

The MARTIN Auto Vision Expert 09.5

Clear, effective, precise



MARTIN Auto Vision Expert 09.5

Revolutionary in Rework

Clear and practical with effective design

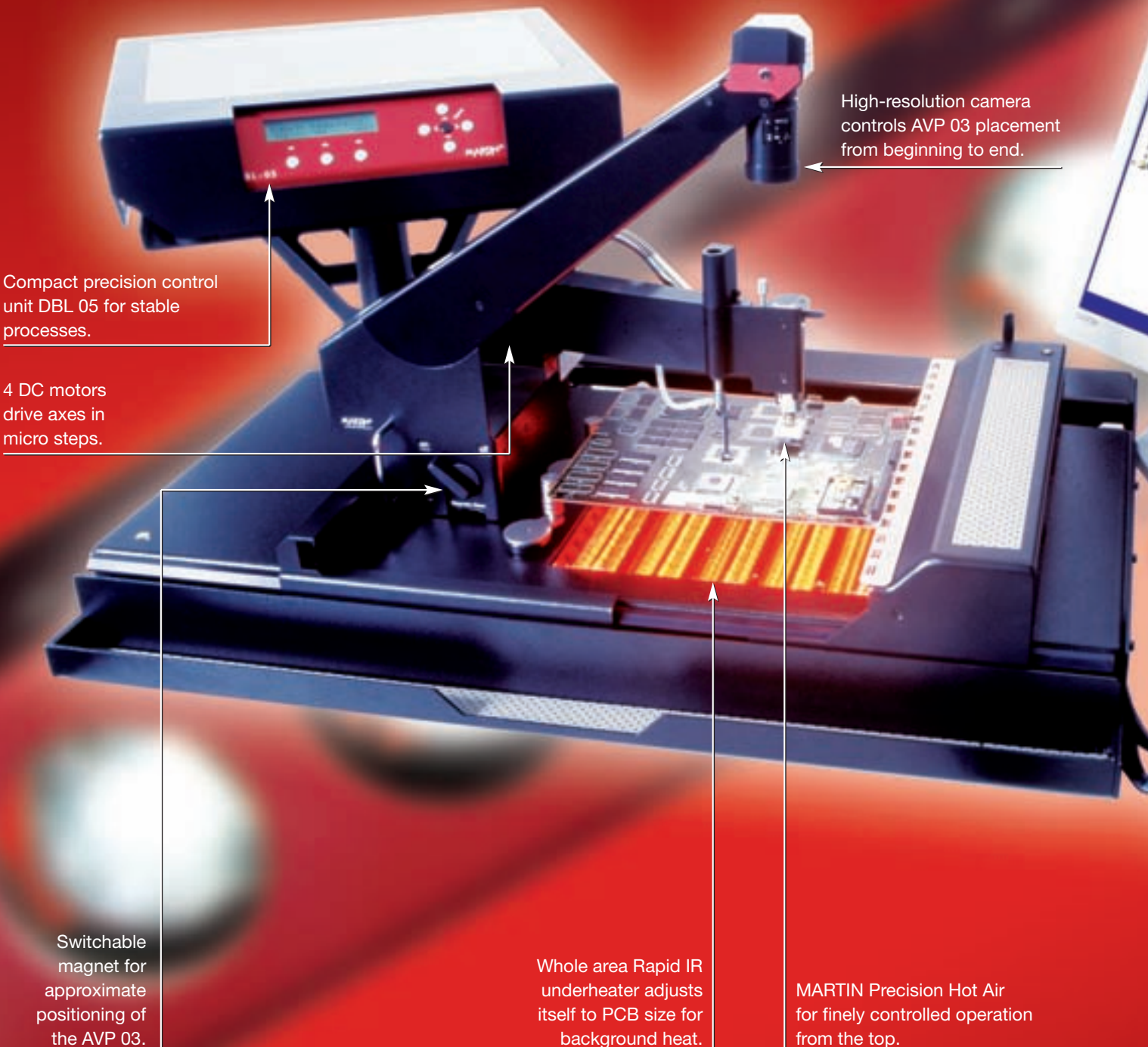
The expectations for PC controlled rework have evolved and not only because of the introduction of lead free technology. Besides being able to trust the reliability of the processes a rework station has to function intuitively without difficult procedures.

