de).

Herz is also a specialist in combined etching / laser technology. This enables surface structuring with high material thicknesses by means of etching technology and cutting of outer contours and breakouts using lasers, delivering positioning accuracy of etching to laser contour of +/- 0.05mm.

If an order can't wait, with **Speedline 120** small quantities of etched parts can be ready for dispatch within five working days; with **Speedline 48** in as little as 48 hours.



**Contour etched parts in sheet production**  
*The perfect solution for urgent prototypes, pilot series, and when versatility is called for. Outstanding quality in small quantities: a convincing argument in favour of this economical manufacturing process.*

**SPEEDLINE 120**  
DELIVERY IN **FIVE** WORKING DAYS

**SPEEDLINE 48**  
DELIVERY IN **48** HOURS



**Combined etching / laser technology**

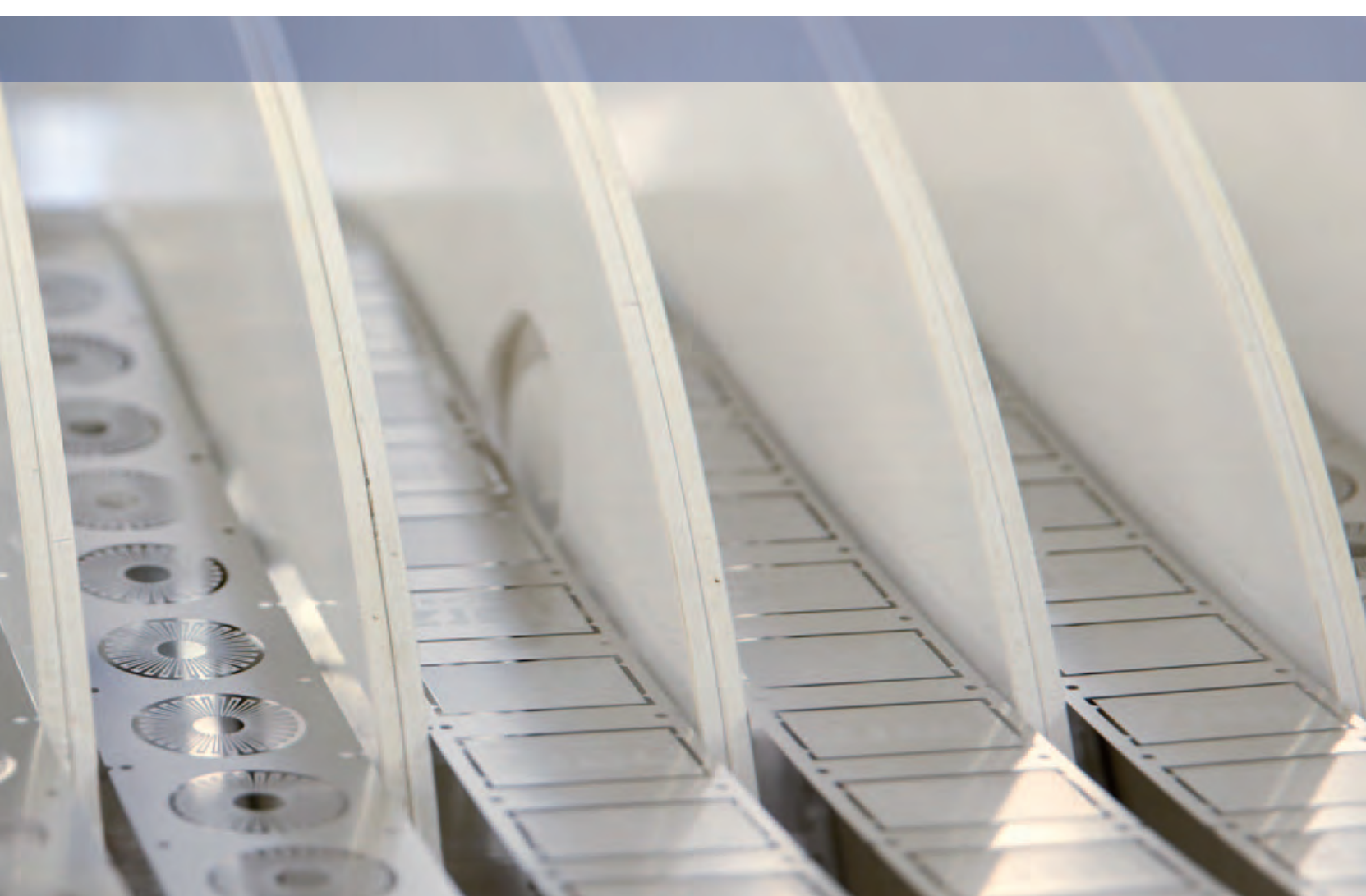
*The best of both worlds: when it comes to sophisticated tasks or high-quality designs, we use both etching and laser technology. Very few companies in German-speaking countries can provide this combination of techniques, which offers you a wealth of possibilities.*

