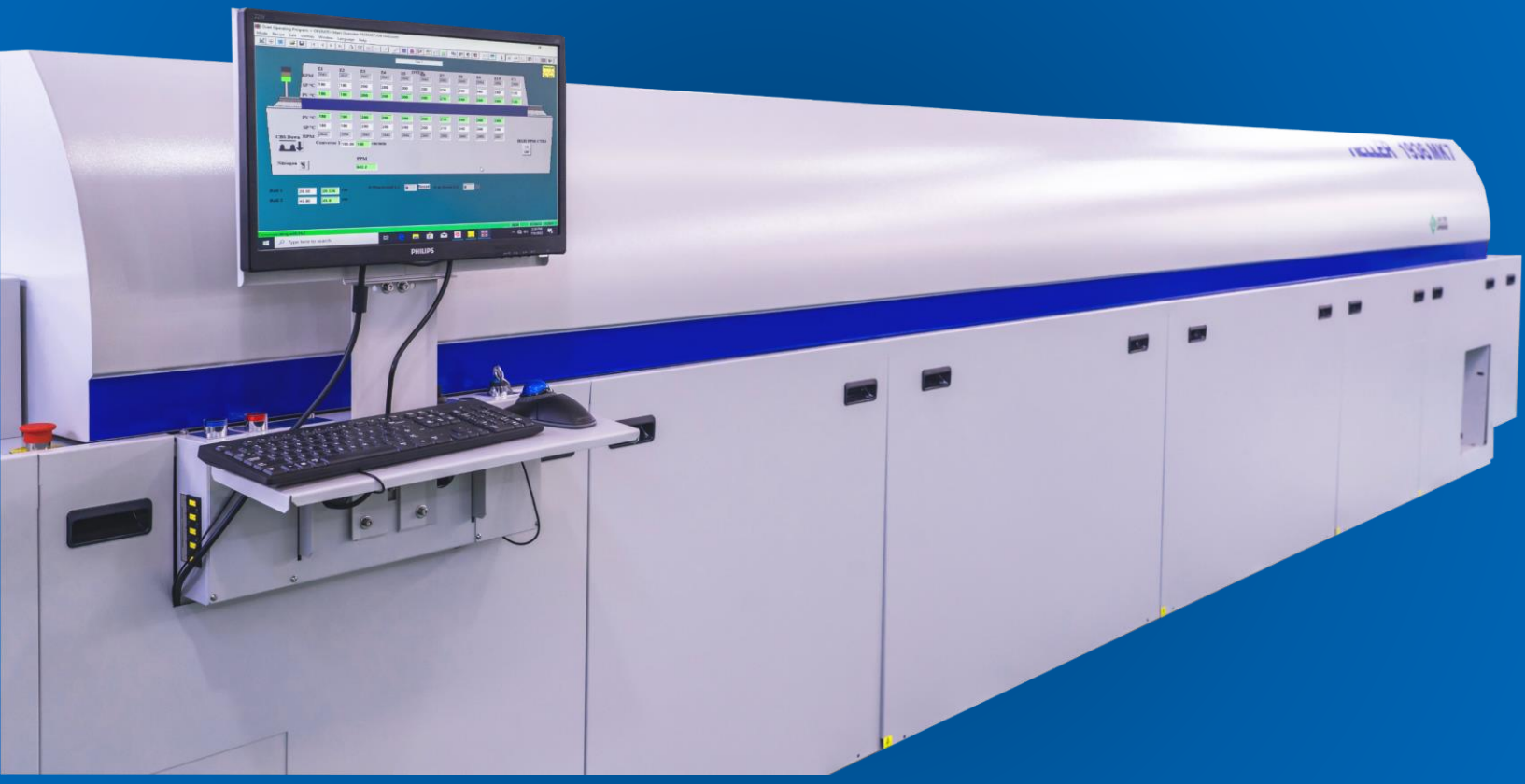
HELLER

The Thermal Technology Leader in Semicon and SMT



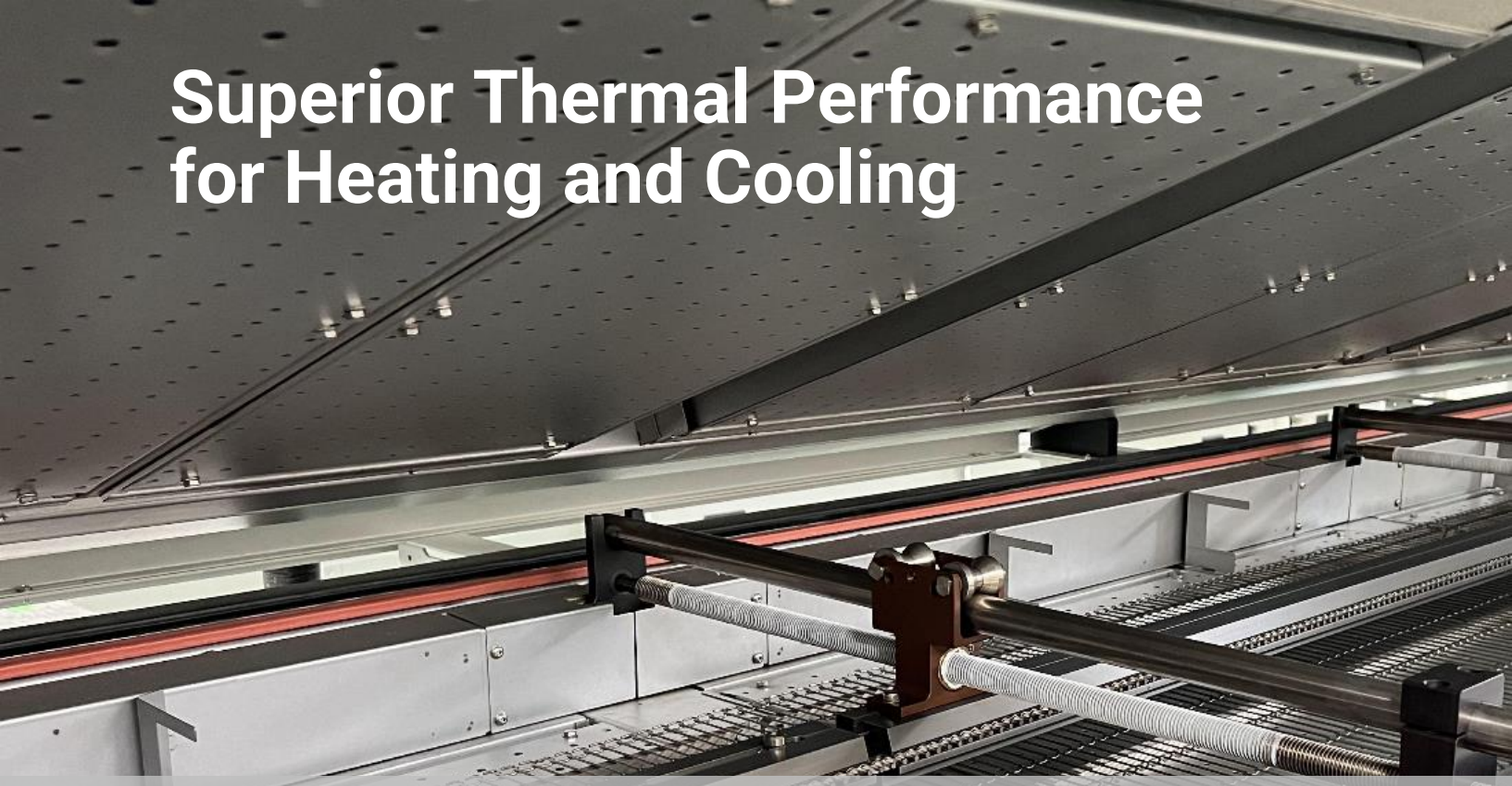
Next Generation Reflow Oven - MK7

Integrated with Industry-Leading Thermal Technology

hellerindustries.com

HELLER INDUSTRIES

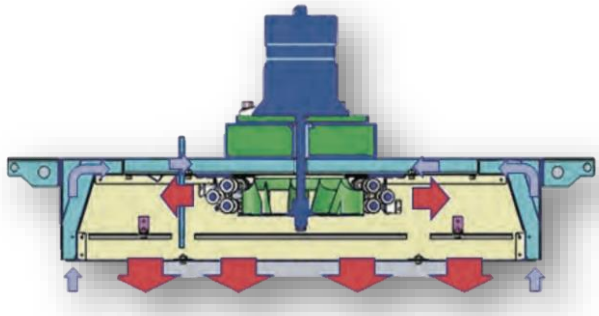
Superior Thermal Performance for Heating and Cooling



The New MK7 platform has revolutionized the reflow industry with several new and groundbreaking designs. The low-profile modules provide lower Delta T while reducing overall energy consumption. New flux management options offer exceptional capability and reduce overall PM times. New cooling systems offer best in class cooling rates and low exit temperatures while providing exceptional thermal separation between zones. We invite you to visit any one of our 3 demo locations to run profiles and see for yourself the strong advantages the MK7 can bring to your process. Or if you prefer, send us your toughest board and we will run profiles and generate the data for you. We are happy to work with you to create a custom configuration to fit your needs.

