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SOLUTIONS FOR THE ELECTRONICS INTERCONNECTION PROCESS

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PACE products meet or exceed all applicable military and civilian EOS/ESD, temperature stability and other specifications, including MIL-STD-2000, ANSI/J-STD-001, IPC 7711, IPC 7721 and IPC-A-610.

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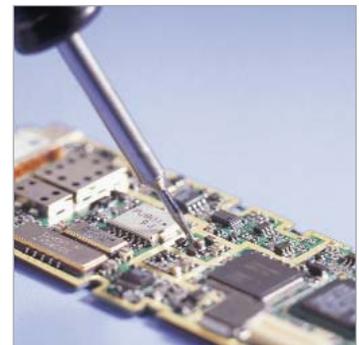
MBT/PRC REWORK AND REPAIR TOOLS CATALOG

FEATURING THE MOST TECHNOLOGICALLY ADVANCED REWORK SYSTEM ON THE MARKET TODAY, THE MBT 350!

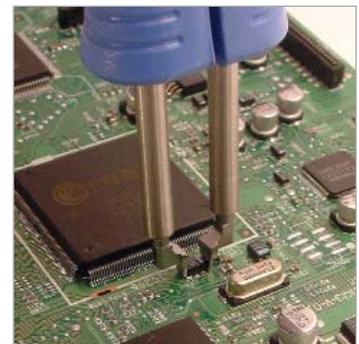


MBT 301 AND MBT 350

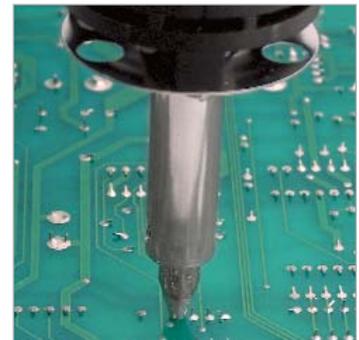
TD-100 THERMO-DRIVE IRON



MT-100 MINITWEEZ



SX-80 SODR-X-TRACTOR



SOLUTIONS FOR THE ELECTRONICS INTERCONNECTION PROCESS



PACE REWORK AND REPAIR

A WORLDWIDE COMMITMENT

With offices worldwide, PACE is a recognized world leader in the development of solutions for the assembly and repair of highly advanced electronics. Our expertise extends back to the dawn of the modern electronics industry. In 1958, PACE introduced training programs for the repair of printed wire assemblies and soon after, revolutionized the industry by creating the first self-contained vacuum desoldering system.

Today, PACE continues to provide innovative solutions, products and training for the rework, repair and testing of printed circuit assemblies. Our unique capabilities and evolving vision have provided universal solutions for thru-hole and surface mount assembly and rework problems for the most advanced electronics.

Additionally, PACE manufactures Fume Extraction Systems to reduce exposure to harmful particulates and gases created from hand soldering operations. PACE Fume Extraction Systems effectively remove these contaminants from the worker's breathing zone thereby reducing or eliminating health risks and improving productivity.

Our strong commitment and history of achievement has resulted in an unparalleled range of Assembly, Repair and Fume Extraction solutions to meet your needs whether working to ISO-9000, industrial, military or your own internal specifications. Whatever the challenge, PACE stands ready to help you set a new standard.

A CUSTOMER COMMITMENT

In 2001 the distinguished Frost & Sullivan Award for the World Surface Mount Technology Rework and Repair Equipment Industry was bestowed upon PACE.

The Frost & Sullivan Market Engineering Customer Service Leadership Award is presented to companies that have demonstrated superior responsiveness to customer needs and value-added support in technology and services.

PACE was selected based upon independent research with customers, key market participants and even our competition. This award reiterates PACE's commitment to excellence from product concept to customer service in the field. Frost & Sullivan's research recognizes that the key to PACE's success in the industry is our interactive approach with customers to provide solutions and respond to end-user feedback when developing products.



In 2002 PACE was awarded World Class Status, signifying that PACE uses best practices in its design, development and manufacturing processes to provide the finest quality products to its customers at the lowest possible cost. The first Maryland based company to receive this coveted award, PACE stands alone in its market segment in achieving this highly regarded status.

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PACE REWORK AND REPAIR



There is no doubt that the MBT 300 Series of Rework Stations are the most advanced rework systems, Ever!

Not all applications are equal and being stuck with a rework system possessing only one heating technology just doesn't cut it in today's fast paced world. Most rework systems only offer one type of heating technology, even though "variety" is the common denominator in modern PCB rework. A single heating technology is never going to fit every application and willing operators struggle to make it work which reduces productivity.

As our industry evolves, the heating technology used in rework systems must also evolve. Component foot-prints are shrinking and pose lighter thermal demands while through-put requirements increase. At the same time, thermally massive power management components, connectors, heat sinks, RF shields, and SMDs on heavy ground planes are not going away anytime soon.

The ability to have multiple heating technologies available within a single system directly affects the bottom line. The MBT 300 series are the first real "dual technology" systems that delivers the most preferred heating technology to the application without limitation!

Other systems have tried to offer the best of both worlds in the past by assigning one type of heating technology to a specific handpiece channel. The problem is that this LIMITS the number and type of handpieces that can be connected to the system at a given time. Every serious rework technician knows that FLEXIBILITY is the key to a successful work day!



MBT 350

The MBT 300 series rework systems allow either SENSATEMP® or TEMPWISE® technology handpieces to be plugged into any of their continuously active, handpiece channels. Finally, the benefits of SENSATEMP and TEMPWISE can be found in a single system, without restriction.

PACE's legendary SENSATEMP technology is renowned for its temperature stability and ability to handle high mass applications. For smaller components and when through-put is important, there is TEMPWISE. TEMPWISE is a patented technology that boasts the best response time for high volume applications and easily keeps up in a fast paced environment. It's time to upgrade your existing, limiting system and plug in the handpiece that meets your needs best!



MBT 301

MBT 301

SIMPLE AND EASY TO USE FOR REWORK TECHNICIANS OR OPERATORS ON THE LINE

MBT 301

MBT 301 - Simple and easy to use for rework technicians or operators on the line.

The MBT 301 is a multi-technology system with two, individually controlled, universal handpiece channels. The system features a two-line back lit LCD display making the unit fully programmable. The programmable features include: password protection from unauthorized changes, a user definable temperature operating range, and "Setback" & "Auto-Off" functions to preserve tip life. To protect your more expensive tip-heater cartridge and fine point soldering tips from oxidation, the TD-100(N) can be used with the optional "Instant-Setback Cubby". The cubby puts the iron's channel into setback if it is idle in the cubby for more than 45 seconds! One instant setback cubby can be connected to the MBT 301.

