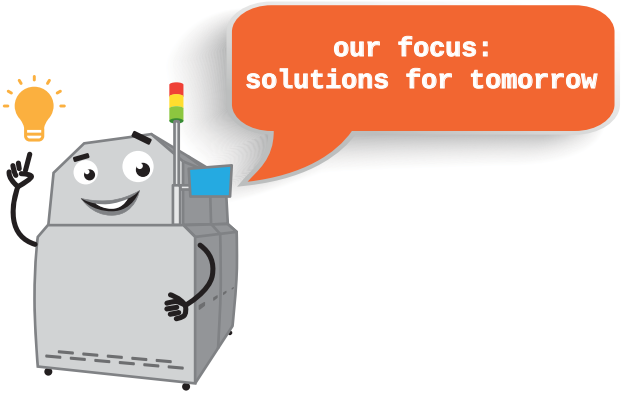
SMD Reflow Soldering

Quality Made in GERMANY

SMT THERMAL DISCOVERIES

Full Convection Reflow Soldering Systems



Full Convection Reflow Soldering System SMT Quattro Peak L

Lowest Energy Consumption

Lowest Nitrogen Consumption

Lowest Maintenance Effort

SMT Highlights:

- Tool-free maintenance of all SMT Systems
- CATalysis - process gas cleaning
- Sustainable energy and nitrogen saving concept
- Proven Vacuum Reflow Technology (since 2009)
- Independent fan control in all zones

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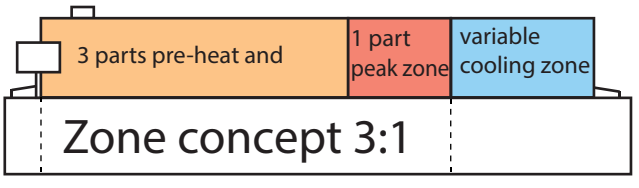
Full Convection Reflow Soldering Systems

Quality „Made in Germany“

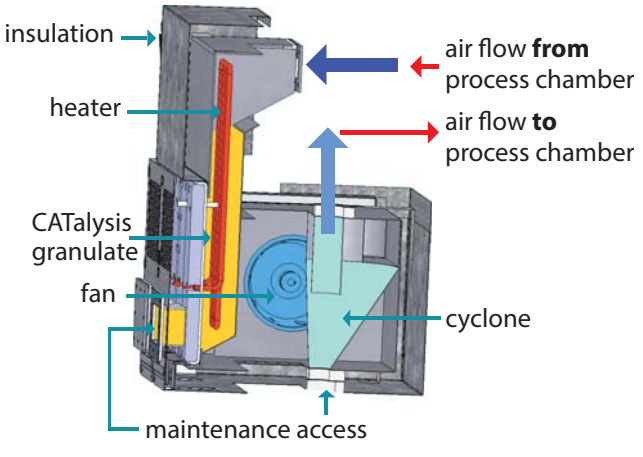
SMT soldering systems are distinguished amongst others by **long life cycle** and **high process stability**. An extremley low power consumption is realized in the SMT system concept due to lower process temperatures, effective insulation, and systems, that require a low exhaust air.

- Flexible machine portfolio from XXS up to Quattro Peak XL Plus
- Minimal consumption of energy and nitrogen
- Reliable conveyor system from single up to multi lane concept



Zone concept

The zone concept of all Quattro Peak systems is optimized to the process. This consits always the same ratio of pre-heating to peak zone (3 parts pre-heating and 1 part peak zone) according to standard profile specification refering to IPC .



Catalysis – Process Gas Cleaning

The new CATalysis – process gas cleaning of SMT works comparable as a catalyst in a car. The cleaning process can take place due to the catalyst at lower temperatures. The effect is a better cleaning performance.

Advantages:

→ **decrease of contamination**
→ longer maintenance interval
→ reduce of maintenance effort
→ **more efficient production**

The CATalysis – process gas cleaining can be installed into all SMT reflow soldering systems from the Quattro Peak L series. Depending on the system size, this may be up to 4 CATalysis (up to 5 at vacuum soldering systems).