New Heating System

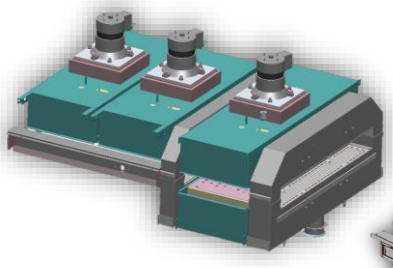
Enhanced low height heater module and large impeller provides the lowest delta T's on product with improved air flow and uniformity!



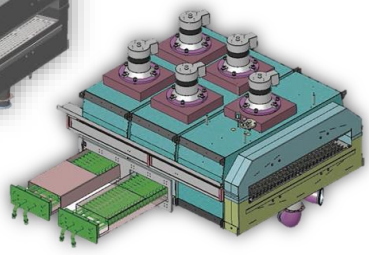
Heating Module

New Cooling System

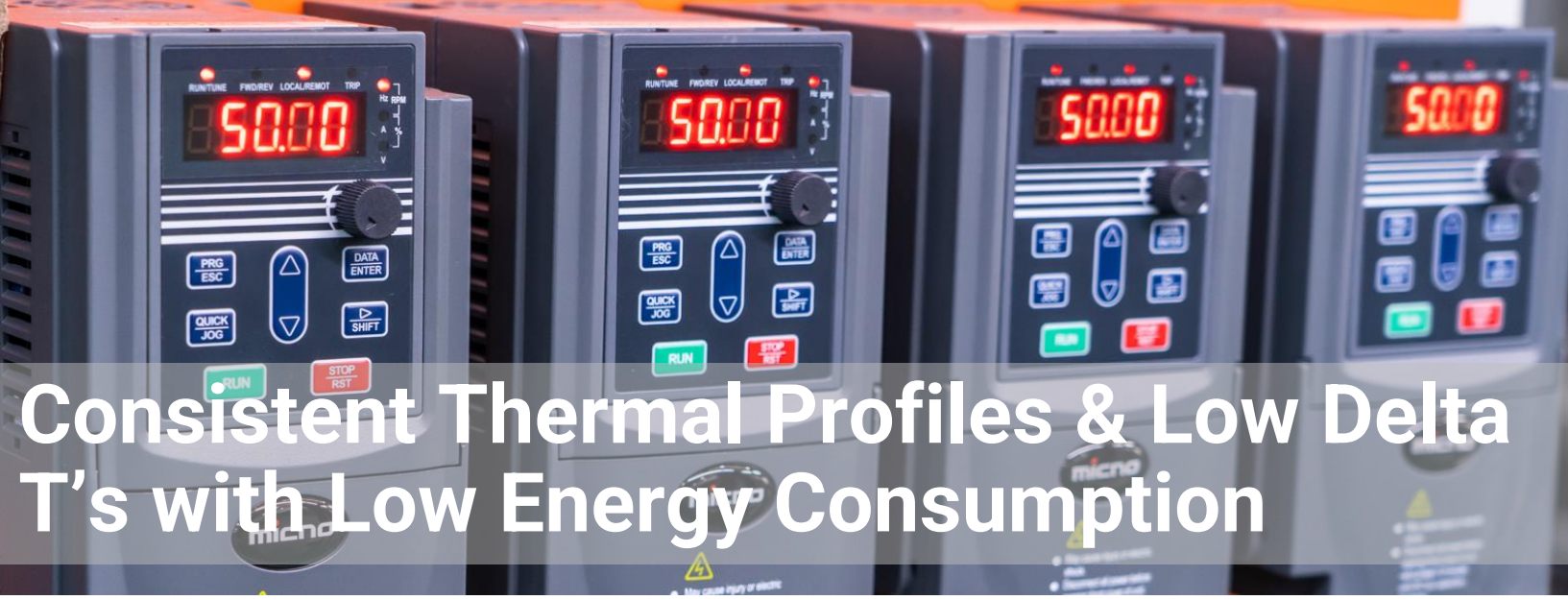
A variety of module types and systems are available, tailored to the application including the most demanding lead-free profile requirements. A super cooling system option is available for high mass applications that can provide cooling rates >6°C/sec and exit temperatures below 50°C.



