KURZ

Laser welding of transparent plastics with functional absorber foils

Precise. Clean. Additive-free.

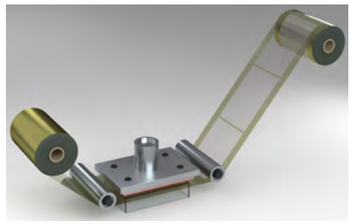
Laser welding of transparent plastics with functional absorber foils

Precise. Clean. Additive-free.

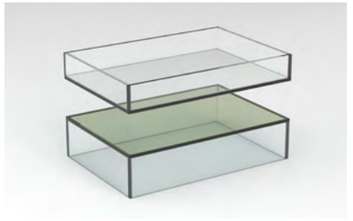


The functional absorber foil from KURZ enables reliable clear-to-clear laser welding of transparent thermoplastics – precisely where absorption is required. Replacing conventional wet-chemical marking processes with a clean hot stamping approach, the technology supports contamination-free production while simplifying manufacturing. Suitable for complex and rotationally symmetrical applications, the solution combines design flexibility with process reliability. Biocompatibility-tested absorber materials and rapid feasibility testing help accelerate development and industrial implementation.

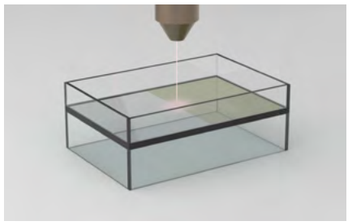
Technology in action



1. Hot stamping of the absorber layer
The lacquer layer is transferred to the component locally by means of temperature and pressure in less than one second. The stamp allows the lacquer to be applied dry and with precise contour definition.



2. Positioning of the joining partner
Precise positioning and fixation of the mating part. Suitable for automated series processes with high repeatability.



3. Laser transmission welding
The ~1 µm laser is selectively absorbed within the coating stack, creating a local melt zone. A dense, strong, and visually high-quality weld seam is formed.

Invisible connections. Visible value.

The functional absorber foil from KURZ enables reliable clear-to-clear bonds – exactly where they are needed.

Virtually invisible
Ideal optical appearance for transparent components

No material additives
No impact on material characteristics

Clean & particle-free
No liquids, no contamination

Precise & reproducible
Defined absorber placement for process stability

Easy integration
Easy integration foil-based handling – optimized for automation

Reliable
Stable welds for robust and repeatable processes

Raising efficiency
Lower Clearweld® consumption when used as a topcoat compared to a masterbatch

Future-proof
Designed for next-generation transparent applications

Laser welding comparison

	KURZ solution	Liquid absorber	Additive material	2 µm laser welding
Principle	Absorber is hot stamped	Absorber is applied in liquid form	Absorber as an additive in the material	Without absorber, high energy input
Appearance	Nearly invisible weld seam	Nearly invisible weld seam	Invisible weld seam, green tint in the component	Nearly invisible weld seam
Material impact	Local impact	Local impact	Global impact	Global impact
Process time	Low	High	Low	Low
Cleanliness	Good	Critical	Good	Good
Design freedom	Very high	Medium	Very high	Low

Application examples across industries

Microfluidics

Tubing connections

Transparent housings

Lab-on-a-chip

Disposable medical products

BAIER a KURZ company

BAIER, a specialist within the KURZ Group, develops innovative hot stamping systems and customized machine solutions for plastic and graphic products. From standalone machines to complex production lines, BAIER offers tailored automation, tooling, transfer products, and services from a single source – efficient, precise, and future-proof.

H+M a KURZ company

Hinderer + Mühlich (H+M), also part of the KURZ Group, is a leading manufacturer of high-precision stamping tools. With over 60 years of experience and seven global locations, H+M provides customized stamping solutions for industrial applications, including the medical sector, delivering maximum accuracy, repeatability, and durability in automated production environments.

Contact

Revolutionize medical technology with us.

E-Mail:
medical.technology@kurz.de

Scan for more information!
www.kurz-medical.com

The KURZ Group

The KURZ Group is an international leader in thin-film technology and supplies products for surface finishing and decoration. With over 5,800 employees at more than 50 sites worldwide, KURZ has an international presence and manufactures under uniform quality and environmental standards in Europe, Asia, and the USA. Thanks to KURZ's many years of experience and the constant expansion of our portfolio, we can offer our customers a wide range of products – and all from one source. A global network of subsidiaries, representatives and sales offices ensures short paths and individual, on-site consulting.

