Multiple True Closed Loop

DynamicIR Heating Technology

MTCL Control guarantees Process Safety!
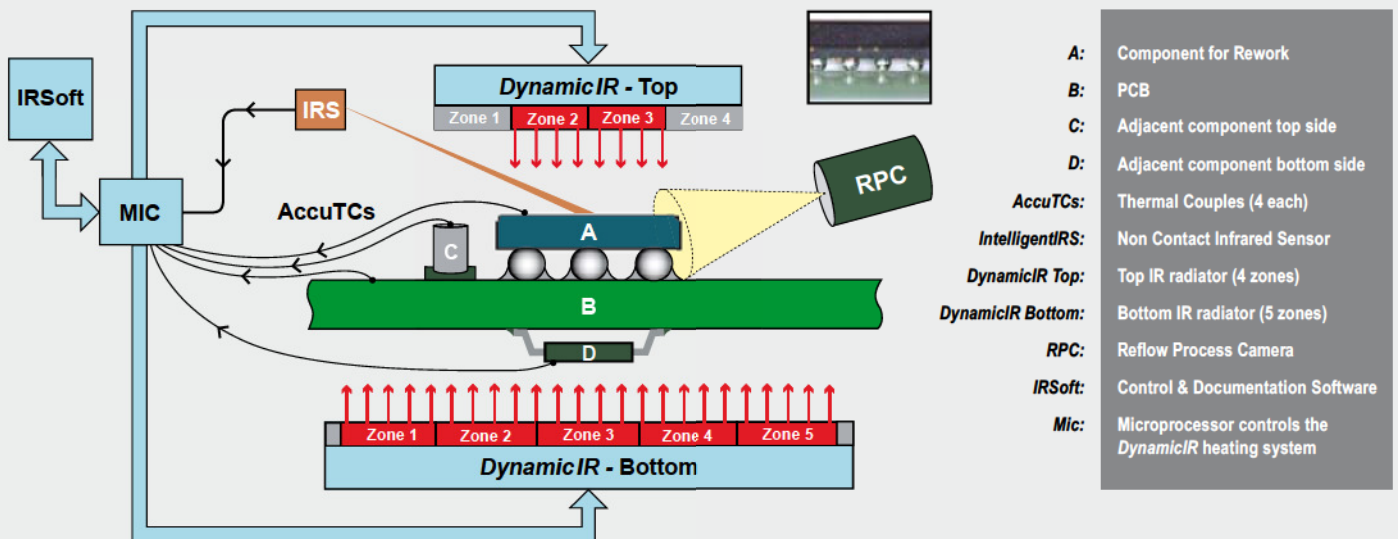

ERSA's proven Multiple True Closed Loop Selective Rework technology uses the actual temperature of the component and/or PCB to drive the DynamicIR heating system. The non-contact IntelligentIRS infrared sensor offers a comfortable, in-process temperature measurement of the component to be heated and guarantees that it exactly follows the prescribed profile path. The power to the medium wavelength IR heaters is controlled based on the precise temperature gradient of the component required at each specific time point in the profile. Up to four additional AccuTC K-type thermocouples can monitor temperatures at four additional locations in order to prevent the system from undesired overheating of temperature sensitive components.
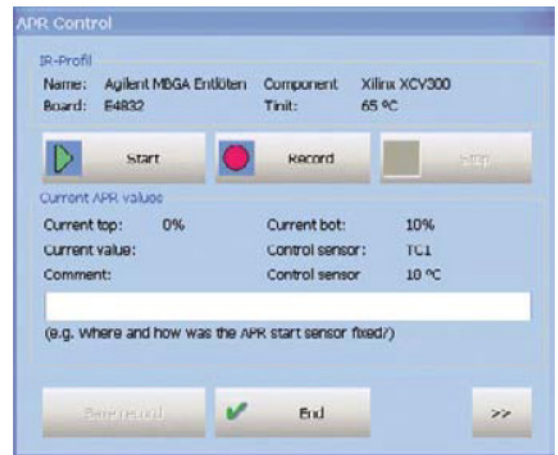
The DynamicIR heating technology offers a multiple zone, optimized reflow process with either 1,600 W or 4,600 W of total heating power. The RPC Reflow Process Camera offers enhanced safety by visualizing the rework process. Finally, the new IRSoft Control & Documentation Software provides a user-friendly, command & control interface.


