



LABstar WORKSTATION

PICTURE SHOWS PRODUCT WITH OPTIONS



- Ready to operate workstation, incl. main antechamber and vacuum pump
- PLC controlled with Siemens display
- Automatic regenerable H₂O/O₂ single purifier unit
- Attainable purity <1 ppm H₂O, <1 ppm O₂
- Stainless steel encapsulated blower **MB BL-08**
- Circulation capacity more than 20 m³/h
- World-wide operation using standard power supply
- Integrated high vacuum feedthroughs
- Conforms to **CE**



Technical Data

General Data

Product: Inert gas system **Labstar**

Type: Glovebox with gas purification system

Size: See page 5

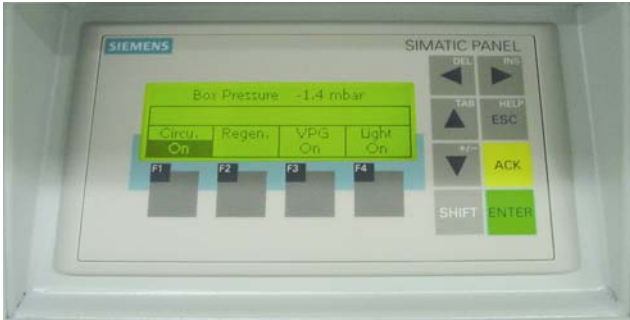
Volume: Approx. 0.8 m³

System Control

Control unit: Programmable logic controller (PLC)

Operation: Operation panel with simulated multi-language operation elements for all glovebox components, foot pedal for box pressure adjustment

Electrical power: 230 V/50-60 Hz, 10 A or 115 V / 50-60 Hz, 20 A or 100 V/ 50-60 Hz, 20 A (power consumption may vary dependent on accessories)



Operation Panel OP 73

Gas Purification

Process

Gas circulation: Closed loop gas recirculation

Gas Purification System

Removal of H₂O and O₂

Working Gas

Inert gas: Nitrogen, Argon or Helium

Attainable Purity

H₂O < 1 ppm, O₂ < 1 ppm

Gas Purification

Purifier

Amount / type: 1 H₂O / O₂ purifier column

Capacity: Oxygen removal: 20 l (standard conditions), moisture removal: 950 g

Material: Stainless steel type 1.4301 (US type 304)

Heater: Integrated

Regeneration

The purifier unit is regenerable

Procedure: Autom. regen. program (PLC controlled)

Regeneration gas: N₂/H₂ mixture (H₂ 3-5 %) or Ar/H₂ mixture (H₂ 3-5 %)

Circulation Unit

Type: Integrated blower **MB BL-08** vacuum-tight, oil-free

Flow rate: 20 m³/h

Vacuum Pump

Type: Rotary vane pump*, oil mist filter, oil recirculation, automatic gas ballast control

Operation: 12 m³/h (10,9 cf/m at 60Hz), dual stage, ultimate vacuum < 3 x 10⁻² mbar

