



P7135 Thin Film Type illustrated above

APPLICATIONS

- ◆ Measures output and efficiency against solar energy input, amount of base insulation, brine depth
- ◆ Effect of different absorbent surfaces
- ◆ Effect of inclination, ambient temperature, wind velocity and the effect of cooling the glass cover
- ◆ Demonstrates the onset of reflux
- ◆ Investigate the effects of varying the inclination of the absorption surface and the flow rate, recording at the same time the film thickness (P7135 only)
- ◆ Investigate the comparison between all characteristics of the two units under identical conditions

FEATURES

- ◆ Temperature measurement at eight points
- ◆ Pen recorder to continuously record temperatures (optional)
- ◆ Removable solar radiation mat
- ◆ Extendable tray angles and hence flow rates
- ◆ Variable angle of incidence of sunlight on the absorbing pad
- ◆ Variable thermal insulation material mounted horizontally on a rigid steel stand
- ◆ Ability to tilt base continuously by +5° and -5° to the horizontal
- ◆ Horizontal rotation of basin through 180°
- ◆ Non corrosive materials used in all critical areas

P7130/P7135 SOLAR DISTILLATION APPARATUS

INTRODUCTION

These units comprise instrumented versions of the two types of solar still in common use.

Standardised design makes possible for the first time the comparison of results obtained in different places - many solar stills are in use, but true performance comparison has hitherto been impossible.

Used as a pair these units also make possible simultaneous and so controlled experiments on the comparative performance of the two types of solar still. Output of distillate under tropical conditions is typically up to 5 litres per day.

DESCRIPTION

P7130 SOLAR STILL - BASIN TYPE

This includes a shallow square evaporating tray, the base of which is fitted with removable heat insulating material which assists in the evaporation process. This contains the brine liquid to be studied and is covered by a sheet of flat plate glass, set at an angle of 12½° to the horizontal, so that water condensing on it readily runs down to the lower edge.

Water evaporating from the tray condenses on the inside surface of the glass cover, runs down to the lower edge and collects in a channel alongside the evaporating basin, from whence it drains to a volumetric measuring vessel.

Temperature measurement by multi-point thermocouple instrument is provided at the following points:- feed, brine (output), ambient, glass (outside), glass (inside), the vapour space, centre of tray (under mat), mat (top side). An optional pen recorder is available to continuously record these temperatures.

The whole top section of the still may be turned horizontally through 180°, so making it possible to alter the angle of incidence of sunlight on the absorbing pad.

P7135 SOLAR STILL - THIN FILM TYPE

The thin film type solar still comprises the same unit mounted so that the base can be tilted continuously by between +5° and -5° to the horizontal.

An inclinometer to indicate the degree of tilt is available as an optional extra.

Feed water flows down the tray so creating a comparatively thin moving film, from which evaporation takes place more rapidly than in the static version.

Brine draining from the tray is collected and returned to a reservoir, whence it is pumped back to a channel from which it overflows on to the upper side of the evaporating tray. Feed water flow rate is measurable and variable.

The whole top section of the still may be turned horizontally through 180°, so making it possible to alter the angle of incidence of sunlight on the absorbing pad, while keeping the film flow slope constant, as well as extending the range of tray angles and hence flow rates available.

OPTIONAL EQUIPMENT

P7131 SOLARIMETER for use with both basin and thin film type solar distillation apparatus.

P7132 ANEMOMETER for use with both basin and thin film type solar distillation apparatus.

P7133 INCLINOMETER for use with thin film type solar distillation apparatus.

P7134 12 POINT PEN RECORDER for use with both basin and thin film type solar distillation apparatus.

TENDER SPECIFICATIONS

P7130 SOLAR STILL - BASIN TYPE

Flat tray of surface area 1 sq.m. made from self-coloured glass fibre re-inforced polyester resin, covered and sealed by a clear glass sheet.

The tray is covered by a removable solar radiation mat, and furnished with variable thermal insulation material beneath. Alongside the tray, under the lower edge of the glass cover is a collection channel for water condensing on the inside of the cover, which is then fed to a measuring cylinder.

Temperature measurement at eight different points is provided by a thermocouple instrument, which is included.

P7135 SOLAR STILL - THIN FILM TYPE

Evaporating basin as P7130 mounted for variable inclination of flow bed and cover glass and horizontal rotation through 180°. Furnished with reservoir and mains powered feed circulating pump delivering approximately 1.1 litres/sec, providing moving film evaporation surface feeding into drains arranged for return of feed to reservoir. Provided with flow control valve and feed flow measurement by drowned orifice flow meter.

Temperature measurement at eight different points is provided by a thermocouple instrument, which is included.

SERVICES

Electrical supply:- 240 volts 50/60Hz single phase operation.

Quantity of brine solution.

SHIPPING DETAILS

P7130 Gross 525 Kgs
Nett 210 Kgs
166 cm long x 122 cm wide x 170 cm high

P7135 Gross 650 Kgs
Nett 340 Kgs
166 cm long x 122 cm wide x 170 cm high