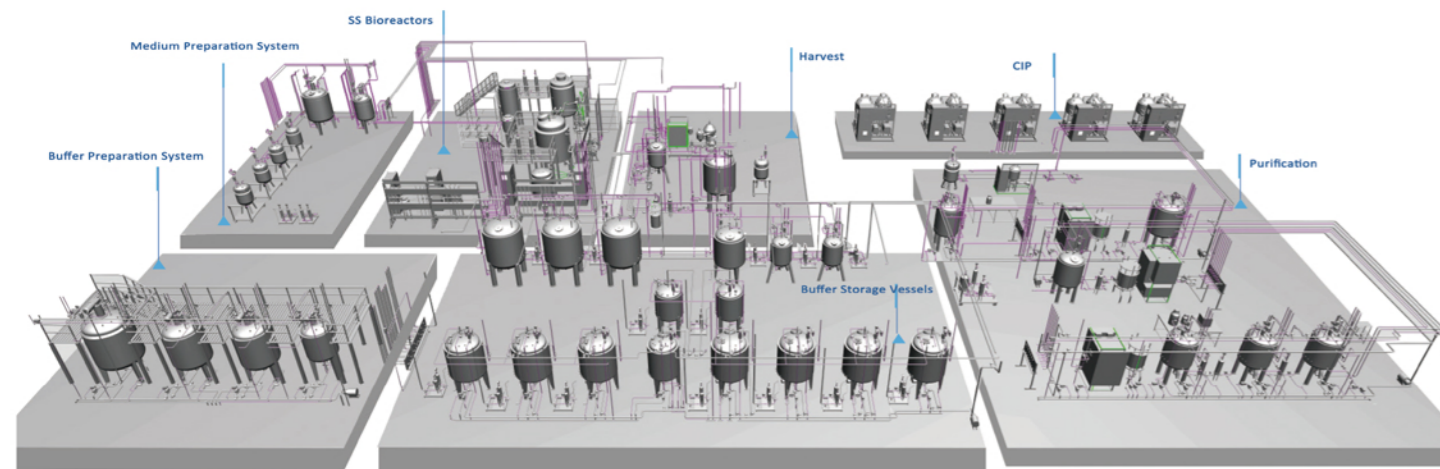


Our Ability in Biopharmaceutical Industry

AUSTAR is a leading provider of integrated engineering solutions with comprehensive services and products to provide products and services for famous pharmaceutical enterprises and research institutes in the world.

AUSTAR provides complete equipment for upstream and downstream process system of biopharmaceuticals and also provides integrated solutions for stainless steel and disposable systems. It can meet different process requirements in respect to cell culture or microbial fermentation, including culture medium preparation, seed expansion, cell culture/fermentation, harvest/clarification, buffer preparation and storage, chromatography system, ultra-filtration system, nano filtration and smart pump, etc. It helps clients implement the high-standard and high-efficiency technological processes.

AUSTAR provides the biopharmaceutical industry with integrated solutions from drug research and development, pilot test to production. It contains upstream and downstream process systems covering culture medium additives, buffer preparation tank, stainless steel fermentation tank, bioreactor, harvest and inactivation tank. It also provides clean utilities such as supporting pharmaceutical water and CIP/SIP.



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Integrated Solution for Upstream Process of Biopharmaceutical Bioreactor



Customized Bioreactor System



01 Agitation



- Agitation system uses magnetic drive and dispenses with double mechanical seal
- Dispense with expensive condensing system for mechanical seal
- Easily maintain and clean
- Mixing impellers are like elephant's ears and their shear stress is low in the cultivation process

02 Gassing system



- Gassing system are equipped with two synchronizing modes—overlay aeration and sparger aeration
- Overlay aeration includes two kinds of gas—air and CO₂, and each route of gas is equipped with mass flow control
- Sparger aeration includes air, N₂, O₂ and CO₂, and is equipped with mass flow control
- The pipes of overlay aeration and sparger aeration are equipped with sterilizing filter and can conduct separate SIP during operation

03 Adding material



- 4-valve feeding system can conduct repeatedly sterilization in the cultivation process and the method of sterilization is automatic control
- 4-valve feeding system provides high degree of sterility assurance for the adding process
- To ensure the accuracy of adding, each route of material adding can be precisely weighted
- There are several solutions for 4-valve feeding system in connection with disposable products

04 SAMPLING



- Airtight sampling system, which can repeatedly sterilize, can repeatedly conduct sterile sampling in the cultivation process
- Be able to provide two modes of operation: manual and automatic
- Be able to provide disposable sampling system

05 HARVEST



- Harvest system can conduct sterile transfer and harvest
- Transfer pipes can proceed with full-automatic CIP/SIP after use
- Be able to provide two modes of operation: manual and automatic

06 EXHAUST



- Be able to provide exhaust heater or condenser
- Proportioning valves installed in exhaust pipes can control the vessel pressure
- Exhaust filter can conduct separate sterilization
- Be able to provide parallel exhaust filters for production-type bioreactor and conduct change and sterilization in the cultivation process

07 PROCESS ANALYSIS TECHNOLOGY



- Temperature: All relevant condensate line are equipped with temperature probe and are used with LABOM contact temperature sensor
- PH and PO₂: are dedicated to Mettler PH and dissolved oxygen electrode for the bioprocess
- Be able to equip production-type bioreactor with dual electrodes to test PH and PO₂ and guarantee the reliability of test

08 CONTROL SYSTEM



- Automatic control system is equipped with HMI, PCS7 and automation software Step7 on the basis of Siemens process control product
- Be able to achieve: real-time and on-line monitoring and parameter trend display; alarm processing, program management and historical data processing
- Provide full-automatic control program for CIP/SIP, pressure maintaining test, harvest, adding material and ventilation

