

# LABstar

## WORKSTATION

PICTURE SHOWS PRODUCT WITH OPTIONS



- Ready to operate workstation, incl. main antechamber and vacuum pump
- PLC controlled with Siemens display
- Automatic regenerable H<sub>2</sub>O/O<sub>2</sub> single purifier unit
- Attainable purity <1 ppm H<sub>2</sub>O, <1 ppm O<sub>2</sub>
- Stainless steel encapsulated blower **MB BL-08**
- Circulation capacity more than 20 m<sup>3</sup>/h
- World-wide operation using standard power supply
- Integrated high vacuum feedthroughs
- Conforms to **CE**

**UL** US LISTED

## Technical Data

### General Data

**Product:** Inert gas system **Labstar**

**Type:** Glovebox with gas purification system

**Size:** See page 5

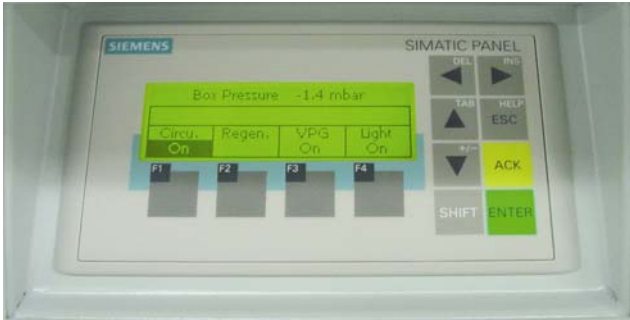
**Volume:** Approx. 0.8 m<sup>3</sup>

### 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 H<sub>2</sub>O and O<sub>2</sub>

### Working Gas

**Inert gas:** Nitrogen, Argon or Helium

### Attainable Purity

H<sub>2</sub>O < 1 ppm, O<sub>2</sub> < 1 ppm

## Gas Purification

### Purifier

**Amount / type:** 1 H<sub>2</sub>O / O<sub>2</sub> 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:** N<sub>2</sub>/H<sub>2</sub> mixture (H<sub>2</sub> 3-5 %) or Ar/H<sub>2</sub> mixture (H<sub>2</sub> 3-5 %)

### Circulation Unit

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

**Flow rate:** 20 m<sup>3</sup>/h

### Vacuum Pump

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

**Operation:** 12 m<sup>3</sup>/h (10,9 cf/m at 60Hz), dual stage, ultimate vacuum < 3 x 10<sup>-2</sup> 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\*

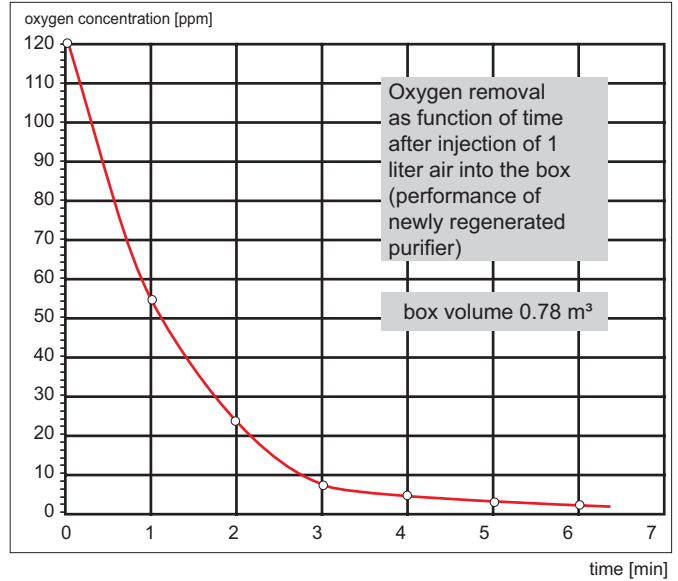
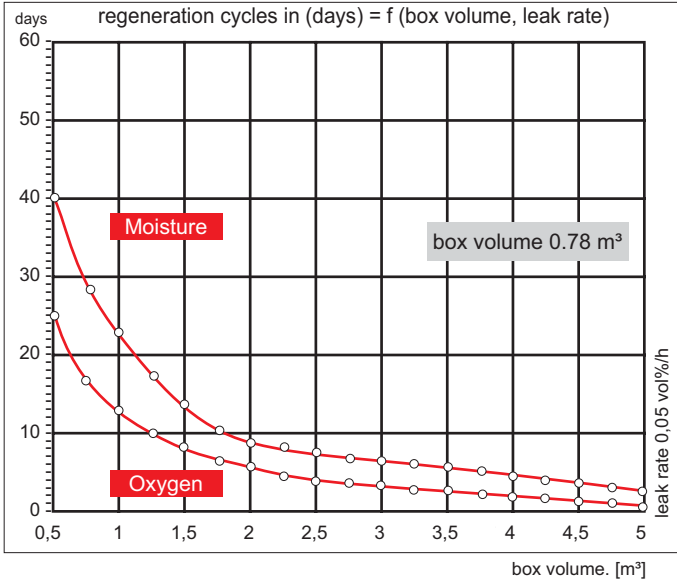
**Control pipework:** Copper pipe DN 4/8\*