The new dual purpose vacuum/pressure pump and delivery system featuring PACE's patented SNAP-VAC Technology, provides the most vacuum available for desoldering applications. When used with an air pencil, the high resolution, pressure control valve allows for precise adjustment when working on the smallest components such as 0201's.



MBT 301 power supply only

MBT 300 SERIES SPECIFICATIONS

	MBT 301	MBT 350	MBT 301 E	MBT 350 E
Kit with Handpieces Part Numbers:	8007-0478 (TD-100 & SX-80)	8007-0454 (TD-100, MT-100 & SX-80)	8007-0479 (TD-100 & SX-80)	8007-0455 (TD-100, MT-100 & SX-80)
Power Source Only Part Numbers:	8007-0480	8007-0452	8007-0481	8007-0453
Power Requirements	120 VAC, 60 Hz (240 watts maximum)		230 VAC, 50 Hz (240 watts maximum)	
Handpiece Technology Compatibility	Blue Series Handpieces with TempWise or SensaTemp Technology			
Dimensions	135mm H x 165mm W x 260mm D (5.3" x 6.5" x 9.25")			
Weight	5 Kgs (11 lbs.)			
Tip to ground resistance	< 2 Ohms			
Temperature Stability	± 1.1 °C (2 °F)			
Temperature Accuracy	Meets or exceeds ANSI J Std 001			
Set Temp Range	37-482 °C (100-900 °F) SensaTemp 205-454 °C (400-850 °F) TempWise			
Vacuum Rise Time	150 ms Average as measured with PACE Process Monitor			
Vacuum	20 in Hg max			
Pressure	18 p.s.i. max			
Air Flow	8 SLPM max			

MBT 350

The MBT 350 is loaded with features to improve quality, increase through-put, extend tip life, and protect your process. The system is fully programmable and can be password protected from unauthorized changes. In some cases technicians become frustrated with being locked into a single temperature. The MBT 350 provides the solution! An approved operating range can be programmed allowing operators the flexibility to do their work, while eliminating the risks associated with giving techs access to the entire temperature range of the system. Operators can be given a range of 5 to 450°F (3-250°C) to operate within! When high-mass tips are required, an offset can be programmed for each of the three channels, individually.

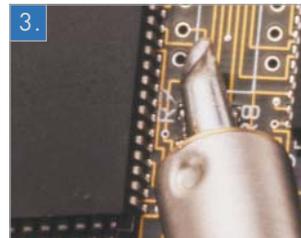
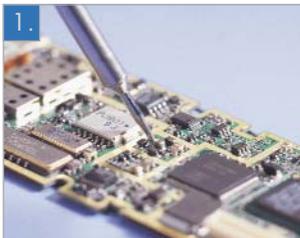
To maximize tip life and reduce operating costs, PACE's well recognized "Setback" and "Auto-Off" features are included. The system will automatically reduce the set temperature by 50% then turn off after a user defined period of inactivity, from 1 to 90 minutes. To really protect your more expensive tip-heater cartridge and fine point soldering tips from oxidation, the TD-100 can be used with the new "Instant-Setback Cubby". The cubby puts the iron's channel into setback if it's in the cubby for more than 45 seconds! Up to two instant setback cubbies can be connected to the MBT 350.

The new dual purpose vacuum/pressure pump and delivery system featuring PACE's patented SNAP-VAC Technology, provides the most vacuum available for desoldering applications. When used with an air pencil, the high resolution, pressure control valve allows for precise adjustment when working on the smallest components such as 0201's.



MBT 350 power supply only

The new backlit, digital, LCD screen displays the temperature of all three handpiece channels or, with scan mode activated, will cycle through the handpiece channels one at a time displaying set and actual temperatures. The backlight and character contrast on the display can be adjusted to meet individual preferences. And finally, the system can be programmed with the name of the operator or company which is displayed when the system is turned on.



1. TD-100 THERMO-DRIVE IRON
2. MT-100 MINITWEEZ
3. PS-90 UNIVERSAL IRON
4. TT-65 THERMOTWEEZ
5. TJ-80 THERMOJET
6. SX-80 SODR-X-TRACTOR

MBT 301/350 HANDPIECES

THE MBT 301 AND MBT 350 CAN BE USED WITH 8 HANDPIECES!

		Part Number (includes standard handpiece cubby)
TD-100 Thermo-Drive Iron	The most responsive soldering iron available. Uses tip-heater cartridges.	6993-0263-P1
TD-100 N	A nitrogen compatible version of the TD-100. Requires 6993-0271	6993-0272-P1
MT-100 MiniTweez	Tip-heater cartridge based tweezers for SMD removal.	6993-0264-P1
PS-90	Our famous high capacity soldering iron for the most demanding applications.	6993-0267-P1
PS-90 N	A nitrogen compatible version of the PS-90 Requires 6993-0271-P1	6993-0274-P1
SX-80 Sodr-X-Tractor	The latest innovation in desoldering. Features disposable or reusable solder traps.	6993-0266-P1
TT-65 Thermo-Tweez	High capacity tweezers for large or small SMDs.	6993-0268-P1
TJ-80 Thermo-Jet	A foot-pedal activated precision air pencil for the installation or removal of SMDs.	6993-0270-P1
Instant Setback Cubby for TD-100		6019-0071-P1
Nitrogen Regulator Accessory		6993-0271-P1



ALL MBT'S FEATURE SNAP-VAC PATENTED DESOLDERING TECHNOLOGY!

Snap-Vac technology is a patented feature that delivers the fastest rise time when desoldering and ensures that 1) all of the molten solder is pulled from the joint and 2) that it is pulled back into the collection chamber before it solidifies to prevent tip clogging.

DOES LEAD FREE HAVE YOU WORRIED?

The MBT 300 series of products are completely lead free compatible and have been designed to accommodate N₂ assisted soldering. The MBT 200 series are N₂ capable and will be fully lead-free compliant by 2006. An optional N₂ regulator kit (P/N 6993-0271-P1) is required to connect N₂ versions of the PS-90 and TD-100 soldering irons to any MBT! (See Charts Below) To connect up to 10 Nitrogen Soldering Irons to a single Nitrogen source, a 10 port manifold kit is available as P/N 6993-0277-P1.

	HANDPIECE KIT	HANDPIECE ONLY
TD-100 N (Blue Series)	6993-0272-P1	6010-0156-P1

	HANDPIECE KIT	HANDPIECE ONLY
PS-90 N (Blue Series)	6993-0274-P1	6010-0157-P1
PS-90 N (Black Series)	6993-0275-P1	6010-0116-P1

STILL AVAILABLE

MBT 201 AND MBT 250



MBT 201

The MBT 201 is a cost effective, analog, high performance system that can power up to two SensaTemp Handpieces simultaneously. The system comes with the PS-90 soldering iron and the SX-80 Sodr-X-tractor. The system is also upgradeable by adding additional SensaTemp handpieces.