**Reel-to-reel products:**

*In addition to low initial costs, short delivery times and high precision, reel-to-reel technology offers every option for automated subsequent processing, such as reel electroplating, downsetting, bonding, soldering, bending, or stamping. This procedure is suitable for medium-sized or large batches. Slightly etched areas are also possible.*

**Quality assurance of reel-to-reel products:**

*The optical inspection machine (AOI) detects defects fully automatically. On request, defective parts are labelled, or can even be punched out.*



Quality and flexibility need not cost the earth: for 40 years now, we have been supplying prototypes, pilot series, and small- and large-scale batches in material thicknesses between 0.01 and 1.0mm – with low tool costs and fast turnaround thrown in. At the same time, it goes without saying that you profit from consistently high precision, even with the most intricate structures. And when you want to change over from prototype to series production or even mass production? With Herz that's no problem.

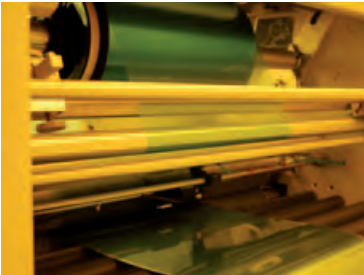
**Pre-treatment:**

First of all, the metal sheet is cleaned and its surface chemically and mechanically roughened.





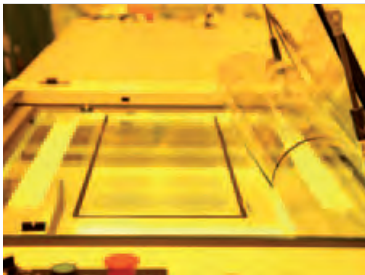
# Many advantages, one process: etching technology.



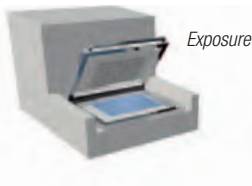
**Lamination:**  
Next, a UV-sensitive coating is applied to the sheet.



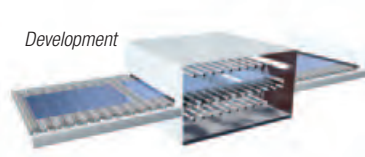
Lamination



**Exposure and development:**  
With the aid of a stencil, the contours of the part are exposed onto the metal, which has been coated with photoresist. During development, the protective photoresist is detached and removed from the unexposed areas. The contours of the etched part are still protected by the photoresist.



