

Maximum and Minimum Thermometers



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ATMS 320

Maximum Thermometer



- Measures highest temperature since last reset
- Liquid is mercury (Hg)
- As temperature increases:
 - Hg expands, passes bore constriction
 - Hg column rises to maximum value

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Maximum Thermometer



Image source: <http://spacecoastweather.com/images/thermometer.jpg>

- When temperature decreases:
 - Hg column breaks at constriction because Hg is "glass phobic"
 - Hg beyond constriction does not move
- Reset by spinning to force Hg past constriction
- Mounted horizontally

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Minimum Thermometer



Image source: <http://www.eoearth.org/article/Temperature>

- Measures lowest temperature since last reset
- Liquid is alcohol
- As temperature increases:
 - Alcohol flows easily past index

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Minimum Thermometer



Image source: <http://www.eoearth.org/article/Temperature>

- As temperature decreases:
 - Surface tension of meniscus drags index toward bulb
- Reset by tilting until index rests on meniscus
- Mounted horizontally
- If fluid column breaks, repair by immersing in crushed CO₂, then in steam

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Maximum and minimum thermometers mounted in a Stevenson screen



Image source: <http://redsupper.com/2011/01/22/the-metrology-of-thermometers/>

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A maximum-minimum thermometer



Image source: http://commons.wikimedia.org/wiki/File:Minimum-maximum-Thermometer_2765.jpg

ATMS 120