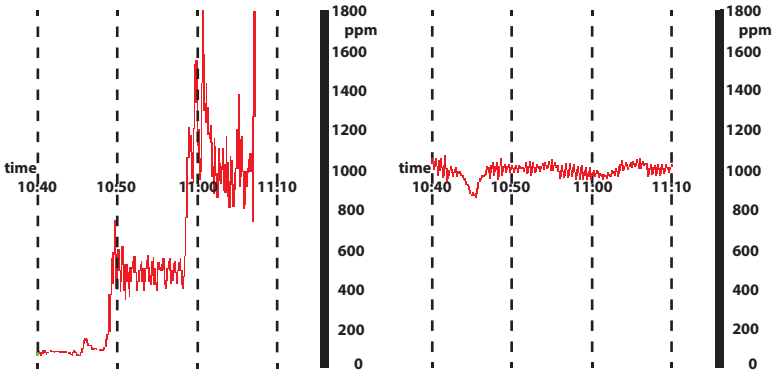
A **retrofitting** to the new CATalysis – process gas cleaning is **possible at any time** at SMT reflow and vacuum soldering systems.

September 27, 2016, Chicago

... and the winner is SMT

SMT THERMAL DISCOVERIES

www.smt-wertheim.com



Bypass Control

Intelligent Nitrogen Control

Intelligent Nitrogen Control

Intelligent nitrogen control with optimized control mode **reduces nitrogen consumption** to a minimum. In addition a usable nitrogen paramater is provided for traceability.

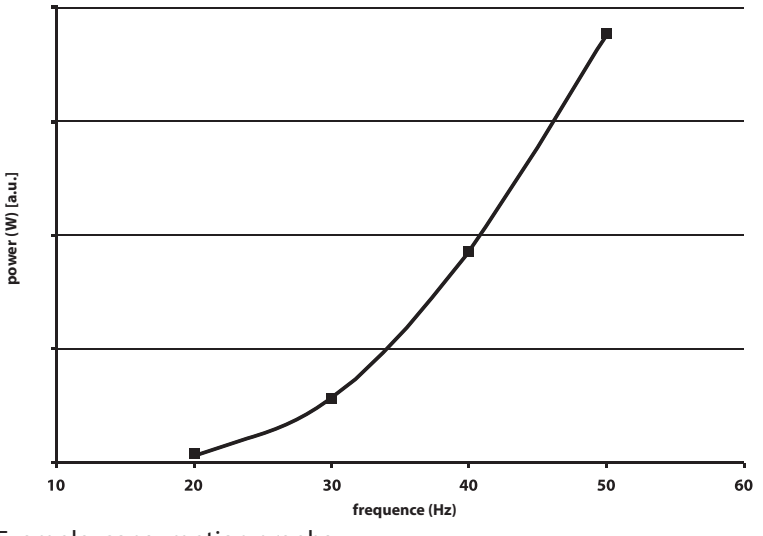
Benefits intelligent nitrogen control:

Constant residual oxygen values

→ **–20% consumption**

→ Process stability

→ Products are soldered with the same quality



Example: consumption graphs

Independent fan control in all zones

More functionality with the new frequency converters

- Active fan monitoring
- Infinitely variable regulation of the fan frequency (4 stages still in our system)
- High **energy saving potential**
- **Monitoring** of the current consumption of the fans
  → Alert if the consumption varies
- Each fan individually adjustable
- Additional setting parameters for an optimum profiling

Your Benefit

- Gas-tight fan units
  - constant process gas, adjustable via frequency converter
  - encapsulated, **maintenance-free fan motor**, no slight leakiness
  → energy and nitrogen savings
- Efficient maintenance
  - **tool-free maintenance**
  - no pipe system for process gas cleaning
- **Precise nitrogen control** by integrated lambda sensor technology and real-time continuous measurements of residual oxygen value
  → **less nitrogen consumption**
  → easy calibration
  (exchange possible by customer)
- CATalysis: Cleaning process can take place due to the catalyst at lower temperatures
  → **better cleaning performance**
- **Lowest operating costs**
  - lowest energy and media consumption
  - lowest consumption of spare and wear parts (e.g. rails, chains, fan motors, heating elements)

