

WÖHWA

belt weigher type SFB

planning and installation information



The WÖHWA Belt Weigher can easily be integrated into nearly every known type of conveyor belt chassis: U-frame, square-type or circular tube, or steel sheet chassis. The prefabricated and maintenance-free belt weigher can be installed with little effort.

In order to achieve the highest possible accuracy, however, a few points should be observed during the planning and installation phases.

The following illustration shows how an idler is removed from the existing conveyor belt chassis to be mounted on the prefabricated WÖHWA belt weigher.

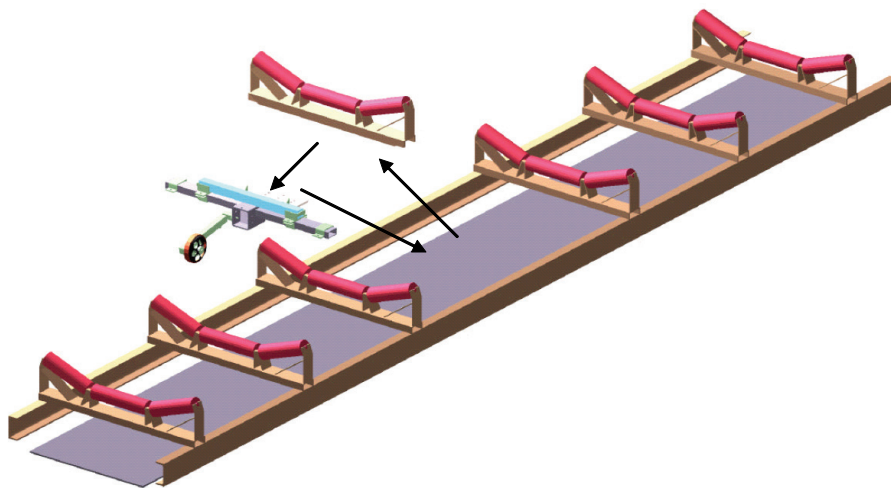


image 1: installation of WÖHWA belt weigher in an existing conveyor belt

An idler is removed from the belt conveyor chassis at a suitable position. Illustration 2 shows that the side ends of the idler must be notched (approx. 10 mm) since the station must not bear on the chassis. The idler is then mounted on the belt weigher. When mounting the weigh idler to the conveyor belt chassis, care must be taken to centre it between two idlers.

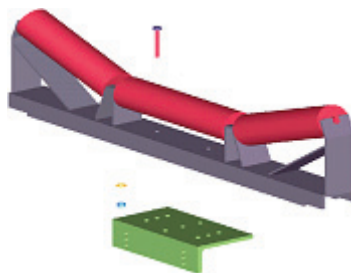


image 2: idler with notches at both ends



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The terminal box is to be mounted on the chassis near the weighing station. Bolt the WÖHWA-supplied mounting plate in a suitable way to the conveyor belt chassis. The cable provided by WÖHWA for connecting the load cell is 3 m long and must not be shortened.

When installing the measuring wheel, make sure that it has contact with and can be moved by the lower belt. For precise measurements of the belt speed, the surface of the wheel must be kept clear from dirt. Check and clean the wheel in regular intervals.

Installation instruction

The highest accuracy can be achieved by installing the weighing station near the feeding point. However, the material must be allowed to settle before reaching the weighing station.

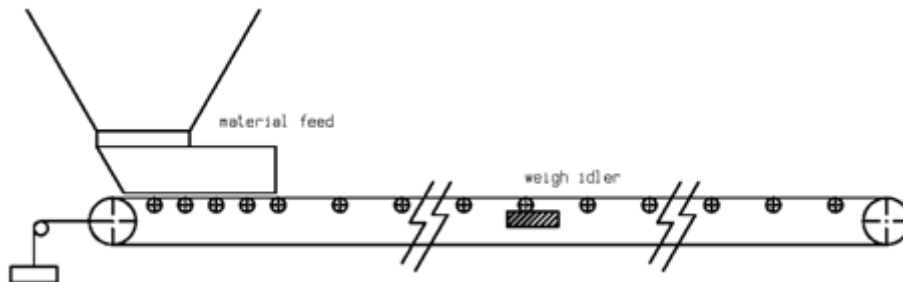


image 3: Installation recommendation for belt weigher.

Between end of infeed skirt and weigh idler allow between two and five idlers for material settling. Determination of the correct distance between end of skirting and weigh idler depends upon the belt speed.