The new series Expert 09.5 concentrates on the essentials. Even demanding processes become easily managed tasks. The result of experience gained throughout the world and over decades – revolutionary in rework.

Future proof and faultless: The AVP

Placement systems usually rely on split field technology, but there is a problem: the accuracy is only make believe! Alignment depends completely on the complex calibration of optical mirrors and the final placement has to be done 'blind'.

The patented Auto Vision technology from MARTIN starts here. From the start to the finish the camera observes and precisely controls the placement. The precision is only dependent on the faultless resolution of the camera.



Compact precision control unit DBL 05 for stable processes.

4 DC motors drive axes in micro steps.

High-resolution camera controls AVP 03 placement from beginning to end.

Switchable magnet for approximate positioning of the AVP 03.

Whole area Rapid IR underheater adjusts itself to PCB size for background heat.

MARTIN Precision Hot Air for finely controlled operation from the top.

Flexibility in application

Unrivalled:

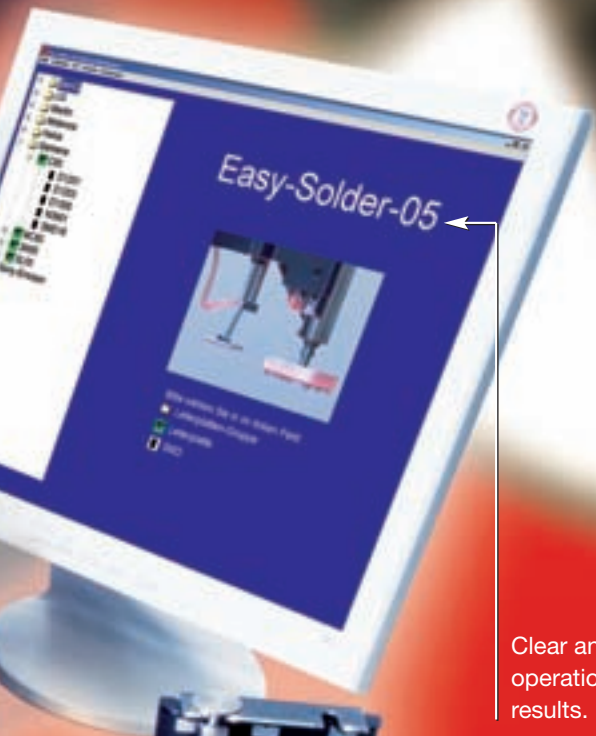
Precision Hot Air plus Rapid IR

Zero Risk Rework heating technology is based on established laws of physics, which have to be followed ever more closely for today's extremely tight process windows. During soldering the patented Precision Hot Air for precise rework on the topside, is successfully combined with the Rapid IR underheating to provide background heat for the whole of the underside of the PCB.

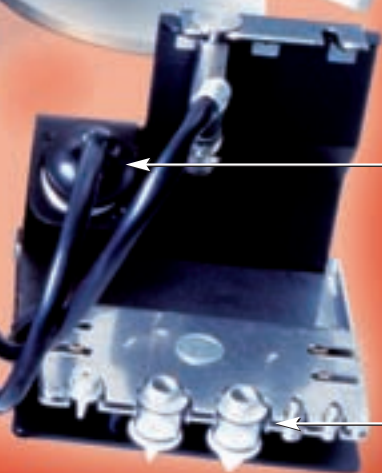
This guarantees reliable rework.

For all PCBs and all SMDs

The MARTIN Expert 09.5 is suitable for PCB dimensions from just a few mm to 600mm. This is possible because of the flexible PCB supports, an adjustable Area Underheater IRF or the use of a small IR heater. Adjusting the workstation to any imaginable component size or shape can be achieved within a few seconds. All that might have to be changed are the placement nozzle, soldering tool and possibly the lens.



Clear and safe operation for error free results.



Quick change magazine for placement nozzles and soldering tools.