Air Type Cooling Module

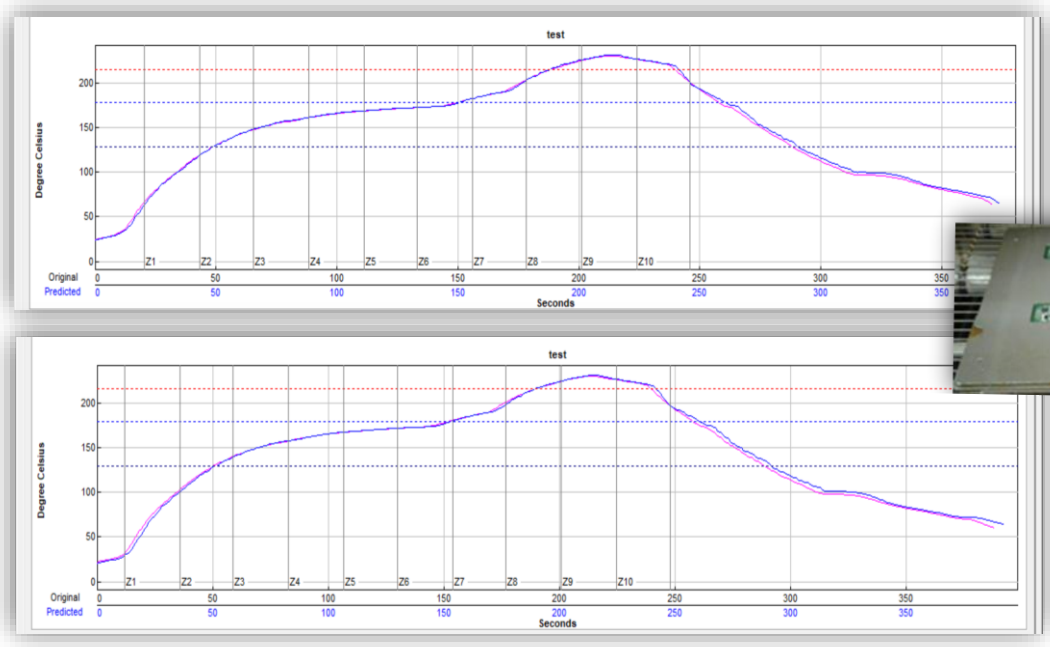


Water Type Cooling Module



Consistent Thermal Profiles & Low Delta T's with Low Energy Consumption

Excellent thermal performance is achieved with improved designs for heating and dynamic control, while energy usage is reduced with improved sealing and insulation. The Energy Management System on MK7 ovens provides smart control when off-loading of production to further save energy consumption.



Loading and no loading, Delta T < 2°C

Energy Management System on MK7 ovens provides smart control when the production line is idle to further save energy consumption.

Level 1:
- Slow down exhaust blower

Level 2:
- Slow down zone blower
- Minimize or stop N2
- Slow down chain speed

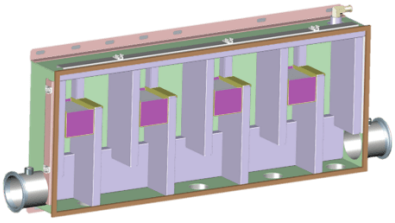
Level 3:
- Load Standby recipe

Level 4:
- Cool down

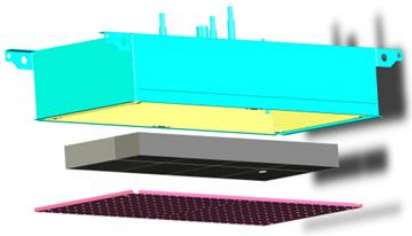
Standby Mode Results:
~50% kW less
~60% N2 less

New Designs Minimize Preventive Maintenance Effort & Time

Due to the new heat exchanger design with chilled water, the water box flux management system gives superb flux filtration performance while keeping maintenance and cleaning easy during PM. The enlarged capacity of provides longer interval between PM than other flux management systems.



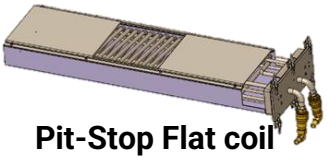
Flux Mgmt. System -WaterBox



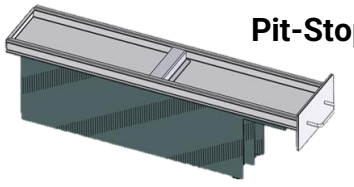
In close cooperation with our advanced materials provider, HELLER's new low temperature catalyst can help remove flux during reflow resulting in a clean process chamber.

