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Training 31 – Repeatability and accuracy
培训31 -重复性和准确性

Introduction 介绍

Sometimes customers are more interested in repeatability than in accuracy. For example machine builders who need certain stable processes which are adjusted during initial start-up.

But what is the difference between accuracy and repeatability?

有时客户对重复性的兴趣要大于对准确性的兴趣。例如，需要某些稳定过程的机器建造者，在最初的启动过程中进行调整。

但是准确性和可重复性之间有什么区别呢?

Accuracy准确性

Accuracy is the measurement tolerance of a sensor. It defines the limit of the measurement errors of the sensor. For example, those three scales have an accuracy of ±5 %, this means you could get those three different readings:

精度是传感器的测量公差。它定义了传感器测量误差的极限。例如,这三个尺度±5%的精度,这意味着你可以得到这三个不同的读数:
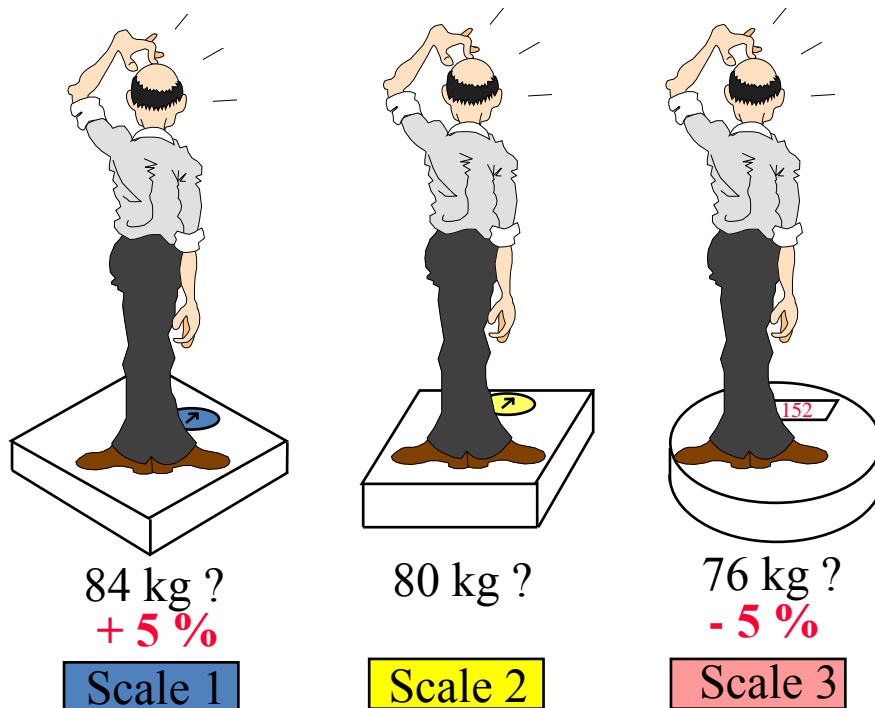
84 kg ?
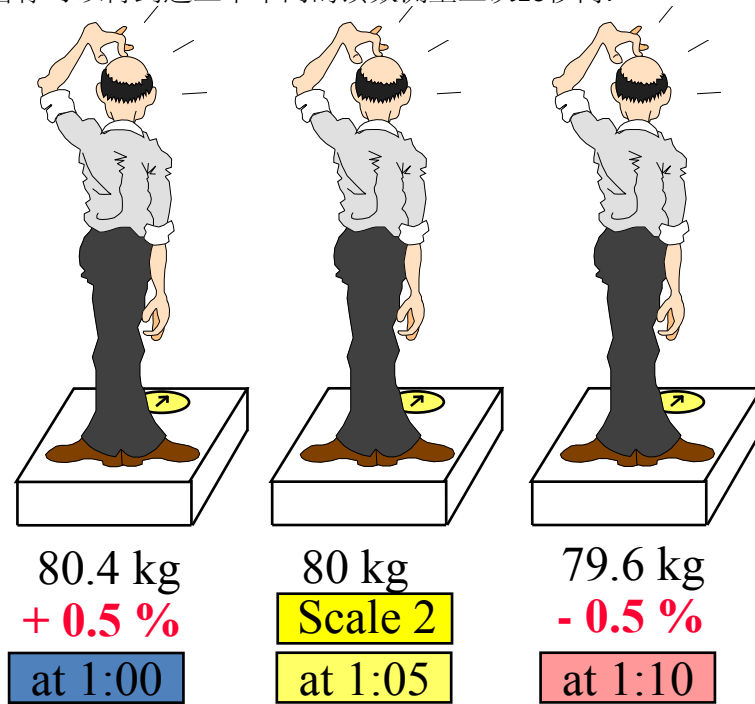**+ 5 %**
Scale 1

80 kg ?
Scale 2

76 kg ?
- 5 %
Scale 3

The same applies to flow sensors. If the real flow rate is 80 m³/h, you could get readings between 76 m³/h and 84 m³/h if the three sensors have an accuracy of ±5 %.

这同样适用于流量传感器。如果真正的流量是80 m³/ h,你可以阅读到76 m³/ h和84 m³/ h,如果三个传感器的精度±5%。

Repeatability 重复性

Repeatability is the variation of measuring results taken by the same sensor under the same conditions in a short period of time. For example, scale 2 has a repeatability of ±0,5 %, this means you could get those three different readings if you measure three times within 10 seconds:

重复性是指同一传感器在短时间内对相同条件下测量结果的变化。例如,规模2有重复性的 ±0,5%,这意味着你可以得到这三个不同的读数测量三次10秒内:

80.4 kg **+ 0.5 %** at 1:00

80 kg Scale 2 at 1:05

79.6 kg **- 0.5 %** at 1:10

The same applies to flow sensors. If the real flow rate is 80 m³/h, you could get readings between 79,6 m³/h and 80,4 m³/h if the sensor has a repeatability of ±0,5 % when you measure three times.

这同样适用于流量传感器。如果真正的流量是80 m³/ h,你可以阅读79之间,当你测量三次如果传感器的重复性±0,5%是6 m³/ h和80,4 m³/ h。