

Mounting Situations

5 Perfect solutions for measuring moisture in concrete production



Mounting instructions for FSA in Silo

- Mounting Arm: (see Fig. 1 – 3)
- The sensor head is mounted at an angle of 45° to the arm. It is thus possible to adjust the angle of the sensor surface to the material flow direction in a continuously variable manner.
 - The measuring surface of the sensor should make an angle of 35° to 50° to the direction of flow of the material. A marking at the rear end of the arm indicates the inclination of the measuring surface of the probe.
 - The standard mounting plate is at an angle of 90° to the arm. Alternatively a 60° mounting bracket is also available.
 - The arm mounted probe is also available with the external adjustment potentiometers 0 and %. With the help of these the measuring range of the probe can be varied to suit the different types of materials (normally the probe, as delivered, is calibrated for sand).
 - The sensor head should be situated in the material 50-70 cm above the exit opening.
 - To simplify the mechanical work for the mounting holes and the opening for the arm, self-sticking templates are also supplied.

Installation in a sand silo

- The arm mounted probe can be installed in a silo already filled with sand as the sand does not flow out through the mounting hole (if the sand is not dry). It is, however, necessary to hollow out the sand as required before inserting the probe.

Tip: Insert a tube with a smooth surface through the mounting hole and remove the excess sand.

Mounting instructions for FSV installing on a glider

- The sensor surface of the probe FSV must be in line with the outer surface of the glider.
- The surface of the glider with the probe mounted, should make an angle of 5 to 15° against the direction of flow of the material. (depends on the material)
- The adjusted angle should remain more or less constant even when the depth of the flowing material changes.
- The holding brackets for the glider should be correspondingly long or appropriately designed. It is possible to coat the glider together with the probe with Teflon direct from the works. This is recommended only for sticky but non-abrasive materials

Mounting instructions for the mixer probe FSM

- The probe must be positioned in such a way that always some material is present on or in front of the measuring surface of the sensor while the mixer is in motion.
- For pan type mixers it is recommended to mount the probe on the mixing tray. For horizontal mixers the probe should be mounted on the front wall of the container.
- Possible peaks in the signal due to the mixer arm can be eliminated by limit setting and average building functions of the evaluating electronics.

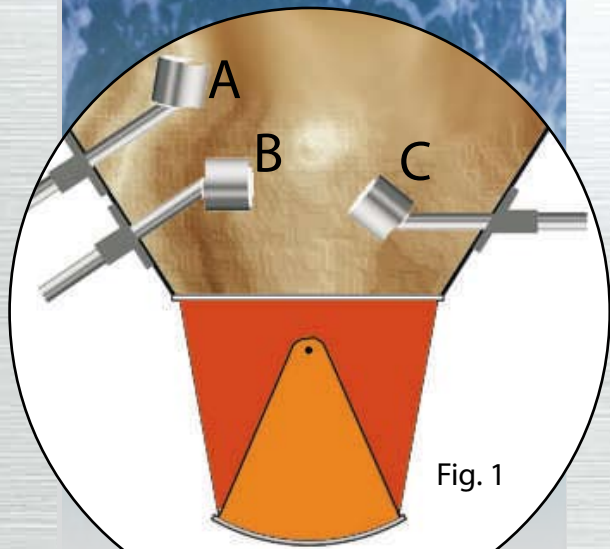


Fig. 1

FIGURE 1: FSA

- A.) FALSE – Material collects on the measuring surface.
- B.) FALSE – Large density variation when the outlet gate is open. Material just falls into the opening often bypassing the probe.
- C.) RIGHT – The probe is located directly inside the material flowing past the head. Negligible density variation during material flow and closed flaps.

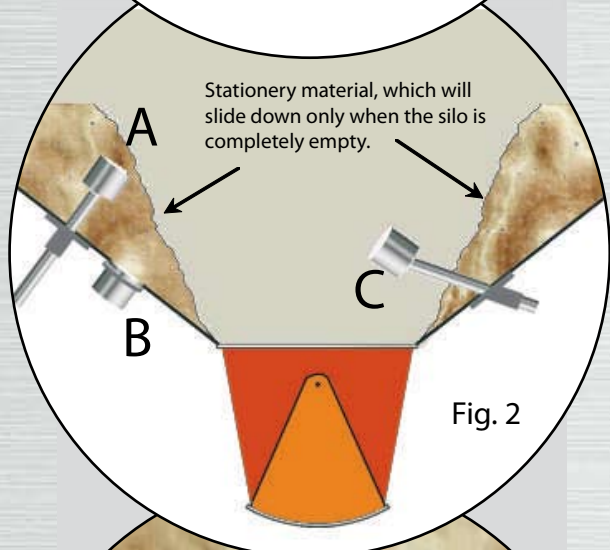


Fig. 2

FIGURE 2: FSA and FSV

- A) FALSE – Probe is not within the flowing material
- B) FALSE – Probe is not within the flowing material
- C) RIGHT – Probe is within the main stream

FIGURE 3: FSA and FSV

- A) FALSE – Interrupted flow or air pockets possible. Output signal fluctuates.
- B) RIGHT – Material glides uniformly over the measuring head. Average building necessary during dosage cycle.