MBT 250 SD/SDTP

The MBT 250 has been the preferred rework tool for decades. The MBT 250 is SMT and Thru-Hole capable and is readily upgradeable by adding additional handpieces. The MBT 250 is a fully programmable rework system that can power up to 3 SensaTemp handpieces simultaneously. The MBT 250 features many programmable options that include password protection, Setback, Auto-Off, tip off sets and a user definable operating temperature range. The MBT 250 is available as a power source only, as an SD kit packaged with the PS-90 soldering iron and SX-80 Sodr-X-tractor, or as an SDTP kit with the PS-90 soldering iron and SX-80 Sodr-X-Tractor, TT-65 ThermoTweez, and TP-65 ThermoPik.

	MBT 201	MBT 250	MBT 201 E	MBT 250 E
Part Numbers	8007-0200 (PS-90 & SX-80)	8007-0203 (PS-90 & SX-80)	8007-0201 (PS-90 & SX-80)	8007-0204 (PS-90 & SX-80)
Kit with Handpieces		8007-0206 (PS-90, TT-65, TP-65, SX-80)		8007-0207 (PS-90, TT-65, TP-65, SX-80)
Power Source Only	8007-0350	8007-0349	8007-0352	8007-0353
Power Requirements	120 VAC, 60 Hz (240 watts maximum)		230 VAC, 50 Hz (240 watts maximum)	
Handpiece Technology Compatibility	Black Series Handpieces with SensaTemp Technology			
Dimensions	135mmH x 165mmW x 203mmD (5.3" x 6.5" x 8.0")	135mmH x 165mmW x 260mmD (5.3" x 6.5" x 9.25")	135mmH x 165mmW x 203mmD (5.3" x 6.5" x 8.0")	135mmH x 165mmW x 260mmD (5.3" x 6.5" x 9.25")
Weight	4 Kgs (9 lbs)	5 Kgs (11 lbs.)	4 Kgs (9 lbs)	5 Kgs (11 lbs.)
Tip to ground resistance	< 2 Ohms			
Temperature Stability	± 1.1 °C (2 °F)			
Temperature Accuracy	Meets or exceeds ANSI J Std 001			
Set Temp Range	232-482 °C (450-900 °F)	37-482 °C (100-900 °F)	232-482 °C (450-900 °F)	37-482 °C (100-900 °F)
Vacuum Rise Time	200 ms Average as measured with PACE Process Monitor			
Vacuum	20 in Hg max			
Pressure	18 p.s.i. max			
Air Flow	7 SLPM max			

APPLICATION CHART

CHOOSE THE RIGHT HANDPIECE FOR YOUR APPLICATION

BLUE SERIES

Blue Series Handpieces are compatible with the MBT 300 Series of Systems. Blue Series Handpieces have a Blue connector and can only plug into a Blue front panel channel.

BLACK SERIES

Black Series Handpieces are compatible with the MBT 200 Series and PRC Systems. Black Series Handpieces have a Black connector and can only plug into a Black front panel channel.

	TEMPWISE TECHNOLOGY HANDPIECES		SENSATEMP TECHNOLOGY HANDPIECES					
	TD-100	MT-100	PS-90	SX-80	TT-65	TJ-70	TJ-80	TP-65
Handpiece Kits (includes handpiece and tool stand)								
Blue Series	6993-0263-P1	6993-0264-P1	6993-0267-P1	6993-0266-P1	6993-0268-P1	N/A	6993-0270-P1	N/A
Black Series	N/A	N/A	6993-0199-P1	6993-0213-P1	6993-0207-P1	6993-0206-P1	6993-0247-P1	6993-0205-P1
Handpiece Only Part Number								
Blue Series	6010-0147-P1	6010-0148-P1	6010-0150-P1	6010-0149-P1	6010-0151-P1	N/A	6010-0153-P1	N/A
Black Series	N/A	N/A	6010-0131-P1	6010-0106-P1	7025-0001-P1	7023-0002-P1	6010-0142-P1	7024-0001-P1
High Cycle Soldering	▼		▼					
Standard Soldering	▼		▼					
High Mass Soldering			▼					
Micro Soldering	▼							
Solder Wicking	▼							
Thru-Hole Desoldering				▼				
SMT Land Preparation	▼		▼	▼				
Solder Removal from Lands				▼				
Thru-Hole Desoldering				▼				
Large SMD Removal					▼			▼
Standard SMD Removal	▼	▼	▼	▼	▼			▼
Micro SMD Removal	▼	▼	▼		▼			
Large Component Installations with Solder Paste						▼		
Standard Component Installations with Solder Paste						▼	▼	
Micro Component Installations with Solder Paste						▼	▼	

PRC 2000

THE ULTIMATE REWORK CENTER

PRC 2000

The PRC 2000 Benchtop Factory is the ultimate rework center. The PRC 2000 can tackle just about any Thru-Hole, SMT application and is well suited for multilayer repairs on damaged or prototype PCBs. Featuring 3 simultaneously active SensaTemp handpiece channels, a built in paste dispenser, mini-chine for removing conformal coatings or grinding away PCB laminate, and pulse heat technology. The PRC 2000 comes with 9 handpieces and continuously calibrates automatically.



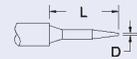
HANDPIECES FOR PRC 2000

HANDPIECE	DESCRIPTION	PART NUMBER
	SX-80 Sodrx-Tractor	6010-0106-P1
	PS-90 Soldering Iron	6010-0131-P1
	TT-65 ThermoTweez	7025-0001-P1
	TP-65 ThermoPik	7024-0001-P1
	TJ-70 ThermoJet	7023-0002-P1
	Pulse Heat LF-15 LapFlo Handpiece	7013-0004-02-P1
	TW-15 ResisTweez Handpiece	7009-0005-P1
	Other (PRC 2000 only) MC-65 MicroChine	7026-0001-P1
	PV-65 Pik Vac Wand	7027-0001-P1

	PRC 2000	PRC 2000 E
Part Numbers:		
Thru-Hole Version	8007-0138	
SMT Version	8007-0132	8007-0133
Power Requirements	120 VAC, 60 Hz (400 watts maximum)	230 VAC, 50 Hz (400 watts maximum)
Handpiece Technology Compatibility	SensaTemp, Dispenser, Mini-Chine, Pulse Heat, Pik-Vac	
Dimensions	175mm H x 350mm W x 230mm D (6.9" x 13.75" x 9.25")	
Weight	13 Kgs (28.6 lbs)	
Tip to ground resistance	< 2 Ohms	
Temperature Stability	± 1.1 °C (2 °F)	
Temperature Accuracy	Meets or exceeds ANSI J STD 001	
Set Temp Range	38-482 °C (100-900 °F)	
Vacuum Rise Time	200 ms Average as measured with PACE Process Monitor	
Vacuum Pressure	20 in Hg max	
Pressure	7 p.s.i. max	
Air Flow	13 SLPM max	

