

— turning ideas into solutions

mBRAUN

MB-20-G INERT GAS PURIFICATION SYSTEM



INERT GAS TECHNOLOGY

- Single reactor column on mobile platform
- Optimum performance for attached enclosure volumes $\leq 5 \text{ m}^3$
- Removal of oxygen and moisture, $<1 \text{ ppm}$
- Automated box pressure and regeneration control
- Negative and/or positive pressure operation
- PLC with large multi-color touch panel display
- **ECO** Mode operation feature available
- Optional control and safety features available



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MB-20-G GAS PURIFIER



MBRAUN's MB-20-G gas purifier is a mobile inert gas purification system that achieves and maintains ultra-low levels of oxygen and moisture in inert enclosures.

Other features of the MB-20-G include a powerful Siemens control unit, multi-color touch panel display, vacuum pump, frequency controlled blower and an open platform so that the purifier can be easily retro-fitted with additional upgrades as it becomes necessary.

An integrated heat exchanger helps to keep the temperature inside the connected inert enclosure at optimal levels. Built on MBRAUN's high quality standards all subcomponents of the MB-20-G are made of stainless steel and are manufactured from distinguished suppliers.

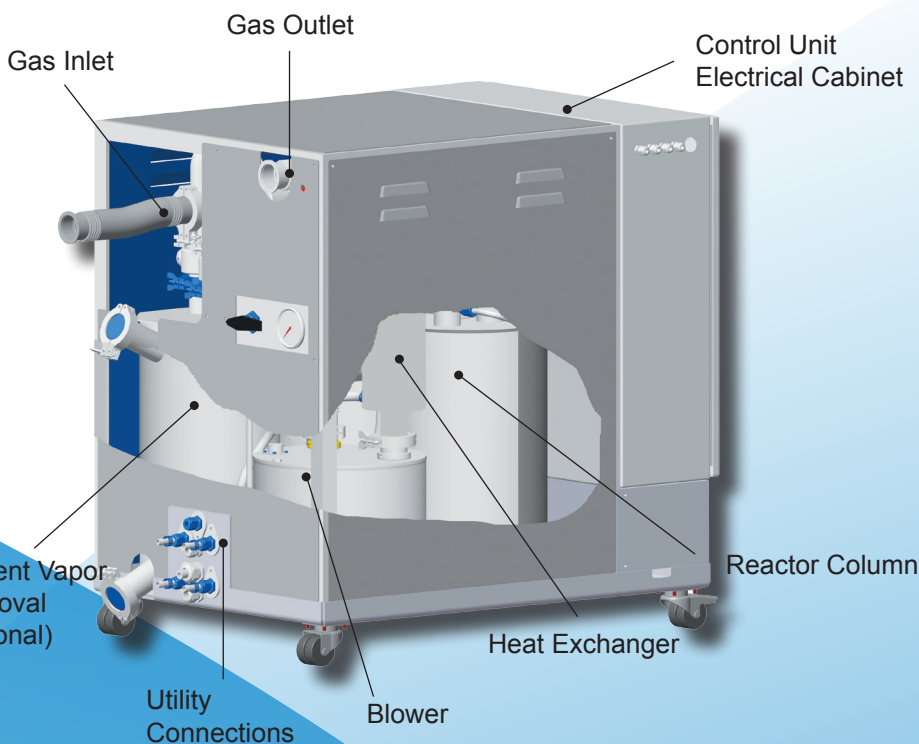
The MB-20-G can also be equipped with an energy saving **ECO Mode**. This includes an automatic blower speed reduction at night (programmable time), as well as an automatic switch off of the vacuum pump. In **ECO Mode** operation the box pressure regulation in the range ≥ 2 mbar is done without the vacuum pump.

Together, the MB-20-G purifier with MBRAUN's proprietary oxygen and moisture analyzer probes provide accurate and consistent monitoring of your working gas atmosphere with nearly maintenance free operation.

Please contact us if you have questions choosing the right gas purification system for your application.



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MB-20-G TECHNICAL DATA:

| | |
|---|---|
| Operation principle | Closed loop recirculation |
| Attainable purity level | Moisture <1 ppm, Oxygen <1 ppm |
| Recommended enclosure volume | Up to 5 m ³ |
| Number of purification lines per purifier | 1 |
| Number of reactor columns per line | 1 |
| Number of reactor columns per purifier | 1 |
| Reactor capacity per purification line* | |
| (O ₂) Oxygen | 36 l |
| (H ₂ O) Moisture | 1300 g |
| Regeneration | Automatic regeneration sequence |
| Control unit | Siemens PLC |
| Display | Large multi-color touch panel |
| Box pressure control | Automatic pressure control with foot switch (± 15 mbar) |
| Vacuum pump* | Rotary vane pump with 17 m ³ h ⁻¹ (10 CFM) |
| Blower (50 Hz / 60 Hz)* | Frequency controlled with speed up to 88 m ³ /h |
| Main and side piping | Stainless steel 1.4301 (SUS 304) |
| Main and control valves | Electro-pneumatic |
| Electrical (FLA) (without options) | 230 V/50-60 Hz, 6.4 A, 115 V/50-60 Hz, 13 A, 100 V/50-60 Hz, 15 A |
| Cooling water (optional) | 2 bar, (3-5 l/min) |
| Regeneration gas | N ₂ /H ₂ mix. (H ₂ 2-10 %) or Ar/H ₂ mix. (H ₂ 2-10 %) |
| Working gas | Nitrogen, Argon, (optional Helium) |
| Size | (L) 1040 mm, (W) 630 mm, (H) 850 mm |
| Weight | 140 kg (without vacuum pump) |
| Optional feature | Moisture and oxygen analyzer |
| Optional feature | ECO Mode (with new panel) |
| Optional feature | Solvent vapor removal (internal and external) |
| Optional feature | Regenerable solvent vapor removal |
| Optional feature | Recirculation chiller for optimal working environment (ULK) |
| Optional feature | Dry pump upgrade |
| Optional feature w/ MBRAUN glovebox | Automatic box purge unit |
| Optional feature w/ MBRAUN glovebox | Antechamber automatic (AC cycle), Interlock (door lock) |
| Optional feature w/ MBRAUN glovebox | Freezer or box cooling |

*Dependent upon operating conditions. For details refer to <http://www.mbraun.com/knowledge-center>

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MB-200-G

INERT GAS PURIFICATION SYSTEM



INERT GAS TECHNOLOGY

- Double reactor columns for continuous 24/7 operation
- Optimum performance for attached enclosure volumes up to 5 m³
- Removal of oxygen and moisture, <1 ppm
- Automated box pressure and regeneration control
- Negative and/or positive pressure operation
- PLC with multi-color touch panel display
- **ECO** Mode operation feature available
- Optional control and safety features available



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MB-200-G GAS PURIFIER



The MBRAUN MB-200-G gas purifier has been specifically designed for both university and industrial applications. Two reactor columns allow continuous operation. One regenerable reactor column per line maintains ultra-low levels of oxygen and moisture in inert enclosures.

Other features of the MB-200-G include a powerful Siemens control unit, a multi-color touch panel, vacuum pump, frequency controlled blower and an open platform so that the purifier can be easily retro-fitted with additional upgrades as it becomes necessary.

An integrated heat exchanger helps to keep the temperature inside the connected inert enclosure at optimal levels. Built on MBRAUN's high quality standards all subcomponents of the MB-200-G are made of stainless steel and are manufactured from distinguished suppliers.

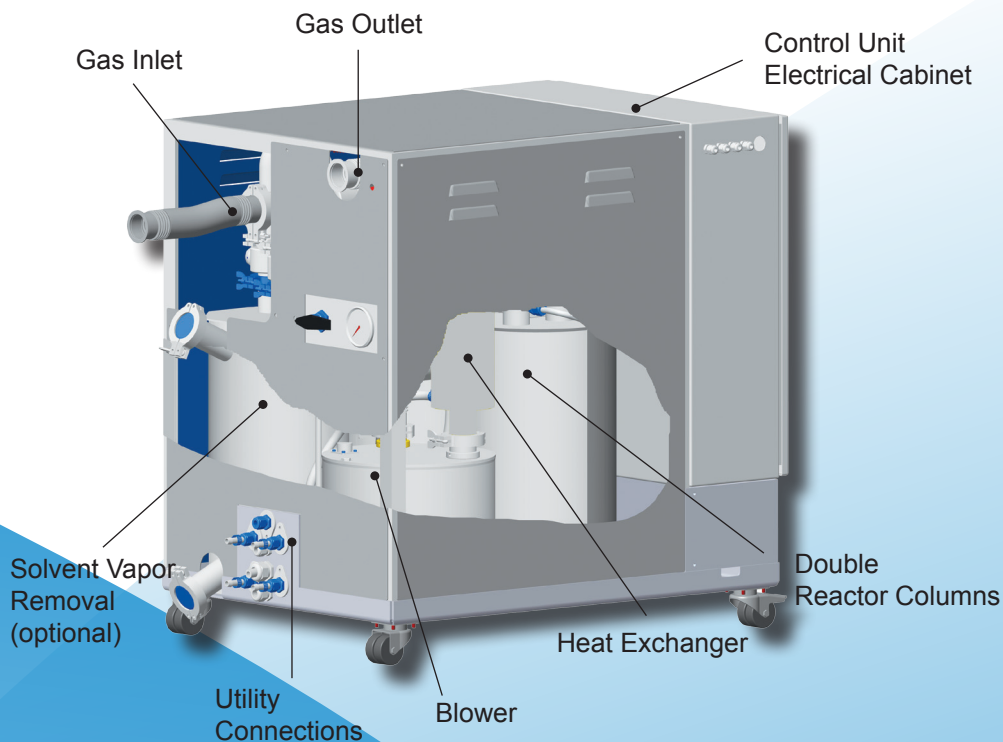
The MB-200-G can also be equipped with an energy saving **ECO Mode**. This includes an automatic blower speed reduction at night (programmable time), as well as an automatic switch off of the vacuum pump. In **ECO Mode** operation the box pressure regulation in the range ≥ 2 mbar is done without the vacuum pump.

