



headquarter schwaigern, germany

custom-made coating- & drying equipment

thermal processing equipment

uv-curing & horizontal ir-curing

processing chemicals

the company

ahk service & solutions was founded in 2005 by a group of technical engineers. based on long-term experience in mechanical-, electrical- & process-engineering, the focus was set on custom-made equipment for coating & drying manufacturing processes.

an experienced and skilled team, located in the southern part of germany, is developing solutions for manufacturing and process equipment.

all products, equipments and services are provided by ourselves with the support of our long-standing reliable supplier and partner network.

all development activities, whether mechanical design, electrical engineering or software development, take place in-house. we therefore have an overview of your complete systems and processes and can help you quickly and flexibly in the event of problem.

the equipments will be assembled, tested and accepted before our service-team carries out the installation on customer site.

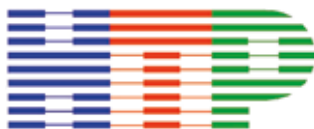
our key competences are:

- custom development & manufacturing
- consulting
- after-sales support & process consulting and support
- optimization of manufacturing processes
- retrofitting and refurbishing of production plants
- official service partner for systronic-equipment built before 2005

in addition to it's own developments ahk is an exclusive technical sales partner for:



thermal & uv-processing equipment for the electronic- & printed circuit board industry



processing chemicals

for the printed circuit- and photo-chemical machining industry

business fields & products

printed circuit boards

- dip coating for flexible circuits with liquid photo-resist
- batch oven
- roller-coating for innerlayer with liquid photo-resist
- spray-coating for soldermasks
- washing / cleaning machine for soldermasks
- curtain-coating for soldermasks
- beltrotherm horizontal oven for pre-drying and final-curing
- uv-curing systems for soldermasks or conformal / selective protective-coating

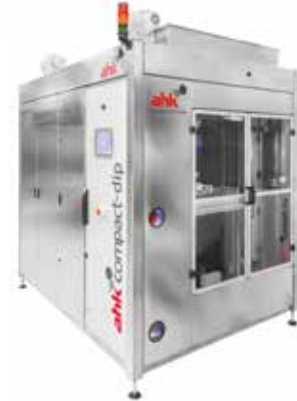


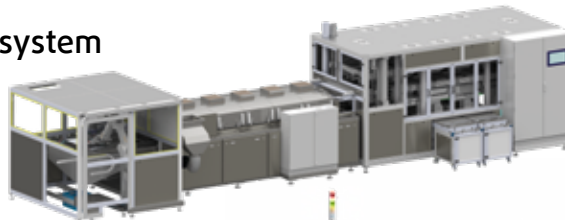
photo-chemical machining & electroforming

- dip coating of matrix / substrate with high resolution liquid photo-resist
- batch oven



pharma / medical

- dip-coating
- horizontal dryer / curing system
- spray-coating



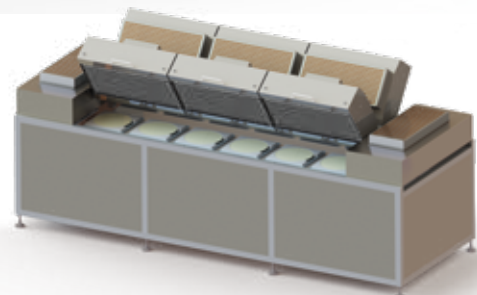
renewable energies

- horizontal drying / curing system
- magazine-dryer for substrates or bipolar plates



