

ROYEL *Thermatic*

ADVANCED TECHNOLOGY
SOLDERING STATIONS.



Measure up to U.S. Mil. Specs.

Protect sophisticated componentry in -

- * AEROSPACE ELECTRONIC HARDWARE.
- * MEDICAL LIFE SUPPORT EQUIPMENT.
- * STATE-OF-THE-ART COMPUTERS.
- * DIGITAL COMMUNICATIONS EQUIPMENT.
- * ESD-SENSITIVE CIRCUITRY.

ROYEL

Thermatic SOLDERING STATIONS

- 30 second heat-up
- Accurate, stable tip temperature
- Sustained heat flow
- Fast heat recovery
- Spike-free switching
- Static dissipative handles
- Low leakage and tip to ground resistance

THE SOLDERING IRONS

Two soldering irons are available for use with the Thermatic soldering stations. They are designed for today's miniature and micro-miniature circuit geometry, but the T500 has the thermal capacity to handle large terminations which may still be used.

Model T300
Soldering Pencil
40 Watts, 1/8" (3mm) tip.
Weight 1/2 oz (14g)
without cordset.



Model T500
Soldering Iron
60Watts, 3/16" (5mm) tip.
Weight 2oz (50g)
without cordset.

FEATURES

Low voltage (24V) elements

Heavier duty elements result in longer life and superior shock resistance.

Light weight, rugged, long life units

The no-compromise use of modern materials and construction techniques provide the absolute minimum weight without sacrificing strength or service life.

Cool handles.

Handles are designed for absolute minimum thermal transfer, either by radiation or conduction. Cooler handles provide operator comfort and promote higher productivity.

Static dissipation.

The very real hazards of electrostatic discharge (ESD) from the handles has been acknowledged by the use of specially formulated static dissipative handle material.

U.S. MIL. SPECS.

The Thermatic soldering stations were designed to comply with U.S. Mil. Spec. MIL-STD-2000 ... And does so easily!

This involves some very specific parameters, notably:

1. Tip-to-Ground Resistance - less than 50HMS.
2. Tip-to-Ground Leakage less than 2mV DC/AC RMS.
3. Idling Temperature - Stability $\pm 10^{\circ}\text{F}$ (5°C) (See NOTE).

MIL-STD-2000 covers only part of today's requirements which reflect susceptibility of modern micro circuitry. The new Thermatic also sets a standard for many other parameters just as important as those covered by MIL-STD-2000.

Independent tests

The credentials of the Thermatic have been thoroughly examined together with many other well-known brands, in a comprehensive independent test conducted in the U.S.A.

In addition to Mil. Specs, the following parameters were recorded:

- ★ Time to reach soldering temperature after initial power turn-on.
- ★ Recovery time after a typical solder joint.
- ★ Accuracy of temperature control (See NOTE).
- ★ Ergonomics of the soldering iron.
- ★ Soldering tip life.

Of the irons, the Royel Thermatic was rated No. 1, being close to the top in all parameters.

Royel Thermatic stations also comply with ESD control parameters published in Defence Handbook DOD-HDBK-263.

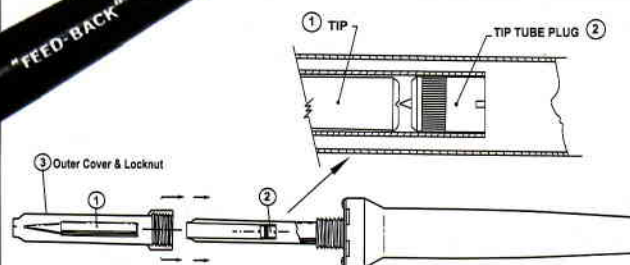
NOTE:

Mil. Spec. MIL-STD-2000 specifies a tolerance of $\pm 10^{\circ}\text{F}$ against the idling tip temperature stability.

In the independent tests, the dial setting of the Thermatic averaged 7°F absolute accuracy against the Thermocouple measured tip temperature.

The best competitive figure was 15°F and the worst 35°F .