A:	Component for Rework
B:	PCB
C:	Adjacent component top side
D:	Adjacent component bottom side
AccuTCs:	Thermal Couples (4 each)
IntelligentIRS:	Non Contact Infrared Sensor
DynamicIR Top:	Top IR radiator (4 zones)
DynamicIR Bottom:	Bottom IR radiator (5 zones)
RPC:	Reflow Process Camera
IRSoft:	Control & Documentation Software
Mic:	Microprocessor controls the *DynamicIR* heating system

User-friendly operating interface

APR – Auto Process Repetition

Ultimate Rework Process Stability
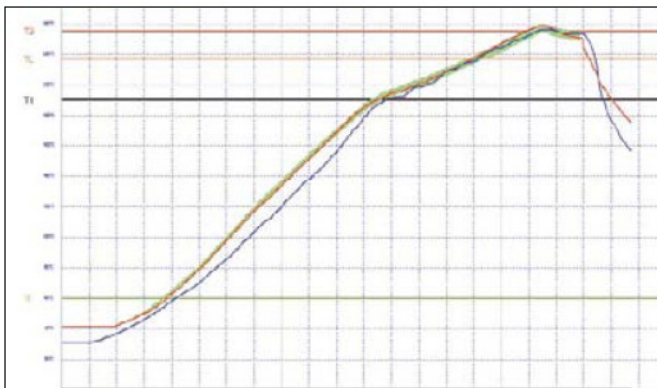
All PCBs follow the exact same temperature profile

Today's rework operators have many different challenges, sometimes high mix and other times high volumes. Quite often operators must perform completely different removals and replacements on a large mix of different boards. For these applications, ERSA's Multiple True Closed Loop Process offers the highest degree of safety available on the market. Other times, however, operators must perform the exact same operation on hundreds or thousands (high volumes) of boards and must guarantee safety and repeatability. For these applications, ERSA now introduces the ERSA APR – Auto Process Repetition for automated selective rework.

Similar to how our in-line selective soldering systems function, APR allows the operator to establish the perfect closed loop profile using the multiple sensors provided. The system records the exact power control of the top and bottom heaters and their zones over the entire time cycle of the process. After verifying the optimal profile, the boards for repeated high volume rework can be placed into the system one-by-one and each and every PCB will be subjected to the exact same selective reflow process. Speed, safety and ultimate process repeatability are the added value benefits of this important new rework function.

APR Features:

▼ Rework Process Stability for high repetition applications

▼ Multiple sensor, closed loop profiling

▼ Auto recording of all heating parameters

▼ Auto repetition of system heating control

▼ For use with the IR 650 & IR 550 systems

▼ APR Control via IRSoft
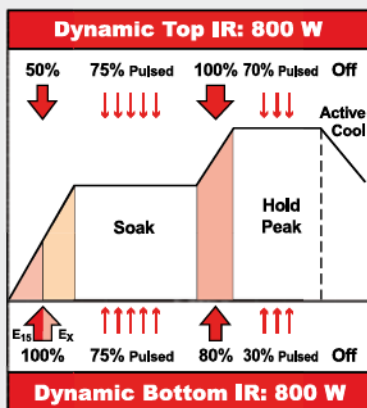
ERSA IR/PL 550

The Best Selling Rework System

The IR/PL 550 is one of the best selling and most wide-spread rework systems in the world and offers the best cost/performance ratio. This system is designed for small to medium size PCBs and has proven itself to be the "Workhorse" in our rework product line. The IR/PL 550 is a unit which offers the greatest flexibility for operators to best interact with their system in order to handle the most complex SMT and THT rework applications.

