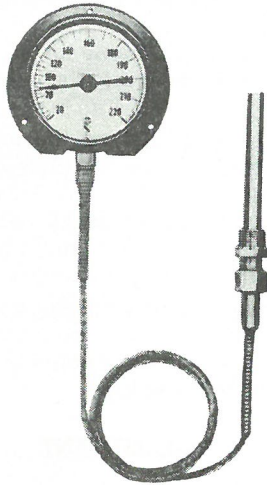


# INSTRUCTIONS FOR THE INSTALLATION AND USE OF THE ASHCROFT VAPOR PRESSURE DIAL THERMOMETER



The Ashcroft Vapor Pressure Dial Thermometer is an accurate long-distance thermometer for indicating temperatures in remote or inconvenient places. It brings the temperature to you.

The bulb is inserted where the temperatures are to be measured and the dial can be placed in the position of most convenient reading. For instance, on an oven installation, the bulb is placed inside the oven and the dial is attached at a suitable location outside. The temperatures of the oven are, therefore, always easily read on the dial thermometer.

It is very important that the instructions given below are carefully read before any attempt is made to install or use the Ashcroft Vapor Pressure Dial Thermometer.

Handle with care. The most rugged instruments to be sensitive must and do have delicate parts.

## GENERAL

Remove as much of the packing material from the box as possible before lifting the instrument out of the box. Do not pick up thermometers by the tubing. Pick up case and tubing all together.

## INSTALLATION OF THERMOMETER

1. The Thermometer can be mounted at any convenient location where it will not be subject to severe vibration.
2. Avoid sharp bends in the tubing and place it so that there will be no danger of it being damaged. Should the tubing be too long, coil the surplus neatly at any convenient point but **DO NOT CUT IT**.
3. The thermometer system (spring, line and bulb) must not under any condition be taken apart, or the tubing cut, as this will destroy the instrument.

## INSTALLATION OF BULB

4. Place the bulb where it is subject to the average temperature to be measured and to any temperature variation.
5. The bulb must not be exposed to any temperature in excess of the highest reading of the thermometer.
6. The Ashcroft Vapor Pressure Dial Thermometer is furnished with three different types of bulbs; plain, union connection and well type. It may be changed from any one type to either of the other types by simply applying or removing the com-

pression type fitting which serves as a base for the union connection or well. This can be done in the field quickly, and easily. Fig. 1 shows the compression type fitting for union connection and Fig. 2 shows the method of applying it to the bulb.

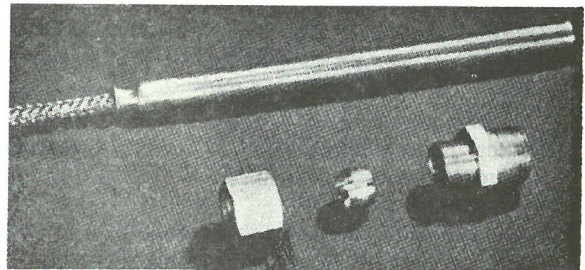


Fig. 1

7. When the thermometer is equipped with a well, the well should first be attached to the apparatus where the temperature is to be measured. The bulb of the thermometer must be coated with a mixture of powdered graphite and oil before it is inserted into the well. This coating will provide a good heat transfer between the well and bulb and insure quick response to temperature changes. It will also serve as a lubricant to facilitate withdrawal of the bulb from the well if so desired.