SOLID, DEPENDABLE TIP-TO-GROUND CONNECTION (PATENT PENDING)



Screwing on the barrel outer cover locks the tip firmly between the shoulder and a tapered patent applied for spike which penetrates the end of the

copper tip core. This provides a reliable, airtight tip-to-ground connection which resists oxidation for the life of the tip.

Slim, short barrels.

The minimum possible barrel diameters have been designed to facilitate penetration into high density circuitry. The length is also kept to a minimum to restrict amplification of hand tremble in high precision soldering.

Easily replaced tips.

Tips are either locked - in or screwed - in to the barrels. Close tolerances between tip and barrel provide maximum thermal transfer, but tips are quick and easy to remove and replace.

Rapid heat-up from cold.

The superior thermal transfer capability from element to tip, combined with a high capacity element, brings the tip up to soldering temperature extremely quickly.

Rapid heat recovery.

The power of the element and the efficient element-to-tip thermal path provide a sustained heat flow, instantly recognised by experienced soldering operators. This means rapid recovery of tip temperature.

T1050



DIGITAL SINGLE STATION

T1000



ANALOG SINGLE STATION

THE POWER UNITS

The Thermatic soldering stations provide for a choice of power units - single or double, analog or digital, to suit mains voltages of 120 VAC (100-120) or 240 VAC (220-240).

They are designed to provide the ultimate control over the soldering process; minimise the risk of both thermal and electrostatic discharge shock, and complement operator skills to maintain circuit integrity.

SINGLE STATIONS — Iron holder can be left or right mounted

| Soldering Iron Cat. No. | Power Unit | | Complete Station Cat. No. |
|----------------------------|------------|----------|---------------------------------|
| | Mode | Cat. No. | |
| T300 | Analog | T1000 | T1000S3 |
| | Digital | T1050 | T1050S3 |
| T500 | Analog | T1000 | T1000S5 |
| | Digital | T1050 | T1050S5 |

DUAL STATIONS*

| | | | |
|----------------|---------|--------|---------|
| T300 & T500 | Analog | T1000D | T1000DS |
| | Digital | T1050D | T1050DS |

* Both soldering irons are connected, and either one energised at the flick of a switch.

SPECIFY 120 OR 240 VOLTS WHEN ORDERING.

T1050D



**DUAL SWITCHABLE STATIONS
ANALOG OR DIGITAL**

* Both soldering irons are connected, and either one energised at the flick of a switch.

See overleaf for temperature/time curves

after each soldering operation, and faster, safer, more efficient soldering.

Display.

Both setpoint and actual tip temperature are displayed simultaneously on the digital unit. On both analog and digital units, the controller accuracy ensures close compliance with temperature selection. (Refer NOTE under 'U.S. Mil. Specs.', Opposite page).

Small bench footprint.

The use of modern materials and compact design provide a powerful, accurate unit which takes up very little bench space,

Auxiliary ground.

All units have an auxiliary ground connection point which can provide a continuous independent conductive path from tip to ground for electrostatic discharge protection,

Switching.

Proportional pulse width switching for close-differential temperature control is achieved via a predictive slew rate controlled DC switched

power transistor. This provides spike-free switching for protection of voltage sensitive microelectronic components.

Detachable components.

Both the iron holder and the tip wiping unit are detachable. The tip wiping unit accommodating the iron holder can be located at a more convenient place. The iron holder Z-bracket can be either left or right side mounted.

All Thermatic soldering stations are supplied complete with soldering iron(s), power unit with iron holder and sponge, ground lead and operator's manual. A stand-alone single/double tool holder and sponge tray is available as an optional extra.

Fixed temperature stations

Supervisor-selectable fixed temperature stations are available against special order.