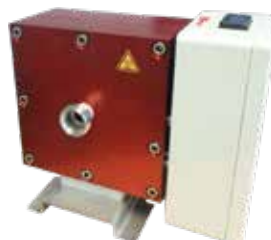
electronic / wafer manufacturing

- custom-made soldering solutions



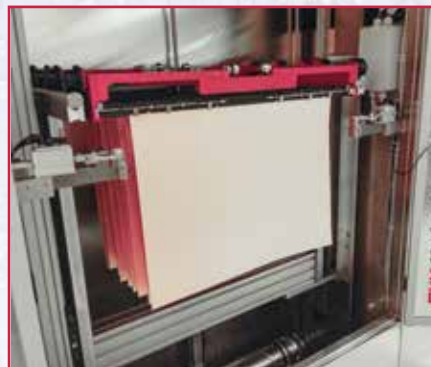
other commercial market

- compressed air heaters



ahk dip-coating

the perfection in dip-coating





clean-dip



dipper 1000



magic dipper



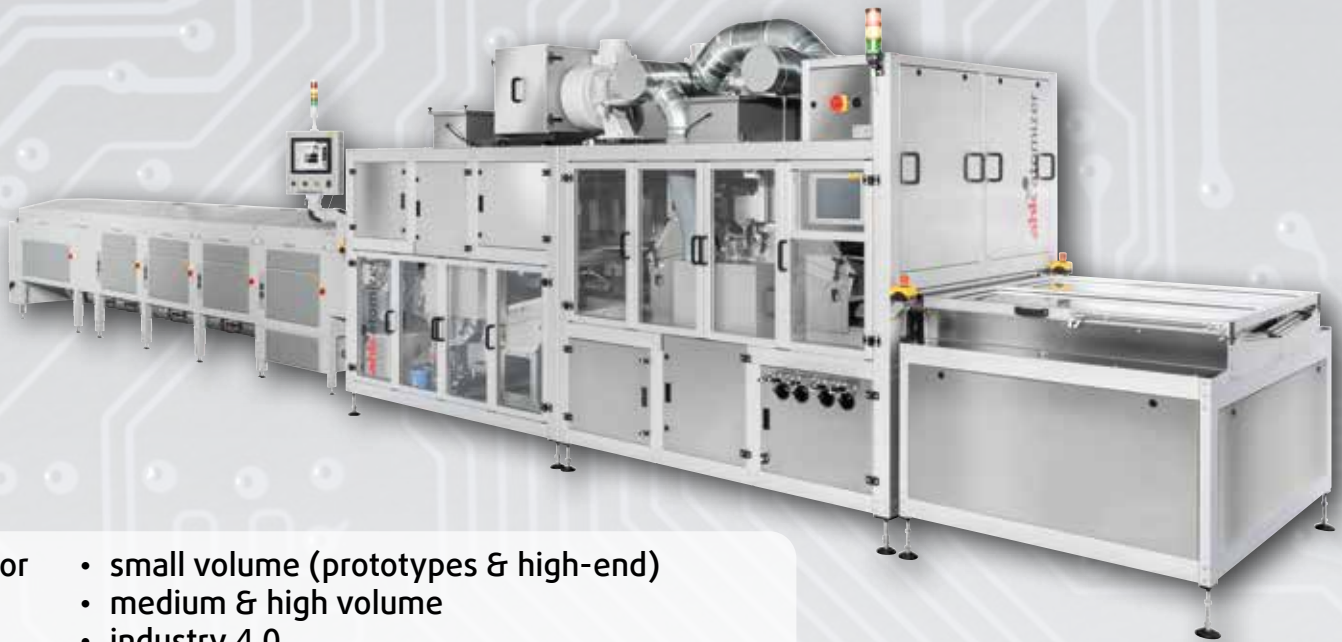
compact dip

table of ahk dip-coater

	ahk clean-dip (start-up & small production)	ahk dipper 1000 (semi-automatic-dip-coater without oven)	ahk magic dipper (semi-automatic-dip-coater included oven)	ahk compact dip (semi-automatic-dip-coater trough- feed-line for higher capacity)
dimension (footprint: length x width x height in mm)	1.200x1.000x1.900	2.250x1.800x2.888,5	3.615x1.900x3.013	2.500x1.900x2.600
connection	1 phase • 230V • 1 kW	3 phase • 400V • 6 kW	3 phase • 400V • 18 kW	3 phase • 400V • 25 kW
capacity (panels/hour)	24 (just tag dry)	60 (just tag dry)	30 (ready for exposure)	60 (ready for exposure)
loading capacity (one dip-cycle)	1-4 panels	10 panels	10 panels	15 panels (457 x 300 mm) 7 panels (610 x 500 mm)
dryer included	no	no	yes	yes
panel dimension (width x length in mm)	300 x 300 (standard) 640 x 545 (extended)	324 x 1000	457 x 1000	610 x 500
reservoir for refilling	no	yes	yes	yes
capacity (of resist tank in l)	20-80 depending on dip-tank-size	250	360	300
automatic dip-tank-pivot-cover	no	yes	yes	yes
resist filtration	yes	yes	yes	yes
resist cooling	no	yes	yes	yes
resist temperature control	no	no	no	yes
cleanroom-housing with HEPA-filter	yes	yes	yes	yes
Touch-panel operation	yes	yes	yes	yes
time for installation/ training	2 days	4 days	5 days	5 days
explosion DIN norm	DIN EN 1127-1	DIN EN 1127-1	DIN EN 1127-1	DIN EN 1127-1
max lift weight	10 kg	100 kg	180 kg	10 kg

