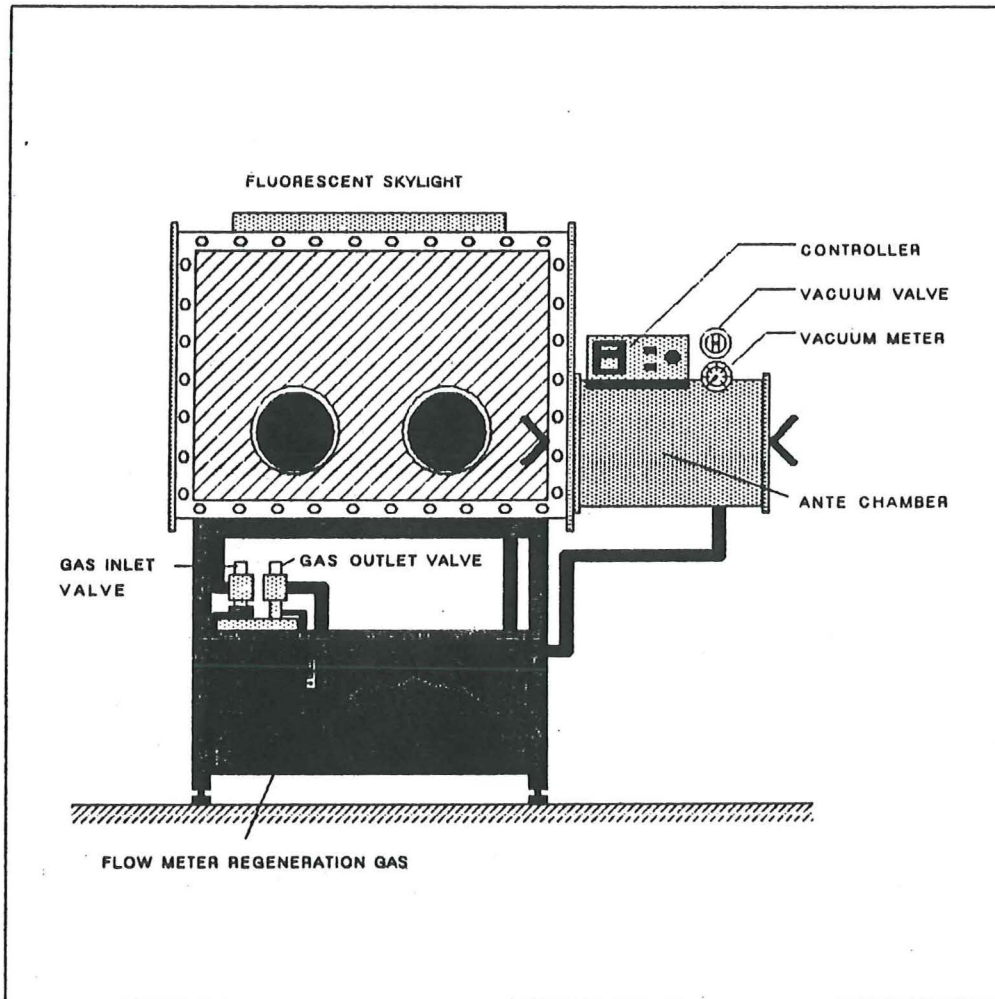


MANUAL MB-150-M



BRAUN
WEST GERMANY

14 Marin Way
Statham NJ 03885

603-773-9333

Paul 8246

3. Purification operation

- 3.1 Turn on cooling water, approx. 3 - 5 l/min., max. 1 gal/min.

O P E N M A I N - H A N D - V A L V E S
(YELLOW HEAD) O N T H E P U R I F I E R -
C O L U M N - S E E F I G U R E 4, P A G E 7.2 -

Turn on the blower switch. Green control lamp lights up. Circulation blower is in operation. During the circulation operation, the main-hand-valves must be open.

PLEASE NOTE:

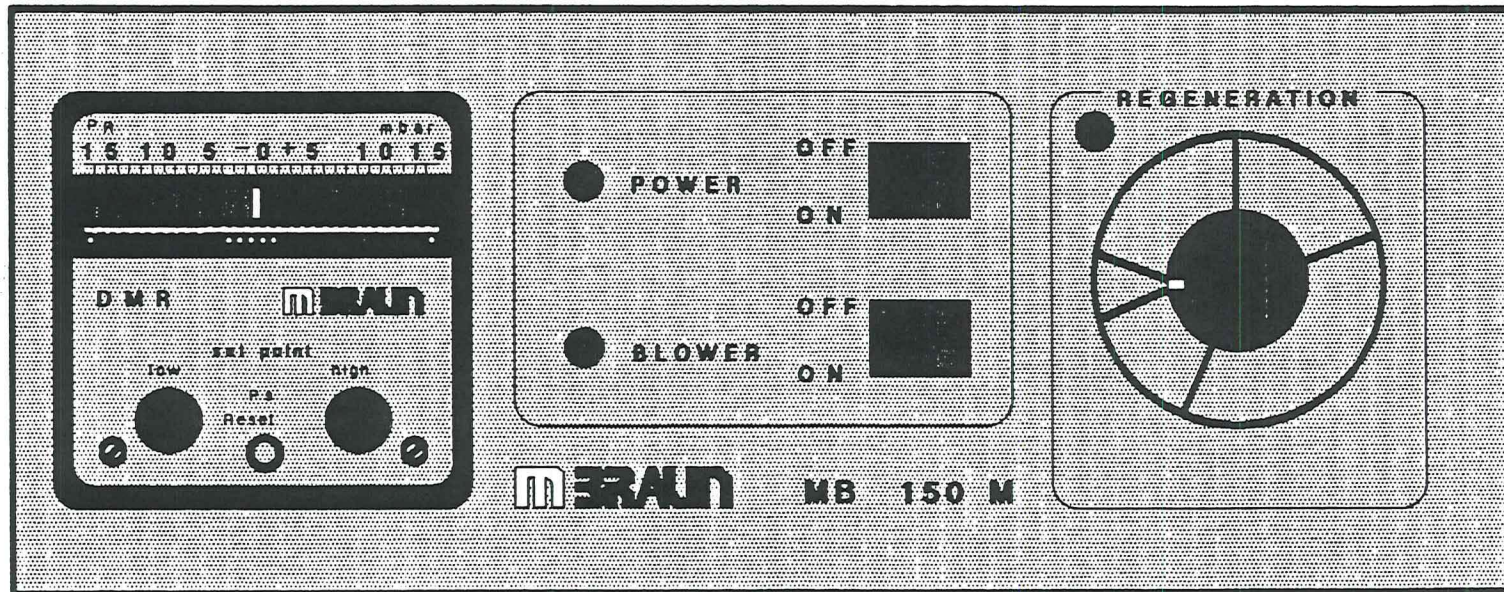
DO NOT START CIRCULATION MODE WHEN MAIN-
VALVES ON PURIFIER ARE CLOSED!
BLOWER MAY BE DAMAGED!

4. Regeneration operation

- 4.1 To avoid total exhaustion of the filter capacity, the system should be regenerated approximately once every week. This applies for normal use and permanent operation of the box system.
If H₂O and O₂ analytic devices are used, the time for regeneration can be determined from the measured values.
It is recommended that the H₂O and O₂ values be registered with a recorder so that tendencies can be recognized in time.
- 4.2 Switch off the circulation operation by turning off the blower. Green light goes out. Blower switches off.
- 4.2.1 Close hand-valves on purifier columns.
- 4.3 Before starting the regeneration it is recommended to check the programm manually: Set regeneration programm knob at "purging", purging-valve for regeneration gas opens. Set the pressure at the bottle reduction valve at a value which indicates a volume of approx. 15 - 20 l/min. at the flow rate gauge.
This is equivalent to a pre-pressure of approx. 0.3 - 0.4 bar.
- 4.4 After setting the regenerating gas purging amount, turn the regenerating program dial to the position STOP.

Figure 2:

CONTROLLER FOR MB-150-M



- 4.5 Continue to turn the program dial clockwise until the indicator REGENERATION lights up (red indicator). The program runs to its end automatically. Do not turn the program dial while the program is in progress, in order to avoid damage to the system. The end of the regeneration program is indicated by extinguishing of the indicator REGENERATION. A complete regeneration cycle takes around 10 hours. The unit is then ready for operation again.

PLEASE NOTE: DO NOT FORGET TO CLOSE HAND-VALVES ON PURIFIER.
H2-MIXTURE DURING PURGE CYCLE WILL COME INTO THE GLOVE BOX.

- 4.5.1 Open hand valves on purifier.

- 4.6 Using the switch blower put the system (box and gas purifier) back into the normal operation. The glove box will be cleaned.

5. Safety switch circuit

- 5.1 The gas purification system is equipped with a safety switch circuit. This protects the system from impermissible over- or under-pressures. The value limits are set internally at +15 mbar and -15 mbar. Whenever these values are reached in the box, the circulation blower switches off. This condition is indicated by the lighting up of the red button at the DMR and the indicator "disorder" in the insert; also, and LED blinks at the outer row-points to indicate which safety value has been exceeded.