Exposure

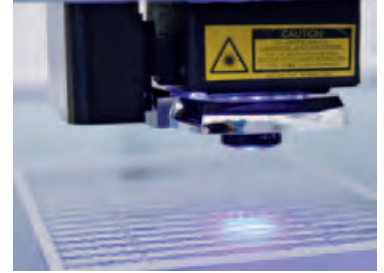
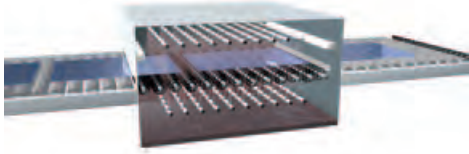


Development



# From etching to the finished product.

Etching



## **Etching:**

*The contour etched part is now beginning to take shape, since the exposed metal is dissolved during the etching process. Only those areas which are protected by the coating remain intact and the desired part is created.*

## **Stripping:**

*Finally, the protective coating is removed. Before the parts leave the machine, they are cleaned again using purified and mains water.*

## **Final inspection:**

*To ensure that the parts produced comply exactly with requirements, they are inspected individually or as a sheet. Only when they correspond fully to your specifications, are they actually delivered.*





**Sheet testing:**

*The test dimensions of parts manufactured in sheets are checked by employees at manual workstations. The entire sheet is inspected for surface defects and then separated and packaged according to customer requirements.*

**Reel-to-reel testing:**

*Automatic optical inspection systems (AOI) are used to check the dimensions of the reels and for surface defects on both sides, or, if this is not possible due to the width of the reel, these are subjected to manual random checks at a light table.*



Do etching technology and environmental protection go together? Yes! We take a very proactive approach to the task of protecting the environment. We neutralise the acids and caustic solutions we use and filter out any metallic elements, so that only common household wastewater enters the public sewerage system. We use chlorine gas to regenerate the acids used and increase their service life, thereby reducing consumption. We also save on energy by exploiting roof areas to harness solar power, and excellent building insulation makes for a considerable reduction in our energy requirements.



