



INERTGAS TECHNOLOGY

MBRAUN

LABstar

WORKSTATION



PICTURE SHOWS PRODUCT WITH OPTIONS

- Ready to operate workstation, incl. main antechamber and vacuum pump
- PLC controlled with operation panel
- Automatic regenerable $H_20/0_2$ single purifier unit
- Attainable purity <1 ppm H_2O, <1 ppm O_2
- Stainless steel encapsulated blower MB BL-08
- Circulation capacity more than 20 m^3/h
- World-wide operation using standard power supply
- Integrated high vacuum feedthroughs
- Conforms to CE

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Technical Data

General Data
Product: Inert gas system **LABstar**
Type: Glovebox with gas purification system
Size: See page 5
Volume: Approx. 0.8 m³ / 1,4 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

Gas Purification

Process
Gas circulation: Closed loop gas recirculation

Gas Purification System
Removal of H_2O and O_2

Working Gas
Inert gas: Nitrogen, Argon or Helium

Attainable Purity
H_2O < 1 ppm, O_2 < 1 ppm

Gas Purification

Purifier
Amount / type: 1 H_2O / O_2 purifier column
Capacity: Oxygen removal: 20 l (standard conditions), moisture removal: 2400 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_2/H_2 mixture (H_2 3-5 %) or Ar/H_2 mixture (H_2 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

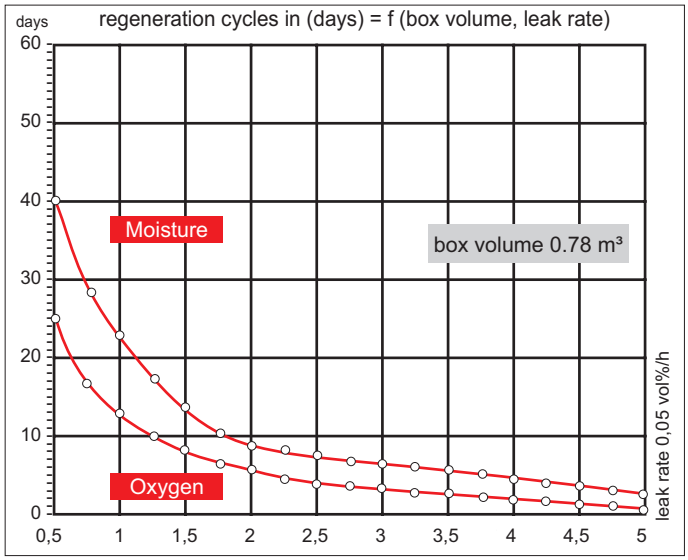
Valves
Main valves: Electro-pneum. valves **MB EPV-40** DN 40
Control valves: **MB LogicSVB** magnetic valve system, DN 6/10

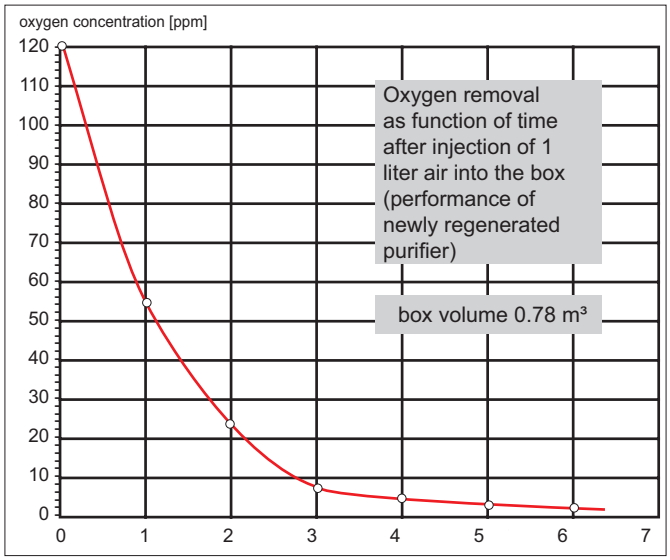
Piping
Main piping: Copper pipe DN 40 KF system*
Control pipework: Copper pipe DN 4/8*
* Stainless steel 1.4301 (US type 304) on request

Integral Leak Rate
Less than 10^{-5} mbar l/s

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Purifier Performance





Glovebox

Type
Glovebox with bolted side panels
Material: Stainless steel 1.4301 (US type 304), thickness 3 mm
Inside surface: Brushed finish R_a <1 µm (DIN ISO 1302)
Outside surface: Coated, grey (RAL 7035)
Glovebox inside dimensions: width: 1200 mm/ 1950 mm, height: 920 mm, depth: 780 mm

Feedthroughs
DN 40 KF: 2 pieces for customers usage (e.g. electrical feedtrough)
Electrical feedtrough: 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
6 shelves (=3 levels): Stainless steel 1.4301 (US type 304) height adjustable
Dimension: length: 1000 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

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)

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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)
*rectangular on request