Germany
LEONHARD KURZ Stiftung & Co. KG
Schwabacher Str. 482
90763 Fuerth/Germany
Phone: +49 911 71 41-0
E-Mail: sales@kurz.de
www.kurz-world.com

USA
Huntersville/Charlotte/Chicago/Detroit/Lexington/
Los Angeles/New York
KURZ TRANSFER PRODUCTS, L.P. (KTP)
www.kurzusa.com

China
Hefei/Beijing/Chongqing/Kunming/
Shanghai/Shenzhen
KURZ STAMPING TECHNOLOGY
(HEFEI) Co., Ltd.
www.kurz.cn

Sales subsidiaries with logistic centers

Australia
Sydney/Adelaide/Melbourne
LEONHARD KURZ (Aust.) PTY. LTD.
www.kurz.com.au

Brazil/São Paulo
KURZ do BRASIL
www.kurz.com.br

Chile/Santiago
KURZ Chile S.A.
www.kurz.cl

Czech Republic/Střelice u Brna
KURZ Czech & Slovak s.r.o.
www.czkurz.com

Egypt/El Obour City
KURZ Egypt Enterprise LLC
www.kurz-eg.com

France/Paris
KURZ FRANCE S.A.R.L.
www.kurz.fr

Germany/Doebeln
KURZ TYPOFOL GmbH
www.typofol.de

Great Britain/Watford
LEONHARD KURZ (UK) LTD.
www.kurz.co.uk

Hungary/Budapest
LEONHARD KURZ South-East Europe Kft.
www.kurz.hu

India
Noida/Chennai/Calcutta/Mumbai/Ahmedabad
KURZ (INDIA) PVT. LTD.
www.kurz.in

Ireland/Dublin
LEONHARD KURZ IRELAND LTD.
www.kurz.ie

Japan
Osaka/Tokyo
KURZ JAPAN LTD.
www.kurzjapan.com

Mexico
Mexico City/Guadalajara
KURZ MÉXICO S.de R.L.de C.V.
www.kurz.mx

Morocco/Casablanca
KURZ North Africa Maroc
www.kurz-na.com

Netherlands/Nijmegen
LEONHARD KURZ BENELUX B.V.
www.kurz.nl

New Zealand/Penrose
KURZ NEW ZEALAND
www.kurz.com.au

Switzerland/Wallisellen
KURZ Schweiz AG
www.kurzag.ch

Taiwan/Taipei
KURZ CHEERS, Inc.
www.kurz.com.tw

Thailand/Bangkok
KURZ (Thailand) Ltd.
www.kurz.co.th

Tunisia/Tunis
KURZ North Africa
www.kurz-na.com

Fields of expertise

KURZ is always investing in new technologies. KURZ subsidiaries develop innovative solutions for functional integrations into surfaces as well as products for labeling and counterfeit protection, along with the corresponding software. A comprehensive range of stamping presses and stamping tools rounds off the versatile KURZ product portfolio. Furthermore, KURZ subsidiaries use their expertise to provide future-oriented, custom-made complete solutions including project consultancy and machine and tool technology.

Baier GmbH + Co KG Maschinenfabrik
www.baier-praegetechnik.de

BURG DESIGN GmbH
www.burg-design.com

Canyon Graphics, Inc.
www.canyongraphics.com

Hinderer + Mühlich GmbH & Co. KG
www.hinderer-muehlich.com

ISIMAT GmbH Siebdruckmaschinen
www.isimat.com

KURZ Digital Solutions GmbH & Co. KG
www.kurzdigital.com

MPRINT Morlock GmbH & Co. KG
www.mprint.de

OVD Kinegram AG
www.kinegram.com

PolyIC GmbH & Co. KG
www.polyic.com

SCHÖFER GmbH
www.schoefer.at

SCRIBOS GmbH
www.kurz-scribos.com

Follow us on:

The information provided herein is given with utmost care and according to our best knowledge and experience as of the date of this document, but no representation, guarantee or warranty, expressed or implied is made as to the accuracy, reliability or completeness of the information or to any special quality or fitness of the product for a special application. This information does not release the customer from his own liability for care examination, in particular with regard to the incoming goods inspection and any fitness of the respective product for his intended use. All patterns and designs owned by KURZ. Reproduction strictly forbidden. Infringements will be prosecuted. All rights reserved.
Issue 10/2026 – This document supersedes all previous issues.

© KURZ 2026 95005012.10/26.0.5