*Dry pump on request

Valves

Main valves: Electro-pneum. valves **MB EPV-40** DN 40

Control valves: **MB LogicSVB** magnetic valve system, DN 6/10

Piping

Main piping: Copper pipe DN 40 KF system*

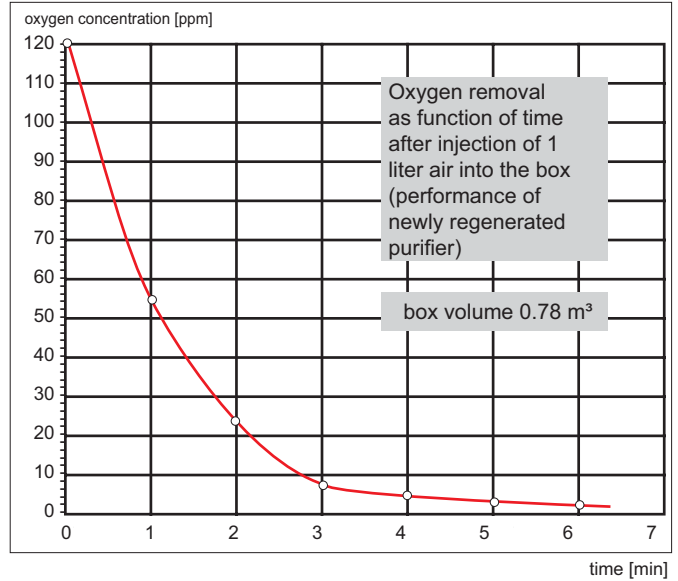
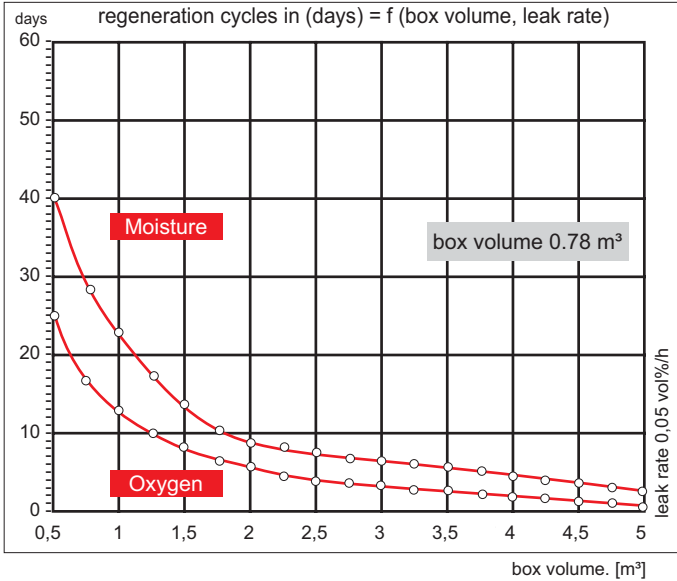
Control pipework: Copper pipe DN 4/8*

* Stainless steel 1.4301 (US type 304) on request

Integral Leak Rate

Less than 10⁻⁵ mbar l/s

Purifier Performance



Glovebox

Type

Glovebox with end panel bolted with sealings

Material: Stainless steel 1.4301 (US type 304), thickness 3 mm

Inside surface: Brushed finish $R_a < 1 \mu\text{m}$ (DIN ISO 1302)

Outside surface: Coated, grey (RAL 7035)

Glovebox inside dimensions: width: 1200 mm, height: 920 mm, depth: 780 mm

Feedthroughs

DN 40 KF: 2 pieces for customers usage (e.g. electrical feedthrough)

Electrical feedthrough: **KF40** included (100, 110 or 230 V)

Dust Filter

MB-BF-L-03® 0.3 μm , class H 13, 1 gas inlet filter / 1 gas outlet filter

Shelves

2 x 3 shelves: Stainless Steel 1.4301 (US type 304) height adjustable

Dimension: length: 500 mm, depth: 220 mm

Box Windows

Inclined panel: Lexan thickness 10 mm*

*safety glass on request

Glovebox

Glove Ports

Type: POM (Polyoxymethylen) 220 mm dia., O-ring sealed

Gloves

Material: Butyl, thickness 0.4 mm*

*other sizes and materials on request

Box Light

Fluorescent lamp: Front mounted

Gas Purification System

Removal of H_2O and O_2

Working Gas

Inert gas: Nitrogen, Argon or Helium

Leak Rate According to ISO 10648-2 (Oxygen Method)

< 0.05 vol%/h typical (Class 1, measured at final acceptance test)

Leak Rate According to ISO 25412 (Press. Change Method)

< 0.05 vol%/h at negative pressure of 10 mbar at constant temp. (measured at final acceptance test)

Main Antechamber

Type

Cylindric type antechamber 390 mm diameter, length 600 mm (inside dimensions)

Material: Stainless steel 1.4301 (US type 304), thickness 2.5 mm

Inside surface: Brushed finish

Outside surface: Coated, grey (RAL 7035)