TIPS

TD-100 SOLDERING TIPS



TIPS	DESCRIPTION	TIP SIZE - L	SIZE - D	PART NUMBER
	1/32" Conical Sharp Extended	13.4mm (0.530")	0.80mm (0.031")	1124-0001-P1
	1/64" Conical Sharp	7.8mm (0.310")	0.40mm (0.016")	1124-0002-P1
	1/64" Conical Sharp Bent 30 Degrees	7.8mm (0.310")	0.40mm (0.016")	1124-0003-P1
	1/64" Conical Sharp Extended	13.5mm (0.535")	0.40mm (0.016")	1124-0004-P1
	1/32" Conical	4.7mm (0.188")	0.80mm (0.031")	1124-0005-P1
	3/128" Conical	4.6mm (0.184")	0.58mm (0.023")	1124-0006-P1
	1/16" 90 Degree Chisel	10.9mm (0.430")	2.03mm (0.080")	1124-0007-P1
	3/64" 30 Degree Chisel	9.7mm (0.380")	1.20mm (0.047")	1124-0008-P1
	3/64" 30 Degree Bevel	3.6mm (0.140")	1.20mm (0.047")	1124-0009-P1
	13/64" Chisel	7.62mm (0.300")	5.15mm (0.203")	1124-0010-P1
	1/64" 60 Degree Bevel	14.7mm (0.580")	0.40mm (0.016")	1124-0011-P1
	1/32" 30 Degree Chisel	9.1mm (0.360")	0.80mm (0.031")	1124-0012-P1
	3/32" 30 Degree Chisel	9.9mm (0.390")	2.40mm (0.094")	1124-0013-P1
	5/64" 60 Degree Chisel	4.7mm (0.185")	2.00mm (0.078")	1124-0014-P1
	1/64" Conical, Sharp, Bent 30 Degrees, Extended	15.1mm (0.595")	0.40mm (0.016")	1124-0015-P1
	3/64" Chisel Bent 30 Degrees	11.7mm (0.460")	1.20mm (0.047")	1124-0016-P1
	1/16" 60 Degree Chisel	15.8mm (0.620")	1.60mm (0.063")	1124-0017-P1
	1/32" Conical Sharp Extended	16.7mm (0.660")	0.80mm (0.031")	1124-0018-P1
	1/16" 30 Degree Chisel	9.9mm (0.390")	1.60mm (0.063")	1124-0019-P1
	1/8" 90 Degree Chisel	4.8mm (0.190")	3.20mm (0.125")	1124-0020-P1
	3/128" Conical Sharp Bent 30 Degrees	14.4mm (0.570")	0.58mm (0.023")	1124-0021-P1
	1/16" Conical Sharp	9.9mm (0.390")	1.60mm (0.063")	1124-0022-P1
	1/8" 90 Degree Chisel Extended	8.6mm (0.340")	3.20mm (0.125")	1124-0023-P1
	1/16" 30 Degree Bevel	9.9mm (0.390")	1.60mm (0.063")	1124-0024-P1
	1/16" Conical Sharp Extended	12.1mm (0.478")	1.60mm (0.063")	1124-0025-P1
	1/16" Chisel Bent 30 Degrees	9.7mm (0.385")	1.60mm (0.063")	1124-0026-P1
	3/128" Conical Sharp	15.2mm (0.600")	0.58mm (0.023")	1124-0027-P1
	3/64" Chisel, Bent 30 Degrees, Extended	15.2mm (0.600")	0.91mm (0.36")	1124-0028-P1
	1/32" 30 Degree Bevel	9.1mm (0.360")	1.91mm (0.75")	1124-0029-P1
	1/32" Conical Sharp	9.9mm (0.390")	0.80mm (0.031")	1124-0030-P1
	Heat Staking	N/A	4.04mm (0.159")	1124-0031-P1
	MiniWave	N/A	3.05mm (.120")	1124-0032-P1
	Angled MiniWave, 3.3 mm	N/A	3.05mm (.120")	1124-0033-P1
	Single Sided Chisel	N/A	3.05mm (.120")	1124-0034-P1
	Angled MiniWave, 2.4mm	N/A	2.11mm (.083")	1124-0035-P1
	1/128" Conical	N/A	0.20mm (0.008")	1124-0036-P1
	1/4 Flat Blade	N/A	4.57mm (0.180")	1124-0037-P1
	Single Sided Chisel, Fine Pitch	N/A	1.5mm (.06")	1124-0038-P1
	Angled MiniWave, Fine Pitch	N/A	1.6mm (.064")	1124-0039-P1
	MicroFine Single Sided Chisel	N/A	0.9mm (.035")	1124-0040-P1
	MicroFine Single Sided Chisel	N/A	1.1mm (.045")	1124-0041-P1
	MicroFine Conical	N/A	0.25mm (.01")	1124-0042-P1
	MicroFine Bent Conical	N/A	0.76mm (.03")	1124-0043-P1
	MicroFine Bent Conical	N/A	0.5mm (.02")	1124-0044-P1
	Angled Micro-Wave	N/A	1.1mm (.045")	1124-0045-P1
	Micro-Wave	N/A	1.1mm (.045")	1124-0046-P1
	Angled Chisel, 1.33mm	8.4mm (0.33")	1.33mm (0.051")	1124-0047-P1
	Single Sided Chisel, 0.3/16mm	17.00mm (0.693")	4.55mm (0.178")	1124-0048-P1