Low temp. catalyst

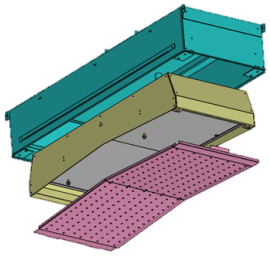
Pit-Stop features are an innovative way to reduce PM times by reducing overall oven downtimes. Parts involved with Pit-Stop features can be removed and exchanged without cooling down the oven, so production can be resumed right after the exchange.



Pit-Stop Flat coil

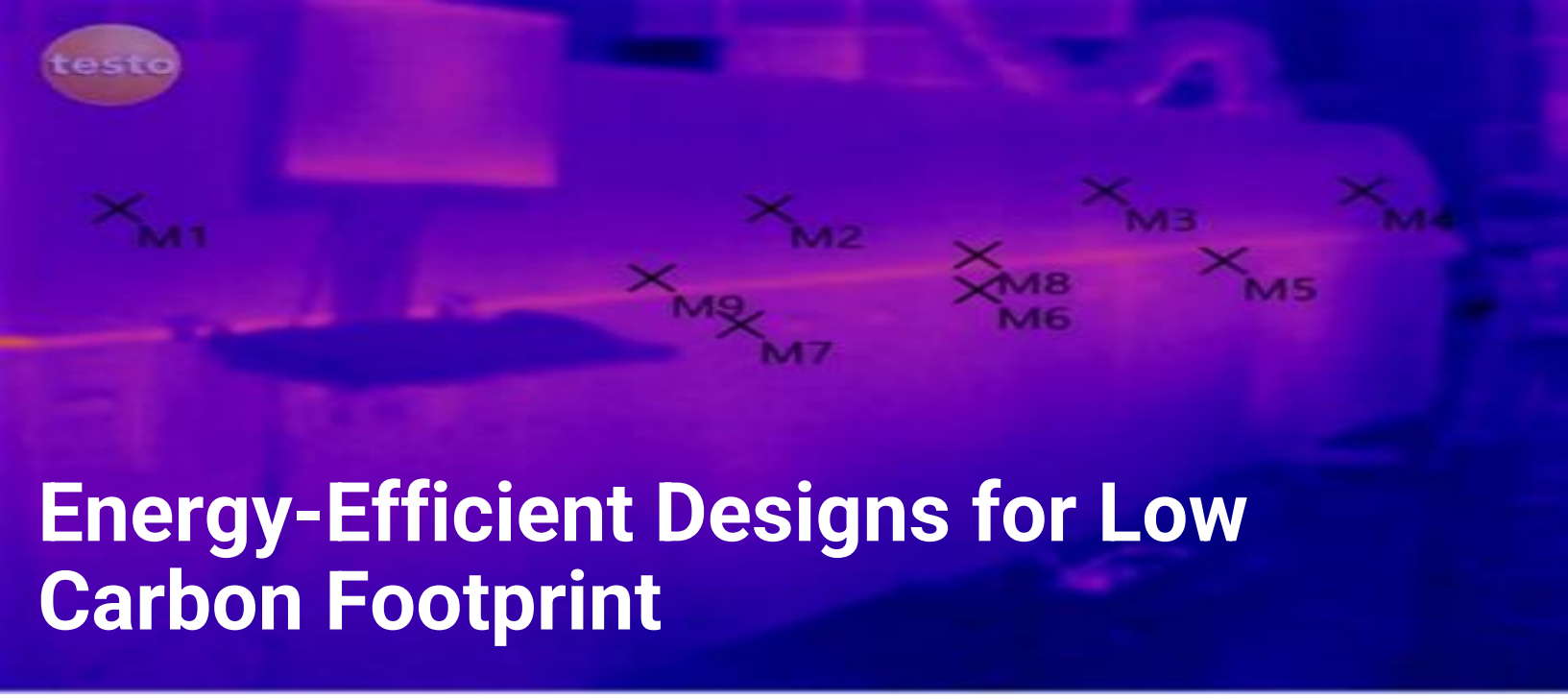


Pit-Stop Hula Skirt



The quick release cooling grill with anti-flux dripping design simplify flux cleanup in the cool zones, further reducing overall PM effort.