Sliding Tray

Material: Stainless steel 1.4301 (US type 304)

Doors

Material: Aluminum (AlMg3), anodized, thickness 10 mm

Door lock: Easy to operate spindle-lock with lifting mechanism

Pressure Gauge

Manometer: Analog display

Vacuum / Refill Process

Handling: Manual operation via hand valves

Main Antechamber Operation

Valves

Hand valves (DN 40 vacuum line / DN 8 refill line)

Leak Rate

$<10^{-5}$ mbar l/s

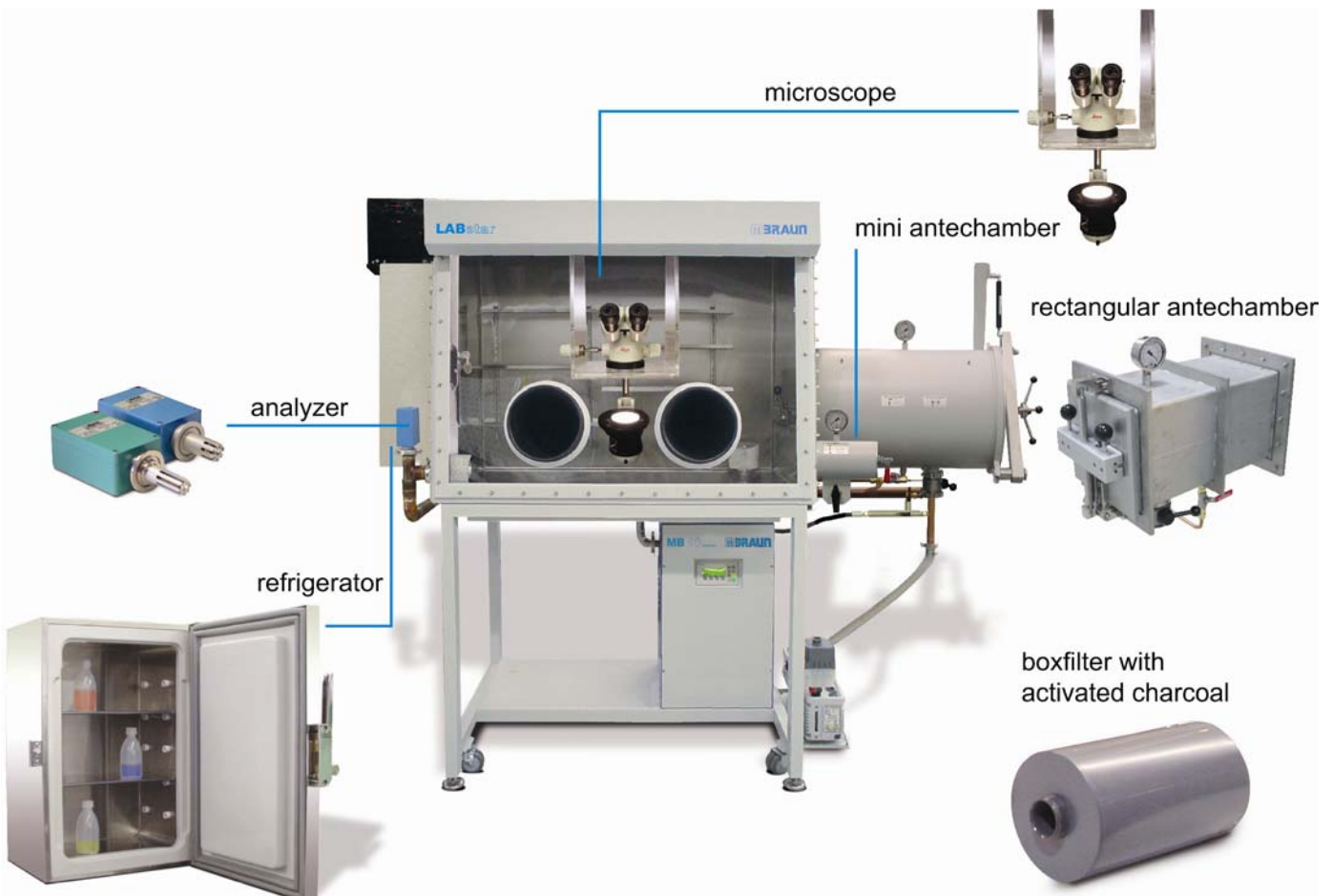
Basic System Configuration

- Glovebox with stand, incl. castors + leveling feet
- Main antechamber
- Gas purification system with vacuum pump RV12
- Shelves
- One piece electrical feedthrough