FIGURE 4: FSV

Probe installation in the already available sand slider plate immediately below the silo opening.

Measurement is possible only through averaging and Start-Stop function.

- Start signal when the shutter opens or automatically when the sand reaches the probe (recognized by the probe).
- A measured delay is required after the start signal till monitoring by the probe starts. This is necessary, so that the measured values are not falsified by the time interval for the sand to reach the probe or through the initial rush of the sand after opening the shutter.
- Average building during material flow.
- Stopping of the measurement on closing the shutter or automatically when there is no sand flow over the sensor (registered by the probe).
- Storage of the averaged signal till the time of next fluid addition.

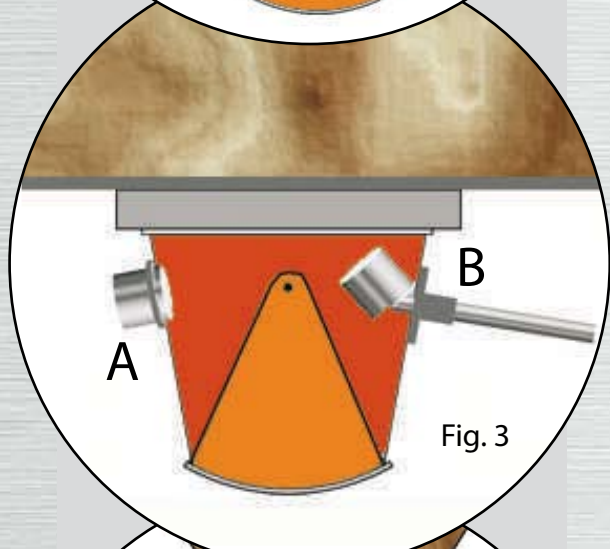


Fig. 3

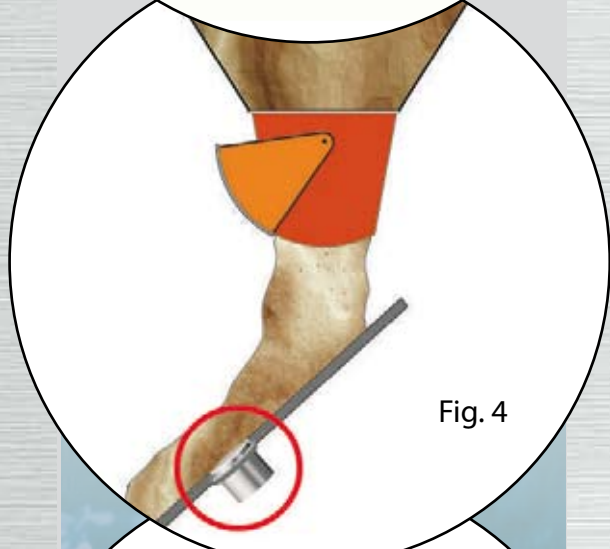


Fig. 4

FIGURE 5: FSV on a glider

Air gap and varying surface contact falsify the measured signal. CORRECT Uniform contact of the measuring surface with the material – negligible air gap.

Ideal gliding angle of the glider should be between 5° – 15° (depending on the material)

IMPORTANT: Measurement is inaccurate when the surface height keeps varying for material thickness of 6 – 10 cm (depending on Material). In this case it is necessary to mechanically smoothen the surface e.g. with a leveling edge to obtain a uniform thickness of material. Surface height variations can be neglected provided the thickness of the material is more than 10cm.

