



## The Toolmaster Series:

(All Dimensions without electrical cabinet)

Basic			
Machine type	eff. area of Hot Plate	Dimensions	Operators Conditions:
Name	(mm)	D x W x H / mm	
/ 300	300 x 250	1650 x 1450 x 3070	Special qualification / operation: none
/ 500	500 x 350	1650 x 1450 x 3070	Special qualification / tool exchange: Technician
/ 620	620 x 350	1800 x 1850 x 3070	Degree of automation / tool exchange: manually
/ 800	800 x 350	1800 x 1850 x 3070	
/ 500 ECO	500 x 350	1650 x 1450 x 3070	

The TOOLMASTER BASIC is fitted with a pneumatic drive as a standard. The hot plate element is part of the machine. Only the contour sets are exchanged in case of production change. In this version the table moved horizontally. An exact position of the parts to be welded is achieved by a four-column railing.

Advance			
Standard	900 x 450	2070 x 1930 x 3020	Special qualification / operation: none Special qualification / tool exchange: Technician Degree of automation / tool exchange: manual quick change

The Toolmaster ADVANCE is equipped with the quick change "sandwich" tooling. With the help of a pre-heated second tooling (please see accessories) the machine can be re-adjusted manually within short. The tooling components are perfectly synchronised by racks and synchronising shaft axis. All machines equipped with the sandwich tooling are fitted with this synchronising device.

Semi-Automatic			
/ 500	500 x 400	2070 x 1930 x 3020	Special qualification / operation: none
/ 900	900 x 450	2100 x 2100 x 3420	Special qualification / tool exchange: none Degree of automation / tool exchange: automatic change in the machine

The Toolmaster SEMI-AUTOMATIC is also operated with a "sandwich" tooling. The sandwich forming process is carried out in the machine at closed doors. The manual part of the changing process is limited to the shifting of the sandwich from the transport trolley into the machine. The tooling exchange takes 10 minutes.

Automatic			
Standard	500 x 450	3260 x 1800 x 3060	Special qualification / operation: none Special qualification / tool exchange: none Degree of automation / tool exchange: automatic

The quickest way!  
Tooling exchange and production adjustment within only 90 seconds. As a standard the Toolmaster AUTOMATIC is equipped with hydraulic drive, fire protection and drop safety. If desired, the machine can be fitted with a servo-motor.

New small HE- hot plate			
HE 50/30	500 x 300	1700 x 1500 x 3250	

motor-driven horizontally arranged hot plate machine			
HE/SA	350 x 200	1400 x 2000 x 2600	

Wide variety of accessories and special equipment:

As a standard the machine versions BASIC, ADVANCE and SEMI-AUTOMATIC are equipped with a pneumatic drive. On customer request we can also supply them with servo and hydraulic drive. Please ask for machine type, tool transfer trolleys, pre-heating stations, sandwich tooling etc. In combination with sevomotorical drives all machines can be equipped with infrared heating element for contactless melting. (short or medium waves).



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**Intertek**  
Quality Management System  
 ISO 9001:2008  
 ISO 14001:2004  
 IATF 16949:2009



## HOT PLATE WELDING



**KLN Ultraschall**  
A Crest Group Company

### Standard program

- Toolmaster

### Special machines

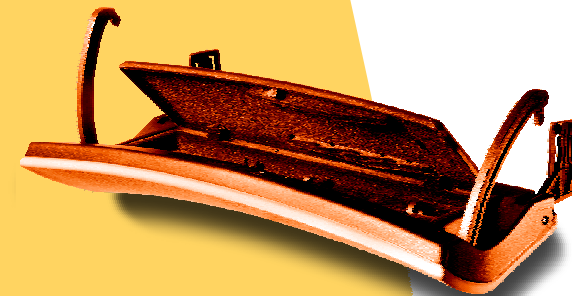
- fuel tank finishing lines
- turn table machines
- continuous mode

### Infrared technology

- integrable in all machine type

### Hot riveting

- modular design
- integrated in standard machine



WELDING TECHNOLOGY

Thermo Ultrasonic Vibration SpinWelding Infrared



**HOT PLATE WELDING**

The Toolmaster Series



The Toolmaster Series

The KLN „Toolmaster“ series has widespread use in large parts of the automotive industry and in various fields of the plastics processing industry. The Toolmaster version differ mainly in the kind of construction of their tooling, the size of effective surface and the degree of automation during tooling exchange. All versions of the series are suitable for high-temperature use. They are the only ones on the market fitted with a fire protection that quickly separates the tooling when energy drops or time is exceeded.

