



QUALIFIED RELIABLE GREAT VALUE



**CHRISTIAN
RINGLER**



**JÖRG
RINGLER**

founding year	1989
business form	GmbH & Co. KG
managing directors	Christian Ringler Jörg Ringler
IBR-locations	Bad Rappenau, Germany (headquarters, logistics, lab) Illingen Saar, Germany (production, 5%)
additional factories	Europe, 35% China, 60%
number of employees	23
sales volume (2021)	12.2 Mio. €
number of clients	>1000
main business	printed circuit boards (pcbs), MTCON power elements + connectors, smd-stencils
more products	polyimide masking tapes/dots, front membranes + keyboards, TRACO-Power, sensors (Selet, Seeka), toroidal transformers

pcbs

smd-stencils

**support +
training**

**5 % Germany
35 % Europe
60 % China**

**meinIBR
online shop**

MTCON power elements + connectors

We are part of your team
and we support you!



individual requirements
 technical questions
 target pricing
 defined shipping dates
 frame contract [>12 months possible]
 kanban / just-in-time
 clear processes / traceability
 first sample inspection
 microsections
 IMDS registration

personal contact + online shop
 data check on inquiry
 technical assistance
 optimized demand planning
 fast quotation service
 data preparation
 order processing
 transport / storage / logistics
 quality control and assurance
 own technical laboratory
 after-sales-service

from 1 piece / prototypes
 express [possible from 2 hours]
 medium and large series
 free production capacities
 latest technology / IT
 rework of competitors pcbs
 standard technology [1 layer]
 HDI technology
 we supply all industries



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quality assurance

IPC-A-600 (latest version)	class 2 (standard) and class 3
conformity	RoHS (2+3), WEEE, ElektroG, REACH
UL Underwriter Laboratories (US and Canada)	materials and processes UL 94V-0 compliant, IBR E-file-no. E255774
electrical testing	from 2 copper layers included
optical testing	high resolution inspection and AOI
layer thickness analysis	x-ray, multilayer microsection and measurement
traceability	UL marking, date code, fully digitized processes
documentation	first sample inspection, test reports, IMDS, certificates of conformity
technical advice and training	we provide training to our clients to become IPC specialists

values and options

production process	IPC-compliant and customized if technically feasible
pcb type	rigid (1-50 layers), rigid-/semi-flex, flex, aluminum core, copper core
material	FR4 (e.g. Isola, Kingboard, Shengyi, Nan Ya/Technolam, Iteq, Panasonic), halogen-free (optional), CEM1, Kapton (DuPont), aluminum (e.g. Bergquist), copper core, ceramic (Rogers), Teflon (Taconic), special material on request
material thickness	≥ 0.2 mm in steps up to 5.0 mm, special thicknesses on request
format	≤ 583 x 465 mm up to max. 1200 x 700 mm
copper thickness	17.5 µm in steps up to 400 µm, special thicknesses on request
standard core (multilayer)	≥ 200 µm, special thicknesses from ≥ 50 µm on request
prepreg (multilayer)	≥ 120 µm or 2x Prepreg 1080, special thicknesses from ≥ 50 µm on request
finish	HAL lead-free, immersion gold (ENIG), immersion tin, hard gold, galvanic gold, bond gold, ENEPIG, immersion silver, HAL leaded, organic finish (OSP)
soldermask / silkscreen	green, white, black, blue, red, yellow, violet, special colors on request
TG-value (glass transition temperature)	TG135, TG150, TG170, TG180, TG210, TG260
CTI (tracking resistance)	175 up to 600
aluminium thermal conductivity	1,3 up to 8,0 W/mK

more technologies and specialties

micro-, blind-, buried-, tented-, covered-, plugged-, filled- and capped vias (resin, copper) countersink holes, chamfering, (jump-)scoring, z-axis-milling and special milling contours press-fit, plated slots, edge plating (tin and gold), 3D-metallization, coil technology removable peeling (bluemask, capton) and carbon print individual panel setup according to IBR proposal or customized, mixed panels, no-x-out customized layer stackup (defined impedances, impedance controlled production)

minimum distances / diameters / structures*

*IPC design rules/guidelines apply, deviations are possible on request.

track width/spacing (copper)	75 µm (standard 125 µm)
vias/plated-through-holes Ø	100 µm (standard 200 µm)
vias restrig width/spacing (copper)	75 µm (standard 125 µm)
soldermask bridge width	min. 100 µm (standard 125 µm)
soldermask opening	min. 50 µm (standard)
min. milling Ø	0.3 mm (standard 2.0 mm)

meinIBR online shop

- free registration
- pcb configurator (e.g. prototypes without tooling cost)
- smd-stencil configurator
- select and compare quantities, prices and delivery times
- save the shopping cart, send inquiries and/or place your order
- total process overview
- reorder of existing projects
- Help and support for you!
- Save time and money!



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data formats

www.ringler.de/leiterplatten/datenformate

general notes on storage and processing pcbs

www.ringler.de/leiterplatten/hinweise-zur-lagerung-und-verarbeitung

useful information on delivery times

www.ringler.de/bestellen-sie-online/wissenswertes-zu-lieferzeiten