5.2 Restarting normal operation

- a) Determine the problem and solve it.
- b) Press the red knob at the DMR; the system is then turned on.
Press the red knob until the automatic pressure regulator has reestablished the desired pressure in the box.

Short Instructions for Ante-Chamber
of Glove Box

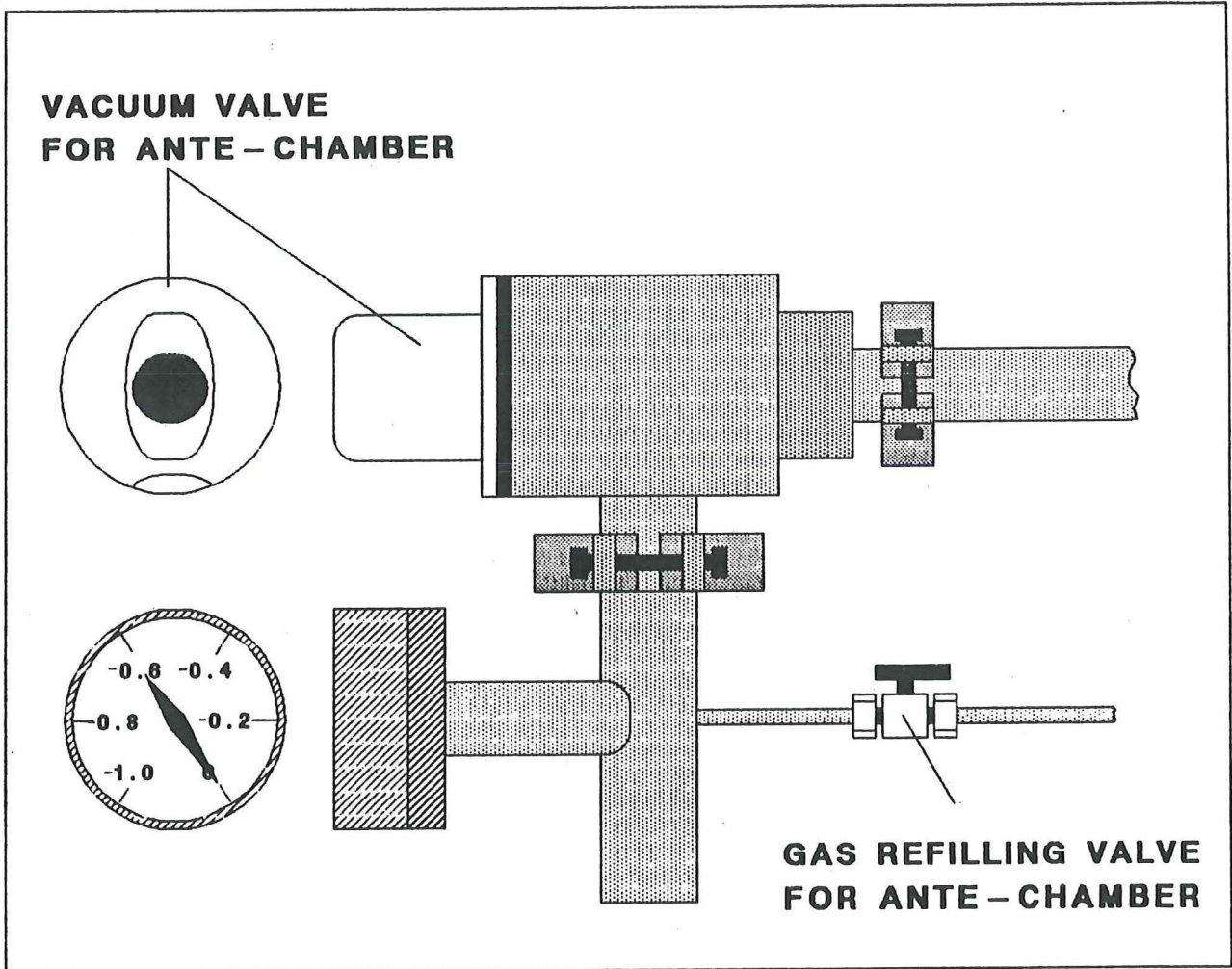
I. CHARGE OF ANTE-CHAMBER

1. Close both ante-chamber-doors.
2. Turn the hand valve to open (evacuate).
Pump down the ante-chamber to 10 -1 mbar.
(SEE FIGURE 3, PAGE 7.1).
3. To refill, close the hand valve and open
the small whithey valve.
4. The inner door of the ante-chamber can be
opened.