ahk atomizer

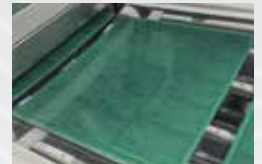
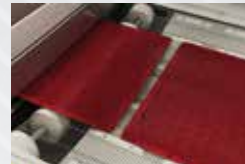
the perfect solution for
soldermask application



- for
- small volume (prototypes & high-end)
 - medium & high volume
 - industry 4.0

advantages with the ahk atomizer

- homogeneous, uniform and reliable coating by ink-flow-control
- double-sided coating in one cycle
- no turn-over
- quick change of ink by cartridge-solution (> 5 min)
- integrated horizontal line: coating & drying



typical coating results (track-coverage)



ink-bucket with
circulation pump
(double-sided system)



pressure-pot
closed



ink-supply via
cartridge solution
(allows to spray-coat
with minimum amount
of ink)

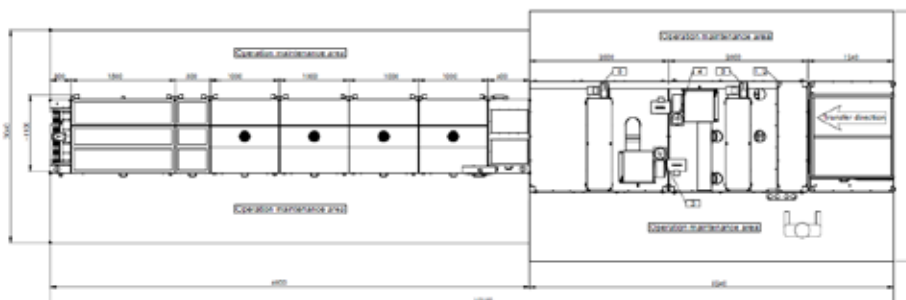
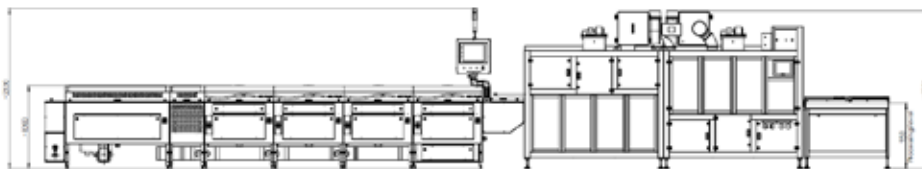


