„Legal-for-trade“ Belt scale Typ SFBe

Specifications and requirements

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(1) Installation of belt conveyor

The conveyor belt shall be stationary and bolted to rigid foundations. Supports shall be designed to guarantee vibrationless operation of the belt scale, and the weigh length shall remain unchanged in service.

(2) Belt-tensioning device

Belt tension shall be constantly maintained, and the conveyor belt shall be equipped with a belt tensioning device. The roller transferring the force from the tensioner shall have an arc of belt contact of no less than 150°.

(3) Maximum belt length

No limit

(4) Material transition length

The weigh length shall be located from the feeding point between two and five times he distance travelled by any point of the belt in one second at maximum speed to allow the material to settle on the belt before it is weighed.

(5) Weigh length (scale area)

The weigh length shall be dimensioned sufficiently to allow the product to exert a force on the scale for at least 1 second. The scale is to be installed close to the feeding point, allowing for a material transition length, because the tension is virtually constant there.

(6) Belt transition length

The minimum belt transition length (levelling length = center distance between end of weigh length and head pulley) shall be as listed below for each troughing angle:

troughing angle 0°	=	1 x belt width	troughing angle 15°	=	2 x belt width
troughing angle 20°	=	3 x belt width	troughing angle 30°	=	4 x belt width

(7) Maximum belt inclination

Any belt inclination, if at all necessary, shall be constant. It have to be ensured that there is no relative movement between the Material and the belt. It have to be ensured that there is no slipping of the Material because of the inclination.

(8) Maximum troughing angle

The upper generatrices of the idlers and sets of idlers forming the weigh length, and at least two sets of idlers situated immediately before and after the weigh length, shall be parallel for each group of idlers. The belt troughing angle should be kept to a minimum in order to achieve a high weighing accuracy. With troughed conveyor belts, the inclination of the side-roller axis to the middle-roller axis shall not be greater than 30º. The idlers and sets of idlers forming the weigh length, and the sets of idlers situated immediately before and after the weigh length shall have bearings that allow easiest possible running. The idlers must have excellent idling characteristics with a high degree of concentricity.

(9) Belt cleaning

For conveying sticky products, the conveyor belt shall be equipped with an effective belt cleaning device, the position and operation of which shall not affect the weighing results.

(10) Relative movement of product

Within the weigh length there shall be no relative movement of the bulk products since such movement would falsify the weighing results.

(11) Conveyor belt holdback

On inclined conveyor belts, double weighing, caused by the loaded belt running downhill when the bel conveyor is switched off, shall be avoided (conveyor belt holdback).

(12) Belt alignment and infeed skirting

Belt alignment devices shall prevent the belt from shifting side to side. If guide idlers or skirtings are required, they shall not be installed along the weigh length.

(13) Protection against environmental factors

For outdoor installations, the scale area of the belt conveyor shall be adequately protected from environmental factors such as weather and wind interfaces.

(14) Belt design

The belt weight per running meter shall be virtually constant. The belt joints must not cause any functional interferences and must have bevel-cut seams with a splice-angle not exceeding 45°.

(15) Belt emptying

Every weighing shall start and end with an empty belt.

(16) Error tolerances

Error tolerances with flow rates ranging from 20% to 100%:

Verification error: ± 1 % of the respective totalized load

In-service error: ± 2 % of the respective totalized load

(17) Minimum totalized load (Directive 2014/32/EU)

The minimum totalised load Σ min shall not be less than

400 d for class 1

200 d for class 2

Where d is the totalisation scale interval of the general totalisation device.EN L 96/228 Official Journal of the European Union 29.3.2014

(18) Calibration, initial verification, and in-service inspection

Calibration, initial verification, and in-service inspection of the belt scale shall be possible with the belt scale fully assembled and fixed in the position in which it is intended to be used and with the specified product or products which are or will be used. A control instrument shall be available in the vicinity of the belt scale submitted for testing. It shall permit the totalized load to be checked with an error not exceeding one-fifth of the maximum permissible error. Storage and transport shall be arranged so as to prevent any loss of the product.

The tests shall be carried out under normal conditions of use for which the instrument is intended at flow rates of approx. 25 %, 50 % and 90 % of the maximum flow rate. For each flow rate at least 2 values shall be below the maximum permissible error.

The quantity of the product used for the tests shall be not less than the minimum totalized load.
Checking of the mass of the product used may take place before or after its passage over the belt scale.

(19) Zero setting

After switch-on, and thereafter, the scale shall be set to zero at least every 3 hours. Zero-setting is fully automatic, at the push of a button, over 1 or 2 complete revolutions of the empty conveyor belt.

(20) Conveyor belt modifications

The scale shall be recalibrated and, if necessary, submitted for in-service inspection.

- After moving the belt conveyor to another location.

- After belt replacement or change of belt inclination.

(21) Reversible conveyor belts

Belt scales installed in reversible belt conveyors can only be verified for one direction of belt travel.

(22) Power supply

The power outlet for the electronic indicating device shall have a mains filter or, if necessary, a stabilizer (born to provided locally).

(23) Electrical interlocking

The legal-for-trade belt scale shall be equipped with a signal transducer emitting a signal (floating contact) as long as the scale functions correctly. If this signal is lost, the locally provided control system shall stop the loadout for as long as the scale is indicating an error.

The locally provided control system may be fitted with a bypass switch that allows the conveyor operation to be continued “without weighing”. In that case, the locally provided power supply for the scale electronics shall be switched off to prevent misinterpretation of still available measurements.

Note:

All information has been compiled to the best of our knowledge. A guarantee for completeness and correctness is not given.

Valid standards or guidelines:

- DIRECTIVE 2014/32/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
  of 26 February 2014
- OIML R 50-1 Edition 2014 (E)