Quick Release and Anti-Flux Dripping Design

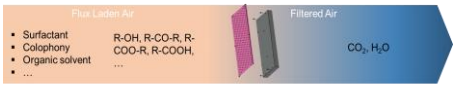


Energy-Efficient Designs for Low Carbon Footprint

Heller takes low-carbon, green and sustainable development as the company's long-term goals, while meeting the technical requirements of customers, and spares no effort to apply green environmental protection technology to products, helping enterprises and the world to achieve carbon peaking goals.

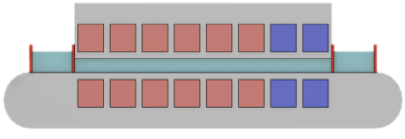
Low Temp. Catalyst

Greater conversion of flux results in lower nitrogen consumption with no heed of additional heating source.



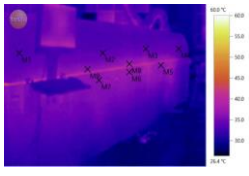
Energy Mgmt. System

Smart Control for Energy Saving on power consumption and N2 consumption.



Creative design for N2 ovens to minimize the N2 consumption.

Nitro-Gate

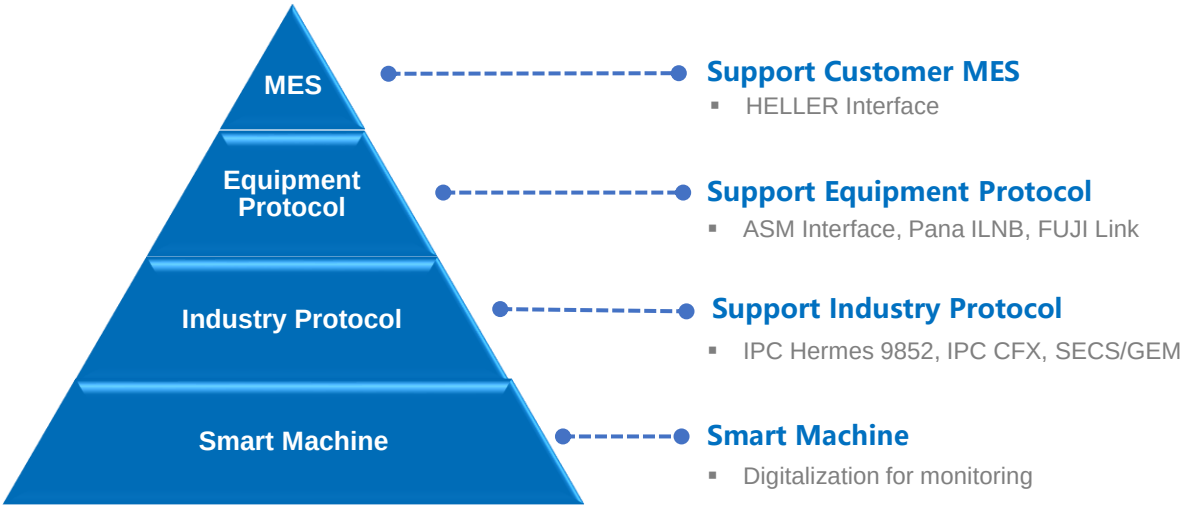


New frame design and insulation of MK7 to reduce heat loss to save energy.

Low Temp. Skin

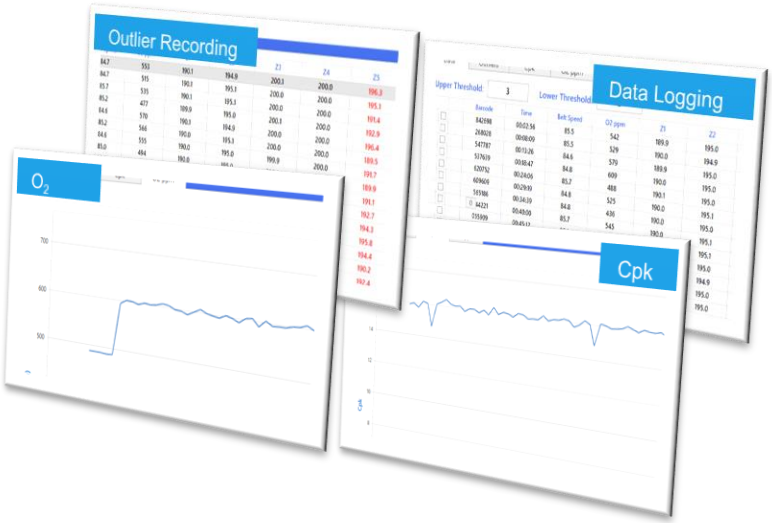
Smart System for Smart Manufacturing

Digitalization is changing all areas of our lives, and manufacturing is no different. Manufacturing companies must move with this trend by adopting smart manufacturing processes in order to stay competitive. While the ultimate goals of fast delivery, low cost and high quality have remained unchanged, the management and analysis of data from production, process and equipment is now essential. HELLER understands this, and our software tools fully support smart manufacturing and Industry 4.0.



