



turning ideas into solutions

MBRAUN

LABstar

WORKSTATION



PICTURE SHOWS LABSTAR GLOVEBOX WITH OPTIONAL FEATURES

- PLC controlled
- Ready to operate workstation, incl. main antechamber and vacuum pump
- Automatic regenerable H₂O/O₂ single purifier unit
- Attainable purity <1 ppm H₂O, <1 ppm O₂
- World-wide operation using standard power supply
- Integrated high vacuum feedthroughs
- Conforms to CE



INERTGAS TECHNOLOGY

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

(Optional Touch Screen Controller Available)

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

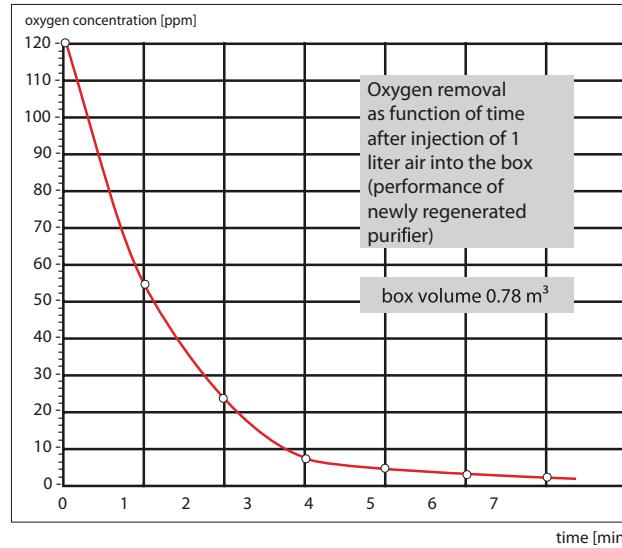
Piping

Main piping: Stainless steel 304 DN 40 KF
Control pipework: Stainless steel 304 DN 4/8

Integral Leak Rate

Less than 10⁻⁵ mbar l/s

Purifier Performance



Glovebox

Type

Glovebox with bolted side panels

Material: Stainless steel 304, thickness 3 mm

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

Outside surface: Coated, White (RAL 9003)

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 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

3 shelves: Stainless steel 304 height adjustable

Dimension: length: 750mm, 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)

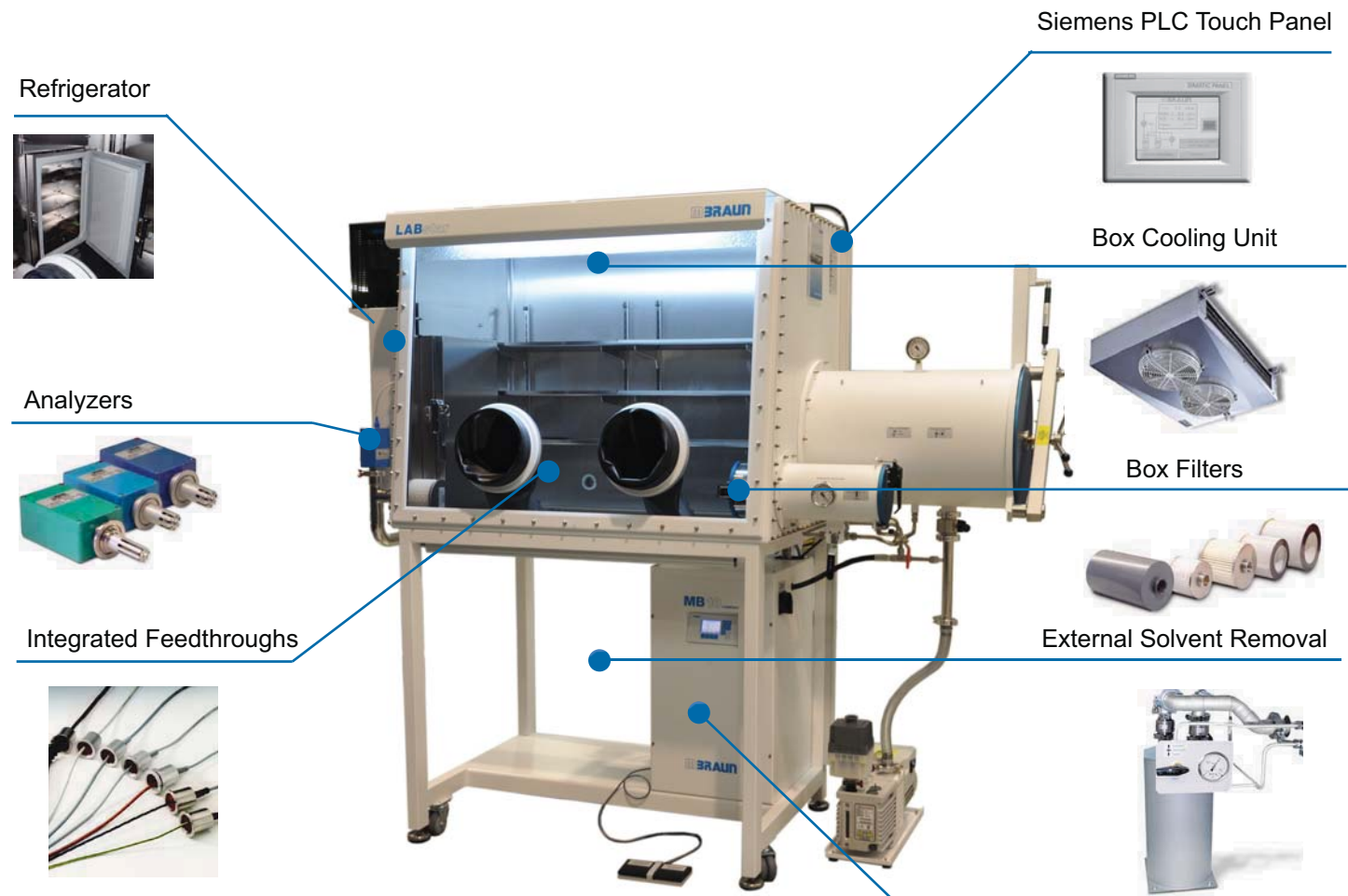
Leak Rate According to ISO 25412 (Press. Change Method)