For all functions

	Desolder	Clean Pad	AVP	Solder	Dispense	Reball	PCB ID
Start				Preheating	Soldering	Cooling	
	Air [l/min]			8	8	6	
	Temp. [°C]			180	320		
	Time [s]			50	85	30	
				IRD-Heater	70	70	
Profiler				<input checked="" type="checkbox"/> Rapid IR			Leaded
				<input checked="" type="checkbox"/> µSMD			

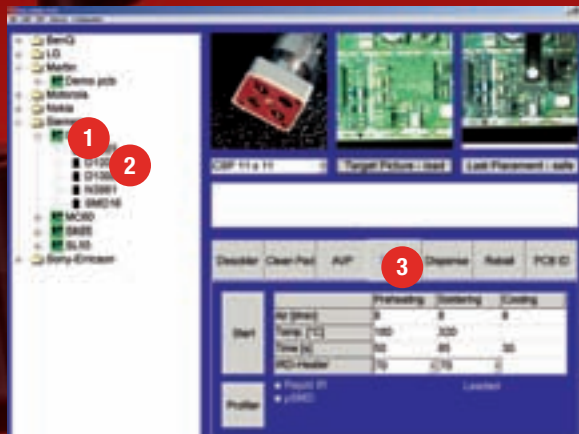
The Expert 09.5 establishes a model with seven functions in one rework unit: desoldering – clean pads – AVP placement – soldering – dispensing – reballing – PCB identification.

This complete function range combined in one machine meets all the requirements of rework specialists worldwide. The design philosophy and capabilities of the Expert 09.5 offers considerable cost savings.

Clear for operators

Revolutionary software: Easy Solder 05

Easy Solder 05 is the intelligent user software behind the completely PC controlled Expert 09.5. Suited to modern requirements, with more clarity, and aimed specifically on particular process steps and with more visual support it is, therefore, even faster than before. For Quality Control the optional extra "Report" records in the background all salient data and pictures.



Three click process selection

- 1.) Selection of PCB
 - 2.) Selection of SMD
 - 3.) Selection of process and start
- Easier and faster is not possible.

To illustrate the different steps, the monitor shows the selected PCB, the placement position and the required soldering nozzle.

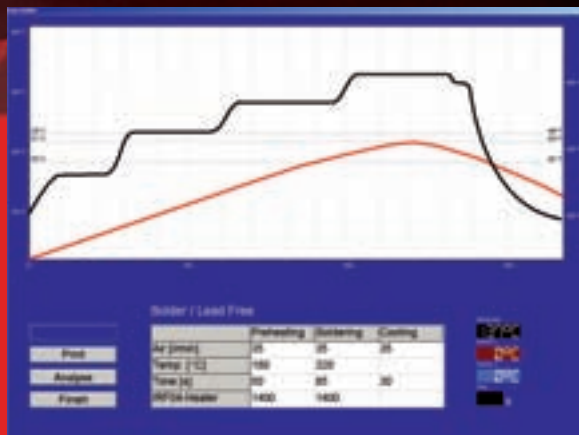


Clear user instructions

- The program shows clear instructions to the next step for each process phase. At critical points users are supported by control questions and camera images.

New soldering tasks are no problem with the integrated Auto Profiler: a new profile is established automatically within 5 minutes – no previous knowledge is needed.

- By selecting the soldering nozzle the system sets default parameters.
- Users just need to affix temperature sensors to the board and component and determine the melting point by using the SMD hook. All parameters are then determined automatically.
- Soldering profiles from older units can be imported without any problems.



Reliable results through Zero Risk Rework

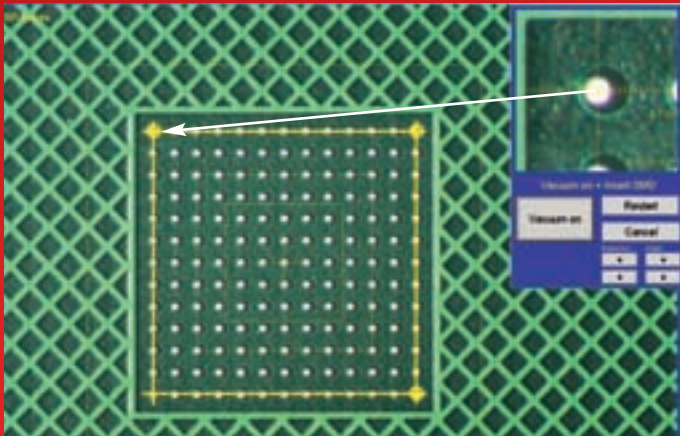
- The Zero Risk System: Mirroring the processes in mass production results in rework being carried out without any risk to quality or reliability.
- After the selection of the process by the user (see above) the PC determines the process parameters (times, temperatures, air flows).
- The DBL control ensures absolute adherence to the set parameters (Total Process Control).
- Risk-free, especially for the smaller process windows for lead free.

