

HYDROELECTRIC ENERGY GENERATION KIT

Mod. WPP-K/EV

INTRODUCTION

This equipment, expressly designed for educational purposes, is an example of use of a Pelton hydraulic turbine for the production of electric power in mini plants driven by small streams.

TRAINING PROGRAM:

- Study of hydroelectric power
- Power as function of water flow rate and difference in height of the hydraulic pipe
- Head losses
- Electric power output
- Plant efficiency (optional portable instrument required, refer to mod. PEEA at the end of the data sheet)

TECHNICAL SPECIFICATIONS:

Mini hydroelectric plant mounted on castors

- Turbine-generator set:
 - stainless steel Pelton turbine
 - 6-jet distributor
 - permanent magnets synchronous generator
 - rated voltage: 25 Vac three phase
 - frequency: 200 Hz
 - electric power output: 0.5 kW (height 30 m, flow rate 3 l/s)
 - generator speed: 3000 rpm
 - Ø 4 mm safety holes for connection to the optional portable rheostat (refer to mod. PRH-3 at the end of the data sheet)
- AISI 304 stainless steel horizontal axis multistage monoblock pump:
 - power: 1.1 kW
 - maximum flow rate: 60 liters/minute
 - maximum head: 40 m
 - frequency converter for rpm adjustment
- Water tank
- Flow meter, pressure gauge and gate valve on the pump discharge line

Controller

- Rectifier
- Air dissipation system
- Digital voltmeter for the DC parameters
- Digital ammeter for the DC parameters
- Ø 4 mm safety holes for connection to the generator, to an external optional DC load (refer to mod. DCL24V at the end of the data sheet) and to the optional battery pack (refer to mod. SOLBA at the end of the data sheet)



Power supply: 230 Vac 50 Hz single-phase - 1400 VA
(Other voltage and frequency on request)

Dimensions: 90 x 100 x 120 cm

Control panel dimensions: 80 x 40 x 60 cm

Net weight: 90 kg

SUPPLIED WITH

THEORETICAL-EXPERIMENTAL HANDBOOK



OPTIONAL (REF. ACCESS. AND INSTRUMENTS)

PORTABLE RHEOSTAT Mod. PRH-3

To draw the external characteristic curve of the generator



BATTERY PACK Mod. SOLBA

To store the generated electricity

ELECTRIC ENERGY PORTABLE ANALYZER Mod. PEEA

For the calculation of the plant efficiency



LAMP Mod. DCL24V

To be used as 24 Vdc electric load