pressure-pot
opened

spray-coater specifications

type: atomizer with pre-dryer
transportation speed of 1 m/min

	spraycoating belttransp. (single-sided)	spraycoater pin-chain (single-sided)	spraycoater pin-chain (double-sided)
process			
double-sided coating capability	no	no	yes
drying double-sided in one cycle	no	no	yes
possibility for double-sided exposure	no	yes	yes
developing double-sided exposure	no	yes	yes
panel thickness	0,4-10 mm	0,8-10 mm	0,8-10 mm
capacity (double-sided)	50 panels/h	50 panels/h	100 panels/h
panel-size min. (length x width)	150 mm x 150 mm	200 mm x 300 mm	200 mm x 300 mm
panel-size max. (length x width)	1000 mm x 610 mm	1000 mm x 610 mm	1000 mm x 610 mm
operation / maintenance			
time required for ink change	15 min	15 min	15 min
option cartridge - ink change	< 5 min	< 5 min	< 10 min
cleaning efforts per day	0,5 h	0,5 h	1 h
cleaning efforts per week	2-3 h	2-3 h	5-6 h
filtermaterial required per 2.000 panels	70,00 €	70,00 €	140,00 €
maintenance effort per year (inspection, replacement of wearing parts)	20 h	20 h	40 h
energy consumption			
electrical connection atomizer	6,5 kW	6,5 kW	13 kW
electrical connection dryer	40 kW	40 kW	80 kW
exhaust air	3.500 m ³ /h	3.500 m ³ /h	5.500 m ³ /h
compressed air	400 liter/min	400 liter/min	800 liter/min
solvent DPM (cleaning transportsystem)	10 kg/week	10 kg/week	20 kg/week
dimensions equipment (l x w x h) in mm			
atomizer no extended in- and outfeed	2.000 x 1.600 x 2.200	2.000 x 1.600 x 2.200	4.000 x 1.600 x 2.200
pre-dryer	9.000 x 1.200 x 1.200	9.000 x 1.200 x 1.200	9.000 x 1.200 x 1.200
installation			
time for Installation	2 days	2 days	3 days
time for commissioning and training	3 days	3 days	5 days



coating & curing system for medical vials.
exclusive & custom-made for

SCHOTT
glass made of ideas

unloading KUKA robot

cooling

&

automatic unloading

transportation curing-oven





processing / coating

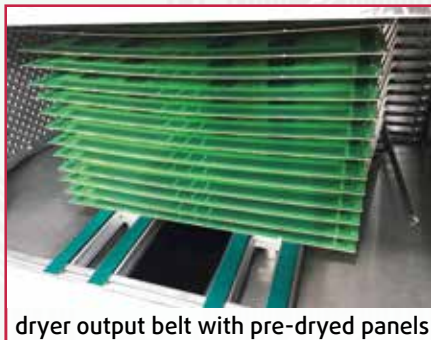
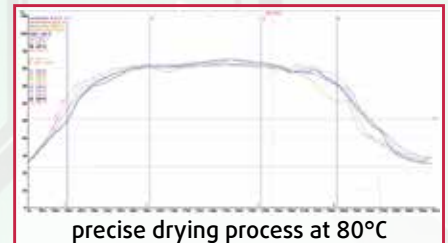
automatic loading station



curtain-coater-line for soldermask evo-cast with vario-dry

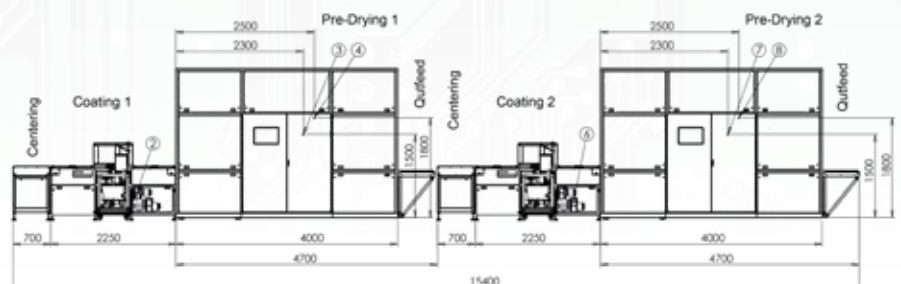
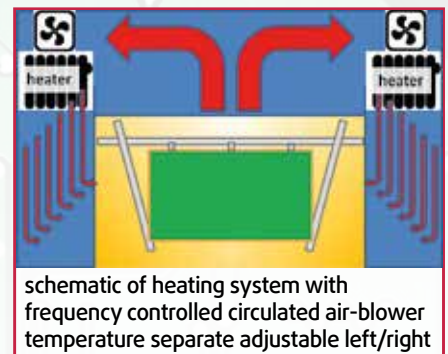
capacity:
2,4 panels/min
double-sided coated

coating thickness:
30µm – 105 wet



advantages curtain coater

- manufactured in stainless steel
- „stand-alone“ machine
- operation via touch screen
- proven technology
- minimum maintenance required
- 2 panels double-sided per minute
- easy to operate