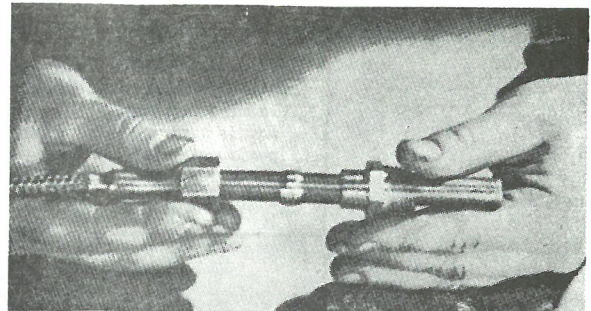


Fig. 2

8. When this type of thermometer is used on laundry wash wheels, care must be taken to insure that the bulb will not extend into the body of the wash wheel so far as to be struck by the rotating cylinder. There is special design of thermometer for this service. It is equipped with seamless copper connecting tubing and a stainless steel bulb with an overall length of  $4\frac{5}{16}$ ". When the union fitting is applied, the length inside the wash wheel is approximately  $2\frac{1}{2}$ ".
9. Practically all wash wheels have thermometer connections at points A or B as shown in Fig. 3. Most of the current models have the connection at B while the older models are at A. The bulb of the Ashcroft Laundry Wash Wheel Dial Thermometer is short enough to fit either connection and clear the rotating cylinder.

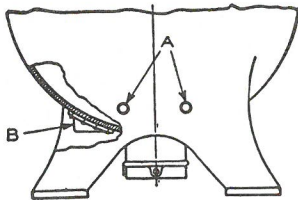


Fig. 3

### TESTING

10. Ashcroft Vapor Pressure Dial Thermometers are carefully calibrated at the factory and under ordinary operating conditions will remain accurate indefinitely. However, as in the case of all instruments, it is well to make periodic checks of accuracy against known standards.
11. One of the most easily secured standards is melting ice. A bucket of melting ice will remain at 32 deg. F. until all the ice is melted.
12. Boiling water is a frequently used standard, but when used as a standard, proper and adequate corrections must be made for altitude and for variations in barometric pressure.
13. An accurate high grade mercury in glass test thermometer is an excellent standard. When using such a thermometer, care must be taken to see that the mercury column is fully united since it is not uncommon that in handling, shock or jar can cause separation.
14. When checking a dial thermometer, place the bulb as near the center of the test bath as possible. Agitate the bath vigorously taking care to avoid injury to the bulb.
15. When checking with a test thermometer, have the dial thermometer bulb and test thermometer side by side. Agitate vigorously the liquid in which the test is being made.

16. The entire sensitive part of the bulb must be immersed in the liquid during the test.
17. When a constant temperature has been maintained for several minutes, compare the readings of the two thermometers. Repeat the test at several temperatures.
18. For testing temperatures above 212 deg. F. use a pail of heavy oil with a high flash point heated by means of a gas flame or electric hot plate. During the test, be sure the oil is being stirred vigorously.
19. **WARNING.** When testing thermometers with oil at temperatures above 350 deg. F. do not use a soldered pail. Use a steel riveted pail. Do not spill any oil. Guard against drafts which might blow the heating flame around and ignite the oil. Never use a blow torch against the side of the pail.
20. Never attempt to test thermometers in air temperatures. Air is a poor conductor of heat and there is always danger of cold currents influencing the thermometer reading.

### ADJUSTMENT

21. If it is necessary to make any adjustment to the instrument, such adjustment is made on the pointer.
22. Adjustment is made by means of the adjustable feature on the pointer as follows:
  - a. Hold the tail end of the pointer close to the center knurled disc, with one hand, and turn the knurled disc with the other hand until the pointer is brought to the proper point on the scale.
23. Be sure to replace the glass and ring after the adjustment has been made.

### MAINTENANCE OF DIAL THERMOMETERS

24. Aside from occasional testing, little or no maintenance is required.
25. Keep the glass cover on the case at all times. If the glass becomes broken, replace it immediately as moisture and dirt inside the case will cause rust and corrosion to occur.
26. If the bulb is in a material which may harden or cake on it or which may cause scale to form, remove it occasionally and clean it thoroughly.
27. The location of the bulb in the apparatus where the temperature is being measured is an important factor to consider. It must be located in a place which will be subject to either the average conditions or the critical conditions. On new installations, it is sometimes necessary to experiment with bulb locations to get best results.

### GUARANTEE

Every Ashcroft Dial Thermometer, when used in accordance with our recommendation, is guaranteed to be free from defective workmanship and material. We will repair or replace without charge, f.o.b. our factory, any instrument which our examination proves to be defective within a period of one year from date of shipment. We assume no responsibility for incidental damage or expense.

Written consent required before return articles will be accepted.

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