II. DISCHARGE OF ANTE-CHAMBER

1. Close the inner ante-chamber-door.
2. Open the outer ante-chamber-door.

Figure 3:



150M - 03.GEM

SUBJECT TO BE CHANGED WITHOUT NOTICE

S h o r t I n s t r u c t i o n s

MB 150-M

- 1. C o o l i n g w a t e r o n .*
- 2. M a i n s w i t c h o n .*
- 3. V a c u u m p u m p o n .*
- 4. T u r n t h e r e g e n e r a t i o n p r o g r a m m k n o b t o S T O P .*
- 5. O p e n h a n d v a l v e s .*
- 6. C i r c u l a t i o n - o p e r a t i o n o n .*

- A P P E N D I X -

O P E R A T I O N I N S T R U C T I O N S
F O R D M R

1. Connecting DMR

- a) Connect pressure gauge cable (6 mm tube) - connection joint can be found on the rear side.

A T T E N T I O N : the appliance is safe up to max. 1 bar over pressure (10 sec.).

- b) Supply electrical connection of the socket strip. See connection plan for grouping.

2. Operation

- a) After the current has been supplied, the appliance is ready for operation.
- b) Work pressure selection at adjustment knobs c and d.
- c) The safety pressure limits are set by actuating the switch Ps/Reset (e), the LED of the pressure limits become visible. By readjusting the potentiometer a the under pressure limit, and with potentiometer b the over pressure limit varied. The work pressure limits can only be adjusted within the safety limits; the lower working limit has priority over the upper. The same applies to the safety limits which results in the following priorities:

Poti:

- | | | |
|----|---------|---|
| 1. | P min | a |
| 2. | P max | b |
| 3. | P μ | c |
| 4. | P a | d |

3. Working method of appliance

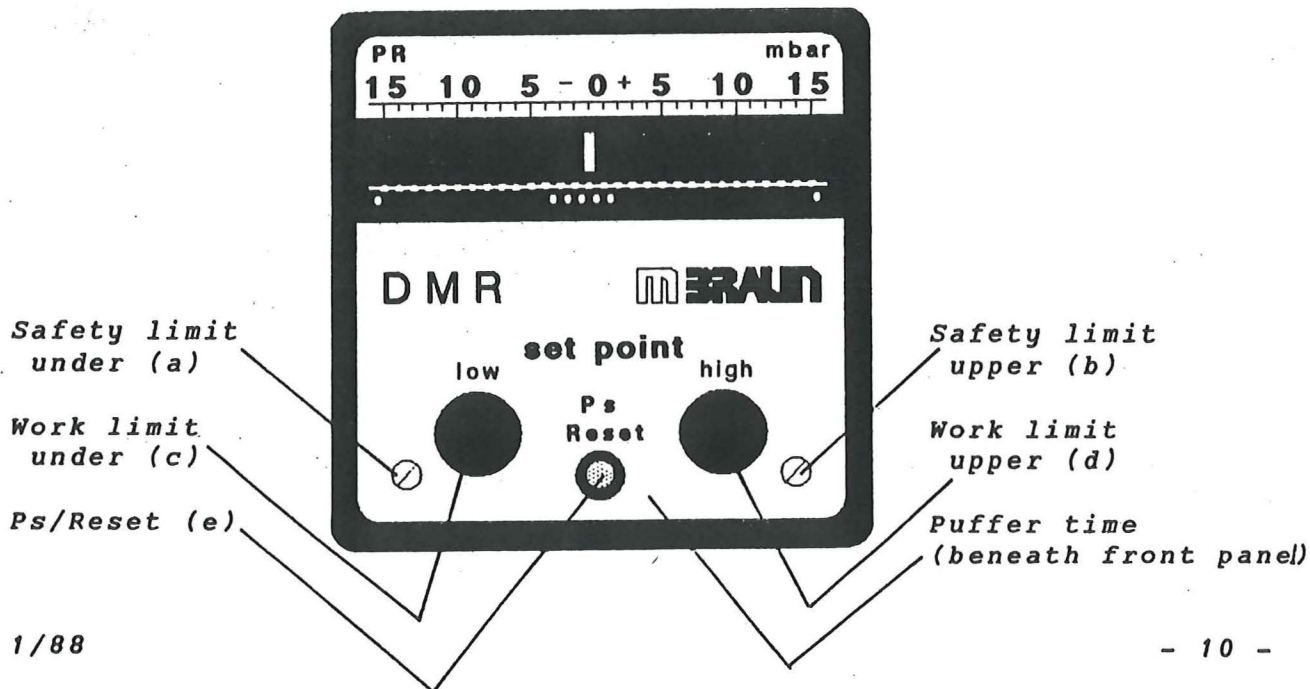
- a) Once the actual value reaches the set switch points for the set over or under pressure, the appropriate relays connect.