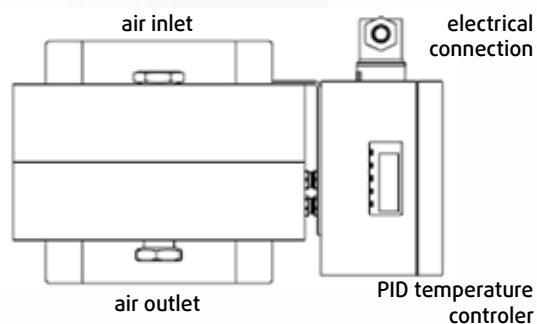
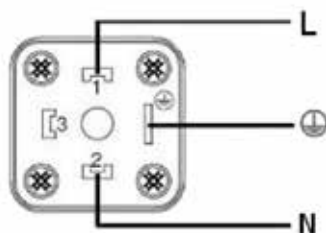
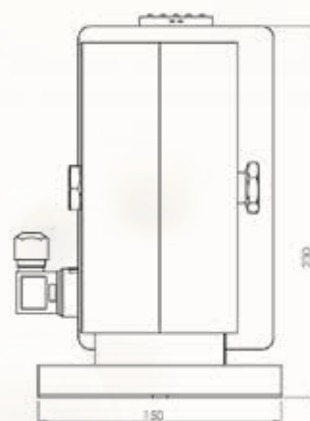
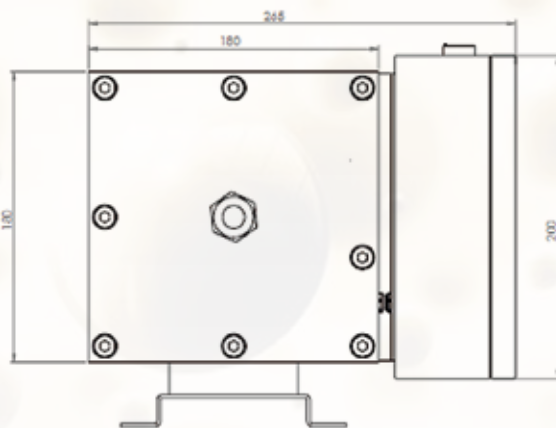
high performance compressed air heater VH2100PURE precise and quick (max. 120°C)

exclusive sales by

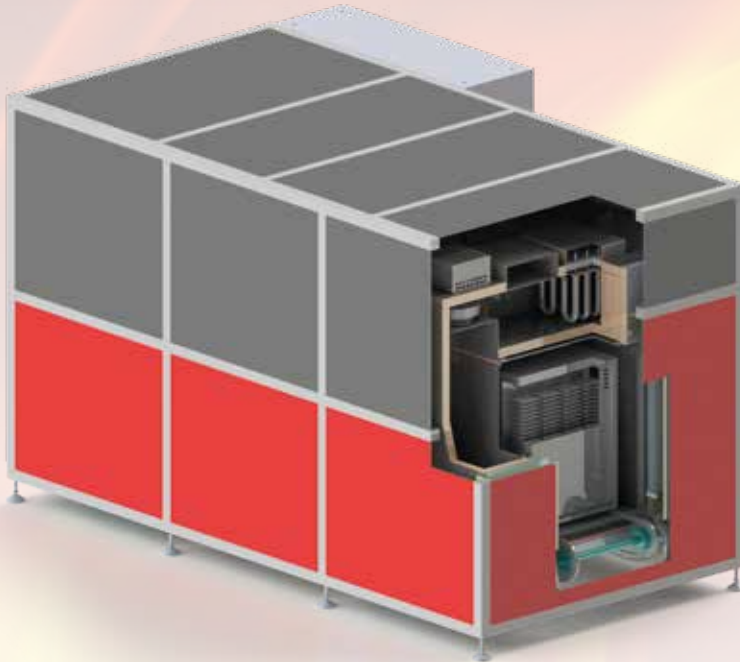


specification

dimensions	235 x 230 x 150 mm
weight	7 kg
max. pressure	8 bar
pressure difference	approx. 50 mbar
max, air volume	850 NL/min (100°C)
	580 NL/min (120°C)
protection class	IP65
connection air in/out	G1/2"
electrical connection	plug 230V/50Hz
current	9,72A
power	1,5kW



