

# I. INTRODUCTION

## A. GENERAL DESCRIPTION

The RISTON® PC-130 Printer exposes RISTON® Photopolymer Film Resists and VACREL® Dry Film Solder Mask to high energy ultraviolet light. The Printer has two exposure lamps and two exposure frames allowing the operator to expose both sides of the panel in one frame while loading the other frame. Separate vacuum pumps for each frame provide rapid vacuum drawdown. Adjusting valves are provided on the control panel for special applications requiring lower vacuum levels. Separate gauges on the control panel indicate the vacuum quality for each frame. The Printer can be operated in two light intensity modes. The 2000-watt low intensity mode gives finer exposure control for resists requiring short exposure times. The 5000-watt high intensity mode gives rapid, accurate exposures for high productivity. The lamps automatically switch to the low intensity mode between exposures to conserve power and extend lamp life. The design of the lamp reflectors provides excellent light uniformity, collimation, and resolution.

Light to the exposure frames is controlled by independently operated shutters on each lamp housing. Exposure times are controlled by light integrators and solid-state photodetectors. This system automatically regulates the exposure times for the resist on each side of each frame to compensate for differences in lamp-to-frame distances and lamp intensity.

The operator selects a number of light units on the integrators for the RISTON® or VACREL® Film to be exposed. When the operator pushes the Start button, the shutters open and the integrators count the number of programmed light units. The shutters close independently of each other, each not closing until the integrator for its lamp counts the preset number of light units.

An auxiliary 0-60 second timer on the control panel allows exposures by time units; both lamp shutters open and close simultaneously.

## B. SAFETY

### 1. PC-130 SAFETY FEATURES

The PC-130 Printer is designed with operator protection in mind. The operator's eyes are protected from any direct light from the exposure lamps by the cabinet and frame design. A main electrical disconnect switch on the control panel turns off all printer functions. The access panels to all electrical components, the exposure lamps,

and the vacuum pumps can be opened only with the special key provided to control access to these areas. The side doors on Printer serial numbers 477 and higher have electrical interlocks which turn off the exposure lamps if a door is opened while the Printer is in operation.

## 2. SAFETY INSTRUCTIONS

In addition to a complete outline of safety precautions and procedures in Section VII, important safety recommendations are interspersed throughout this manual.

A **WARNING** and instructions in bold face type emphasize potential personal safety hazards.

A **CAUTION!** refers to potential equipment damage.

A **NOTE** conveys special information or emphasizes a particular instruction.

## C. SPECIFICATIONS

The PC-130 Printer installation involves three separate supplied parts: the Printer, a multi-tap transformer, and a two-speed exhaust blower. The exhaust blower is crated with the Printer; the transformer is shipped in a separate crate.

### 1. CRATED DIMENSIONS

L x W x H

PC-130 2100 x 1260 x 2210 mm  
(83 x 50 x 87 in.)

Transformer 640 x 460 x 890 mm  
(25 x 18 x 35 in.)

### 2. SHIPPING WEIGHT

PC-130 1014 kg. (2236 lb.)  
Transformer 228 kg. (502 lb.)

### 3. ACTUAL DIMENSIONS

L x W x H

PC-130 1830 x 1066 x 2007 mm  
(72 x 42 x 79 in.)

Transformer 560 x 330 x 710 mm  
(22 x 13 x 28 in.)

### 4. ACTUAL WEIGHT

PC-130 700 kg. (1543 lb.)  
Transformer 211 kg. (465 lb.)

## 5. EFFECTIVE EXPOSURE FRAME AREA

Width 762 mm (30 in.)  
Depth 610 mm (24 in.)

## 6. PC-130 SERVICE SPACE REQUIREMENTS

One meter (three feet) on both sides, no access to the rear of the Printer is required.

## 7. ELECTRICAL

**Printer Input:** 380V to 400V, 30 Wye (3 power legs, neutral, and ground); 50 Hz and 60 Hz units are available. A transformer is supplied with the Printer for other supply voltages.

**Transformer Input:**  
(Two transformers are available)

P/N 280003-001 — 190V to 240V and 400V to 480V, 50/60 Hz, 30 Delta (w/ground)

P/N 280003-002 — 346V (312V to 364V), 50 Hz, 30 Delta (w/ground)

A neutral is not required in the supply power to either transformer.

**Export Note:** Specify the voltage and line frequency (50 Hz or 60 Hz) for the area where the Printer will be used. If a transformer is required, Du Pont will supply one with the unit.

**Two-Speed Exhauster:** The 380V, 3 $\phi$  power for both speeds of the remote exhaust blower is supplied from the Printer; a separate power supply must not be used.

## 8. EXHAUST

The two-speed exhaust blower supplied with the Printer **must** be used for proper exposure lamp cooling. The blower is mounted remote from the Printer, usually above a false ceiling. The exhaust air must terminate outdoors.

Exhaust Duct Diameter: 153 mm (6-inch)

Exhaust Air Flow Rates:

	60 Hz Units	50 Hz Units
Low Speed:	380 m <sup>3</sup> /hr. (225 cfm)	300 m <sup>3</sup> /hr. (177 cfm)
High Speed:	795 m <sup>3</sup> /hr. (470 cfm)	600 m <sup>3</sup> /hr. (355 cfm)

## 9. ROOM AIR SUPPLY

Positive pressure should be maintained in the exposure room for cleanliness and to avoid drawing chemical fumes into the Printer.

The lamp cooling air can be optionally drawn from an area outside the exposure room to reduce the load on the ventilation system. An air intake transition piece is supplied with the Printer to adapt the rectangular intake to 200 mm (8-inch) round ducting.

Exposure frame and lamp power pack cooling will put approximately 1.5 kW of heat into the exposure room.