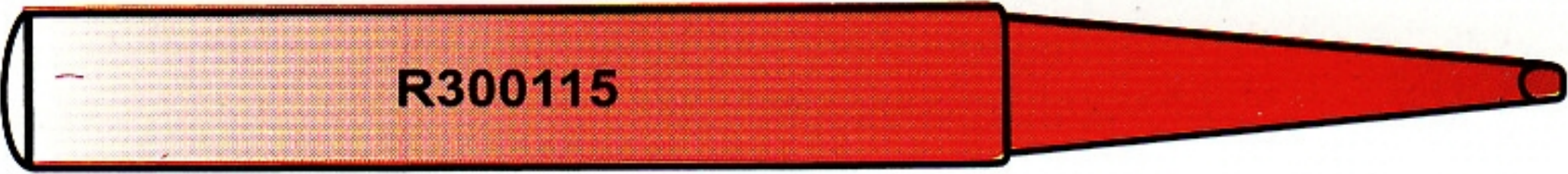
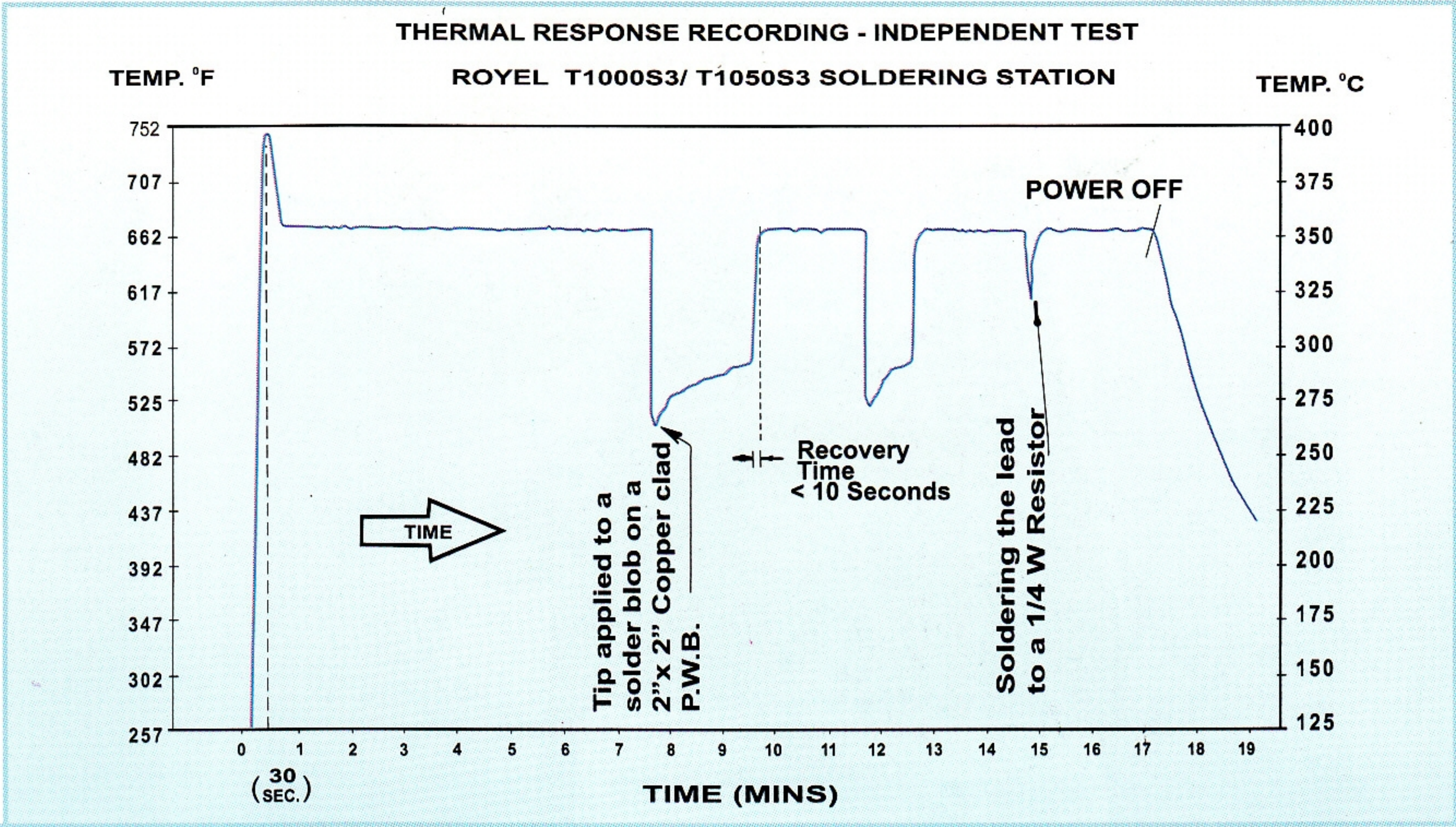
TIME/TEMPERATURE
PERFORMANCE CURVE

As part of independent tests conducted in the U.S.A., The time/temperature performance of the Thermatic was recorded.