TD-100 SMT REMOVAL TIPS

TIP - CHIP/SOT REMOVAL	COMPONENT TYPE	SIZE - A	SIZE - B	PART NUMBER
	Chip 0402 Angle (fig.A)	2.2mm (.085")	-	1124-0518-P1
	Chip 0201 Angle (fig.A)	0.5mm (.02")	-	1124-0533-P1
	Chip 1808 (fig.B)	5.0mm (.195")	-	1124-0520-P1
	Chip 0402 (fig.C)	1.0mm (.040")	-	1124-0521-P1
	Chip 0201 (fig.C)	0.5mm (.02")	-	1124-0534-P1
	SOT 23 (fig.D)	1.8mm (.070")	-	1124-0522-P1
	SOT 89 (fig.E)	2.8mm (.110")	-	1124-0523-P1
	Chip 1206 (fig.F)	3.6mm (.142")	-	1124-0524-P1
	Chip 0805 (fig.G)	2.4mm (.095")	-	1124-0525-P1
TIP - SOIC/SOP/TSOP REMOVAL	COMPONENT TYPE	SIZE - A	SIZE - B	PART NUMBER
	SOIC 14/16	5.2mm (.205")	10.5mm (.415")	1124-0504-P1
	SOIC 20	9.6mm (.377")	13.6mm (.535")	1124-0505-P1
	SOP 28	10.8mm (.426")	18.6mm (.734")	1124-0506-P1
	SOP 40	11.9mm (.467")	25.7mm (1.011")	1124-0507-P1
	SOP 44	13.1mm (.516")	28.4mm (1.120")	1124-0508-P1
	TSOP 56	18.8mm (.739")	14.1mm (.557")	1124-0509-P1
	TSOP 28	12.0mm (.471")	8.5mm (.333")	1124-0510-P1
	SOIC 8	5.1mm (.202")	4.65mm (.183")	1124-0519-P1
	TSOP 40	18.8mm (.740")	10.4mm (.410")	1124-0526-P1
TIP - SOIC/SOP/TSOP REMOVAL	COMPONENT TYPE	SIZE - A	SIZE - B	PART NUMBER
	PLCC 28 Socket	9.3mm (.365")	9.3mm (.365")	1124-0511-P1
	PLCC 32	14.2mm (.561")	11.7mm (.459")	1124-0512-P1
	PLCC 44	16.8mm (.662")	16.8mm (.662")	1124-0513-P1
	QFP 144	20.6mm (.810")	20.6mm (.810")	1124-0514-P1
	PLCC 28	11.8mm (.465")	11.8mm (.465")	1124-0515-P1
	QFP 100/128	22.0mm (.865")	16.0mm (.628")	1124-0516-P1
	PLCC 18	7.6mm (.300")	12.8mm (.505")	1124-0528-P1
	TQFP 80	12.5mm (.491")	12.5mm (.491")	1124-0529-P1
	PLCC 52	19.4mm (.762")	19.4mm (.762")	1124-0530-P1
	QFP 100	26.6mm (1.048")	26.6mm (1.048")	1124-0531-P1
TIP - SOIC/SOP/TSOP REMOVAL	COMPONENT TYPE	SIZE - A	SIZE - B	PART NUMBER
	Blade	10.8mm (.425")	-	1124-0501-P1
	Blade	16.0mm (.630")	-	1124-0502-P1
	Blade	21.2mm (.835")	-	1124-0503-P1
	Blade	25.0mm (.984")	-	1124-0532-P1

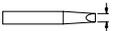
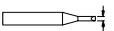
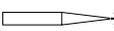
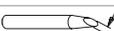
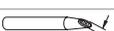
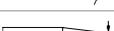
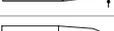
MT-100 SMT REMOVAL TIPS

TIP - CHIP/SOT REMOVAL	COMPONENT TYPE	SIZE - A	SIZE - B	PART NUMBER
	Chip (fig.A)	0.2mm (.008")	0.2mm (.008")	1124-1001-P1
	Chip, SOT (fig.B)	0.7mm (.03")	0.5mm (.03")	1124-1002-P1
	Chip, SOT (fig.B)	0.7mm (.03")	1mm (.04")	1124-1003-P1
	Chip, SOT (fig.B)	0.7mm (.03")	2mm (.08")	1124-1004-P1
	SOIC, SOT, TSOPS (fig.C)	0.7mm (.03")	6mm (.24")	1124-1005-P1
	SOIC, SOT, TSOPS (fig.C)	0.7mm (.03")	8mm (.31")	1124-1006-P1
	SOIC, SOT, TSOPS (fig.C)	0.7mm (.03")	10mm (.39")	1124-1007-P1
	SOIC, SOT, TSOPS (fig.C)	0.7mm (.03")	13mm (.51")	1124-1008-P1
	SOIC, SOT, TSOPS (fig.C)	0.7mm (.03")	18mm (.74")	1124-1009-P1
	SOIC, SOT, TSOPS (fig.C)	0.7mm (.03")	28mm (1.09")	1124-1010-P1

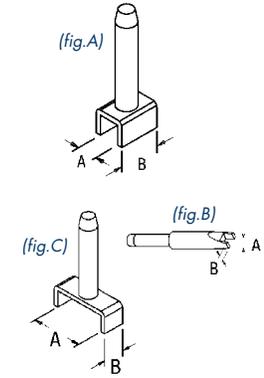
TIPS

SOLDERING TIPS

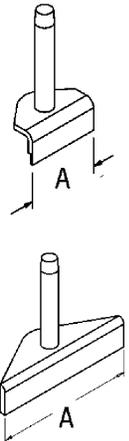
PS-90 SOLDERING TIPS

TIPS	DESCRIPTION	TIP SIZE	PART NUMBER
	1/16" Chisel	1.60mm (0.063")	1121-0335-P5
	1/32" Conical	0.80mm (0.031")	1121-0336-P5
	1/8" Chisel	3.20mm (0.125")	1121-0337-P5
	1/16" Chisel (MicroFine)	1.60mm (0.063")	1121-0349-P5
	1/32" Chisel	0.80mm (0.031")	1121-0359-P5
	3/32" Chisel	2.40mm (0.094")	1121-0360-P5
	1/32" Bent Chisel	0.80mm (0.031")	1121-0361-P5
	1/64" Bent Conical	0.40mm (0.016")	1121-0828-P5
	Single-Sided Chisel	3.30mm (0.13")	1121-0406-P5
	1/16" Chisel (High Capacity)	1.60mm (0.063")	1121-0414-P5
	Mini-Wave	3.30mm (0.13")	1121-0490-P5
	1/16" Chisel, Long Reach	1.60mm (0.063")	1121-0499-P5
	1/16" Bent Chisel, Long Reach	1.60mm (0.063")	1121-0500-P5
	1/16" Chisel, Extended Reach	1.60mm (0.063")	1121-0533-P5
	Angled Mini-Wave	2.40mm (0.09")	1121-0610-P5
	1/64" Sharp Conical	0.40mm (0.016")	1121-0829-P5
	1/64" Sharp Bent Conical	0.40mm (0.016")	1121-0830-P5
	1/64" Sharp Conical, Extended Reach	0.40mm (0.016")	1121-0831-P5
	1/64" Sharp Bent Conical, Extended Reach	0.40mm (0.016")	1121-0832-P5