The IR Rework system is broken down into four basic operational modules:

I.   **IR 550** Selective Reflow module
II. **RPC 550** Reflow Process Camera module
III. **PL 550** Precision Placement module
IV. **IRSoft** Software module (see pages 16 & 17)

Recommended Accessories:

It is recommended to purchase the Process Cooling Fan (p. 21) with the IR 550. When the IR 550 is not used in combination with the PL 550, it is highly recommended to purchase the the X-Y Table (p. 23) and the RPC 500 (p. 13). Additionally, it is helpful to purchase the Rework Starter Kit (p. 21). Special desoldering tools, such as the Chip Tool for small SMD removal and the X-Tool for TH desoldering can be connected to the solder station integrated into this system. For ordering details, please refer to the ERSA Tools catalogue. A complete listing of all rework accessories can be found on pages 20 - 23.
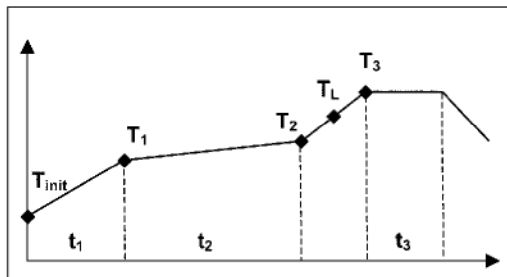

Dynamic Top IR: 800 W

| 50% | 75% Pulsed | 100% | 70% Pulsed | Off |

Active Cool

Soak   Hold Peak

E_{15} E_X
100% 75% Pulsed 80% 30% Pulsed Off

Dynamic Bottom IR: 800 W

SMT Vision Award:
Best New Rework Product,
APEX, USA, 2002

ERSA IR 550

The Best made even Better!

The IR 550 plus now affords greater profile flexibility with a flat peak

The IR 550 is the "Best Seller" in the ERSA rework line with thousands systems sold. This module uses DynamicIR heating technology for fully automatic dynamic control of the top (800 W / 60 mm x 60 mm) and bottom (800 W / 135 mm x 260 mm) IR heaters. Depending on board size, thermal mass of the substrate, and component size, the DynamicIR heaters (total of 1,600 W) guarantee that the required heat energy is delivered at the precise time and location in order to ensure that the component exactly follows the prescribed temperature profile. Combined with the enhanced capability to run a flat peak, this revolutionary technology affords the lowest temperature deltas across the component, and greatly reduces PCB warpage.

IR 550 Module Features:

▼ DynamicIR & Closed Loop selective reflow process

▼ 2 channel temperature recording:
  1 IRS sensor, 1 AccuTC thermocouples (K-type)

▼ Laser pointer for component ID & PCB positioning

▼ Manual reflow head with auto component lift-off

▼ Integrated axial top cooling fan

▼ Integrated digital soldering station with soldering iron

▼ Remote control via mouse or PC using IRSoft

Ordering information:

0IR550A **Rework System IR 550 (without X-Y PCB table)**
(incl. IRSoft, 1 x AccuTC and soldering station)

0IR5500-01 **X-Y PCB Table** *(p. 23) (not required with PL 550)*

For best soldering results, ERSA provides the IR 550 since 03/08 with a stainless steel grid as standard bottom radiator cover. Please order material number 0IR5500-33 if for your application a heat resistant glass cover is required (p. 21).

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ERSA PL 550

Precision Placement System with Reflow Process Camera

The PL 550 includes the RPC 550 module. This system is both a proven precision placement system designed for the largest range of components and offers reflow process viewing. A pressure triggered component placement head drops off the component at the same contact pressure (1.5 N) as an in-line Pick & Place machine. This Auto Component drop-off guarantees safe and precise results. A high-resolution placement camera with motor zoom permits highly precise alignment of component connections to lands with up to 72 x enlargement. The excellent image quality is supported by a high-contrast, separately controlled 2 colour LED lighting system from two sides.

