

## Microlife BP AG1-20

### EN Aneroid Blood Pressure Kit Instruction Manual



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Read the instructions carefully before using this device.

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IB AG1-20 EN 2413

## Aneroid Blood Pressure Kit

### Instruction Manual

EN

#### 1. Introduction

##### 1.1. Features

The aneroid blood pressure kit is a non-automated, mechanical blood pressure measuring device for use on the upper arm. It offers proven reliability and superior performance at an economical price. With the advanced non-stop pin mechanism and ergonomic bulb with complete valves, the aneroid blood pressure kit ensures you a precise and consistent measurement. Nevertheless, its durable nylon cuff, high-grade bearing and aneroid bellows provide consistent operation. The entire unit stores in a zippered bag for easy portability. Before using, please read through this instruction manual carefully and then keep it in a safe place. For further questions on the subject of blood pressure and its measurement, please contact your doctor.

##### Attention!

##### 1.2. Important information about self-measurement

- Do not forget: **self-measurement means control**, not diagnosis or treatment. Unusual values must always be discussed with your doctor. **Under no circumstances** should you alter the dosages of any drugs prescribed by your doctor.

#### 2. Important information on the subject of blood pressure and its measurement

##### 2.1. Which values are normal?

Blood pressure is too high if at rest, the diastolic pressure is above 90 mmHg and/or the systolic blood pressure is over 140 mmHg. In this case, please consult your doctor immediately. Long-term values at this level endanger your health due to the associated advancing damage to the blood vessels in your body.

With blood pressure values that are too low, i.e. systolic values under 100 mmHg and/or diastolic values under 60 mmHg, likewise, please consult your doctor.

Even with normal blood pressure values, a regular self-check with your blood pressure monitor is recommended. In this way you can detect possible changes in your values early and react appropriately.

If you are undergoing medical treatment to control your blood pressure, please keep a record of the level of your blood pressure by carrying out regular self-measurements at specific times of the day. Show these values to your doctor. **Never use the results of your measurements to alter independently the drug doses prescribed by your doctor.**

Table for classifying blood pressure values (units mmHg) according to World Health Organization:

Range	Systolic	Diastolic	Recommendation
1. blood pressure too low	< 100	< 60	Consult your doctor
2. blood pressure optimum	100 - 120	60 - 80	Self-check
3. blood pressure normal	120 - 130	80 - 85	Self-check
4. blood pressure slightly high	130 - 140	85 - 90	Consult your doctor
5. blood pressure too high	140 - 160	90 - 100	Seek medical advice
6. blood pressure far too high	160 - 180	100 - 110	Seek medical advice
7. blood pressure dangerously high	≥ 180	≥ 110	Urgently seek medical advice!

##### Further information

- If your values are mostly standard under resting conditions but exceptionally high under conditions of physical or psychological stress, it is possible that you are suffering from so-called «labile hypertension». Please consult your doctor if you suspect that this might be the case.
- Correctly measured diastolic blood pressure values above 120 mmHg require **immediate medical treatment**.

#### 3. The various components of the Aneroid Blood Pressure Kit

The illustration shows the BP AG1-20, consisting of:

##### a) Measuring unit



##### b) Cuff:

Type ACMNP-1, Non D-ring cuff for arm circumference 25.4-40.6 cm.

#### 4. Carrying out a measurement

##### 4.1. Before the measurement

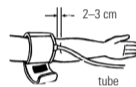
- Avoid eating, smoking as well as all forms of exertion directly before the measurement. All these factors influence the measurement result. Try and find time to relax by sitting in an armchair in a quiet atmosphere for about ten minutes before the measurement.
- Remove any garment that fits closely to your upper arm.
- Measure always on the same wrist (normally left).
- Attempt to carry out the measurements regularly at the same time of day, since the blood-pressure changes during the course of the day.

##### 4.2. Common sources of error

- Note:** Comparable blood pressure measurements always require the same conditions! These are normally always quiet conditions.
- All efforts by the patient to support the arm can increase the blood pressure. Make sure you are in a comfortable, relaxed position and do not activate any of the muscles in the measurement arm during the measurement. Use a cushion for support if necessary.
  - If the arm artery lies considerably lower (higher) than the heart, an erroneously higher (lower) blood pressure will be measured! (Each 15 cm difference in height results in a measurement error of 10 mmHg!)
  - Cuffs that are too narrow or too short result in false measurement values. Selecting the correct cuff is of extraordinary importance. The cuff size is dependent upon the circumference of the arm (measured in the centre). The permissible range is printed on the cuff. If this is not suitable for your use, please contact your dealer. **Note:** Only use clinically approved **Original-Cuffs!**
  - A loose cuff or a sideways protruding air-pocket causes false measurement values.