Effective during placement

Focus of the Auto Vision Placer: Faultless camera control

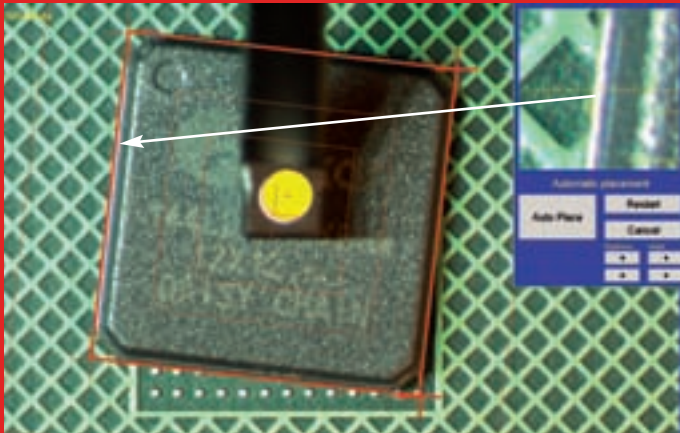
Whoever demands absolute precision and certainty in placement should not rely on the naked eye or complex calibration for any phase of the process. The camera eye of the AVP is sharper and above all faultless. It controls and calculates the automatic placement process from start to finish – error free.

Asymmetric SMDs, too, are measured by the Auto Vision Placer and placed with the required offset without problem.



Precise target acquisition

- The Auto Vision Placer receives the coordinates of the corner points of the component and placement positions by clicking the mouse.
- This is made easy by the magnified area.
- The software leads users through the required steps.



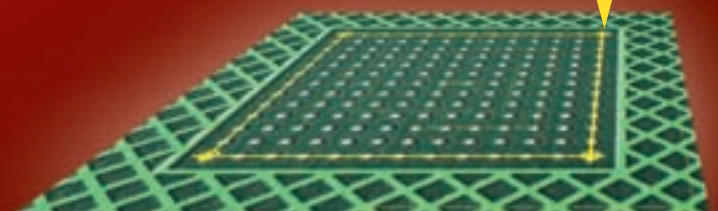
Continuous supervision

- The processor automatically calculates the precise movement coordinates.
- The camera continuously regulates and controls all of the movements.



Controlled placement

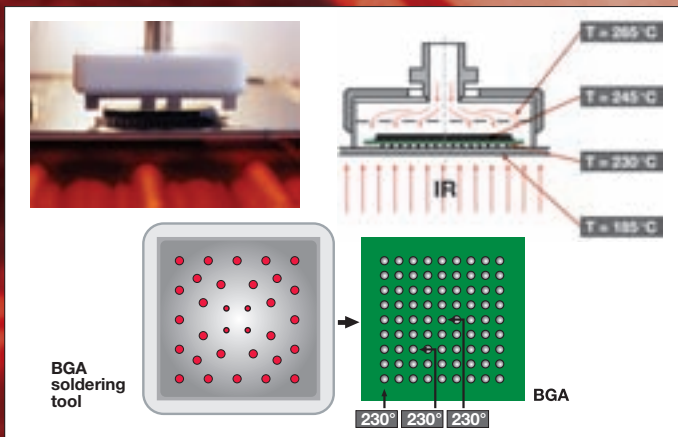
- The AVP, with its faultless camera eye, places the SMD automatically in its exact position.
- The result does not depend on any mechanical accuracy – only on the resolution of the camera.
- Just a few second sees the whole process through.



Precise during soldering

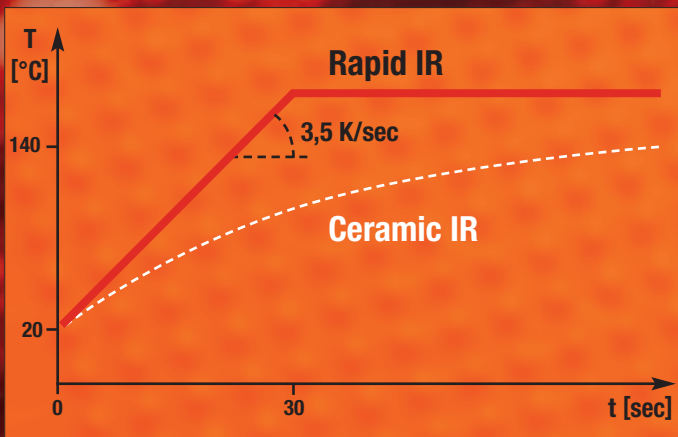
Revolutionary in thermodynamics

MARTIN's thermodynamics strategy is based on two components: background heat to the whole of the PCB is provided by the fast acting IR area underheater. This provides half the energy required at the solder point and avoids board distortions or twisting. With significantly greater technical input, and at the same time, energy is delivered at the top accurately to the solder joints through convection (i.e. precisely controlled hot air).