batch-magazine-dryer



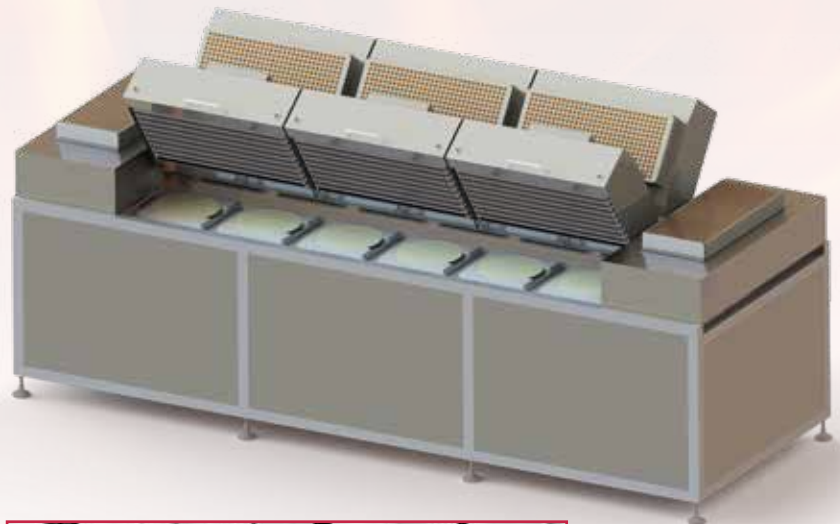
convection air dryer for electronic substrates / bipolar plates

- modular design
- convection air 250°C
- air flow adjustable by frequency converter
- PID- heating controller
- transportation system stepwise
- optional with shutter between heating zones
- for solvent-based (flammable) or water-based pastes

wafer-bump soldering system – u-turn

compact wafer soldering system

- adaptable to wafer-handling-cell
- ir-heating source consisting of ceramic heating-plate in combination with glass-cover
- soft-cooling (no chilling water)
- carrier-based transportation system
- for large wafer 12" (305mm)
- air supply via HEPA-filter
- cycle time: 25s



uv-dryer / curing systems / uv-bump



- modular design
- optional transport system (teflon-belt, metal-grid, quartz-glass roller, chaintransport)
- single-sided / double-sided
- process parameter programmable via touch-panel
- Hg / Fe / Ga - doped lamps
- LED light source



thermal high-speed dryer

- modular design
- optional transportation system
- single-sided or doublesided
- flatbelt-transport or v-transportbelt
- ceramic-heating-plate in combination with soft-convection-air