Outputs 8 and 9: valve "gas"
Outputs 6 and 7: Valve "vacuum"

Magnet valves or contactor relays can be directly triggered by the potential free relay outlets (1 A / 220 V / 50 Hz).

- b) The potential free outlets 4 and 5 are opened if the actual value exceeds the switch points of the selected pressures (e.g. caused by defective valves in over- or under-pressure). With these contacts the operating system can be secured, e.g. by switching off the gas supply and the vacuum pump to prevent further pressure changes in the system. Further, the Ps/Reset-switch lights up and blinks the LED at the outer point rows, depending on the location, to indicate which safety limit was exceeded.

- c) Restarting operation
After removing the error and the cause of the error, actuate the Ps/Reset-switch. The contacts 4 and 5 close again and the blinking LED indicator (over- or under-pressure limit) disappears.



Connection diagram

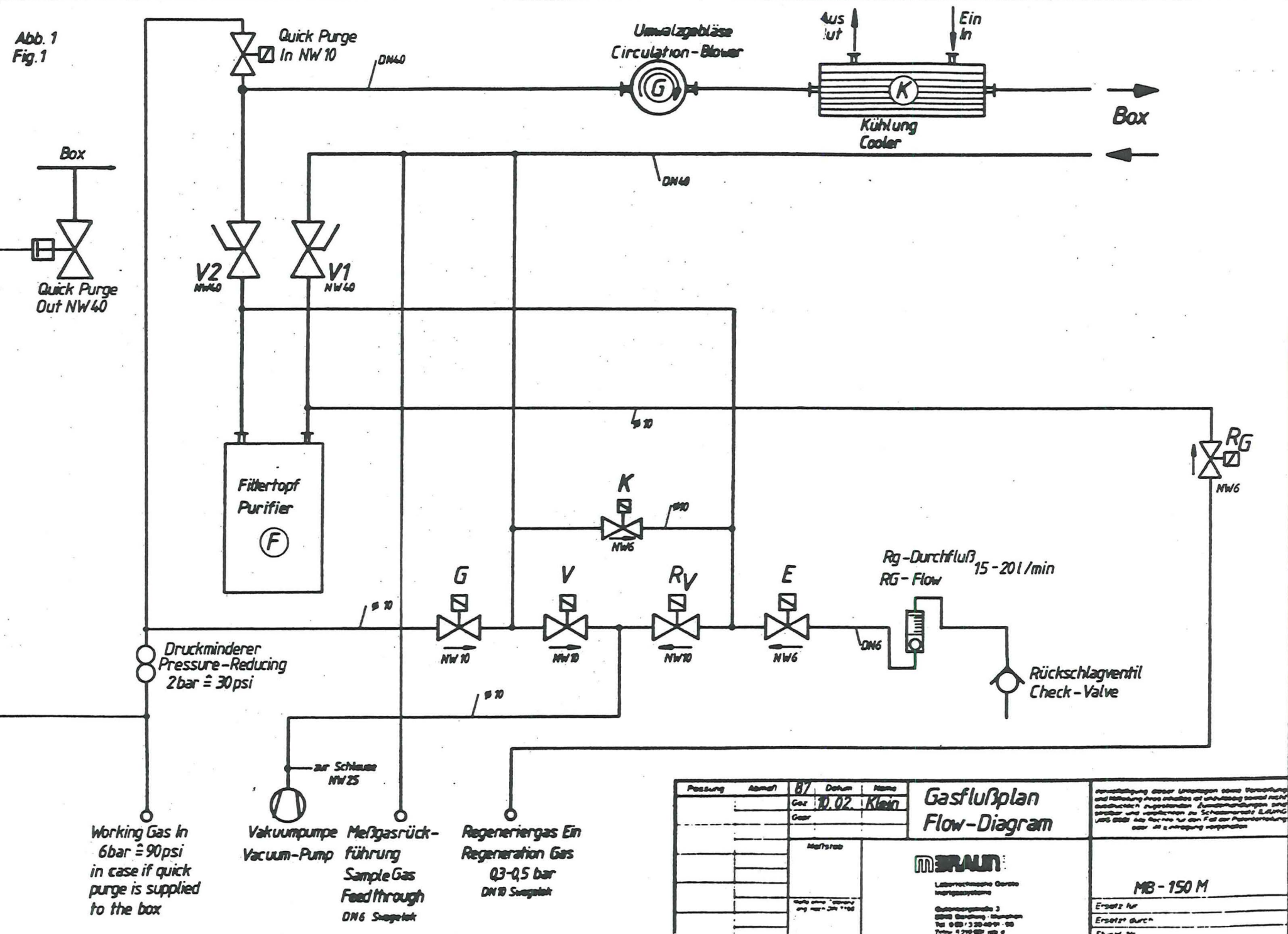
1	=	220 V	L
2			
3	=	220 V	N
4 and 5	=	Mistake relays	
6 and 7	=	Upper work limit	
8 and 9	=	Lower work limit	