Unrivalled: MARTIN Precision Hot Air

- The spot-on convection from above with the patented soldering tools from MARTIN remains unrivalled.
- Even temperature distribution across a component within $\pm 4^\circ\text{C}$, results in almost simultaneous reflowing of all solder joints. The proven asymmetric system of airflow avoids overheating the centre of components.
- Highly accurate and stable ($\pm 1\%$) without any calibration by the user. To comply with ISO 9000ff the Soldering Pen can be cost effectively exchanged annually or recertified locally by the use of Set Easy Cal III.



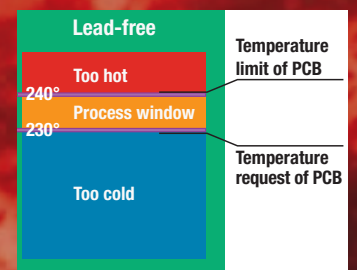
Ideal: The Rapid IR technology

- Accelerated heating in Expert 09.5. The Rapid IR underheater transfers the programmed background energy into the PCB within a few seconds without exceeding the permitted ramp rate of 3.5°C/sec.
- This allows the reduction of hot air temperatures for the top convection heating and provides for the gentlest of processing.
- This technology provides for considerably faster soldering profiles than before.
- The area underheaters self calibrate each time they are switched on.



Multi Zone Profile

- Successful rework requires a gentle temperature profile for preheat, soldering and cooling.
- With only a few data points Easy Solder automatically establishes a 7-part Multi Zone Profile from its own experience.
- Thermal limits for PCB and components are not exceeded. Thermal requirements for reliable flowing and wetting of solder are also met.



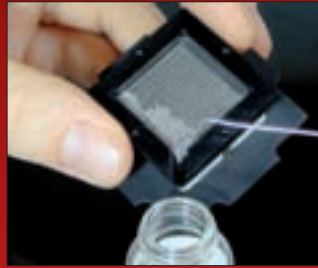
Optional Extras

Please see: www.martin-smt.de



Micro SMD

With just a few changes the standard work station is made suitable for miniature components (3 to 1 mm or even smaller).



Reballing

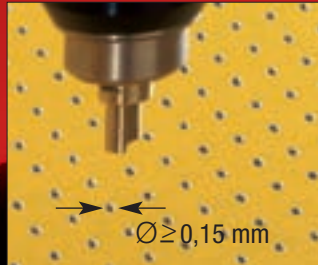
Reballing sets simply allow the reuse of previously soldered components. For BGAs and CSPs corresponding mini ovens and masks are all that is needed.



Report

All data for each soldering process is automatically recorded together with the set profile and a picture of the placement.

This information is instantly available for any quality assurance actions.



Rework Dispenser

The automatic dispenser is suited to the most demanding rework applications. Advanced Time Pressure method ensures secure, simple and precise dispensing of solder paste.



Soldering Nozzle Sets

Practical and cost effective sets for all BGAs, CSPs and SOs round off the installation.

The set for all QFPs is already included in the Expert 09.5 as part of the original equipment.



Instructions and Training

Not just for "train the trainer" positions, the MARTIN Training Centre the place to go for theoretical and practical information, tips and tricks on reworking current and future components.

MARTIN Expert 07.5

Manual Placement at entry level cost



Specific equipment

Instead of the Auto Vision Placer arm the Double Head Placer arm is included. Desoldering is carried out automatically with 3 pneumatic axes.

Placement is achieved by aligning with 4 fine axes controlled by eye. Star Tools corresponding to particular SMDs offer accurate targeting aids. One Star Tool is included with the standard set.

Expert 07.5 can be upgraded to Expert 09.5.

The Expert 07.5 series is also available as H version.

