

# Instructions on reuniting separated thermometer indicator columns

## Handling thermometers after shipping damage (separated indicator columns)

Rough or incorrect handling in transport may cause the thermometric indicator liquid in the capillary opening to separate. The same effect can be caused by similar circumstances or by incorrect storage and improper use. **A production fault is therefore not involved. This is purely a physically induced phenomenon.**

In most cases, columns can be reunited by the users themselves. If the following advice is not successful, the problem can only be rectified by the manufacturer. A separated and reunited indicator column does not affect the guaranteed precision of the thermometer types used.

### Instructions for use

1. Most thermometers have an expansion chamber at the top. If the thermometer's measurement range does not exceed 300 °C, the separated indicator column can be reunited by simply coaxing the mercury up by warming it with a flame.

After the indicator column has been reunited, the instrument is left to cool down and it is ensured that the entire indicator liquid returns from the expansion chamber into the capillary opening.

If the first attempt has been unsuccessful, we recommend repeating the procedure several times.

2. In the case of very wide capillary openings, separated indicator columns can also be reunited by powerful centrifuging as with a clinical thermometer, whereby the temperature probe must point downwards.
3. As another alternative method, we recommend undercooling the temperature probe using a salt-ice mixture or dry ice (CO<sub>2</sub>) if available.

The temperature probe is cooled down until all separated parts reunite in the indicator capillary and all entrained gases are above the indicator liquid. Particular attention must be paid to ensure that, when the thermometer warms up and the temperature increases, it is held upright in order to allow the indicator liquid to go up into the indicator capillary without any entrained gases. Particular care must be taken when checking whether there are any entrained gases remaining in the probe. If this is the case, however, the process must be repeated.