Recommended Accessories:

It is recommended to purchase the Split Optic Kit (p. 21) as well as additional placement nozzles (p. 20). The RPC 550 module is a part of the PL 550 and uses a new high-power (up to 72 x enlargement) motor zoom camera, a controllable LED ring lighting system, and an extremely robust, movable stand. The reflow process can be viewed real time from multiple angles and high magnification on even the smallest of components.

PL 550 & RPC 550 Module Features:

- ▼ 2 each High-quality PAL CCD cameras (18 x optical + 4 x digital zoom)

- ▼ Manual component handling (from 1 x 1 mm to 40 x 40 mm in size)

- ▼ "Auto Component Drop-Off" at 1.5 N (up to +/- 0.010 mm accuracy)

- ▼ 40 x 40 mm beam split optic for large QFPs

- ▼ Motorized zoom and focus; one push auto focus

- ▼ Two side red / white LED illumination

- ▼ LED ring light; multiple angle, movable arm

Ordering information:

0PL550A	**Precision Placement System** with *Reflow Process Camera*
0PL550AU	**Precision Placement System** without *Reflow Process Camera*
0VSRPC-UKIT2	**Reflow Process Camera Upgrade** for *0PL550AU*

Rework temperature profile setting
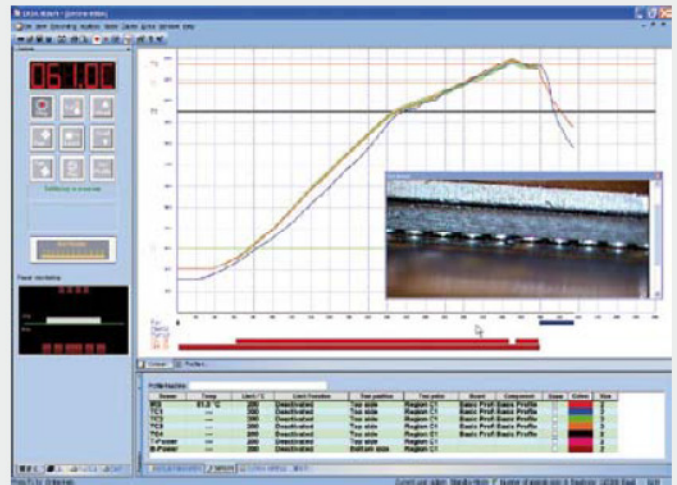
Live temperature recording with real time video process window

ERSA IRSoft 4

Unparalleled System Control & Process Documentation for Rework

With the launch of this new catalogue, ERSA has now rounded off its rework product platform from the hand held HR 100 all the way up to the flagship IR/PL 650. In keeping with our foremost goal of operator satisfaction, we are happy to present our latest update to our renowned software concept. The new IRSoft 4 is a universal, system control, process documentation and process visualization software platform designed for use with all ERSA rework systems, from the smallest to the largest. In this manner, ERSA ensures operators an easy move between systems with hardly any learning curve required.

User Friendly Software designed by Users!
Probably the greatest advantage of the IRSoft rework software platform is that is was literally co-designed by our customers in the field. Today, with 10 years of rework experience and over 5,000 systems installed,

we have continually added features and functions which were demanded by the market and have provided free updates to the existing user base. Fast and simple profiling, user level defined steps with access recognition & authorization and finally now the APR Automatic Process Repetition (see p. 5 of this catalogue) are all testimony to the continual advancement of this user oriented software platform.

The latest IRSoft offers new and clearly structured user administration options. A customized Log-In for beginner and advanced operators automatically opens only that rework system and those control options authorized for that specific individual. Additionally, the actual operating condition of all systems on-line is visualized in real time. All process steps are automatically recorded for process repeatability, documentation & traceability purposes.

For Use with All Rework Systems

IR 650

IR 550

HR 100

Controls All Modules

RPC 650 Module

PL 650 Module

Customized Library

This universal software concept ensures that operators can easily operate the different ERSA systems without additional training requirements.

