DASGIP DASbox

for Next Generation Bioprocess Development

DASGIP DASbox

Technology

The DASGIP DASbox is a new and unique mini bioreactor system suitable for microbial fermentation & cell cultivation providing end users the full functionality of industry bioreactors using minimal lab space.

DASbox is designed as a 4-fold modular system, stackable up to 24 or more parallel operating bioreactors. With working volumes of 60 – 250 mL it is the optimal tool for advanced process development. The DASbox features advanced temperature and agitation control, precise monitoring and control of pH, dissolved oxygen (DO), level as well as mass flow controlled gas supply. Requiring only 3 inches/7.7 cm of bench space per bioreactor it is the world's most compact mini bioreactor system. A 24-fold DASbox system takes up approximately 6 feet/1.8 m of lab bench space.

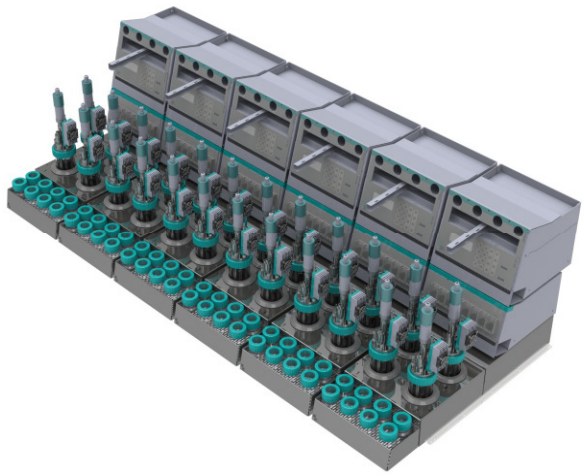
Combined with DASGIP's Software Solutions Suite DASware, it supports the FDA's QbD approach by providing comprehensive information management, integration of 3rd party analyzers, and DoE tools as well as remote access via PC, Notebook, iPhone and iPad.

Applications

The modular DASbox is designed for process development. The small working volumes of 60 – 250 mL makes it a perfect fit for clone & cell line screening as well as media optimization. Bioprocesses are controlled as effectively using the mini bioreactor system as they are in large scale bioreactors, allowing for easy scale-up.

■ Agitation

The highly precise speed control with ranges between 20 and 3000 rpm, allows the system to be used for microbial as well as cell culture applications. Industry



best practice lip seal stirrer assemblies featuring removable and adjustable six-blade Rushton type and three-blade Marine type impellers are available for the unique vessel design. Support for online calculation of the stirrer torque provides feedback on culture viscosity. DASbox includes brushless overhead drives offering long life time and minimal noise.

■ Temperature Control

Precision Class A temperature sensors support independent temperature control between 10 – 60 °C for each bioreactor. The innovative liquid-free temperature control system requires no coolant agent supply, e. g. no chilled water.

■ Feeding and pH Control

In a standard configuration two dosing lines per bioreactor enable continuous nutrient addition and optimal pH control.

■ Gas Mixing

The innovative DASbox gas mixing system is fully mass flow controlled and supports software configurable gassing schemes. It allows for continuous gas mixing with four integrated and independent operating mass flow controllers per bioreactor. Each gas (N_2, air, O_2,

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

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CO_2) for each channel can be software-routed to one of two outputs – headspace or submerged. Depending on the application flow ranges of 0 - 5 sL/h or 0 - 30 sL/h are available.

Exhaust Gas Condenser

The novel liquid-free exhaust gas condenser satisfies users with easy handling by an automatic click in activation and click out deactivation mode. Thermal insulation minimizes condensate formation.

Easy-to-Use

Along with its best-in-class process control technology the DASbox impresses by its smart and user-friendly operation design. A swivel arm simplifies the cable management and an optional telescopic base provides comfortable handling, e.g. during sampling. Unused bioreactor equipment is stored in special trays and media bottles are placed in a detachable container which can easily be connected to the bioreactor holder for easy & save transport, e.g. when autoclaving.

Benefits

Users of the DASbox will benefit from the small footprint of the system, maximum flexibility (number of parallel operating bioreactors) as well as best-in-class control technology and comprehensive DASware Software Solutions. Small working volumes allow for high throughput offering time-saving and cost-effective process development. Industry standard bioreactor functionality eases scale-up and the DASware Software Solution allows for unique bioprocess information management supporting DoE.

Technical Data

DASbox system (4-fold)	
Dimensions (WxDxH)	310 x 800 x 560 mm
Power Supply	90 - 230VAC, Approx. 500W
Weight	Approx. 60 kg
Interface	DTP/DPP on USB
Bioreactors	
Working Volume (Total)	60 – 250 mL (350 mL)
Dimension ID / H_i	64 mm / 120 mm
Head Plate	Stainless Steel, GLS80 screw cap
Temperature Control	
Temperature Range	10 – 60 °C at 25°C
Temperature Sensor	Class A RTD
Agitation Control	
Overhead Drive	Brushless drive, Lip-seal assembly
Speed Range	20 – 3000 rpm
Impellers	Rushton type (6 blade), Marine type (3 blade)
pH Control	
pH Range	pH 0 - 14
Calibration	One or two point
DO Control	
DO Range	0 - 400 % DO
Calibration	One or two point
Gas Mixing	
Inputs	N_2, Air, O_2, CO_2
Flow Control & Mix	16 independent mass flow controllers
Flow Ranges	0 - 5 sL/h, 0 - 30 sL/h
Outputs	2/vessel, software configurable