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

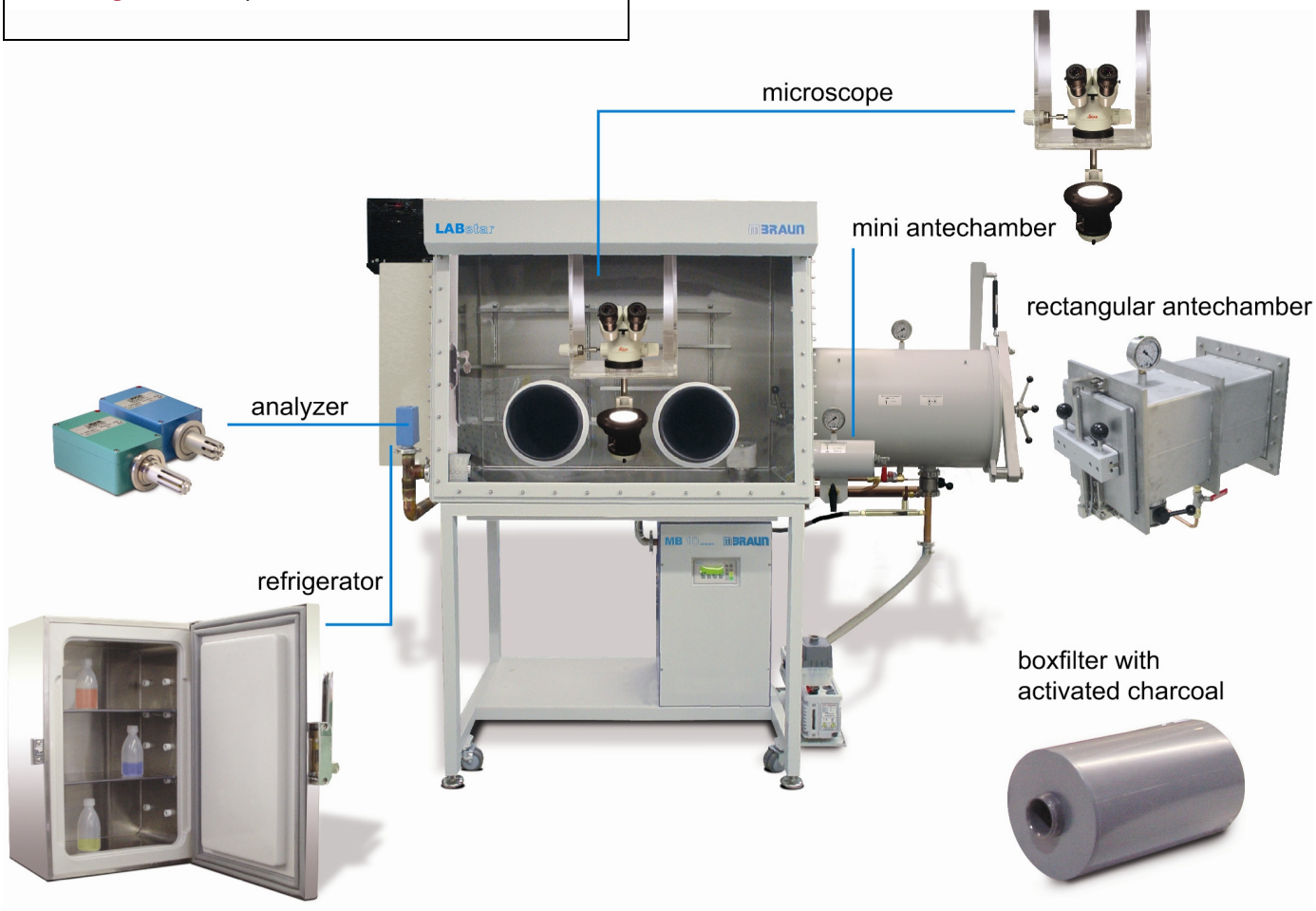
Basic System Configuration

- 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:

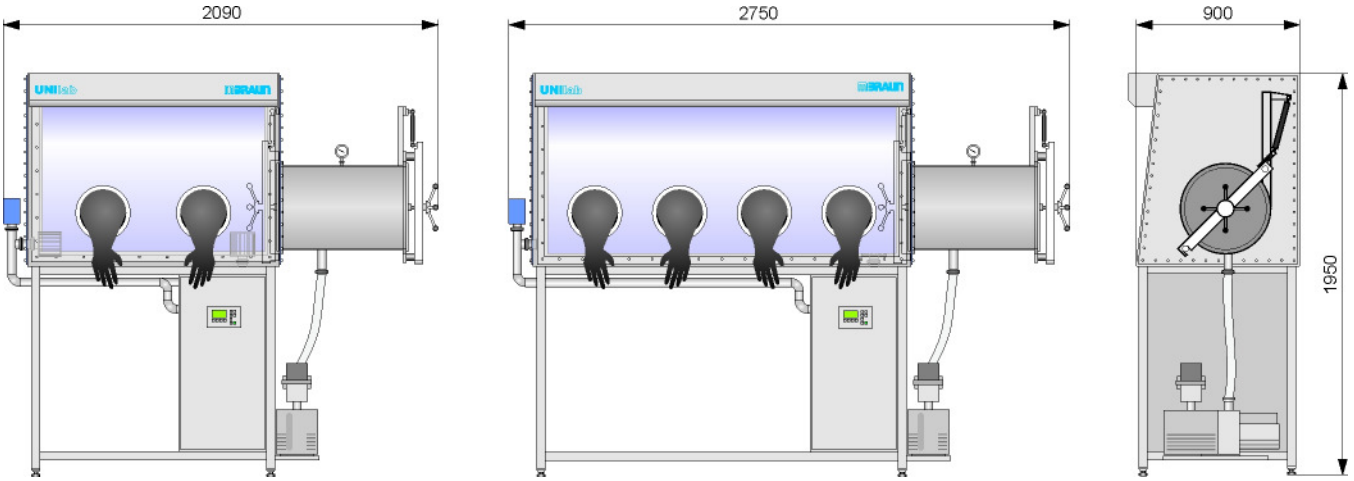
- Mini antechamber
- H_2O/O_2-analyzer
- Refrigerator
- Box filter with activated charcoal
- Microscope equipment
- Stainless steel piping