Building Blocks for smart factory

HELLER ovens are smarter ever than before with integrated HW & SW. This enables operators to monitor the process in real-time to quickly improve product quality and yield, while reducing costs. HELLER 365 provides live oven monitoring of the thermal process on board level to ensure they are under control and within spec. All data is saved which allows users to look back at previous production and process data.

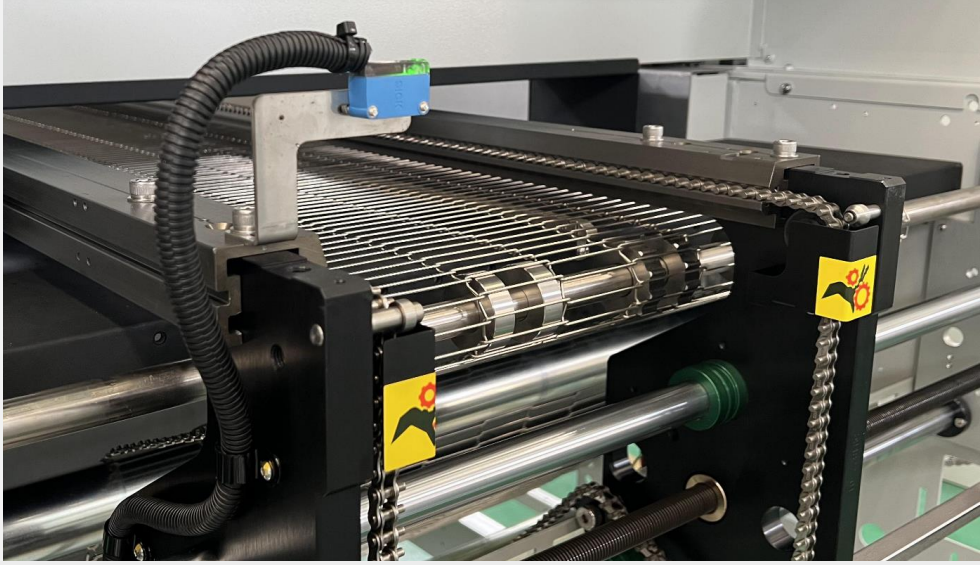


HELLER365 (Traceability)

HELLER365

(Virtual Profile – Board Level Monitoring)

Configurable Designs for Your Application



Electronics Manufacturers demand a high level of productivity—providers are pushed to offer better results while maintaining profitability. To grow your business, you need a flexible system that can accommodate products and applications for SMT and Semicon. The MK7 is capable to serve a wide range of products and applications, giving you a competitive advantage to expand into new lines of business.

Flexible Design
Compatible and configurable for your specific need

Uniform Temp. Profile
Lower delta T's and easily adjusted thermal profile

Fast Heat Transfer
Fast response to heat transfer for any product, delivering the highest soldering quality

Easy PM Effort
Less downtime for more productivity

Low Cons. Cost
Reduced energy and Nitrogen consumption at any PPM level.

Ready in Smart Factory
Providing oven data to superior SW for smart data analysis and smart control

Customize your process with our standard modular options

Heated Zones + Cooling Zones
High temp uniformity with a flexible combination of heating and cooling zones to best fit your application.

Cooling system
Efficient cooling system with air cooling and optional water box for extra support.

Transportation
High parallelism, and Low vibration. Single, dual and multiple lane configurations available with options CBS or mesh belt.

Flux Management
Boards stay clean and dry with multiple flux management options based on flux consumption, including air, water and pyrolysis.

Heaters and Modules
Heater modules available in either 10" and 12" in length, and either 30" or 34" in width, to meet the needs of different applications.