The following table can be used to determine the correct distance for some belt speeds:

belt speed	distance end of skirting – weigh idler
up to approx. 1.5 m/sec (300 fpm)	2 idlers or 2 m
up to approx. 2.5 m/sec (500 fpm)	3 idlers or 3 m
more than 2.5 m/sec (500 fpm)	5 idlers or 5 m

table 1: The distance between end of skirting and weigh idler depends upon the belt speed.

The highest accuracy can be achieved when using a weight-loaded belt tensioning device (cf. illustration). Such a tensioning device is obligatory for „legal-for-trade“ belt weighers.



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Important information for positioning the weighing station in inclined belt conveyors

Belt weighers can only be installed in inclined conveyor belts if the inclination does not exceed the angle at which the material will slide backward and be re-weighed. Metrological authorities used to specify that the inclination must not exceed an angle of 11° for „legal-for-trade“ belt weighers.

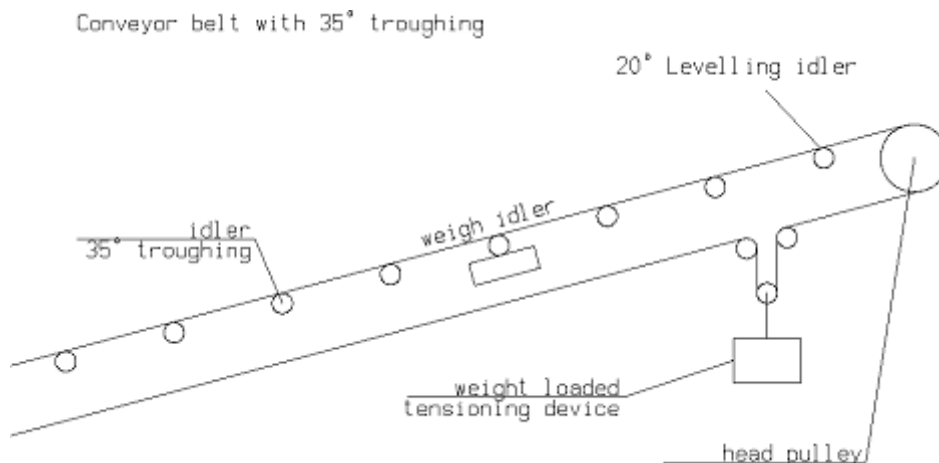


image 4. Installation location in troughed conveyor belts

In troughed conveyor belts, the weigh idler is to be positioned at a certain distance from the head pulley. The minimum distance depends upon the degree of troughing.

Image 4 shows a belt conveyor with a three-part 35° troughing idler. In conveyor direction, there are two idlers with 35° troughing and one levelling idler with 20° troughing in front of the head pulley.

The required distance between weigh idler and head pulley can be read from table 2. The listed values are based on previous experience and have returned good weighing results. When installing a „legal-for-trade“ belt weigher, additional requirements have to be fulfilled to allow verification by a metrological authority (cf. specifications and requirements for „legal-for-trade“ belt weighers).

Degree of troughing	idlers	levelling idlers
20°	2 X 20°	-
35°	2 X 35°	1 X 20°
45°	2 X 45°	1 X 35° + 1 X 20°

table 2. number of (levelling) idlers after weigh idler in troughed conveyor belts

After installation of the weigh idler it must be aligned in height with at least two approach and retreat idlers, i.e. these 5 idlers must have the same height. Great care should be taken for the alignment because the alignment will have a strong influence on the accuracy of the belt weigher. The adjustments can be made at the slotted holes of the mounting angle for the idler.



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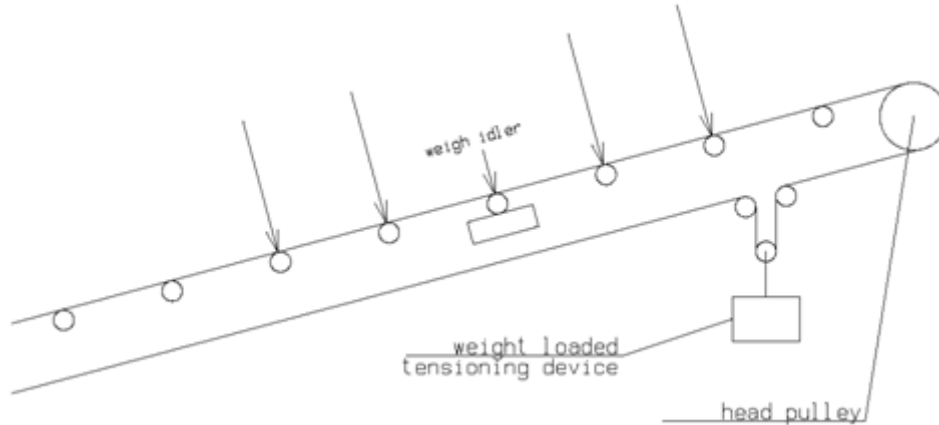


image 5. Alignment of weigh idler height with approach and retreat idlers.