The two most important aspects were the time taken to reach soldering temperature from switch-on; and the time to recover after making typical soldering joints.

It can be seen that the initial heat-up time is only around thirty seconds.

The tip was then held to a test pad for two minutes. After the initial dip, the excellent heat flow not only maintained but actually increased the temperature. On removal from the test pad, it took only a few seconds to fully recover to its idling temperature.



THE SOLDERING TIPS

Armclad premium long-life iron-plated tips are supplied with, or for, the Thermatic soldering irons.

There are a total of six standard tip profiles, each with a number of face widths or diameters. Every tip is pre-tinned, and numbered on the shank for identification. The iron plating on the shank seals the tip, preventing corrosion and freezing within the barrel, while permitting rapid heat transfer from the element through to the copper core.

Plating on the actual soldering face, and immediately behind this face, is sufficiently heavy to provide many thousands of soldered connections. All tips are pre-tinned for immediate use.

The tip faces are simply cleaned by wiping on the Royel sponge provided with the power unit, and should not be filed or otherwise abraded. Tips should be discarded when worn out.

| STANDARD TIP STYLES | FACE WIDTH | | FOR T300 PENCILS | FOR T500 IRONS |
|---------------------|------------|--------|---------------------------------|--|
| | mm | inches | | |
| 1 GENERAL PURPOSE | 0.7 | 0.028 | R300107 R300110 R300115 | R500107 R500110 R500115 R500120 |
| | 1.0 | 0.040 | | |
| | 1.5 | 0.060 | | |
| | 2.0 | 0.080 | | |
| 2 MICRO MIN | 0.7 | 0.028 | R300207 | R500207 |
| 3 SMALL TERMINALS | 0.7 | 0.028 | R300307 R300310 R300315 | R500307 R500310 R500315 R500320 |
| | 1.0 | 0.040 | | |
| | 1.5 | 0.060 | | |
| | 2.0 | 0.080 | | |
| 4 PWB LEAD | 0.7 | 0.028 | R300407 R300410 R300415** | R500407 R500410 R500415 R500420** |
| | 1.0 | 0.040 | | |
| | 1.5 | 0.060 | | |
| | 2.0 | 0.080 | | |

| STANDARD TIP STYLES | FACE WIDTH | | FOR T300 PENCILS | FOR T500 IRONS |
|--|------------|--------|---|---|
| | mm | inches | | |
| 5 CONFINED AREAS | 0.7 | 0.028 | R300507 R300510 | R500507 R500510 |
| | 1.0 | 0.040 | | |
| 6 SMC* | 2.0 | 0.080 | R300620 R300625 R300635 R300640 R300647 | R500647 R500650 R500660 R500665 R500675 |
| | 2.5 | 0.100 | | |
| | 3.5 | 0.140 | | |
| | 4.0 | 0.160 | | |
| | 4.7 | 0.185 | | |
| | 5.0 | 0.200 | | |
| | 6.0 | 0.240 | | |
| | 6.5 | 0.260 | | |
| B SMC* BLADE | 5.0 | 0.200 | R300B05 R300B10 R300B15 R300R20 | R500B10 R500B15 R500B20 R500B25 |
| | 10.0 | 0.400 | | |
| | 15.0 | 0.600 | | |
| | 20.0 | 0.800 | | |
| | 25.0 | 1.000 | | |
| *SPECIAL SHEATH MAY BE REQUIRED FOR SMC TIPS | | | T302SMC | T502SMC |