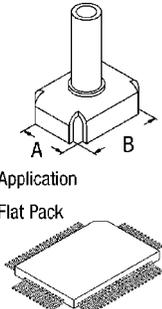
PS-90 SMT REMOVAL TIPS

TIPS	DESCRIPTION	TIP SIZE	PART NUMBER
	SOIC - 8 (JEDEC) (fig.A)	5.05mm x 5.08mm (0.199" x 0.200")	1121-0390-P1
	SOIC - 14 (JEDEC) (fig.A)	5.05mm x 8.99mm (0.199" x 0.354")	1121-0391-P1
	SOIC - 16 (JEDEC) (fig.A)	5.05mm x 10.2mm (0.199" x 0.404")	1121-0392-P1
	Chip Component (fig.B)	3.56mm x 2.03mm (0.14" x 0.08")	1121-0303-P1
	TSOP (fig.C)	19.333mm x 8.1mm (0.76" x 0.32")	1121-0403-P1

PS-90 SMT REMOVAL TIPS

TIPS	DESCRIPTION	TIP SIZE	PART NUMBER
	Flat Blade Tip	A = 7.6mm (0.3")	1121-0512-P1
	Flat Blade Tip	A = 10.2mm (0.4")	1121-0514-P1
	Flat Blade Tip	A = 12.7mm (0.5")	1121-0473-P1
	Flat Blade Tip	A = 17.8mm (0.7")	1121-0416-P1
	Flat Blade Tip	A = 20.3mm (0.8")	1121-0497-P1
	Flat Blade Tip	A = 25.4mm (1.0")	1121-0448-P1

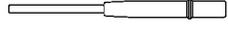
TP-65 SMT REMOVAL TIPS

TIPS	DESCRIPTION	TIP SIZE	PART NUMBER
 <p>Application Flat Pack</p> <p><i>Note: The TP-65 ThermoPik requires an SX Tip & Tool Stand.</i></p>	FlatPack Tip	15.5mm x 21.6mm (0.61" x 0.85")	1121-0322-001-P1
	FlatPack Tip	16.8mm x 22.9mm (0.66" x 0.90")	1121-0322-002-P1
	PQFP-68 Tip (bumper pack)	15.7mm x 15.7mm (0.62" x 0.62")	1121-0323-P1
	PQFP-64/80 Tip (non-bumper pack)	15.7mm x 15.7mm (0.62" x 0.62")	1121-0484-P1
	PQFP-84 Tip	18.3mm x 18.3mm (0.72" x 0.72")	1121-0324-P1
	PQFP-100 Tip	20.8mm x 20.8mm (0.82" x 0.82")	1121-0325-P1
	PQFP-132 Tip	25.9mm x 25.9mm (1.02" x 1.02")	1121-0326-P1
	PQFP-144 Tip	29.2mm x 29.2mm (1.15" x 1.15")	1121-0456-P1
	PQFP-208 Tip	30.0mm x 30.0mm (1.18" x 1.18")	1121-0544-P1
	PQFP-160 Tip	31.0mm x 31.0mm (1.22" x 1.22")	1121-0351-P1
PQFP-196 Tip	36.3mm x 36.3mm (1.43" x 1.43")	1121-0483-P1	
VACUUM CUPS			
	Small	4.4mm (0.195")	1121-0382-P5
	Medium	7.62mm (0.300")	1121-0383-P5
	Large	12.7mm (0.500")	1121-0384-P5
	Kit (with 3 cups)	Includes one of each size	6993-0153-P1

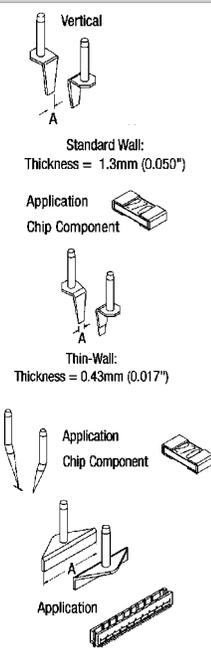
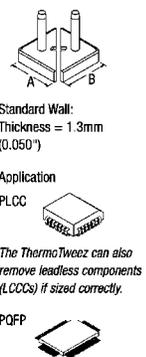
TIPS

DESOLDERING & SOLDER REMOVAL TIPS

SX-80 ENDURA DESOLDERING TIPS & SOLDER REMOVAL TIPS

TIPS	DESCRIPTION	TIP SIZE	PART NUMBER
	Thermo-Drive	0.76mm (0.030") I.D. X 2.03mm (0.080") O.D.	1121-0625-P5
	Thermo-Drive	1.02mm (0.040") I.D. X 2.29mm (0.090") O.D.	1121-0624-P5
	Thermo-Drive	1.52mm (0.060") I.D. X 3.05mm (0.120") O.D.	1121-0626-P5
	Thermo-Drive	2.29mm (0.090") I.D. X 5.1mm (0.200") O.D.	1121-0627-P5
	Thermo-Drive, Flathead	1.52mm (0.060") x 2.64mm (0.104") I.D. X 2.54mm (0.100") x 4.44mm (0.175") O.D.	1121-0821-P5
	Extended Reach Thermo-Drive	0.76mm (0.030") I.D. X 2.29mm (0.090") O.D.	1121-0628-P5
	Extended Reach Thermo-Drive	1.02mm (0.040") I.D. X 2.54mm (0.10") O.D.	1121-0629-P5
	Extended Reach Thermo-Drive	1.52mm (0.060") I.D. X 3.05mm (0.120") O.D.	1121-0630-P5
	Precision	0.50mm (0.020") I.D. X 1.79mm (0.070") O.D.	1121-0680-P5
	Precision	0.76mm (0.030") I.D. X 2.03mm (0.080") O.D.	1121-0678-P5
	Precision	1.02mm (0.040") I.D. X 2.29mm (0.090") O.D.	1121-0679-P5
	Precision	1.52mm (0.060") I.D. X 2.79mm (0.110") O.D.	1121-0690-P5
	Flo-D-Sodr	1.52mm (0.060") I.D. X 4.78mm (0.188") O.D.	1121-0631-P5
	Flo-D-Sodr, Precision	0.50mm (0.020") I.D. X 1.78mm (0.070") O.D.	1121-0681-P5
	Flo-D-Sodr, Precision	0.76mm (0.030") I.D. X 2.03mm (0.080") O.D.	1121-0682-P5
	Flo-D-Sodr, Precision	1.02mm (0.040") I.D. X 2.29mm (0.090") O.D.	1121-0683-P5

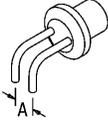
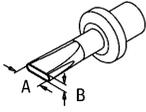
TT-65 SMT REMOVAL TIPS

