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NEUTRA 1000...20000

CONTINUOUS NEUTRALIZATION

INSTALLATION AND OPERATION INSTRUCTIONS

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1. GENERAL

The Neutra automation equipment is designed for the neutralization of waste water. It is not permitted to lead domestic or industrial waste water to the public sewage system since it would corrode the piping of the sewage system or disturb the function of the waste water treatment plant. The generally acceptable pH value is 6.5–9.0. The Neutra automation system neutralizes alkaline and acidic waste water so that it can be conveyed to the public sewage system. The use of the Neutra automation system prevents corrosion and embrittlement of the piping as well as malfunctions at waste water treatment plants. Applications for the Neutra automation system include laboratories, print shops, food and chemical industry and surface treatment plants.

1.1. ACTUATORS

- 1 mixer 380 V 50 Hz
- 1 dosing pump 230 V 50 Hz for pumping acid or alkali (one-way neutralization)
- 2 dosing pumps 230 V 50 Hz for pumping acid and alkali (two-way neutralization)
- 1 acid tank for acid or alkali (one-way neutralization)
- 2 acid tanks for acid and alkali (two-way neutralization)
- 1 GLI pH amplifier for pH measurement – Model P33
- 1 GLI 6028 PO pH probe
- 1 SET 10 level switch unit for blocking alarm
- 2 SET/K probe for blocking alarm
- 1 RE 6010 level switch unit for high and low level remote alarms of pH value

1.2. CONTROL EQUIPMENT

- Q1 main switch
- S1 automation system 1=on, 0=off
- S2 mixer 1=hand, 0=off, 2=auto
- F1 fuse mixer L1–L3, 6 A
- F2 fuse dosing pump 6 A
- F3 fuse automation system control 6 A

2. THE FUNCTION OF THE AUTOMATION SYSTEM

The equipment is started by turning main switch Q1 to position 1. Control voltage switch S1 is turned to position 1. Control switch S2 for the mixer is turned to position 2. The pH probe measures the pH value of the waste water in the tank and, for pH values falling below 6.5 or exceeding 9.0, gives the automation system a command to start neutralization. When the automation system starts, the mixer and the relevant dosing pump will start immediately. Signal lamps give indication on mixer motion and rising or lowering of the pH value. After the neutralization, the dosing pump will stop and the signal lamp for the neutralization go off. The mixer will still turn for a period of time specified by time relay K2 (adjusted time is normally 1 min.). After this the neutralization is finished.

3. REMOTE ALARM

If the solution in the tank will not be neutralized and the pH value exceeds or falls below the set limits, a red signal lamp will light up on the RE 6010 unit and a remote alarm be sent. The reason for blocking must be found out immediately. In the normal mode, a green signal lamp is lit on the SET 10 unit. If the solution in the tank will not be neutralized and the pH value exceeds or falls below the set limits, a red signal lamp will light up on the RE 6010 unit and a remote alarm be sent. In this case check that there is enough pH chemicals.

4. TANKS FOR CHEMICALS

There are one (one-way neutralization) or two (two-way neutralization) tanks for chemical, one for acid (e.g. hydrochloric acid HCl 10 %) for lowering of the pH and/or one for alkali (e.g. lye NaOH 10 %) for rising of the pH.

5. DOSING PUMPS

Chemical dosing pump is connected mounted on the chemical tank according to the pumps own manual.

6. ADJUSTMENT OF THE PUMPS

The output of the dosing pumps can be adjusted by switches on the front panel. If the automation system for neutralization is pumping chemicals in turns to the neutralization tank, the pump outputs must be decreased. If the neutralization is too slow (resulting in high and low level alarms), the relevant pump output must be increased. The correct pump outputs can best be found out by observing the function of the automation system in use.

7. INSTALLATION INSTRUCTIONS

The pH probe shall be stored in a warm place before installation and startup. On freezing, the probe may be damaged.

For pH probe cable, use e.g. JAMAK 4 x (2 + 1) x 0.5 mm². For buried cable, use e.g. JAMAK ARM 4 x (2 + 1) x 0.5 mm².

The pH probe cable must be sufficiently long to allow the probe to be lifted up from the tank for calibration without disconnecting it.

The pH probe must be calibrated before use. See the instructions for pH analyser.

If the tank is mounted under ground, you must ensure that the hoses coming out of the chemical tank will not freeze. In under ground model the chemical hoses must be protected by a continuous protection tube.

For level probe cable, use e.g. JAMAK 2 x (2 + 1) x 0.5 mm². For buried cable, use e.g. JAMAK ARM 4 x (2 + 1) x 0.5 mm² or MCMK 3 x 1.5 mm².