##### 4.3. Fitting the cuff

- Push the cuff over the left upper arm so that the tube points in the direction of the lower arm.
- Lay the cuff on the arm as illustrated. Make certain that the lower edge of the cuff lies approximately 2 to 3 cm above the elbow and that the tube leaves the cuff on the inner side of the arm. **Important!** The mark (ca. 3 cm long bar) must lie exactly over the artery which runs down the inner side of the arm.
- Tighten the free end of the cuff and close the cuff with the closer.
- There must be no free space between the arm and the cuff as this would influence the result. Clothing must not restrict the arm. Any piece of clothing which does (e.g. a pullover) must be taken off.
- Secure the cuff with the closer in such a way that it lies comfortably and is not too tight. Lay the arm on the table (palm upwards) so that the cuff is at the same height as the heart. Make sure that the tube is not kinked.
- Remain seated quietly for two minutes before you begin the measurement.



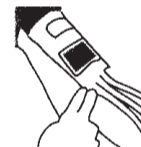
##### Comment:

If it is not possible to fit the cuff to the left arm, it can also be placed on the right one. However all measurements should be made using the same arm.

##### 4.4. Measuring procedure

###### 4.4.1. Put the chestpiece under the cuff

The chestpiece shall not be placed ON or INTO the cuff, it shall be placed either under the cuff, or 1-2 cm below it. The chestpiece is then placed correctly, when the Korotkoff's sound appears strongest ('loudest'). Make sure the chestpiece is in contact with skin and above the brachial artery. Wear the binaural (earpieces) properly to check the Korotkoff's sound during measurement. Before using the stethoscope, be sure there is no crack on the diaphragm, earpieces, and tubing. Any improper setup or damage of the stethoscope will cause distorted sound or poor sound transmission to make inaccurate reading.



###### 4.4.2. Inflating the cuff

Close the air valve on the bulb by turning the screw clockwise. Do not over-tighten. Squeeze the inflation bulb with the hand at a steady rate until the pointer on the gauge is 30 mmHg above your normal systolic pressure value. If you are not sure the value, inflate to 200 mmHg first.



###### 4.4.3. Systolic blood pressure reading

Slowly open air valve by turning screw counter clockwise and hold stethoscope chestpiece over brachial artery. Proper deflation rate is essential for an accurate reading, so you should practice and master a recommended deflation rate of 2-3mmHg per second or a drop of 1-2 marks on the pressure gauge each heartbeat. You should not keep the cuff inflated any longer than necessary. As the cuff begins to deflate, you must listen carefully with the stethoscope. Note the reading on the gauge as soon as you hear a faint, rhythmic tapping or thumping sounds. This is the systolic blood pressure reading. Listen carefully and familiarize yourself with pulse (Korotkoff's) sound.



###### 4.4.4. Diastolic blood pressure reading

Allow the pressure to continue dropping at the same deflation rate. When your diastolic blood pressure value reached, the thumping sound stops. Deflate the cuff valve completely. Remove the cuff from arm and stethoscope from ears.

###### 4.4.5. Record your readings

Repeat the measurement at least two times. Do not forget to record your readings and the time of the day measurement is made immediately after you finish measuring. A suitable time is first thing in the morning, or just before evening meals. Remember that your physician is the only person qualified to analyze your blood pressure.

##### Further information

Measurements should not occur soon after each other, since otherwise, the results will be falsified. Wait therefore for several minutes in a relaxed position, sitting or lying, before you repeat a measurement.

#### 5. Other possible malfunctions and their elimination

If problems occur when using the device, the following points should be checked and if necessary, the corresponding measures are to be taken:

##### Malfunction

The sound transmission is poor, distorted or there is extraneous noise.

##### Remedy

- Check the earpieces if they are plugged or cracked. If not, make sure they do not fit poorly as worn.
- Check the tube if it is broken or twisted.
- Check the bell and diaphragm of chestpiece if there is any crack.
- Make sure the chestpiece is in proper contact with skin and over brachial artery during measuring.