Optional Features

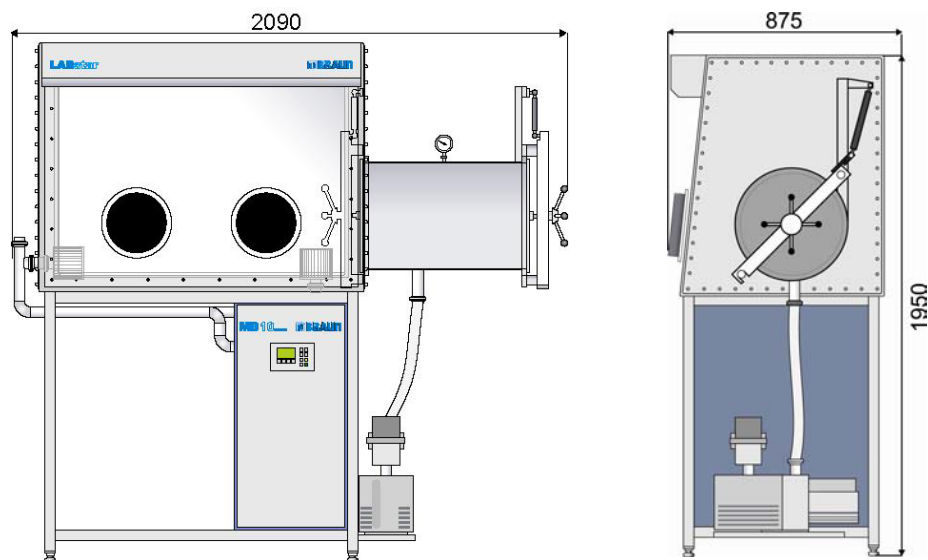
The system can be extended with the following optional components:

- Mini antechamber
- Rectangular antechamber
- H₂O/O₂-analyzer
- Refrigerator
- Microscope equipment
- Stainless steel piping
- Box filter with activated charcoal