If, during repair work, a part of the conveyor belt is replaced, quality and characteristics of the new piece of belt should be identical to the existing belt. The belt seams must be finished very carefully to avoid bulges that might lead to falsified weighing results.

Skirting must not be installed in the area of the weigh idler so that the material bears on the belt without being disturbed by any other forces. Otherwise weighing errors may result. If possible, the weigh idler should be installed in the area of a conveyor belt support.

If the inclined conveyor belt has a convex curve, there must be a minimum distance to the point of tangency in order to prevent weighing errors. The belt weigher must never be installed, under any circumstances, at the curve of an inclined conveyor belt.

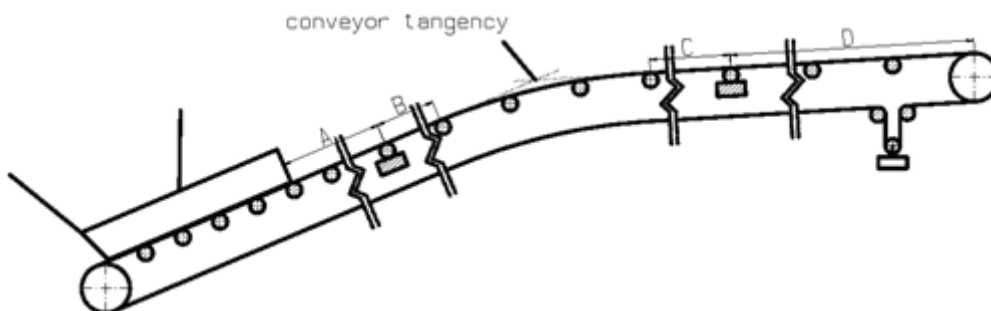


image 6: Conveyor with convex curve; belt weigher must not be installed at the curve!

Distance **A** shown in illustration 5, between infeed skirt-boards and weigh idler, can be read from table 1. Distance **D** between weigh idler and head pulley can be read from table 2. In order to achieve acceptable weighing results, the distance **B** or **C** between weigh idler and the point of tangency should have a minimum of 6 m.

In conveyor belts with concave curves (cf. illustration 6), a belt weigher should only be installed if it is guaranteed that the belt is not lifted off in the area of the weigh idler. Otherwise, accurate weight measurement would not be possible. Also, zero setting of the belt weigher would be problematic if the empty belt were lifted off in the area of the belt weigher, i.e. if the belt were not bearing on the weigh idler with a constant load.



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Distance **A** shown in illustration 6, between infeed skirt-boards and weigh idler, can also be read from table 1, and the recommended distance **B** between weigh idler and head pulley can be read from table 2.

As already mentioned, in conveyor belts with a concave curvature, satisfactory weighing results can only be achieved if the belt is not lifted off in the area of the weigh idler. Therefore, the distance between the shown points of tangency and the location of the weigh idler (**B, C**) should have a minimum length of 6 m.

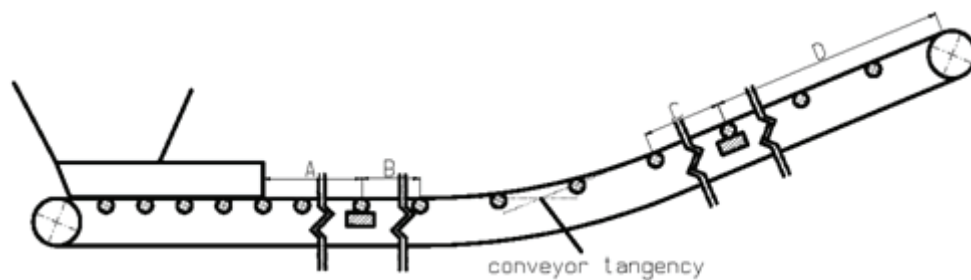


image 7: Conveyor with concave curve, belt weigher must not be installed at the curve!

