

COAGULATION, FLOCCULATION AND SETTLING PILOT PLANT

Mod. FSE/EV manual
Mod. FSEa/EV automated



INTRODUCTION

Coagulation - flocculation - settling processes are generally used to separate colloids from water, as in this case natural settling speed is too slow to obtain a sufficient clarification.

This plant enables to study the coagulation, flocculation and settling processes separately or simultaneously and it mainly consists of a stirred feed tank, of two tanks for flocculant and coagulant, of a stirred coagulation tank, of a stirred flocculation tank and of a plate settler.

Process control, data acquisition and supervision are automatically carried out by a microprocessor controller and by a specific control and supervision software (only for mod. FSEa/EV) that enables the remote control of various operational parameters.

TRAINING PROGRAM:

The process unit enables to develop and analyze the following issues:

- coagulation
- flocculation
- co-current and counter-current settling
- characteristics of coagulant and of flocculants
- optimization of coagulation – flocculation and settling processes
- automatic PID control (only for mod. FSEa/EV)
- plant supervision (only for mod. FSEa/EV)

TECHNICAL CHARACTERISTICS:

Mod. FSE/EV

- Framework of AISI 304 stainless steel with castors
- Cylindrical feed tank of transparent methacrylate for the water to be treated with submersible pump and capacity of 300 l
- Feed tank of transparent methacrylate for coagulant with capacity of 60 l
- Feed tank of glass for flocculant, provided with hot-plate magnetic stirrer, with capacity of 0.5 l
- Coagulation reactor of borosilicate glass, equipped with motor-driven stirrer (0 to 300 r.p.m.), with capacity of 30 l
- Flocculation reactor of borosilicate glass, equipped with motor-driven stirrer (0 to 100 r.p.m.), with capacity of 8 l
- Rectangular settler of transparent methacrylate with conical bottom and movable plates for its operation in co-current and counter-current
- Flowmeter of AISI 304 stainless steel for measuring feed flow rate with range of 30 to 300 l/h
- Flowmeter of coagulant feed with range of 2 to 20 l/h
- Feed screw pump with casing and screw of AISI 316 stainless steel and flow rate of 0 to 200 l/h
- Electronic frequency variator for screw pump
- Gear feed pump of AISI 316 stainless steel for coagulant, with flow-rate of 0 to 50 l/h
- Metering pump of flocculant, with flow rate of 0 to 200 ml/h
- Switchboard IP55, complying with EC conformity mark, including plant synoptic and ELCB

Dimensions: 1800 x 800 x 2700 mm

Weight: 300 kg

Mod. FSEa/EV

Besides being provided with all the technical characteristics of mod. FSE/EV, this model also includes the following additional equipment:

- Digital microprocessor PID controller, with two control loops
- Supervision software for Windows: it enables to control ON-OFF signals, analog signals coming from PID controller, real-time trend and historical trend

REQUIRED

UTILITIES (PROVIDED BY THE CUSTOMER)

- Power supply: 400 Vca 50 Hz three-phase - 2 kVA (Other voltage and frequency on request)
- Tap water (valve with ½" hose connector)
- Water floor drain

ACCESSORIES (NOT INCLUDED)

- Personal Computer running Windows (only for mod. FSEa/EV)

SUPPLIED WITH

THEORETICAL – PRACTICAL – EXPERIMENTAL HANDBOOK



VARIATIONS OF THE PLANT UPON REQUEST:

This equipment can be modified upon specific request of the Customer.