Together, the MB-200-G purifier with MBRAUN's proprietary oxygen and moisture analyzer probes provide accurate and consistent monitoring of your working gas atmosphere with nearly maintenance free operation.

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MB-200-G TECHNICAL DATA:

| | |
|---|---|
| Operation principle | Closed loop recirculation |
| Attainable purity level | Moisture <1 ppm, Oxygen <1 ppm |
| Recommended enclosure volume | Up to 5 m ³ |
| Number of purification lines per purifier | 2 |
| Number of reactor columns per line | 1 |
| Number of reactor columns per purifier | 2 |
| Reactor capacity per purification line* | |
| (O ₂) Oxygen | 36 l |
| (H ₂ O) Moisture | 1300 g |
| Regeneration | Automatic regeneration sequence |
| Control unit | Siemens PLC |
| Display | Large multi-color touch panel |
| Box pressure control | Automatic pressure control with foot switch (± 15 mbar) |
| Vacuum pump* | Rotary vane pump with 17 m ³ h ⁻¹ (10 CFM) |
| Blower (50 Hz / 60 Hz)* | Frequency controlled with speed up to 88 m ³ /h |
| Main and side piping | Stainless steel 1.4301 (SUS 304) |
| Main and control valves | Electro-pneumatic |
| Electrical (FLA) (without options) | 230 V/50-60 Hz, 8 A, 115 V/50-60 Hz, 16 A, 100 V/50-60 Hz, 18.5 A |
| Cooling water (optional) | 2 bar, (3-5 l/min) |
| Regeneration gas | N ₂ /H ₂ mix. (H ₂ 2-10 %) or Ar/H ₂ mix. (H ₂ 2-10 %) |
| Working gas | Nitrogen, Argon, (optional Helium) |
| Size | (L) 1040 mm, (W) 630 mm, (H) 850 mm |
| Weight | 160 kg (without vacuum pump) |
| Optional feature | Moisture and oxygen analyzer |
| Optional feature | ECO Mode (with new panel) |
| Optional feature | Solvent vapor removal (internal and external) |
| Optional feature | Regenerable solvent vapor removal |
| Optional feature | Recirculation chiller for optimal working environment (RCC) |
| Optional feature | Dry pump upgrade |
| Optional feature w/ MBRAUN glovebox | Automatic box purge unit |
| Optional feature w/ MBRAUN glovebox | Antechamber automatic (AC cycle), Interlock (door lock) |
| Optional feature w/ MBRAUN glovebox | Freezer or box cooling |

*Technical note: Dependent upon operating conditions. For details refer to <http://www.mbraun.com/knowledge-center>

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MB-300-G

INERT GAS PURIFICATION SYSTEM



INERTGAS TECHNOLOGY

- Double reactor columns for continuous 24/7 operation
- Optimum performance for attached enclosure volumes up to 12 m³
- Removal of oxygen and moisture, <1 ppm
- Automated box pressure and regeneration control
- Negative and/or positive pressure operation
- PLC with multi-color touch panel display
- Optional control and safety features available



MBRAUN's MB-300-G gas purifier has been specifically designed for industrial applications. Features include increased capacity regenerable double reactor columns for maintaining ultra-low levels of oxygen and moisture in inert enclosures up to 12 m³ in volume.

Other features of the MB-300-G include a more robust circulation blower and vacuum pump to ensure consistent performance under the most rigorous conditions. A more comprehensive Siemens touch panel display and PLC control system in order to provide a greater amount of flexibility for custom integrations is also a standard feature.