**For us, environmental  
protection is no exception.  
It's the rule.**





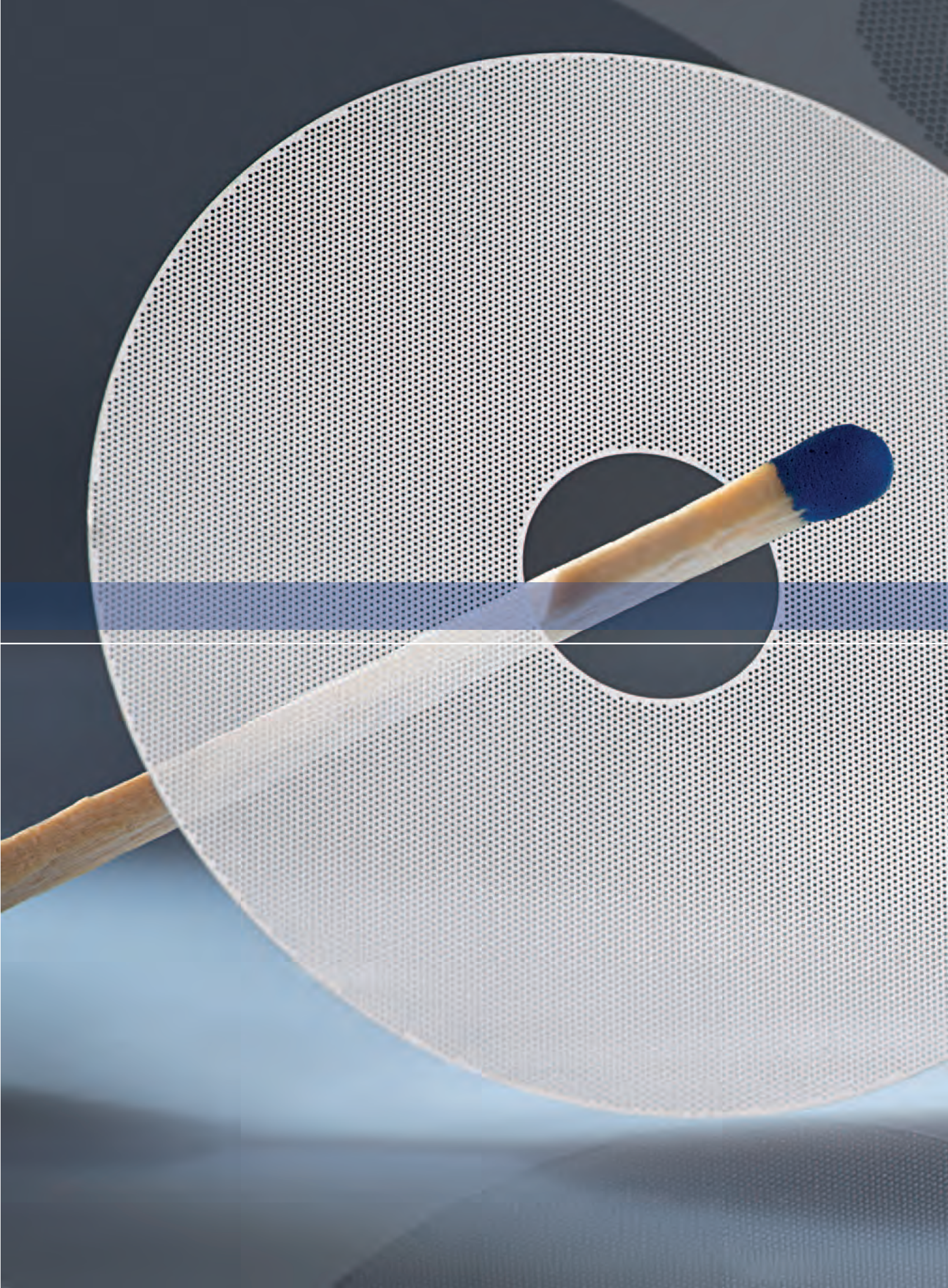
# Technical data >

Tolerance table for contour etched parts

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Material	Minimum dimension (mm) for:			
	Thickness	Web	Breakout	Tolerance* ±
Copper and copper alloys (e.g. CuBe/CuSn/ CuZn/CuNi) K65/K75	0,05	0,08	0,09	0,02
	0,08	0,08	0,14	0,02
	0,10	0,10	0,15	0,02
	0,15	0,15	0,18	0,02
	0,18	0,18	0,21	0,02
	0,20	0,20	0,24	0,02
	0,25	0,25	0,30	0,025
	0,30	0,30	0,36	0,03
	0,40	0,40	0,48	0,04
	0,50	0,50	0,60	0,05
	0,60	0,60	0,73	0,07
	0,70	0,70	0,85	0,075
0,80	0,80	0,96	0,08	
1,00	1,00	1,20	0,1	
Steel and chrome-nickel steel (St/CrNi) Vacon, etc.	0,05	0,08	0,14	0,02
	0,08	0,08	0,15	0,02
	0,10	0,10	0,17	0,02
	0,15	0,15	0,19	0,02
	0,20	0,20	0,24	0,025
	0,25	0,25	0,30	0,03
	0,30	0,30	0,36	0,035
	0,40	0,40	0,48	0,045
	0,50	0,50	0,60	0,06
0,80	0,80	0,95	0,085	
Aluminium (Al)	0,25	0,25	0,30	0,10
	0,30	0,30	0,36	0,10
	0,50	0,50	0,60	0,15
	0,70	0,70	0,84	0,20
	1,00	1,00	1,30	0,25
	1,20	1,20	1,35	0,25
	1,50	1,50	1,90	0,30

\* The data and tolerances given are only feasible with optimum sheet utilisation.





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## Ask us instead what we don't do.



Do you have an actual task in mind? Or perhaps just an idea? Whatever it is, tell us about it. After all, it is our job to find a solution for you. We believe that many developments and inventions only become possible thanks to etching technology. We have already achieved decisive advantages for various clients in, for example, electronics, the aerospace industry, and the automotive or medical engineering sectors. We are also reliable partners to the sensor technology, optics, and design sectors. Call us or write; we'd be pleased to take up the challenge – today!



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