TH 120 MINI STEAM POWER PLANT

GENERAL DESCRIPTION

This is a small low cost miniature power plant designed for educational purpose.

A hand feed pump supplies water form a feed tank to a small gas fired boiler. Steam is throttled to a single cylinder, double acting reciprocating engine. A small DC generator is connected to the engine by a belt and an electrical load is applied using small light bulbs. Exhaust from the steam engine is condensed in a water cooled condenser. Condensate is collected and returned to a feed water tank.

Instruments are provided for monitoring and controlling the plant operation and performance as well as for safety.

TYPICAL EXPERIMENTS

- Fuel consumption
- Efficiencies for boiler, engine, and overall plant.
- Condenser heat transfer coefficient.
- Heat balance and energy utilization

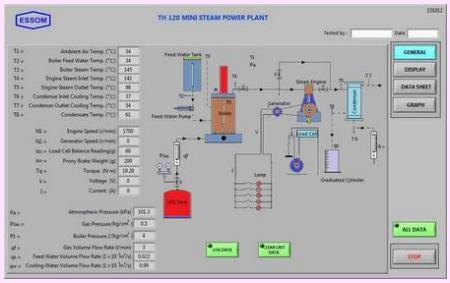
TECHNICAL DATA

• Boiler		
- Type	:	Fire tube vertical boiler.
- Capacity	:	Upto 5 kg,/hr steam at 5 kg/cm^2.
• Boiler accessories	:	Safety valve, level gauge.
• Fuel	:	Liquefied Petroleum Gas (LPG)
• Feed water tank	:	Stainless steel with level gauge.
• Feed pump	:	Hand operated.
• Steam engine		
- Type	:	Single cylinder, double acting.
- Maximum power	:	Mechanical, over 5.0 w.
	:	Electrical, over 1.5 w.
• Power output measurement	:	Mechanical brake dynamometer.
• Electrical power system	:	DC generator with lamp load.
• Condenser	:	Shell and tube type.
• Measuring instruments		
- Pressure gauge	:	Boiler steam outlet.
- Temperatures	:	7 ea.
- Flow meters	:	2 ea.
- Engine speed	:	Digital display.
- Spring balance and weights for dynamometer torque.		
- Graduated cylinder, and stop watch for condensate measurement.		
- Voltage and current digital display.		
• Accessory	:	Boiler cleaning kits.
• Power supply	:	220V 1Ph 50Hz. Other power supply is available on request.

OPTIONAL EQUIPMENT

- Digital flue gas analyzer for O_2 and CO contents.
- Electric boiler instead of LPG boiler.
- Computer Interface

  This includes sensors, computer interface unit and software for data display and analysis by computer (separately supplied).



Net (unpacked) shipping dimensions WxLxH : 76 x 90 x 155 cm
Net weight : Approx. 90 kg

ESSOM CO., LTD. 508 Soi Taksin 22/1 Taksin Rd. Bukkalo Thonburi Bangkok 10600 Thailand
Tel. +66 2476 0034 Fax. +66 2476 1500 E-mail : essom@essom.com, http://www.essom.com
We reserve the right to change specifications without prior notice