\* Stainless steel 1.4301 (US type 304) on request

### Integral Leak Rate

Less than 10<sup>-5</sup> 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**<sup>®</sup> 0.3  $\mu\text{m}$ , 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  $\text{H}_2\text{O}$  and  $\text{O}_2$

#### 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

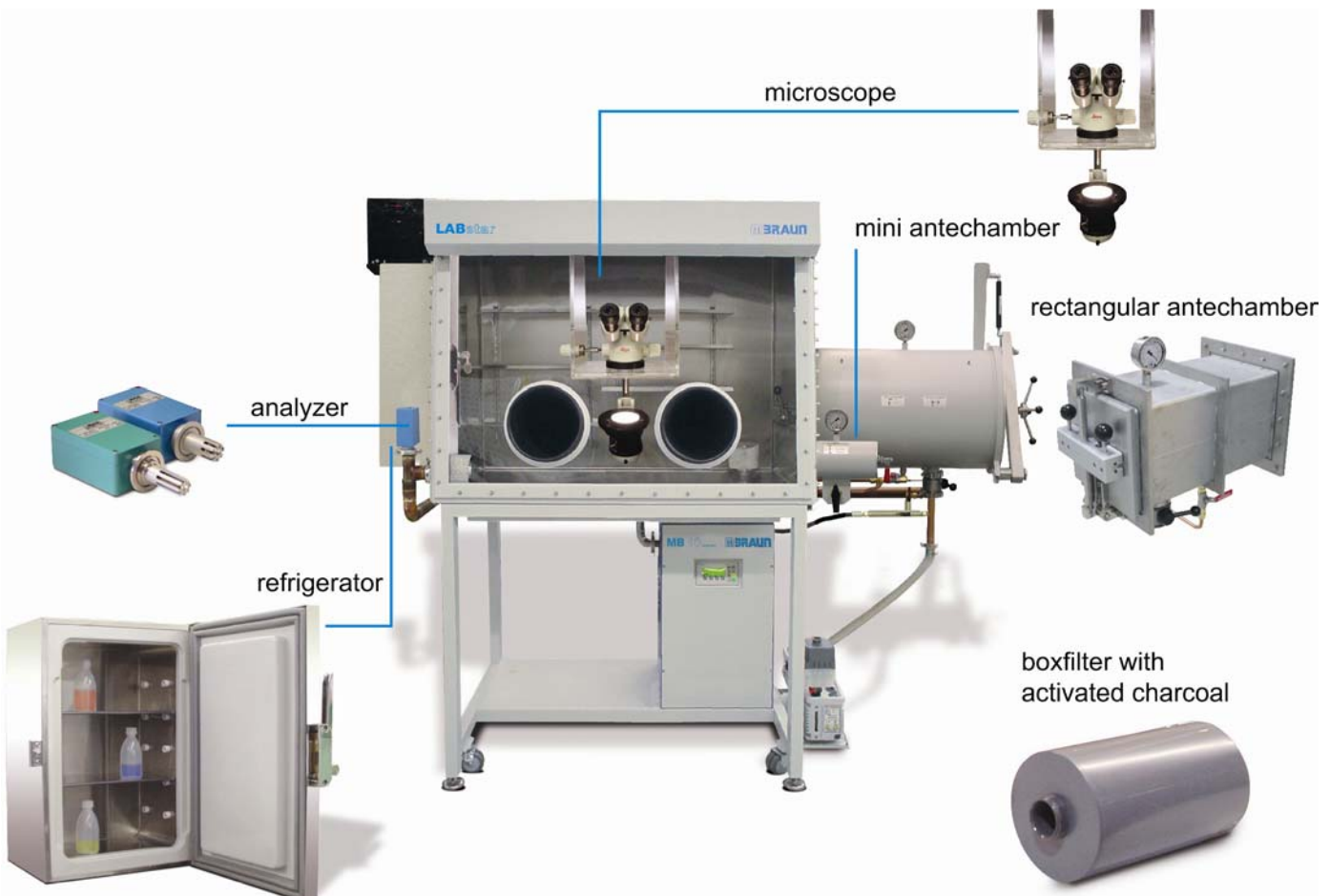
## Basic System Configuration

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

## Optional Features

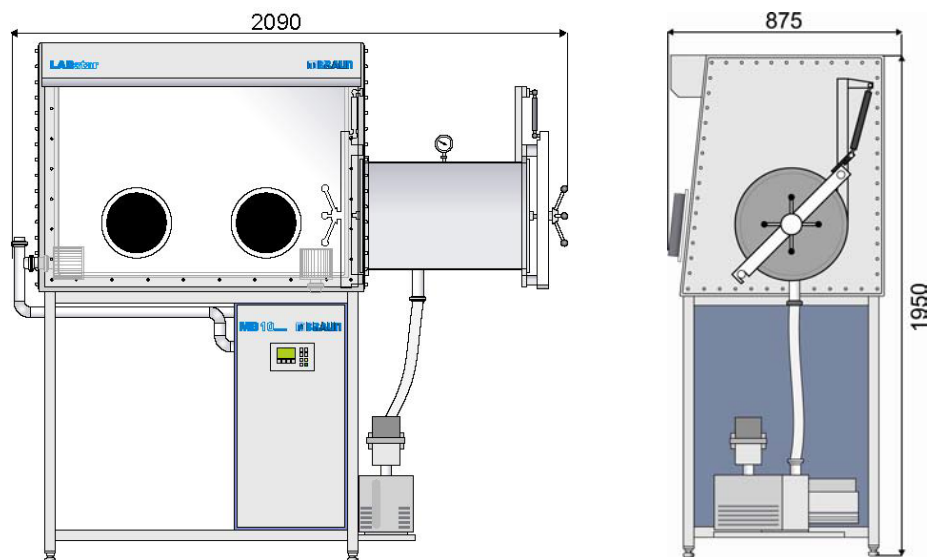
The system can be extended with the following optional components:

- Mini antechamber
- Rectangular antechamber
- H<sub>2</sub>O/O<sub>2</sub>-analyzer
- Refrigerator
- Microscope equipment
- Stainless steel piping
- Box filter with activated charcoal