...And More
Additional options include cleanroom capability (class10k &1k), heavy mass loading, and high-temp processing (400°C)

MK7 Systems Meet Your Total Requirements

	1505MK7	1707MK7	1809MK7	1810MK7	1826MK7	1913MK7	1936MK7	2043MK7(3C)	2043MK7(4C)
Basic Data									
Length (mm)(Air/N_2)	2,000/2,500	3,600	4,650	4,650	4,650	5,900	5,900	6,774	7,224
Width (mm)	1,520	1,520	1,520	1,520	1,520	1,520	1,520	1,520	1,520
Height (mm)	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440	1,440
Weight (kg)	1,510	1,550	2,060	2,060	2,060	2,520	2,420	3,765	3,765
Power and N2									
Power Inputs	208/240/380/400/415/440/480 VAC								
Max Current Draw	100Amp					130Amp @ 208/240V 100Amp @ 380/400/415/440/480V			
Continuous Power kW	6 - 8	7 - 12	7.5 - 16	7.5 - 16	8 - 14	9 -15	9 -15	13 - 20	13 - 20
N_2 Supply Pressure (bar)	5 -7								
N_2 Operating Pressure (bar)	6								
Typical N_2 Consumption**	500-700SCFH								
Heating and Cooling									
Heating Zones	5	7	9	10	8	13	10	13	13
Heating Length (mm) (Air/N_2)	1,340/1,300	1,920	2,580	2,830	2,710	3,570	3,600	4,390	4,490
Cooling Zones*	1	1	2	2	2	3	3	3	4
Cooling Length (mm) (Air/N_2)	430/410	620	1,000	750	870	1,260	1,230	1,310	1,660
Max.Temp (˚C) *	350	350	350	350	350	350	350	350	350
Accuracy of Temp. Controller(˚C)	+/-0.1								
Profile Change Time (min)	5 - 15								
PCB Support									
Single Lane / MeshBelt*	50 - 560 , Option 50 - 610								
Dual Lane in Single Lane Mode*	50 - 400, Option 50 - 450								
Dual Lane in Dual Lane Mode*	50 - 225, Option 50 - 250								
Dual Lane Rails*	FMMM, FMMF, FMFM								
PCB Direction	L to R, R to L								
PCB Top/Bottom Clearance (mm)*	Mesh belt: +58 Chain: +29/-29 & +35 /-35								
Transportation Height (mm)*	Mesh belt: 930+/-60 Chain: 960+/-60, Option 900+/-60								
Conveyor Speed (mm/min)*	250 - 1,880								
Length of PCB Support Pins (mm)*	4.75								
Auto Lubrication System	S								
Power Width Adjustment	S								
KIC Profiling Software	S								

*Other Special Option is possible
** Varies with PPM, PCB size and oven configuration
S: Standard

Market Leader
In Soldering and Curing Systems for SMT and Semi-Con. Worldwide Footprint - Be Global and Local (“Glocal”)

Advanced Technology
Extendable to Future Applications
Extensive Library of Tested Designs Generated from Semi-Con

Strong Capability
To Innovate and Customize Quickly for Applications. Easy to Work With

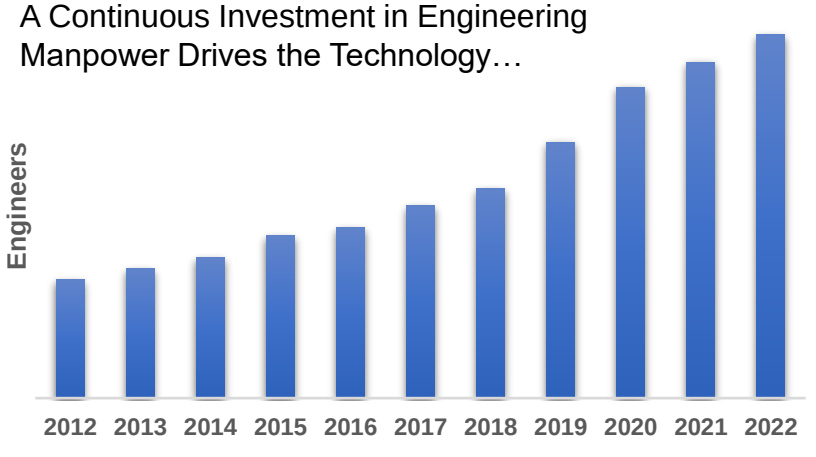
Green Technology
Environmentally Conscious / Sustainability Focus and Designs

Why Partner with HELLER?

HELLER Industries was founded in 1960 and pioneered convection reflow soldering in the 1980s. Over the years, Heller has partnered with its customers to continually refine the systems to satisfy advanced applications requirements. By embracing challenge and change, Heller has earned the position of World Leader in Reflow Technology.

With the Largest Engineering Team in the industry, HELLER has the capability to quickly deliver special thermal processing solutions and provide your businesses with a competitive advantage!

A Continuous Investment in Engineering Manpower Drives the Technology…



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