The Toolmaster “BASIC” is a standard model. It is used in the industrial mass production where it achieves a very high cost-benefit relation. The versions “ADVANCE”, “SEMI-AUTOMATIC” and “AUTOMATIC” work with sandwich tools which enable the handling of upper tooling, hot plate element and lower tooling as one compact unit. They are particularly designed for frequent and quick production changes.

Of course, apart from this series we produce also special machines adapted to the customer’s requirements.

(turn-table machines, belt-conveyor machines for loading and unloading)

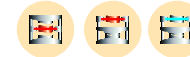


On request all standard machines can be equipped with infra-red technology.



**HOT PLATE WELDING**

Hot - Riveting



**Hot riveting**

Since many years the name KLN Ultrashall is the synonym for successful ultrasonic welding and riveting. However, in some applications it is not possible with ultrasonic riveting to achieve the optimum result.

As a consequence several years ago our product range for plastic riveting has been enlarged by the warm-gas or thermo-riveting. The thermo-riveting is characterised by

- advantageous cost-efficiency ratio
- minimum sizes possible
- minimum deviations due to temperature control of each riveting point
- no adhesion due to controlled cooling of each riveting point, if needed
- standard machines can easily be retrofitted from hot riveting to ultrasonic welding or riveting



KLN thermo-riveting units are standardised. For small applications they are integrated in the reliable Omega series or for complex special machines they are made also in modular design.

Frequent applications for decoration strips, bezels etc.





**HOT PLATE WELDING**

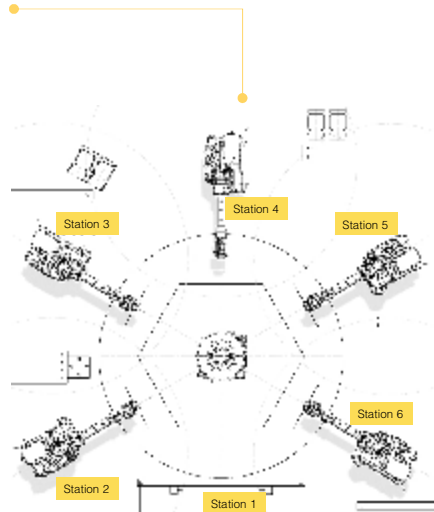
Fuel tank welding  
Roboter line



**Machine Concept Roboter Line**

**Units :**

- 1 Loading & unloading
- 2 Spin welding
- 3 Spin welding & cutting
- 4 Hot plate welding
- 5 Hot plate welding
- 6 Hot plate welding



