

## OSC 77FD120TH Mini Steam Power Plant

### <Features>

- This is a bench top unit for a small low cost miniature power plant designed for educational purpose
- A small gas fired boiler supplies steam 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 condensor
- Condensate is collected for weight measurement and is returned to feed water tank
- A manual feed pump supplies feed water to the boiler
- Instruments are provided for monitoring and controlling the plant operation and performance as well as for safety



not include the table

### <Typical Experiments>

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

### <Specifications>

Model	OSC 77FD 120TH
Boiler	Type : Fire tube vertical boiler Capacity : Upto 5kg/hr steam, Upto 5 bar.
Boiler accessories	Safety valve, level gauge
Fuel	Liquefied Petroleum Gas (LPG)
Fuel tank	4kg with pressure regulator (option)
Feed water tank	Stainless steel with level gauge
Feed pump	Hand operated
Steam engine	Single cylinder, bore 19mm, stroke 19mm providing upto 4500mW mechanical output from 5 kg/hr steam at 5 bar.
Electrical power system	DC generator with a lamp load bank
Condenser	Shell an tube type
Instrumentation	○Pressure - Boiler steam
	○Temperatures - Ambient air, Boiler feed water, Boiler steam, Engine steam inlet, Engine steam outlet, Condensate, Cooling water inlet, Cooling water outlet
	○Flow meters - Rotameter for fuel gas, Rotameter for condenser cooling water
	○Engine speed sensor and indicator
	○Electrical power - Digital voltmeter and digital ammeter
Power supply	220V, 1Ph, 50Hz. Other power supply is available on request
Size (WxLxH)	Approx. 760 x 900 x 1550mm (including a table)
Weight	Approx. 90kg

### <Optional accessories>

100TH-021	Digital flue gas analyzer for O2 and CO contents
101TH-031	Pressure sensor
120TH-003	Mechanical dynamometer with load cell, and torque indicator for measurement of mechanical power out put
120TH-003	Mechanical dynamometer with spring balance, and weight for measurement of mechanical power out put
120TH-020	Analog to digital signal converter with software for display of pressures, temp eratures, steam fuel flow rate, cooling water, flow rate, voltage, and current on computer (option)
120TH-032	Fuel flow sensor
120TH-035	Cooling water flow sensor
120TH-037	Condensate weight totalizer