ERSA IRSoft Features:

▼ Control software for IR/PL 650, IR 550 and HR 100 (with IRHP 100)

▼ Easy to use interface with Online Help function

▼ Visualization of all rework process data with up to 5 channel temperature recording

▼ Live process video window for both the PL 650, PL 550 and all RPC modules

▼ Customized user admin rights and library for application & customer based profiles

▼ Complete Process Documentation and Analysis

▼ Operating systems – Windows 2000, XP and Vista

▼ All systems communicate over an ultra fast USB 2.0 cable included

The various functional modules contained in the ERSA rework systems can all be run with the IRSoft 4. In addition to the control of the reflow module with profile setting and temperature monitoring, the software runs the RPC and component placement modules. The explorer based, rework library databank can be customized by customer, application and or rework system.

Rework process visualization with Live Image Window
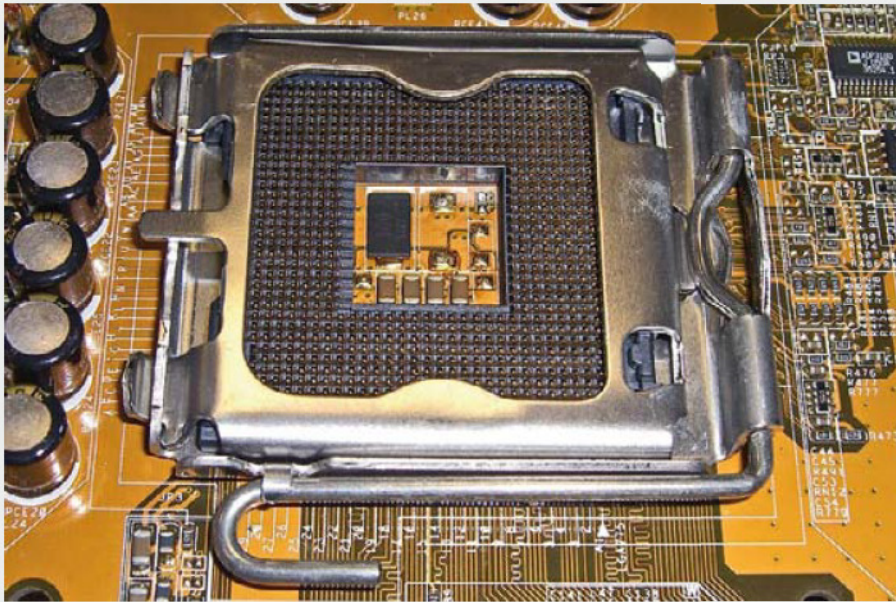
LGA 775 Processor Socket
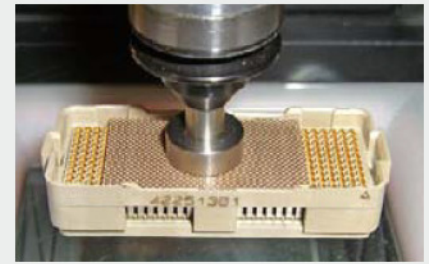
BGA Plastic Socket
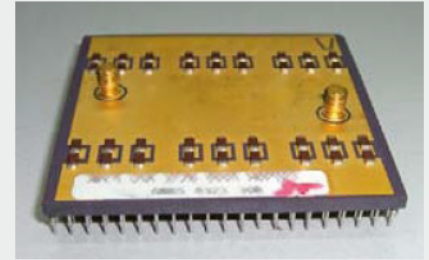
Ultra Heavy Mass PGA

Difficult Applications – No Problem!