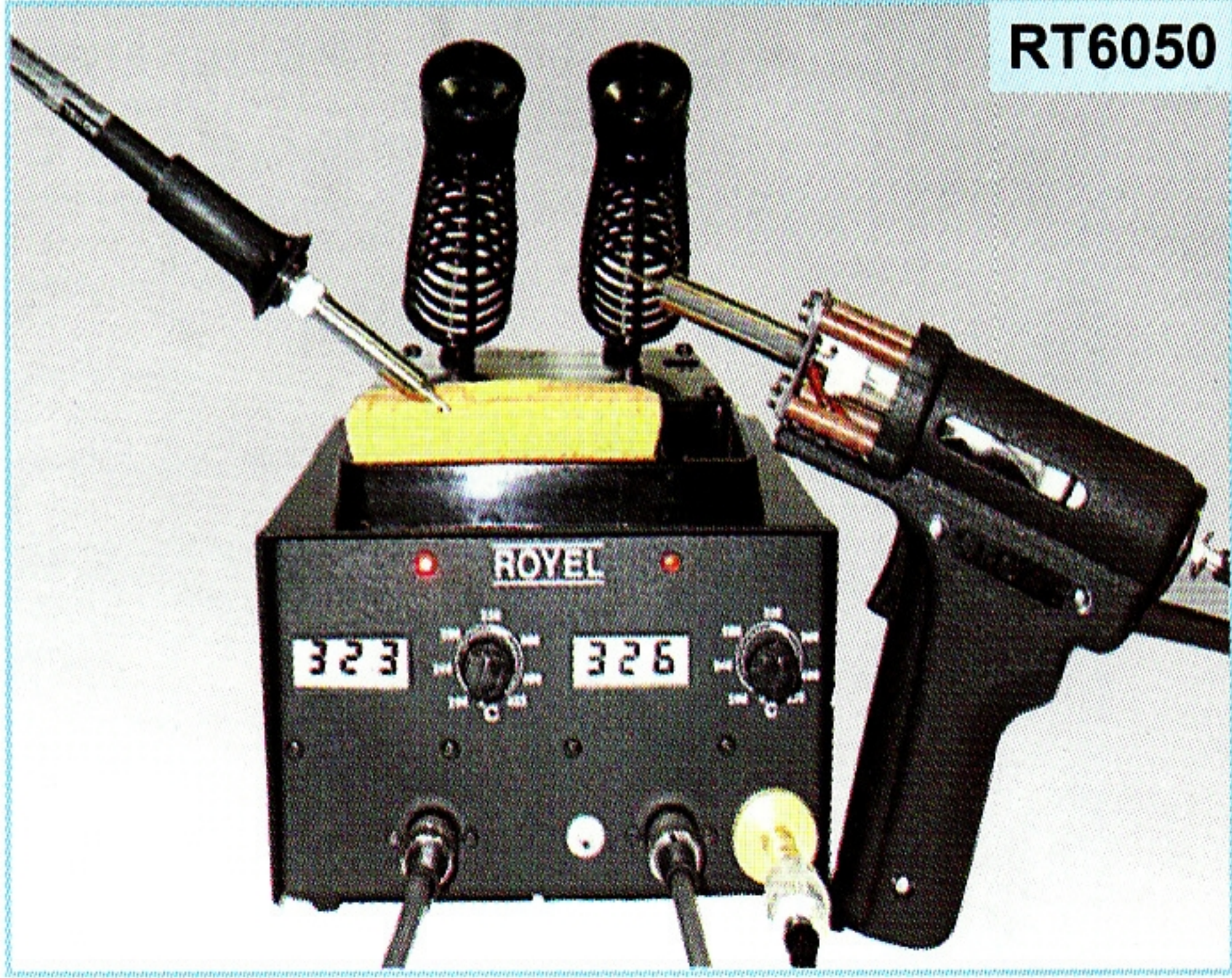
** Standard tips supplied with irons



Dual Continuous Temperature Controlled Analog Soldering Station



Dual Continuous Temperature Controlled Digital Soldering Station



Soldering/Desoldering Temperature Controlled Digital Station

THERMATIC SOLDERING EQUIPMENT IS MANUFACTURED IN AUSTRALIA AND VIETNAM FOR TECHTRON ELECTRONICS PTY. LIMITED

WARRANTY

Royel Products are warranted electrically and mechanically sound. This warranty covers a period of 12 months from the date of delivery to the buyer. When defects develop within this period, the tool will be repaired or replaced free of charge, provided it has not been misused or damaged as determined by our inspector, and is returned to us freight paid.

Design improvements may alter the present illustration and/or description

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