ATTENTION

WHEN QUICK PURGE IS INSTALLED:

- 1. DO NOT OPERATE SWITCH "PURGE" DURING CIRCULATION OF BLOWER!**
- 2. WHEN QUICK PURGE IS OPERATED: SET DMR TO +10 MBAR!**

Abb. 1
Fig. 1



Working Gas In
6bar ≈ 90psi
in case if quick
purge is supplied
to the box

Vakuumpumpe
Vacuum-Pump

Meßgasrück-
führung
Sample Gas
Feed through
DN 6 Swagelok

Regeneriergas Ein
Regeneration Gas
0.3-0.5 bar
DN 10 Swagelok

Passung	Abmaß	BY	Datum	Name
		Gas	10.02.	Klein
		Gas		
		Meßstab		

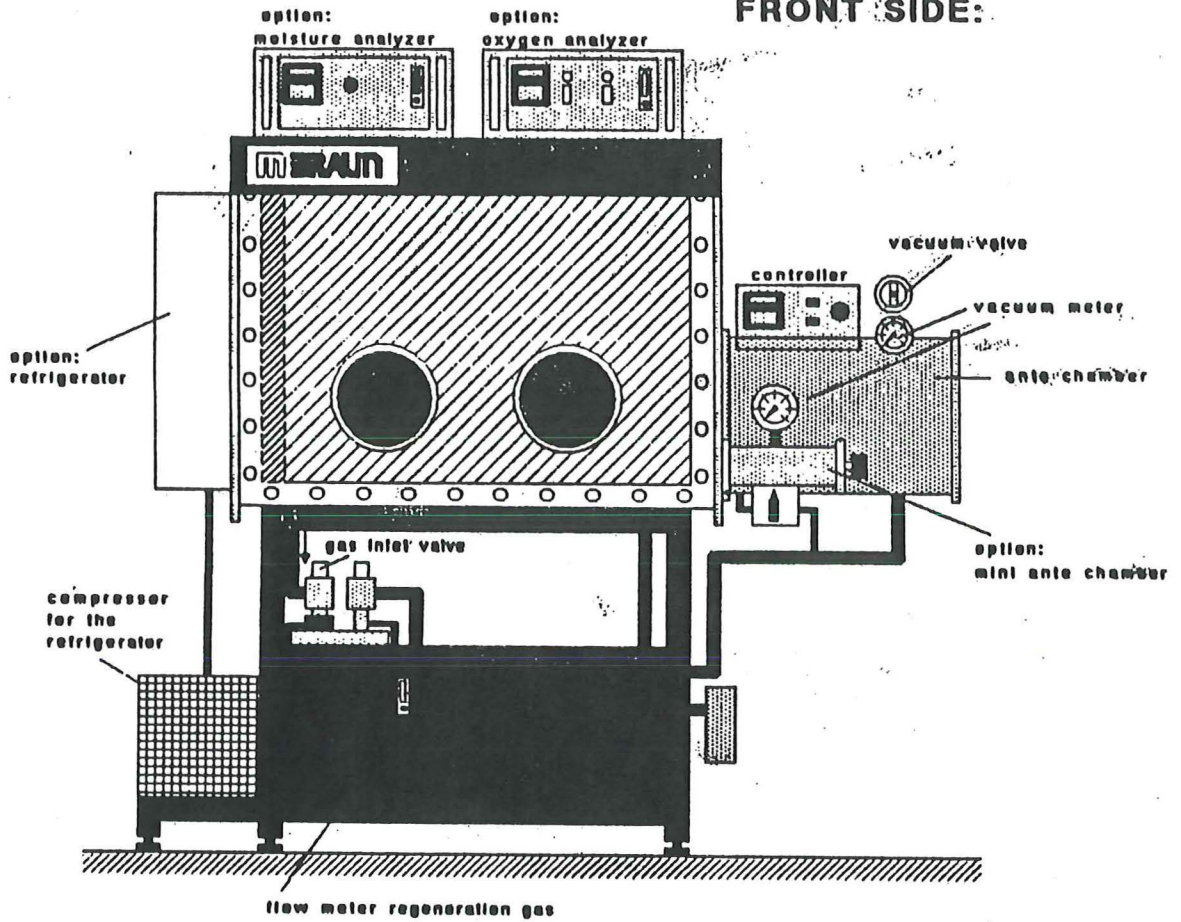
Gasflußplan Flow-Diagram

BRUNN
Labortechnische Geräte
Meßsysteme
Autorenstraße 3
52082 Bad Honnef - Steinhilber
Tel. 0221/520-4091-100
Telex 9 710 001 mb d

