DASGIP's Bioreactors

Bioreactors for Microbial Application

Bioreactors Microbiology

Technology

DASGIP Parallel Bioreactor Systems combine the convenience of simple systems such as flasks with benefits of bioreactors: The systems' small working volumes allow high experimental throughput with minimal input while precision and automated control offer highly optimized scalable and reproducible processes.

The highly instrumented vessels contribute critically to this advanced system as the monitoring modules and the control system do.

To suit individual requirements DASGIP's bioreactors provide users with a great flexibility in size, shape and instrumentation. Each of them consists of an easy to autoclave glass body and a stainless steel head plate with standardized fittings and ports.

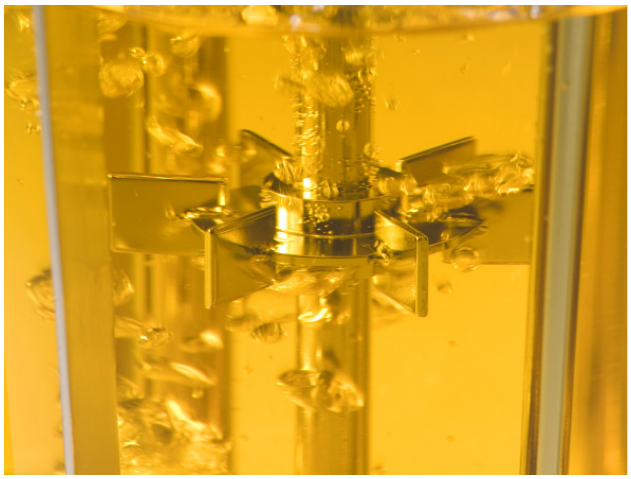
Application

A wide range of different vessels guarantees superior results when working with *E. coli, Pichia pastoris* or other microorganisms.

Different sizes and shapes allow integration into various setups. Working volumes from 60 mL up to 4 L save resources such as media, isotopes and other material. Every vessel can be operated in the DASGIP Bioblock, providing integrated temperature and agitation control for up to four vessels.

Each vessel can be fit out with a great choice of instruments. PH and DO sensors as well as high precision gas and media supply, including the perfusion option, can be installed. DASGIP vessels can be operated with headspace or submerged gassing. DASGIP Bioreactors are suitable for working with anaerobic cells

Up to 16 vessels can be controlled with one fermentation setup. When being part of the Parallel Bioreactor System or other control systems critical process parameters in applications such as strain characterization, process development and gene expression can be controlled easily. For instance, substrate feed can be controlled by the monitored dissolved



oxygen allowing a DO triggered feed. Additional analyzing tools offer deeper insight into the cells' metabolism. The off-gas analyzer, for instance, can calculate oxygen uptake rate, carbon dioxide transfer rate and respiratory quotient in real-time.

Benefits

Instruments for monitoring, substrate feed, gas supply and sampling are implemented via DASGIP's in-house developed head plates. All head plates belong to DASGIP's head plate family. Made of stainless steel, all ports and fittings have a standardized format. This allows highest flexibility in use of different probes as well as instruments for aeration, feed, gassing and sampling. As ports suit industry sensors DASGIP reactors deliver the same quality of monitored data than large scale reactors, i.e. easily scalable results.

The following bioreactors shall give an overview on the different models.

Quality System certified by DQS ■ DIN EN ISO 9001 ■ Reg.-No. 63431

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Reactors

DASGIP Bioblock Stirrer

- **Working Volume:** 60-200 mL (SR0200) and 150-300 mL (SR0400)
- **Agitation:** Magnetic driven stir bar, Speed: 40 -1250 rpm,
- **Instrumentation:** Headplate with five PG13.5 ports and four 6mm ports

  supports pH, DO, OD, redox and temperature sensors, gas supply, liquid addition and removal (media, acid/base), exhaust gas port (optional off-gas condenser), level/antifoam control as well as sampling
- **Aeration:** Headspace and/or submerged gassing with dip tube or sinter glass sparger

DASGIP Bioblock Advanced Stirrer Line SR

- **Working Volumes:** 300-1000 mL (SR0700), 500-1500 mL (SR1000), 500-2000 mL (SR1500)
- **Agitation:**

  Overhead driven Rushton Impeller, Speed: 30-1250 rpm or 100-1600 rpm
- **Instrumentation:** Headplate with seven PG13.5 ports and one 6mm port

  supports pH, DO, OD, redox and temperature sensors, gas supply, liquid addition and removal (media, acid/base), exhaust gas port (optional off-gas condenser), level/antifoam control as well as sampling
- **Aeration:** Headspace or submerged gassing with dip tube, sinter glass sparger or L-sparger

DASGIP Benchtop Bioreactor Line DR

- **Working Volumes:** 0.7-2.7 L (DR03)*, 0.8-3.8 L (DR04)*
- **Agitation:** Overhead driven Rushton Impeller, Speed: 30 – 1250 rpm or 100 - 1600 rpm
- **Instrumentation:** Headplate with eight M18x1.5mm ports and eight 6mm ports (versatile DASGIP compression fittings and adapters available)

  supports pH, DO, OD, redox and temperature sensors, liquid addition and removal (media, acid/base), exhaust gas port (optional off-gas condenser), gas supply, level/antifoam control as well as sampling
- **Aeration:** Headspace or submerged gassing with dip tube, sinter glass sparger or L-sparger

* not suitable for DASGIP Bioblock

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