Technical details

These correspond, in the main, to those of Expert 09.5.

MARTIN Auto Vision Expert 09.5



The set comes complete with

- Soldering station DBL 05 with soldering pen, tool magazine, reballing holder, 2 soldering nozzles (4.0; 7.0 mm)
- Dis module with dispensing pen, 2 aluminium nozzles (0.3 mm), cleaning set
- Vac module with vacuum pen, 4 placement nozzles (0.7; 1.5; 6.3; 8.5 mm), 2 solder sucker nozzles (1.0, 1.4 mm), cleaner
- Measurement module with ultra fine sensors, 2 channel
- Underheater IRF 04 (2400 W)
- PCB table Smart Fix 06 with hand rest, illumination, cooling, 4 PCB holder and 4 PCB supports
- Auto Vision Placer with 5 automatic axes, camera, 2 lenses and 4 placement nozzles
- Second soldering pen for residual solder removal
- Foot switch, solder paste, solder balls, flux pen, flux cream
- CSP/BGA Transfer Tool, SMD Hook
- Set of 7 soldering nozzles for all PLCCs, PLCCs, QFPs
- Box with consumables
- Rework ABC (handbook)
- MARTIN rework software Easy Solder 05 (WIN 2000/XP)

Technical data

Max PCB width	approx 390 mm
Max PCB length	approx 500 mm
Working area	900 x 700 mm
Air flow	2 – 35 l/min \pm 1 l/min
Temperature	150 – 400°C \pm 1,0% (repeatability)
IRF 04 power	400 – 2400 Watt
IRF 04 area	280 x 250 mm
WIN software	Easy Solder 05
Dispensing volume	0,01 – 10 mm ³ , temperature compensated
Dispensing media	solder paste, flux cream, SMD glue ...
Resolution of camera	1024 x 1280 pixel
Image size	<ul style="list-style-type: none">• 10 x 12 mm (μSMD – optional extra)• 20 x 25 mm (CSP)• 40 x 50 mm (BGA/QFP)• 55 x 69 mm (Maxi BGA – optional extra)
Travel	75 mm / 75 mm / 30 mm / \pm 10°
Resolution of axes	0.001 mm
Placement accuracy	<ul style="list-style-type: none">• \pm 0,03 mm (μSMD – optional extra)• \pm 0,04 mm (CSP)• \pm 0,08 mm (BGA/QFP)• \pm 0,10 mm (Maxi-BGA – optional extra)

MARTIN Auto Vision Expert 09.5H



Specific equipment

Instead of underheater IRF 04:

- IR double radiation element (120 Watt)

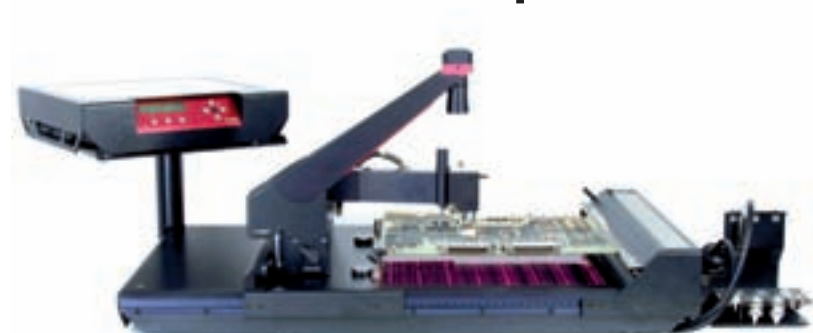
Instead of 7 soldering nozzles for QFPs:

- Set with soldering nozzles for all CSPs
- 2 soldering nozzles for SOs (10 x 15 mm; 15 x 25 mm)
- 2 placement nozzles for chip components (0.25; 0.5 mm)

Specific technical data

Working area	800 x 700 mm
IRD power	20 – 120 Watt
IRD area	40 x 73 mm

MARTIN Auto Vision Expert 09.5XL



Specific equipment

- Auto Vision Placer extended by 50 mm,
- Underheater IRF 04 replaced by IRF 05 (3000 Watt),
- PCB table Smart Fix 07

Specific technical data

Max PCB width	approx 490 mm
Max PCB length	approx 600 mm
Working area	1050 x 840 mm
IRF 05 power	500 – 3000 Watt
IRF 05 area	390 x 370 mm

MARTIN[®]

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