# 6. Calibration curves

| Product name | Calibration curve | Compressed density | Measuring range |
|---|---|---|---|
| Straw round bales | Straw round bales | > 130 kg/m³ | 8.5 % - 30 % |
| Straw bales | Straw rectangle bales | 100 - 130 kg/m³ | 8.5 % - 30 % |
| Straw loose | loose straw | | 8.5 % - 30 % |
| Hay round bales | Hay round bales | > 130 kg/m³ | 8.5 % - 25 % |
| Hay bales | Hay rectangle bales | 100 - 130 kg/m³ | 8.5 % - 25 % |
| Hay loose | loose hay | | 8.5 % - 25 % |
| Cellulose | Insulating material - special product | 38 - 65 kg/m³ | 10 % - 35 % |
| Empty 1 | free curve for special products | | |
| Empty 2 | free curve for special products | | |
| Digit | | | 0 - 100 |
| Reference | ! Only for testing the moisture meter ! | | |

» A divergent compressed density may lead to deviations in the measuring result.

## 6.1 Digit calibration curve

The Digit calibration curve has a unitless measuring range from 0 to 100, which corresponds to the entire measuring range of the device. Special materials can be measured with this calibration curve.

The higher the displayed value, the wetter the material. With the aid of a comparative measurement taken with a reference procedure, a table of comparative values can be created.

very dry: 0% very wet: 100%

## 6.2 How moisture is defined

The device measures and shows the material moisture content. The moisture content readings are calculated in relation to the material's overall mass:

$$\%WG = \frac{M_n - M_t}{M_n} \times 100$$

$M_n$: Mass of the sample with average moisture content

$M_t$: Mass of the sample with zero moisture content

%WG: Moisture content (in accordance with EN ISO 18134-2)

## 6.3 Selecting the calibration curve

If you are not sure which calibration curve is the best suited for your material, it is recommended to carry out a reference measurement by kiln-drying (EN ISO 18134-2).

Schaller Messtechnik GmbH will be happy to advise you on the selection of the right calibration curve for special hay and straw types.

The insertion direction for both round and rectangle bales is from the face side of the bale as shown on the following figures. Measurements taken from any other direction may lead to incorrect readings.

### Straw round bales

54

## Straw rectangle bales

55

## Hay round bales

56

## Hay rectangle bales

57

Hay loose

58

Incorrect measurement

59

## 6.4 Notes for comparative measurement with oven-drying method

The device uses a much higher sample quantity than the drying oven (12-fold to 20-fold quantity of kiln-drying method). Furthermore, to determine a more accurate average moisture value in case of inhomogeneous material, there can be effected several measurements within a short time.

Considering a sampling error due to the considerably smaller sample quantity as well as the content of volatile matters (resin etc.) that are not water, the kiln-drying method will practically reach an accuracy of approx. +/-3 %. Therefore, if the measuring values of these two very different methods of determining the water content are compared, differences of +/-3 % can be considered to be normal.

In the standard EN ISO 18134-2 is declared that the drying oven method provides no absolute values, but only comparable values.