TIPS	DESCRIPTION	TIP SIZE	PART NUMBER
 <p>Vertical</p> <p>Standard Wall: Thickness = 1.3mm (0.050")</p> <p>Application Chip Component</p> <p>Thin-Wall: Thickness = 0.43mm (0.017")</p> <p>Application Chip Component</p> <p>Application</p>	Chip Component	A=0.76mm (0.03")	1121-0398-P1
	Chip Component	A=2.0mm (0.08")	1121-0313-P1
	Chip Component	A=4.1mm (0.16")	1121-0399-P1
	Chip Component, Small SOIC	A=6.4mm (0.25")	1121-0401-P1
	Thin-Walled Chip Component	A=0.76mm (0.03")	1121-0520-P1
	Thin-Walled Chip Component	A=2.0mm (0.08")	1121-0521-P1
	1/64" Angled Fine Point Conical	A=0.43mm (0.017")	1121-0517-P1
	SOIC, SOJ, SIMMs	A=10.2mm (0.4")	1121-0514-P1
	SOIC, SOJ, SIMMs	A=12.7mm (0.5")	1121-0473-P1
		A=17.8mm (0.7")	1121-0416-P1
	A=20.3mm (0.8")	1121-0497-P1	
	A=25.4mm (1.0")	1121-0448-P1	
TIPS	PLCC/PQFP REMOVAL TIPS	TIP SIZE A x B	PART NUMBER
 <p>Standard Wall: Thickness = 1.3mm (0.050")</p> <p>Application PLCC</p> <p>The ThermoTweez can also remove leadless components (LCCCs) if sized correctly.</p> <p>PQFP</p>	PLCC-20	6.86mm x 6.86mm (0.27" x 0.27")	1121-0316-P1
	PLCC-28	9.4mm x 9.4mm (0.37" x 0.37")	1121-0317-P1
	PLCC-32	12.2mm x 9.65mm (0.48" x 0.38")	1121-0352-P1
	PLCC-44, PQFP-84	14.5mm x 14.5mm (0.57" x 0.57")	1121-0318-P1
	PLCC-52, PQFP-100	17.0mm x 17.0mm (0.67" x 0.67")	1121-0319-P1
	PLCC-68, PQFP-132	21.9mm x 21.9mm (0.86" x 0.86")	1121-0320-P1
	PLCC-84, PQFP-160	26.9mm x 26.9mm (1.06" x 1.06")	1121-0321-P1

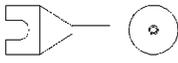
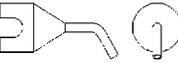
TIPS

NOZZLE TIPS

TJ-70 NOZZLE TIPS

TIPS	DESCRIPTION	TIP SIZE	PART NUMBER
	Small, Straight, Single Jet Tip	0.060" I.D.	1121-0366-P1
	Small, Curved, Single Jet Tip	0.060" I.D.	1121-0338-P1
	SOIC Tip (dual-jet)	A = 4.32mm (0.17")	1121-0330-P1
	Flat End Tip	A = 7.11mm (0.28") B = 1.88mm (0.074")	1121-0365-P1
		A = 6.10mm (0.24") B = 1.88mm (0.074")	1121-0371-P1

TJ-80 HOT JET NOZZLES

TIPS	DESCRIPTION	TIP SIZE	PART NUMBER
	Round Nozzle	1.5mm (.06") Inner diameter	1259-0129-P1
	Round Nozzle, Bent 60 degrees	1.5mm (.06") Inner diameter	1259-0130-P1
	Flat Jet Nozzle	6.1mm x 1.9mm (.24" X .074") Inner flow dimensions	1259-0131-P1



LEAD-FREE

PACE'S NF 500 AND NF 1000 N₂ GENERATORS

Lead-free solders do not behave or look like their lead containing counterparts. As our industry changes over to lead-free solders, individual PCB assemblers will need to address several issues relating to hand soldering and rework. These issues include:

- **Higher melting temperatures** which mistakenly lead to operators increasing equipment operating temperatures. Higher operating temperatures do not make the process quicker, they actually slow it down.
- **Poor wetting and spreading properties** - Additional time is required when working with lead free solders, they do not spread or wet like lead containing solders do. Operators must slow down.
- **Difficult to work with** - Bridging and insufficient solder defects are common, even for experienced operators, leading to operator frustration.
- **Dull grainy finish** - makes inspection difficult.

Because lead-free solders oxidize quickly, more aggressive and longer lasting fluxes are required to keep surfaces clean and free from oxidation. Working with no-clean fluxes is challenging as their process window is often small. Once they are burned off, oxidation immediately begins to form which can result in a marginal or defective solder joint. Additionally, increasing operating temperatures creates an ideal environment for oxidation to form and will also lead to flux and solder ball splatter on the PCB. If the flux is splattered all over the PCB, it's not able to do its job on the surfaces to be joined during the soldering process.

Lead-free solders also affect soldering and rework tools and their effect is detrimental. Lead-free solders contain high percentages of tin, almost always over 94%. Tin is a corrosive and active metal. When it mixes with iron (the protective layer on soldering tips), an inter-metallic compound is formed that wears away more quickly than the iron would either by itself or when used with lead containing solder. This causes two problems, one is shorter tip life as the protective iron coating is dissolved in the tin, and the second is that oxidation forms more quickly which is further exacerbated by the high temperature environment the tips work in. As a result, tin oxides form and create an inter-metallic compound with the iron plating on the tip. Once the oxidation begins to form, the tip will lose its ability to wet with solder and if not cleaned off quickly, it becomes almost impossible to remove and the tip must be replaced.

When using lead-free solders, regardless of alloy, it is absolutely imperative that tips are properly maintained, otherwise tip life will be reduced significantly. Tips should be cleaned frequently to remove oxidation before it becomes impossible to remove. Tips should always be tinned when not being used, otherwise oxidation will quickly form on the tip. If the iron will not be used for extended periods of time, they should be turned off. Should oxidation form that cannot be easily cleaned by tinning or by using a cleaning tool, Sodr-Tek's Tip-Brite is recommended. Tip-Brite is a high quality tip tinner that will remove stubborn oxidation.

The use of equipment with setback and auto-off functions (standard on all PACE equipment), is very desirable. Additionally, optional accessories such as PACE's Instant Setback Cubby ensure that tip life is maximized. The instant-set back cubby puts the system into "Setback" after 45 seconds of inactivity. When the iron is removed from the cubby, it restores itself to the set temperature almost immediately.

The use of nitrogen assisted soldering equipment helps to mitigate the problems associated with using lead-free solders. Nitrogen helps on two fronts. First, it creates an inert environment around the soldering tip, reducing the potential for tip to oxidize. Second, it assists in the soldering process at the PCB level by purging oxygen from the immediate area which reduces or eliminates the formation of oxidation from the work site. This not only reduces the amount of flux that is required, but it also helps to improve wetting, spreading and leaves a finish that is shinier and less grainy.

