

Laboratory and technical mixers



wetted parts are made of a rust-proof stainless steel alloy 316L. The illustrated laboratory mixer works with a speed controlled rotor with 4kW up to 14,000 l/min which corresponds to a rotor speed of 30 m/s. The application has CIP (Cleaning-In-Place) and SIP (Sterilizing-In-Place) capability with a sterilization temperature of up to 130°C. The feed takes place via aspiration and dosing valves. Cooling system and heating are pressure resistant up to 6 bar.

Solution

The product feed takes place via manually operated diaphragm valves GEMÜ 601, 602 and 612. As an alternative for GEMÜ 612 the new GEMÜ **BioStar**® range can be used. The outstanding feature of these products is their cGMP design (current Good Manufacturing Practice) and their good external cleanability. GEMÜ type 654 with a single spoke-handwheel whose surface area is reduced limits the heat flow and considerably reduces the danger of hand injuries. Manual butterfly valves are used for draining the tank and supplying it with rinsing water. Ideally, proven diaphragm valves should also be used at these points but as this is not absolutely necessary butterfly valves are sufficient. GEMÜ 412 butterfly valves would be suitable here.

Application

In the development of pharmaceutical, chemical and cosmetic products it is important that pilot plant processes operate as close as possible to the original plant to enable their later application in the actual production processes. For this reason laboratory and technical mixers must represent a smaller version of the original production plant. The homogenization mixer, for example, is designed so that the speed of the agitators is identical to that of high-capacity mixers. If not only the actual products of such test equipment but also the technical components prove worthwhile, they will be preferred when components are chosen for the production plant.

Plant Design

A laboratory unit consists of a machine control system with an RS 232 interface, a true to scale homogenization mixer and power engineering for heating and vacuum which is located in the closed lower part of the laboratory mixer. The devices are externally connected with flow and back flow of cooling water, waste water connection, power supply 400 V/50 Hz (16A rotary current) and compressed air 6 bar. The pressure and vacuum resistant tank is specified for 1 to +2 bar. All medium



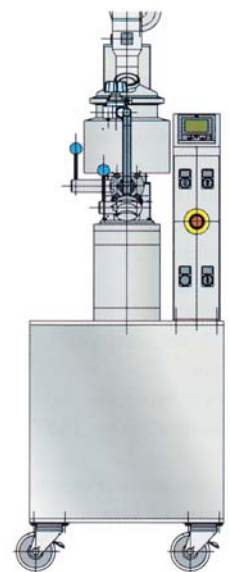
GEMÜ 601
Diaphragm valve in stainless steel, manually operated with seal adjuster. Alternatively GEMÜ 602, without seal adjuster, with stainless steel handwheel.



GEMÜ 412
Butterfly valve in stainless steel, manually operated, with metal lever and locking latches



GEMÜ 654 BioStar®
Diaphragm valve in stainless steel, manually operated with single-spoke handwheel in metal or three-spoke handwheel in temperature-resistant plastic as an alternative to GEMÜ 612 which is installed.



GEMÜ® VALVES, ACTUATORS
AND CONTROL SYSTEMS

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG · Fritz-Müller-Str. 6-8
D-74653 Ingelfingen-Criesbach · Telefon +49(0)7940/123-0 · Telefax +49(0)7940/123-224
e-mail: info@gemue.de · http://www.gemue.de