**HOT PLATE WELDING**

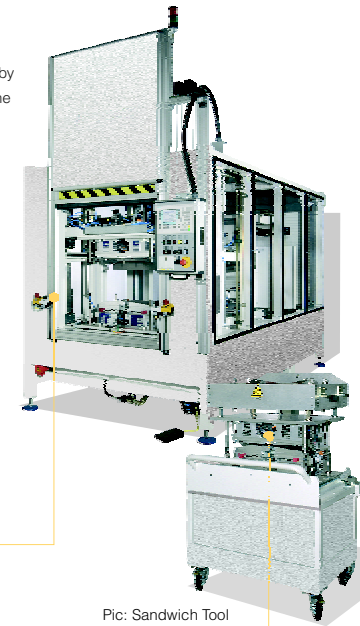
Toolmaster Automatic



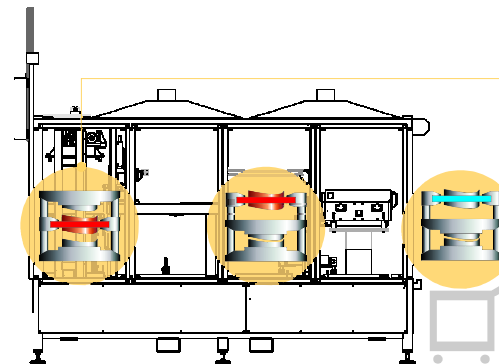
The Toolmaster AUTOMATIC has been developed for tooling exchange without qualified personnel. It is the flagship of our Toolmaster series. Hot plate element and lower tooling are brought together in the application they are moved to the pre-heating station or made ready for unloading. The time spent for tooling exchange and adjustment is now history. The Toolmaster AUTOMATIC exchanges two sandwiches in only 90 seconds! The hot plate element with a temperature of up to 500 °C is in parking position above the upper tooling and thus cannot damage neither keys and cables or vacuum suckers. In the parking position it can be permanently kept in operating temperature.

For this purpose the Toolmaster AUTOMATIC is equipped with an integrated pre-heating station. So you can simultaneously weld with one sandwich, pre-heat another one in the machine, exchange this by pressing a key, unload the first one from the machine, load a new one and pre-heat it for the next exchange.

The advantage of the Toolmaster sandwich technology: As many sandwiches as needed can be kept ready on the changing trolley and be included in the current process.



Pic: Sandwich Tool in parking position





**HOT PLATE WELDING**

**HE 50 / 30**



**Hot plate welder type KLN HE 50/30**

(vertical tool arrangement)

This machine type has been newly developed and supplements the KLN Toolmaster series for a variety of applications in the automotive industry and in other branches, like manufacturing of appliances for medium-size components.

The basic idea was the cost-effective use of the hot plate welding for a variety of serial parts which require only a hot plate operating surface of max. 500 x 300 mm.

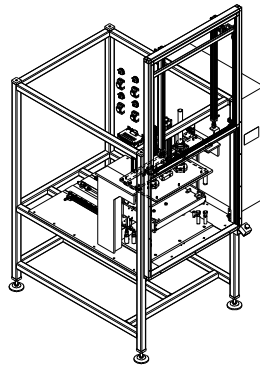
The productivity of the machine does not at all differ from the other top quality systems of the Toolmaster series.

However, for cost reasons the degree of automation has been limited.

Nevertheless, if needed, the machine can be equipped with double mirror and several heating circuits.

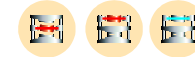
But our aim was to create a basic version of a reasonably priced universal model which is already fitted with a top quality heating element.

The high heating capacity of 10kW with 10 HEP systems guarantees the welding also of critical parts which require an even temperature distribution.



**HOT PLATE WELDING**

**HE / SA**



**Hot plate welding machine with hot plates arranged vertically and with servo-drive**



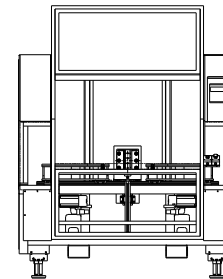
This machine type is a supplementation of the patented KLN Toolmaster series. In the various Toolmaster versions the degree of automation during tooling exchange is the main point; with vertical parts movement.

**Significant properties:**

- High acceleration of the slide for the parts fixture and optionally also for the hot plate slide
- Precise speed regulation, depending on the travel
- Regulated braking of all travel motions
- Precise speed regulation, depending on the travel, in various steps of the melting and welding powers. The required parameters can be set at the OP.
- Exchangeable hot plates (standard size 350 x 200 mm) or exchangeable hot plate caps which are heated directly
- PLC control Siemens S7 with Siemens OP

**Further options:**

Automation, touch panel, vacuum circuits, communication with the interface, tele-modem etc. Application range of the machine: normal and high temperature. Use of various hot plate materials and coatings for all tasks, particularly to avoid significant melt residue on the hot plate (formation of threads), e. g. in critical materials like PA, thermoplastic polyester as well as blends, for example ABS-PC etc.



The new version HE/SA is based on a horizontal movement of the parts fixtures.

This machine is suitable for manifold use, also for critical technical plastics, like polyamides.

To cope with these materials, the technical preconditions must be created, which means optimum regulation of speed, power and particularly fast courses of motion, especially for the change-over time between heating up phase and welding phase (heating-up – change-over – welding).

These preconditions are achieved by using servo-drives.

The machine may be completely fitted with servo-drives or in many applications, to save cost, with servo-drives for the parts fixtures combined with pneumatically operated hot plate slides.