PACE's nitrogen assisted soldering systems pass the nitrogen through or around the heater before it is directed to the work site. This "preheats" the immediate area which can also help to reduce thermal shock to component leads and to components themselves. Pre-heating also allows for the use of lower, safer and more effective soldering temperatures.



NF 500 AND NF 1000



LEAD-FREE

PACE LEAD-FREE PRODUCTS

PACE's soldering systems offer legendary thermal control as well as advanced features to maintain your process. Unique PACE features such as Power Modules and/or password protection ensure consistency and quality in your process. Economical tips and standard features such as "Setback" and "Auto-Off" maximize tip life to reduce operating costs and increase your bottom line.

All PACE and SODR-TEK products are lead-free soldering compatible and can be used with any of the lead-free alloys without modification. Also, by July 2006, all PACE power supplies will be manufactured with lead-free PCB's and materials.

PACE's soldering systems and soldering irons are fully compatible with your lead-free process. PACE's TD-100 soldering iron boasts one of the most efficient heat transfer capabilities and is clearly one of the most responsive irons on the market today. This means that the TD-100's ability to recover from thermal loading and maintain its heat output is far superior to other conventional irons, eliminating the need for higher, unsafe temperatures when using lead-free solders. Quick and consistent heat transfer also ensures that flux is fully activated and burned off leaving the work site properly prepared for the formation of highly reliable solder joints. Our PS-90 soldering iron has been the staple of the industry for years and is known for its amazing thermal capacity and ability to deliver the heat at safe, low temperatures. Both the TD-100 and PS-90 are available for use with nitrogen.

The MBT 350 rework station is a brand new, three-channel power supply that can utilize either the PS-90 (N) and/or the TD-100 (N) handpieces. PACE also offers a completely self contained nitrogen based soldering system, the ST 45N. The ST 45N features the PS-90N and is a fully programmable, digital, soldering station.

The benefits of nitrogen assisted soldering are available for almost all of PACE's soldering stations with the N₂ Regulator Accessory which can be mounted to any PACE system that is made in an extruded case.

	TD-100N, Red Connector 6993-0273-P1 (kit) 6010-0155-P1 (handpiece only)	TD-100N, Blue Connector 6993-0272-P1 (kit) 6010-0156-P1 (handpiece only)	PS-90N, Black Connector 6993-0275-P1 (kit) 6010-0116-P1 (handpiece only)	PS-90N, Blue Connector 6993-0274-P1 (kit) 6010-0157-P1 (handpiece only)	N ₂ Regulator Accessory required (6993-0271-P1)
HW 50	▲				▲
TW 50	▲				▲
MBT 350		▲		▲	▲
ST 25			▲		▲
ST 45			▲		▲
ST 45N			▲		
ST 125			▲		▲
ST 145			▲		▲

PACE is also pleased to offer the NF 500 and NF 1000 nitrogen farms. Nitrogen farms harvest N₂ from a compressed air supply that is passed through a specialized filter. The other atoms that make up "air" are forced through the filter, leaving a pure stream of N₂ as the product of filtering. Nitrogen farms are passive collection devices which means that there are no electrical or moving parts, little or no maintenance, low running costs, and they maintain the balance of air/N₂ in a confined space (as long as the compressed air is pulled from the same space).

PACE also offers high quality lead-free solder in convenient 4 and 8 ounce rolls under our Sodr-Tek brand.

Lead-free soldering is inevitable and PACE is leading the way to meet the challenges our customers will face during the transition from lead containing to lead-free soldering. PACE Incorporated is pleased to provide environmentally friendly, lead-free compatible tips.

All of PACE's soldering, desoldering and component removal tips are now tinned with lead-free solder. Due to the corrosive nature of the high tin content in lead-free alloys and because more aggressive fluxes are commonly required when using lead-free solders, we have also optimized the iron plating on our tips to maximize thermal transfer while providing for the longest life possible.

PACE is leading the way in soldering technology. PACE's patented "Diamond Series" tips will be available in October 2005. The "Diamond Series" soldering tips are manufactured with an iron matrix that is impregnated with sub micron sized diamond particles. The diamond-impregnated surface is harder and more corrosion resistant than iron alone.

When reworking area array components with lead-free solder, the greatest enhancement to existing equipment is the use of nitrogen for reflow. All of PACE's Area Array equipment comes fitted for nitrogen use as standard.



PRODUCT PAGE

For a complete product listing contact PACE or visit www.paceworldwide.com

PACE provides innovative solutions, products and training for the assembly, rework, repair and testing of printed circuit boards. PACE's unique capabilities and evolving vision have provided universal solutions to thru-hole and surface-mount assembly and rework problems for the most advanced electronics. Our strong commitment

and history of achievement has resulted in an unparalleled range of Assembly, Repair and Fume Extraction systems to meet your company's needs whether working to ISO-9000, industrial, military or your own internal specifications. Whatever the challenge, PACE stands ready to provide the best, cost-effective solution for you.

<p>HEATWISE/TEMPWISE</p> <p>HeatWise and TempWise systems feature a handpiece possessing the latest in ergonomic design and operator comfort and use replaceable tip/heater cartridge(s). The ability to change performance level without having to change tips results in significant cost savings and inventory reduction.</p>	<p>HW 50</p> 	<p>HW 100</p> 	<p>TW 100</p> 	<p>HW 200</p> 
<p>ST SYSTEMS</p> <p>This product line offers three basic configurations: production soldering, shop air desoldering and fully self-contained desoldering. Each of these basic configurations are available in either analog or digital versions.</p>	<p>ST 25</p> 	<p>ST 45</p> 	<p>ST 65</p> 	<p>ST 115</p> 
<p>CONVECTIVE SYSTEMS</p> <p>PACE's family of Convective products offer complete solutions from simple surface mount removal and installation to delicate BGA and rework</p>	<p>ST 325</p> 		<p>ST 350</p> 	
<p>THERMOFLO SYSTEMS</p> <p>PACE's family of ThermoFlo products offer complete solutions from simple surface mount removal and installation to delicate BGA and CSP rework. PACE's new inspection systems feature X-Ray and endoscopic technology to really "SEE" the results of your processes.</p>	<p>TF 1700</p> 	<p>TF 2700</p> 	<p>LS 3000</p> 	<p>XR 3000</p> 
<p>FUME EXTRACTION</p> <p>PACE's Fume Extraction Systems feature the latest advancements in filter condition monitoring and process control as well as cost effective solutions. A variety of collection accessories are available.</p>	<p>ARM-EVAC 105</p> 	<p>ARM-EVAC 250</p> 	<p>FUMEFLO WORKTABLE</p> 	<p>FX 50</p> 