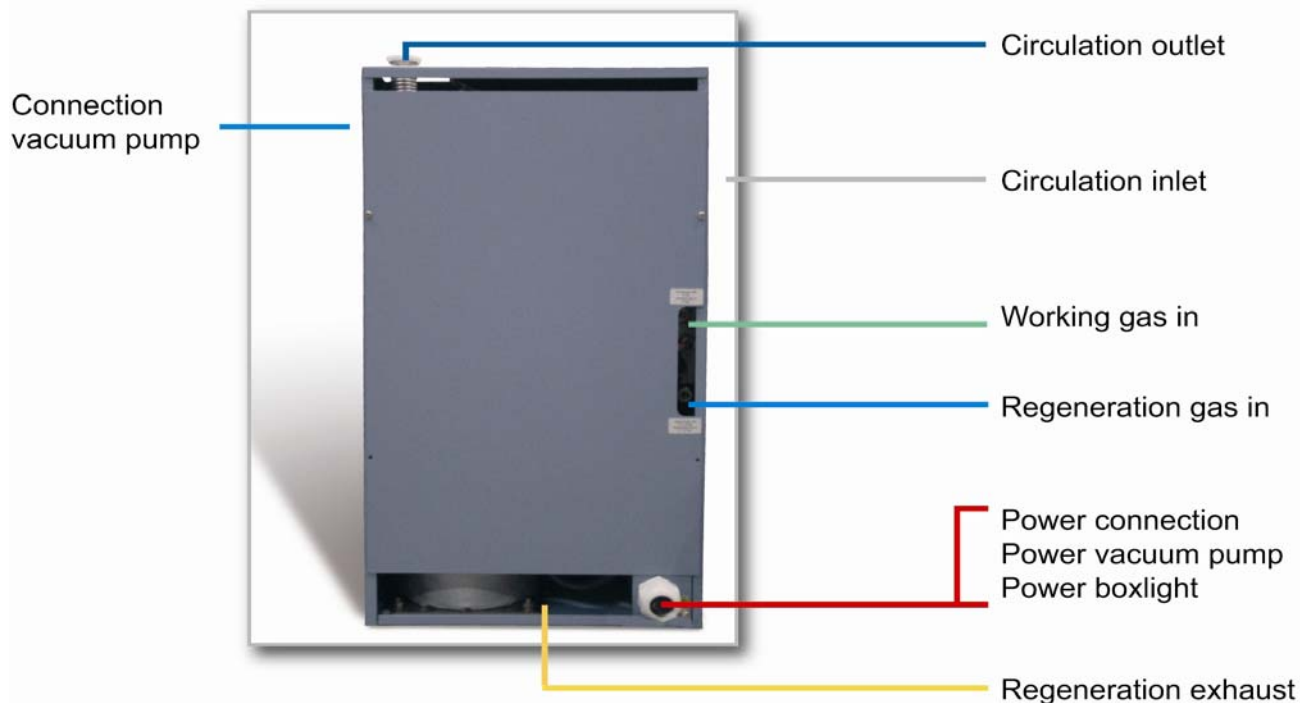


Dimension

The LABSTAR system is available in the following box size and depth: outer dimensions (mm), weight: 400 kg



Utilities



Utilities

Designation	Medium	Pressure (kPa)	Temp. (°C)	Flowrate (l/min)	Connection Ø
Working gas	N ₂ or Ar 4.8	600		250	Swagelok 10 mm
Regeneration gas	Ar/H ₂ 95/5	30 - 50		20 - 25	Swagelok 10 mm
Regeneration gas exhaust	or N ₂ /H ₂ 95/5				Swagelok 10 mm

Our Products at a Glance

From the compact or modular laboratory workstation to the large-scale system for industrial production, **MBRAUN** offers the right solution for every field of application.

Modular gloveboxes, high-performance gas purification systems (purity: <1 ppm H₂O, <1 ppm O₂ or <1 ppm N₂) and a large number of modular auxiliary equipment items are the basis (to assemble individual systems with PLC control).

Standard products

-Workstations

Labstar
Unilab
Labmaster sp / dp

-Modular boxes

MOD type series

-Industrial boxes

IE type series

-Special boxes, encapsulation enclosures

-Vacuum antechambers

Cylindrical design
Rectangular design

-Gas purification systems, closed circulation principle

Removal of O₂ - H₂O - N₂ - CO₂
Flow rates 15 m³/h to 180 m³/h
Special gas recovery systems

-Gas purification systems, continuous-flow

Removal of O₂ - H₂O
Flow rates from 100 l/min to 1000 l/min

-Solvent purification systems (SPS)

-Solvent absorption traps

Chemical absorption principle with absorber material (charcoal/molecular sieve)

-Heat treatment ovens

-Particle removal units

-Box Integrated ovens, temperature up to 600 °C

-High temperature vacuum ovens up to 2500 °C

-Oxygen analyzers 1000 ppm - 25 %

-Oxygen analyzers <1 ppm - 1000 ppm

-Moisture analyzers <1 ppm - 500 ppm

-Box integrations

Microscopes
Spin coaters
Thin film deposition systems/evaporators

-Customer-specific special production lines

Inert gas systems for laser welding technology
Inert gas systems for lithium battery production
Inert gas systems for discharge lamp production

-Process automation

-Process visualization

-Process handling

-Special facilities for inert gas systems

The design and operating principles of MBRAUN products are ideally matched, providing possibilities for subsequent system extensions.



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