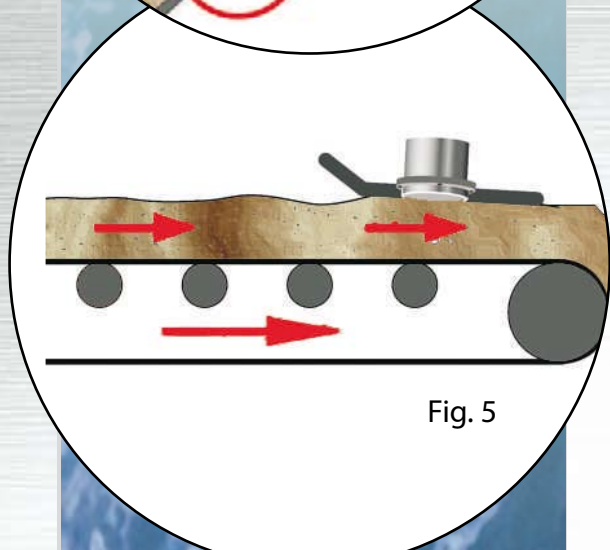


Fig. 5



CONCRETE PRODUCTION - BUILT IN EXAMPLES



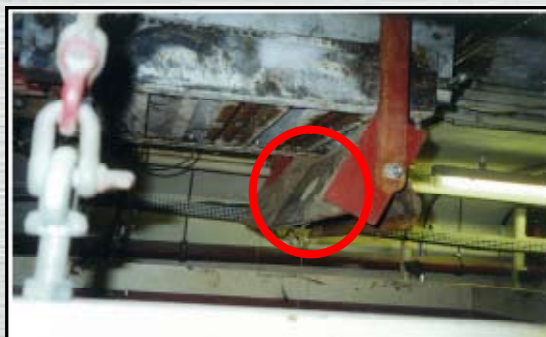
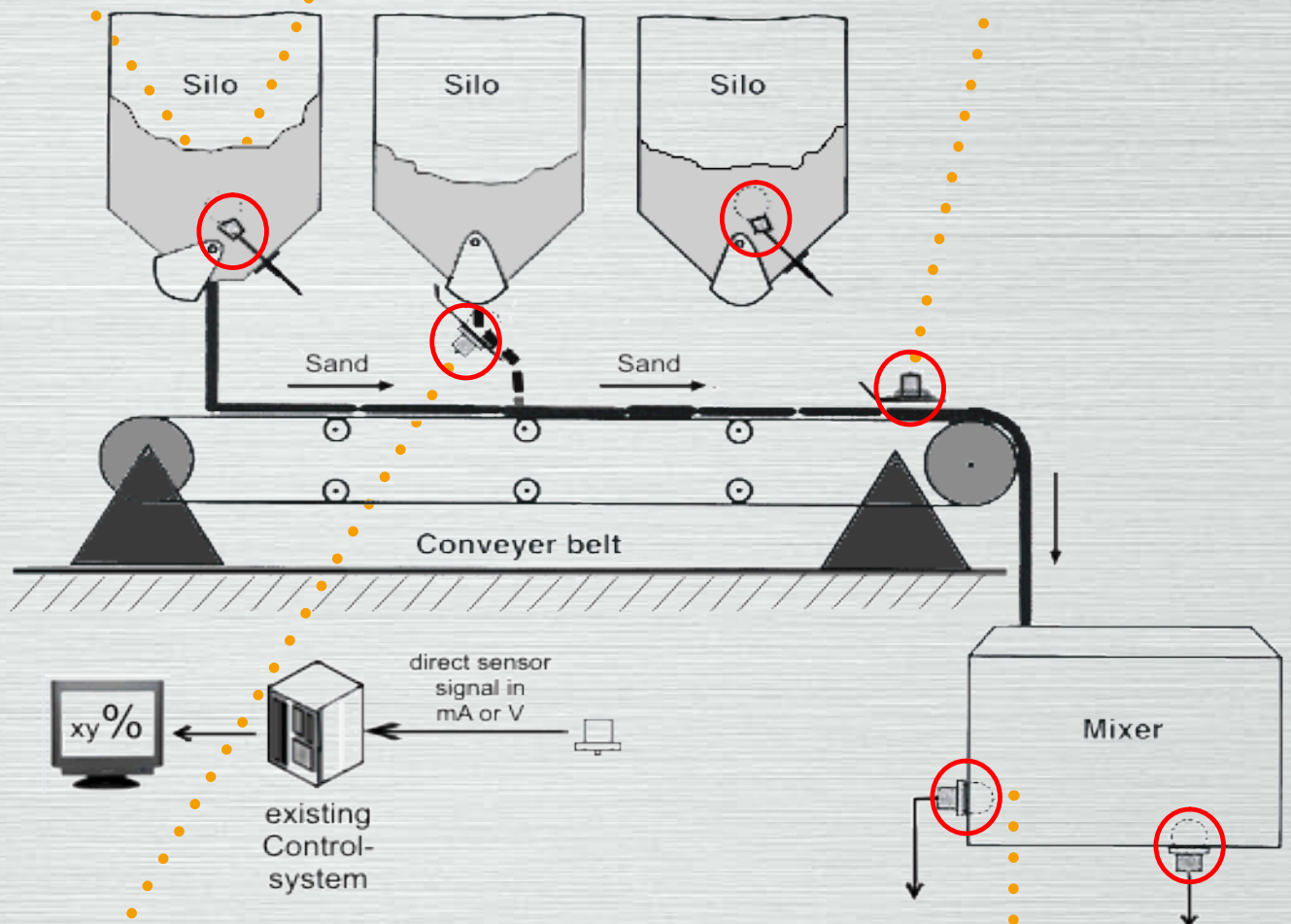
FSA - Arm mounted sensor with standard arm lengths of 0.2m, 0.5m or 1m. Appropriate for installation in silos (exterior view).



FSA - Sensor inside a sand silo. The probe is located directly inside the material flowing past the head. Negligible density variation during material flow.



FSV - Sensor on a conveyer belt using a glider



FSV - mouned in a slide plate under the silo outlet flap



FSM - mounted in a mixer bottom

NEW: Special - Rubber wear protection for gravel moisture measurment