The pressure does not rise although the bulb is pumping.

- Clean or replace any defective parts if found to avoid inaccurate reading.
- Make sure that the valve is closed.
- Make sure the cuff is properly connected to bulb and manometer

The deflation rate can not be set to 2-3 mmHg/ sec. by adjusting the air release valve.

- Check if the cuff, tube and bulb is leaky. Replace the defective parts if any
- Disassemble the valve from bulb to check if there is any blockage in the airway of the valve. Clean the blockage and try again. If it still does not work, replace it to avoid inaccurate reading.

Pointer is not at 0 +/- 3 mmHg at rest.

- Make sure that the valve is open for zero check.
- If still more than 3mmHg deviation, contact your dealer to recalibrate the manometer.

##### FURTHER INFORMATION

The level of blood pressure is subject to fluctuations even with healthy people. Important thereby is, that **comparable measurements always require the same conditions (rest condition)!** If, in spite of observing all these factors, the fluctuations are more than 15mmHg, and/or you hear irregular pulses on several occasions, please consult your doctor.

You must consult your specialist dealer or chemist if there are technical problems with the blood pressure instrument. **Never attempt to repair the instrument yourself!** Any unauthorised opening of the instrument invalidates all guarantee claims!

#### 6. Care and maintenance, recalibration

With proper care and maintenance, this blood pressure measuring device will provide years of satisfactory service. Follow the general Rules below:

- Do not drop.
- Never inflate beyond 300 mmHg.
- Do not expose the device to either extreme temperatures, humidity, or direct sunlight.
- Never contact the cuff fabric with a sharp instrument, since this could cause damage.
- Always deflate cuff completely before storage.
- Do not dismantle manometer under any circumstance.
- Store the whole device in storage bag provided, to keep all the parts clean.
- Storage temperature condition: - 20 °C to +70 °C at a relative air humidity of 85 % (non-condensing).
- Wipe off the manometer and bulb with a damp cloth. Sterilization is not necessary, since the parts of manometer should not come into direct contact with the patient's body during measurement.
- Remove the bladder first, and wipe the closer, bladder and tubes with a damp cloth. The cuff can be washed with soap and cold water. But do rinse the cuff with clear water and keep it air dry.

##### Periodical recalibration

Sensitive measuring devices must from time to time be checked for accuracy. We therefore recommend a periodical inspection of the static pressure display **every year**. Your specialist dealer would be pleased to provide more extensive information about this.

#### 7. Guarantee

This blood pressure monitor is guaranteed for **2 years** from date of purchase. This guarantee includes the instrument and the cuff. The guarantee does not apply to damage caused by improper handling, accidents, not following the operating instructions or alterations made to the instrument by third parties. The guarantee is only valid upon presentation of the guarantee card filled out by the dealer.

Name and company address of the responsible dealer:

#### 8. Reference to standards

**Device standard:** Device corresponds to the requirements of the EN1060-1 /-2 ANSI / AAMI SP09  
This device complies with the requirements of the Medical Device Directive 93/42/EEC.

#### 9. www.microlife.com

Detailed user information about our products as well as services can be found at [www.microlife.com](http://www.microlife.com)

#### 10. Technical specifications

**Weight:** 462 g  
**Size:** 175 x 70 x 103 mm  
**Storage temperature:** -20 °C to +70 °C  
85 % relative humidity maximum  
**Operation temperature:** 0 °C to 46 °C  
**Measuring range:** 0 to 300 mmHg  
**Measuring resolution:** 2 mmHg  
**Accuracy:** within ±3 mmHg in 18 °C to 33 °C; within ±6 mmHg in 34 °C to 46 °C  
a volume of at least 200cc to a pressure of 300 mmHg in 4 to 10 sec  
**Inflation source:** 2-3 mmHg/sec.  
**Pressure reduction rate:** < ±4 mmHg/min  
**Air leakage:** within 0 mmHg to 4 mmHg  
**Hysteresis error:** 1. cuff (adult size with arm circumference of 22-32 cm) with inlaid bladder  
2. bulb and valve  
3. stethoscope  
4. soft bag  
**Accessories:**

Technical alterations reserved.