ERSA Rework Systems Handle the Most Complex Rework Applications


ERSA IR 550 is IPC's recommended BGA reballing system (Source IPC 7711)

The purchasing decision for today's rework equipment goes to that company that can **GET THE JOB DONE!** Rework applications specialists at ERSA have proven the flexibility of our systems by handling applications where other units failed. Some of the most difficult of these applications include: stacked BGA packages (RAM, DIMM module), top & bottom side shadowed BGAs, mobile phone shield and BGA rework, rework on aluminium composite boards, BGA desoldering with heat sink glued on component, LGA775 THT-socket exchange, BGA on flex circuit, reworkable epoxies, and large plastic BGA processor sockets just to name a few. Please look closely at the application picture gallery contained on these two pages to fully understand the true versatility of the ERSA rework systems. Finally, do not hesitate to contact ERSA directly for special rework applications assistance and training material.
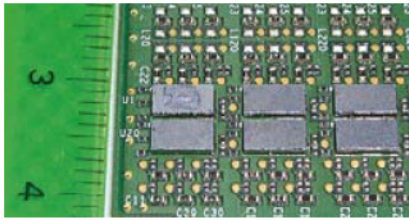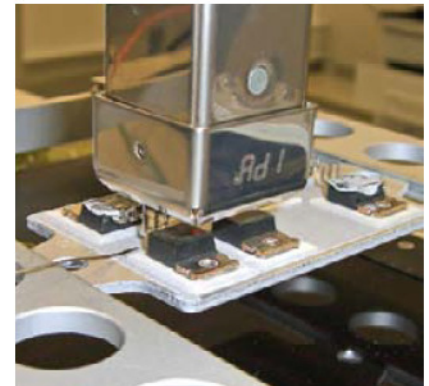
CSP, micro BGA *0201s, 0402s*
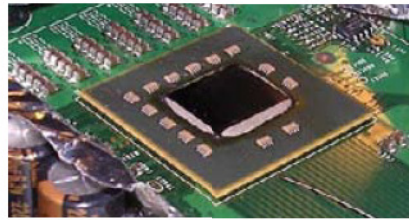
Micro-FCBGA

Get the job done!
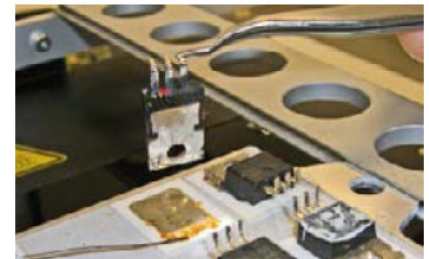
CGA with Heat Sink

TO220 on Aluminium Carrier with HYBRID
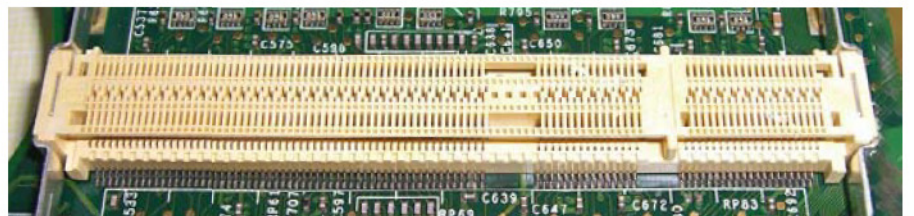
Plastic SMD Connector

PBGA on Aluminium Carrier

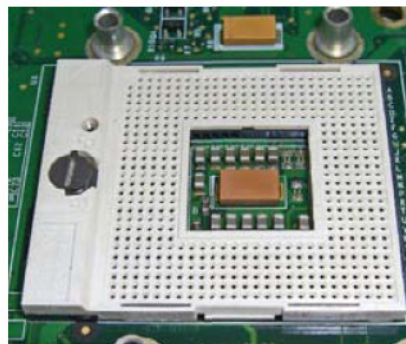*TO220 on Aluminium Carrier with HYBRID*

SOIC & Plastic SMT on Aluminium Carrier

Large Plastic SMD Connector

Heavy mass aluminium carriers, metal plates & shields, ceramic substrates and even plastic components can be safely reworked with ERSA rework heating technology!

BGA Processor Socket

BGA GPU