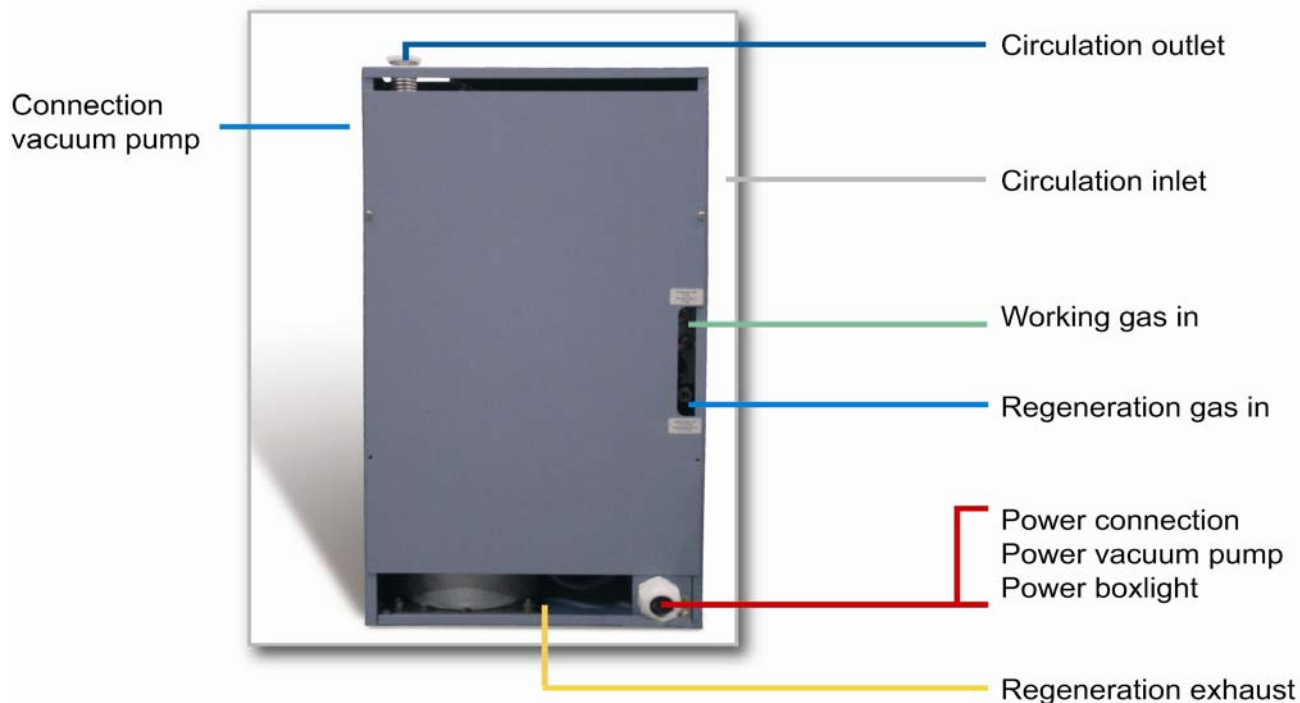


## Dimension

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 <sub>2</sub> or Ar 4.8	600		250	Swagelok 10 mm
Regeneration gas	Ar/H <sub>2</sub> 95/5	30 - 50		20 - 25	Swagelok 10 mm
Regeneration gas exhaust	or N <sub>2</sub> /H <sub>2</sub> 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 H<sub>2</sub>O, <1 ppm O<sub>2</sub> or <1 ppm N<sub>2</sub>) 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 O<sub>2</sub> - H<sub>2</sub>O - N<sub>2</sub> - CO<sub>2</sub>  
Flow rates 15 m<sup>3</sup>/h to 180 m<sup>3</sup>/h  
Special gas recovery systems

#### **-Gas purification systems, continuous-flow**

Removal of O<sub>2</sub> - H<sub>2</sub>O  
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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