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

LABstar

Main Antechamber	
Type	Cylindric type antechamber* 390 mm diameter, length 600 mm (inside dimensions) Material: Stainless Steel 304, thickness 2.5 mm Inside surface: Brushed finish Outside surface: Coated, White(RAL 9003) <small>*rectangular on request</small>
Sliding Tray	Material: Stainless Steel 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	
	<ul style="list-style-type: none"> • Glovebox with stand, incl. castors + leveling feet • Main antechamber • Gas purification system with vacuum pump RV12 • Shelves (adjustable) • One piece electrical feedthrough
Optional Features	
	<p>The system can be upgraded with the following optional components:</p> <ul style="list-style-type: none"> • Siemens PLC touch screen • Mini antechamber • H₂O/O₂-analyzer • Refrigerator • Box filter with activated charcoal • External Solvent Absorber • Microscope equipment • Other options available



Siemens PLC Touch Panel

Refrigerator



Box Cooling Unit



Analyzers



Box Filters



Integrated Feedthroughs



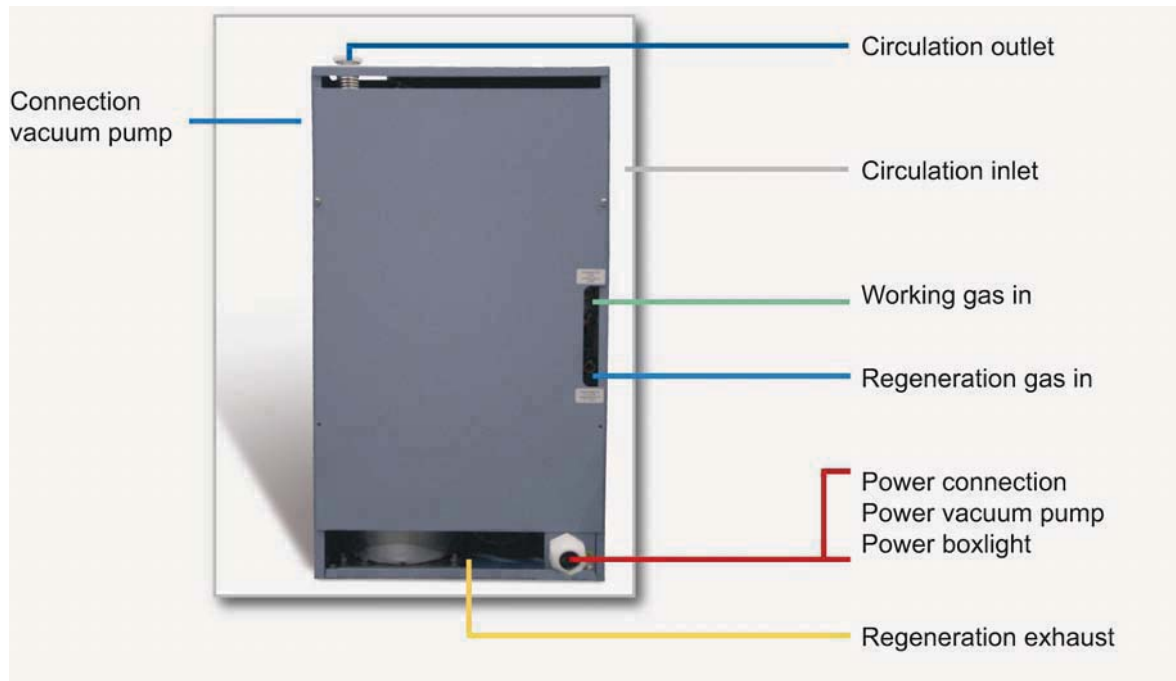
External Solvent Removal



MB 10G Inert Gas Purifier

*LABstar glovebox pictured with options

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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