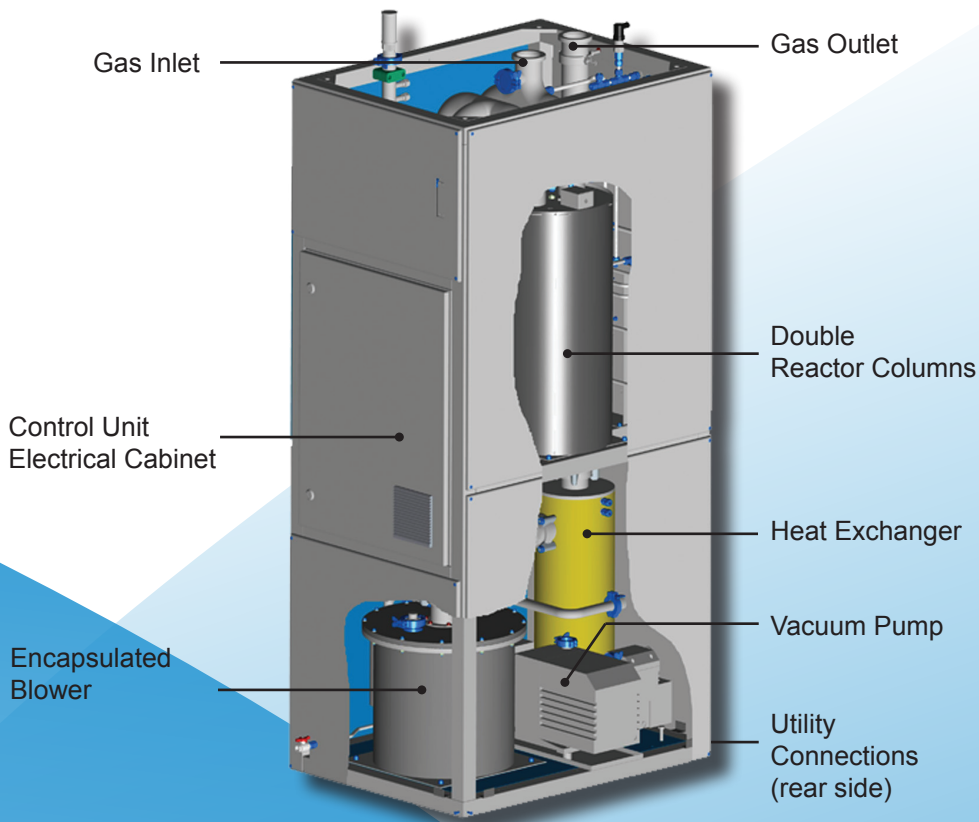
An integrated heat exchanger helps to keep the temperature inside the connected inert enclosure at optimal levels. Built on MBRAUN's high quality standards all subcomponents are made of stainless steel and are manufactured from distinguished suppliers.

MBRAUN offers a wide range of options compatible with the MB-300-G such as box purge units, solvent vapor removal, dry pumps and MBRAUN's proprietary oxygen and moisture analyzers.

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MB-300-G TECHNICAL DATA:

| | |
|---|---|
| Operation principle | Closed loop recirculation |
| Attainable purity level | Moisture <1 ppm, Oxygen <1 ppm |
| Recommended enclosure volume | Up to 12 m ³ |
| Number of purification lines per purifier | 2 |
| Number of reactor columns per line | 1 |
| Number of reactor columns per purifier | 2 |
| Reactor capacity per purification line* | |
| (O ₂) Oxygen | 91 l |
| (H ₂ O) Moisture | 4000 g |
| Regeneration | Automatic regeneration sequence |
| Control unit | Siemens PLC |
| Display | Large multi-color touch panel |
| Box pressure control | Automatic pressure control with foot switch (±15 mbar) |
| Vacuum pump* | Rotary vane pump with 25 m ³ h ⁻¹ (14.5 CFM) |
| Blower (50 Hz / 60 Hz)* | Frequency controlled with speed up to 250 m ³ /h |
| Main and side piping | Stainless steel 1.4301 (SUS 304) |
| Main and control valves | Electro-pneumatic |
| Electrical (FLA) (without options) | 230 V/50-60 Hz, 11 A, 115 V/50-60 Hz, 22 A, 100 V/50-60 Hz, 25 A |
| Cooling water (optional) | 2 bar, (4-5 l/min) |
| Regeneration gas | N ₂ /H ₂ mix. (H ₂ 2-10 %) or Ar/H ₂ mix. (H ₂ 2-10 %) |
| Working gas | Nitrogen, Argon, (optional Helium) |
| Size | (L) 730 mm, (W) 980 mm, (H) 2040 mm |
| Weight | 475 kg (without vacuum pump) |
| Optional feature | Moisture and oxygen analyzer |
| Optional feature | Solvent vapor removal (internal and external) |
| Optional feature | Regenerable solvent vapor removal |
| Optional feature | Recirculation chiller for optimal working environment (RCC) |
| Optional feature | Dry pump upgrade |
| Optional feature w/ MBRAUN glovebox | Automatic box purge unit |
| Optional feature w/ MBRAUN glovebox | Antechamber automatic (AC cycle), Interlock (door lock) |
| Optional feature w/ MBRAUN glovebox | Freezer or box cooling |

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