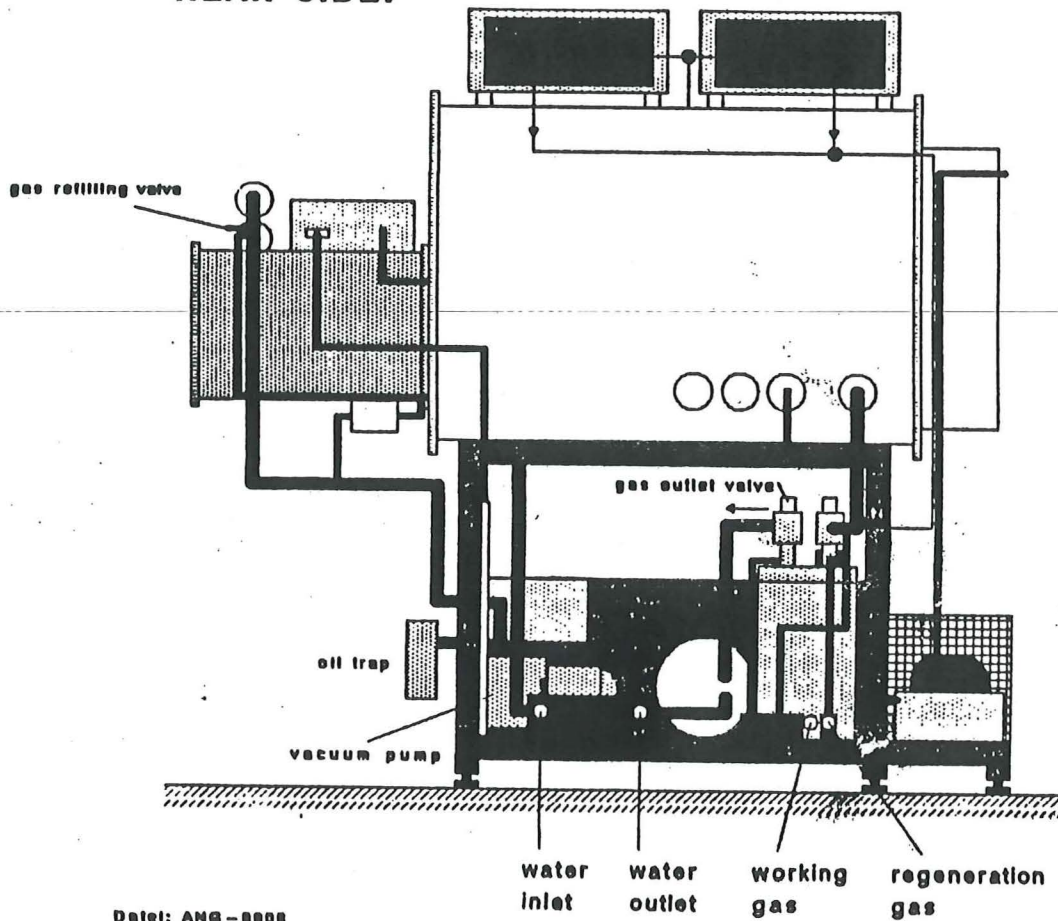
Herstellung dieser Anlagen ohne Verantwortung und Haftung ohne Haftung der Umwälzung sowie nicht drucktaugliche Anlagenteile. Einzelanfertigungen sind möglich und wirtschaftlich. Die Schweißarbeiten sind nach DIN 15150 auszuführen. Für den Fall der Reparatur oder der Montage vorzubereiten.

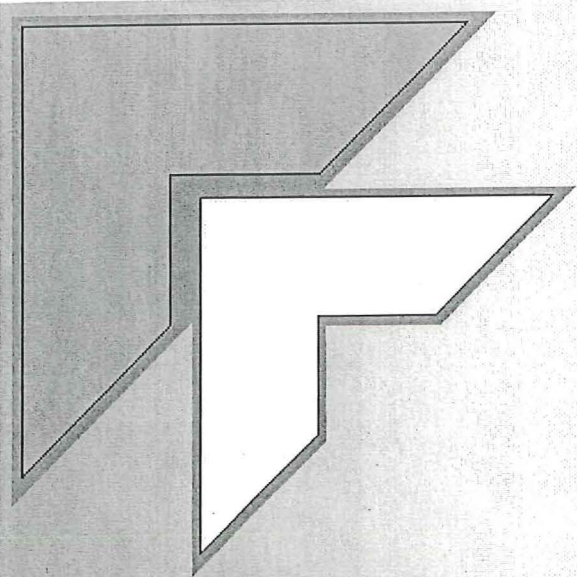
MB-150 M
Erstellt für
Erstellt durch

FRONT SIDE:



REAR SIDE:





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Static Eliminator

General Information	1
Instructions For Use	1
Maintenance: Cleaning Instructions	2
Maintenance: Calibration & Verification	3
Adjustments	4

OPERATING INSTRUCTIONS

General Information

The COUNTER Static Prevention Ionizer (SPI) is designed to effectively eliminate localized static charges, which exist in the work area.

Instructions for Use

Your Counter SPI comes completely balanced and ready to use.

1. Place your tabletop unit on a flat, level surface.
2. Plug the Counter SPI into any 120V AC (220V optional) electrical outlet.
3. Turn on/off switch to ON position.



Note!

- Keep effective area clear and free from obstructions of ion flow.
- Position unit so that emitter points are directed towards area to be ionized.



Remember!

- Keep work area clear of all static generative materials.
- Use only approved static control grounding methods and material handling equipment.
- By properly using ionized air, all static potentials in the work area are greatly reduced, even when humidity levels decrease.

Important Information

Your Counter SPI ionizer has been designed to minimize effects of localized charges. You may need more aggressive equipment if your processing involves generation of considerable static charges.

Maintenance: Cleaning

The COUNTER SPI was designed to be virtually maintenance free. The emitter points can be cleaned when there is a visible accumulation of dirt. Generally this would be twice a year, depending on the cleanliness level of the working environment.

Cleaning Instructions

The following aids are required for cleaning the COUNTER STATIC PREVENTION IONIZER:

Cotton Swab

Soft, absorbent, lint free cloth (cotton)

Isopropyl Alcohol



Caution!

Prior to any maintenance work the static eliminator should be unplugged to avoid risk of electric shock.

Procedure

Check the emitter points for dirt accumulation.

Wipe emitter point with a swab dampened in isopropyl alcohol.

The outside case may be wiped down with a soft damp cloth.

Maintenance: Calibration and Balance Verification

The COUNTER SPI (C/SPI) is factory set to achieve a maximum balanced ion output in standard, non-air assisted applications. To certify calibration, we recommend EOS/ESD association standard "EOS/ESD-3.1-1991".

General Information

There are two adjustments that can be made on the C/SPI – the BALANCE and the RATE.

- BALANCE of the positive and negative ion output can be adjusted to increase polarity bias.
- RATE or PULSE FREQUENCY can be adjusted down to 1 pulse per second or up to 5 pulses per second.

Caution!



It is important to verify calibration after any adjustments and before using the COUNTER SPI around sensitive electronics.

Field repairs are not normally encouraged during warranty period. Repair attempts made by unqualified personnel may invalidate warranty.

Objective

To observe, test and record performance levels of ionization units, utilizing readily available equipment, thereby verifying or certifying calibration.

Equipment Used

Charge Plate Monitor (CPM): See SPW30700 Ionization Test Kit

Note!



There are 3 LED's located on the front panel:

- The LED on the left is the on light.
- The other 2 LED's are the indicators of the positive and negative.

The lights should be set at a slow switch rate.

Note the on and off times changes on the indicator lights as you offset the positive and negative (balance).

Procedure

Position the C/SPI 12 inches away from the CPM directly facing the unit.

With the C/SPI and the CPM on, adjust the balance trim pot located on the lower left side of the C/SPI.

Balance the C/SPI to zero on the CPM.3

Charge the (CPM) to 1Kv of either polarity + - and push the decay button. The timer will automatically time the decay rate.



Note!

The typical decay is 1,000 to 100 volts in less than 60 seconds of both polarities.

Adjustments

There are two adjustments that can be made on the Counter SPI, BALANCE and RATE.

Procedure – Balance

Positive and Negative ion output can be adjusted to increase polarity bias.

Insert a small screwdriver through the Balance Port and slowly turning the trim pot:

- CLOCKWISE to *increase positive* and *decrease negative* On Time Pulses
- or
- COUNTER CLOCKWISE to *increase negative* and *decrease positive* On Time Pulses

Procedure – Rate (Pulse Frequency)

This can be adjusted down to one pulse per second or up to 5 pulses per second.

Insert a small screwdriver through the Rate Port and slowly turn the trim pot:

- CLOCKWISE to *increase* or COUNTER CLOCKWISE to *decrease frequency*



Remember!

Repeat above Balance Verification steps after all adjustments.