ahk uni-clean

the universal cleaning-master

supplies

electrical power	3 x 400V, 4 kW
cleaning medium	100 l

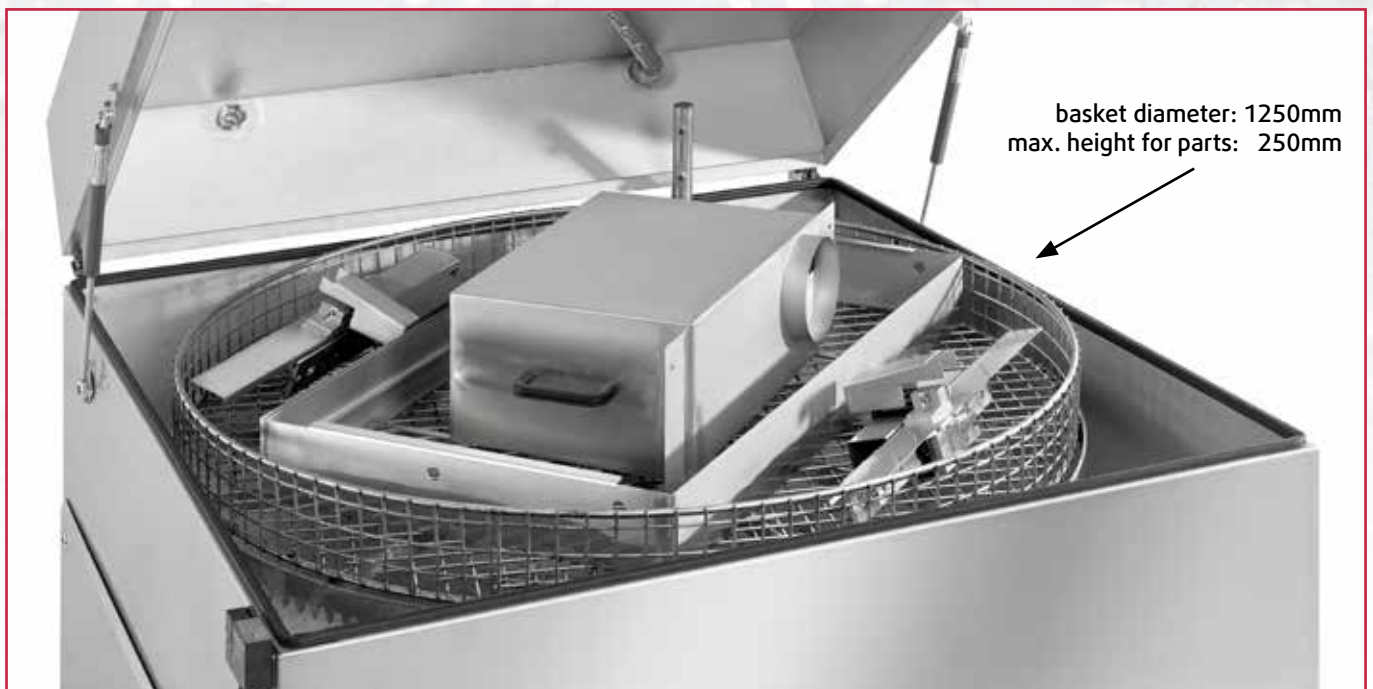
dimensions (L x W x H)

	1.542 mm
	1.415 mm
	1.110 mm
basket diameter	1.250 mm
max. height for parts	250 mm

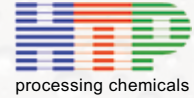
installation

to be carried out by customer

for • solvent based medium
• alkaline medium
programmable via tablet



exclusive sales partner in germany for:



pre-cleaning & surface activation – SC118 / CCA114

- SC118: alkaline cleaning agent for pre-treatment of surfaces on pcb & or pcm- substrates
- CCA114: optimized pre-cleaning and activation of copper surfaces, preferably used in the production of inner- and outer layers

micro-etching & degreasing agent – CME126 / 140

- CME 126: pre-treatment prior application of galvano-resist (outer layer)
- CME140: pre-treatment prior application of dry-film & liquid photo-resist

developer – DEL475 & DEL500

- developing solutions for photo-resist (liquid or dry) & soldermasks

resist-stripper ST811

- for inner- / outer-layer with anti tarnishing
- alkaline stripper
- compatible and efficient with all common photo-resist types
- free of chlorinated hydrocarbon and phenols
- based on 2-aminoethanol

tin-stripper TLS930

- acidic stripper for tin / lead / tin-lead layers
- high tin-absorption capacity of 150g/l
- minimum attack on copper – approx. 0,5µm/min at 30°C

rack- / frame cleaner

- reliable cleaner to strip off plated metal-residues (Cu, Ni, Sn, Sn-Pb)
- complexing agents

antifoam AF250

- suppresses foaming
- high efficiency for wet processes
- for developing and stripping-solutions

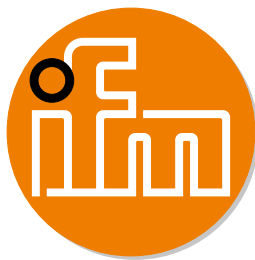
Optiprint

 Innovative PCB Solutions



SiNa-Klischee

Ihr kompetenter Partner für den Tampondruck



ROHDE & SCHWARZ