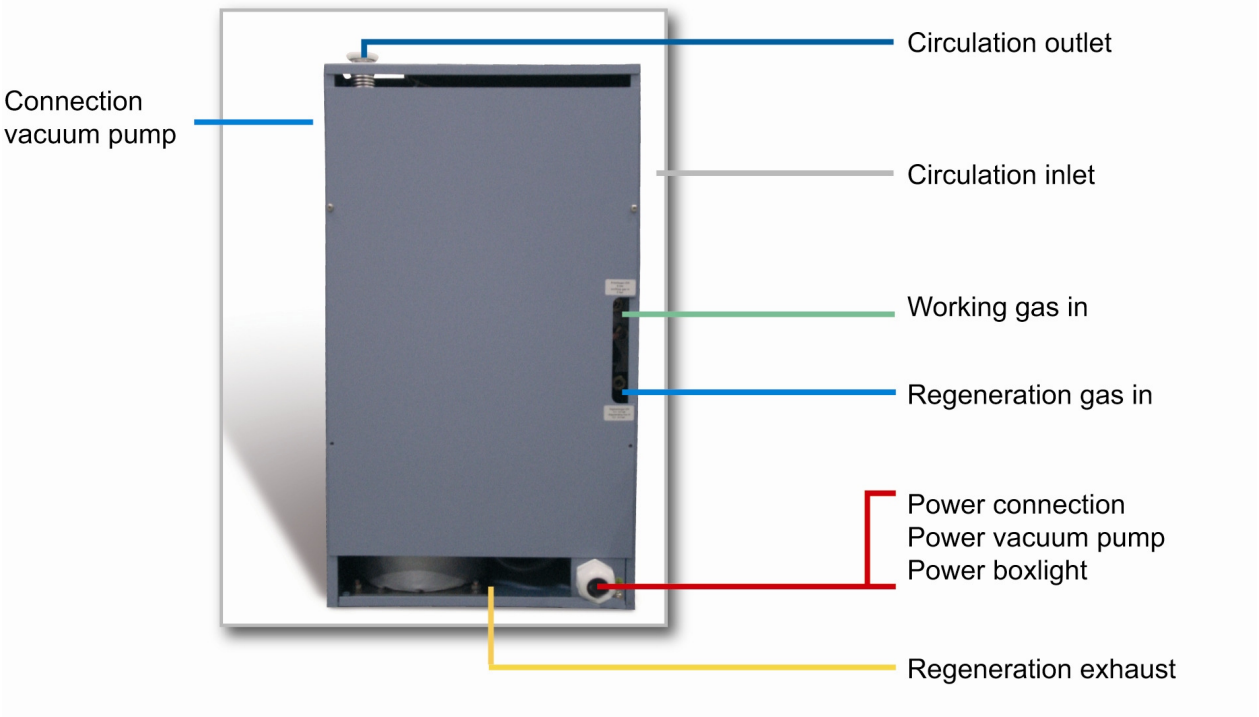
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Dimension

The **UNILAB** system is available in the following box sizes and depth: outer dimensions (mm), weight: 400 kg/550 kg



Utilities

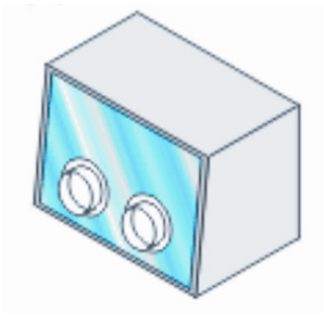
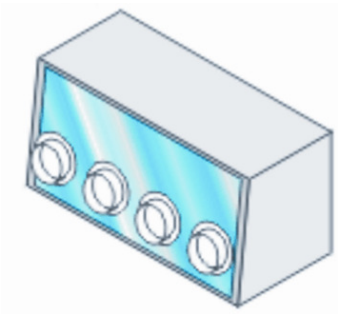


Utilities

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

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Box Volume Table

	approx. 0.8 m³	approx. 1.4 m³
Box **depth** 780 mm		



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