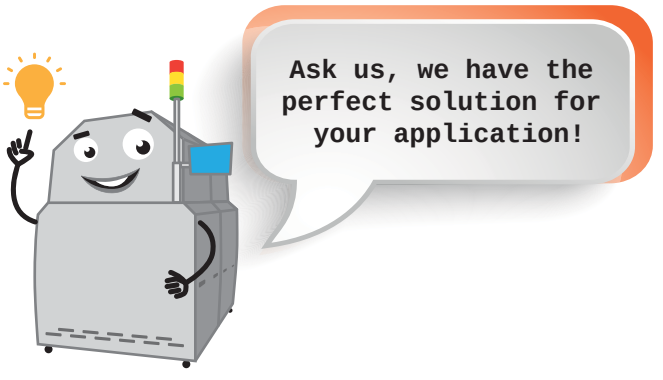
SMD Reflow Soldering

Industry 4.0

SMT THERMAL DISCOVERIES

Technical Data	QP S	QP M	QP L	QP L Plus	QP XL	QP XL Plus
External dimensions						
Length:	4672 mm	5122 mm	5754 mm	6714 mm	7169 mm	7712mm
Width:	1435 mm	1435 mm	1435 mm	1435 mm	1435 mm	1435 mm
Height (delivery condition / with warning light):[1.]	1767 / 2353 mm	1767 / 2353 mm	1767 / 2353 mm	1767 / 2353 mm	1767 / 2353 mm	1767 / 2353 mm
Weight[2.]**:** approx.	2300 kg	2500 kg	2900 kg	3200 kg	3400 kg	3650 kg
Process chamber						
Pre-heat zones / peak zones / cooling zones:	3 / 2 /2	3 / 2 / 2	4 / 2 / 3	5 / 3 / 3	5 / 3 / 3	6 / 4 / 3
Active convections length:	2061 mm	2511 mm	3143 mm	3630 mm	4091 mm	4628 mm
Active cooling length [3.]:	1057 mm	1057 mm	1531 mm	1531 mm	1531 mm	1531 mm
Power						
Power consumption steady state condition: [4.]	appox. 7 kW h	approx. 7 kW h	approx. 8 kW h	approx. 9 kW h	approx. 9 kW h	approx. 11 kW h

1.) Standard height: 950 mm; corresponding to a changed inlet height
2.) Ø feet 80 mm, max. floor loading 750 kg/m²
3.) Up to 5 cooling zones possible. Each cooling zone: 474 mm
4.) Machine with chain conveyor, 220 mm transport width, fan speed reduction and no other options



Technical Data from QP S Media up to XL Plus

Process chamber	
Bottom side heating in pre-heating zone:	yes
Temperature measurement:	NiCr-Ni sensors in hot gas flow
Heat-up time:	approx. 30 min.
Heat-up time with economy switch:	approx. 60 min.
Heat transfer:	100% forced convection
Process temperature (pre-heat-/peak zone):	max. 300 °C / 350 °C
Transport chain conveyor	
Usable working width:[1.]	60 ... 510 mm
Usabel working height with PCB support:	pin level -10 mm
Movement:	left-right
Fixed rail:	front
Pass through height (top / bottom):	30/30 mm
Max. loading per track:	3 kg/m
Conveyor speed:	0.2 ... 3.0 m/min.
Cooling water	
Connection thread:	2 x 1/2“
Quantity of / pressure of cooling water:	> 15 ltr./min / > 2.5 bar
Temperature of cooling water:	< 15 °C

Extraction [2.]	
Suction pipe:	1 x Ø 200 mm
Required exhaust air at pipe inlet.:	approx. 600 … 800 m^3/h
Temperature of exhaust air at the pipe:	< 50 °C
Internal exhaust air resistance of oven:	3 - 8 mbar
Continuous sound pressure level	< 70 dB(A)
Control unit	CDIAS with RT 7
Nitrogen connection [3.]	
Connection armature:	R 3/8“ internal thread
Working pressure (at connecting armature):	6 ... 8 bar
N_2-consumption, steady state condition at transport width 220 mm: [4.]	approx. 9 m^3/h
N_2-consumption, full load at transport width 220 mm: [5.]	approx. 15 m^3/h
Readiness for the system (1000 ppm, N_2 < 5 ppm O_2):	approx. 15 min.
Connecting power supply:	3~N, PE 230 / 400 V, 50 Hz

1.) Differing at dual or multi lane
2.) Connection of a flexible, heat resisting (at least up to 100 °C) hose (available by SMT) or tube. The waste air exhausting unit with adjustable throttle valve mounted after the suction sleeves has to be installed by the user.
3.) N2-supply with pressure reducer has to be mounted by the user, recommended supply of nitrogen with oxygen content < 5 ppm.
4.) 1000 ppm with proportional valves and sleeping mode (options); if 500 ppm then approx. 10 m^3/h
5.) With PCB (220 x 220 mm), one PCB length distance, 1000 ppm; if 500 ppm then approx. 17 m^3/h

The reflow soldering systems are individually configurable. Choose from a variety of lengths from heating zone length, and the cooling zones and at transport system between a single, double or multi lane.

Subject to change without notice, August 13, 2018

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