

CONVEYOR BELT INSTALLATION GUIDELINE



SEMPERTRANS

places the utmost importance on the quality of its conveyor belts. For optimised belting performance and longer service durability, follow our recommendations inside.

BELT INSTALLATION GUIDE LINES

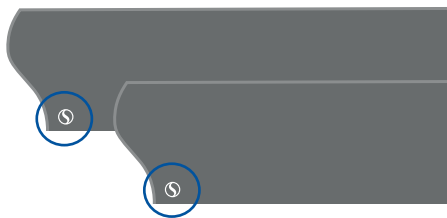
Before installing a new conveyor belt on a system, a number of factors must be taken into consideration. Important decisions have to be made concerning the installation point, the belt roll handling method, the means of pulling the new belt on, and the preferred splicing point.

1. BEFORE START

On **systems where a significant change in elevation is present**, consideration must also be given to a braking device to prevent unexpected runaway of the new belt. All aspects of the installation should be considered before starting

Once the roll of belting has been transported to the point of installation, it should be mounted on a suitable shaft for unrolling and threading onto the conveyor. The people installing the role are responsible for identifying which is top cover and which is bottom cover so as to ensure correct orientation for installation onto the conveyor system.

When **installing multiple rolls of steel cord belt** onto the system we would always **recommend that they be sequenced with the branding on the same side**. If a directional arrow has been included in the branding then this should be used as the direction of travel for the belt on the conveyor system and the directional arrows should always go in this direction. This is **particularly relevant for belts with sensors loops or smart wires** in them as often there is a certain way that these need to be presented to the rip detection system hardware that is installed on the conveyor at the sensing location determined by the OEM.



Recommended way of installing multiple rolls of steel cord belt – branding should always be on the same side.

The new roll, or rolls, of belt must be placed where there is adequate space available for them and for a winder, or other belt-pulling device. This space requirement is the prime factor in determining the new belt installation point. Other important factors include worker safety accessibility, utility hook-up points, and heavy equipment needs.



Maintenance teams generally prefer to have the new belt installation point at the tail pulley however, too many systems have walls or other conveyors at this point. When this occurs, the installation point may have to be **either under or over the system**. In some installations, part of the conveyor system, building or other structure may have to be dismantled to allow access.

2. REPLACEMENT OLD BELT

If the new belt is a replacement for one that is on the system, **the old belt is commonly used to pull the new belt into place**. Top cover of the old belt should be matched to the new belt. **The new belt is generally connected to the old belt** by means of mechanical fasteners for fabric carcass belts or by means of a joiner plate or a partial splice for steel cable belts.



3. INSTALLATION NEW BELT ONTO AN EMPTY SYSTEM

If the belt is being installed on a system that does not have an existing belt, the **general practice is to run a cable along the intended belt path and use it to pull the belt into position** using a correctly sized winder or other suitable means.

4. INSTALLATION

The fastening method between the new belt and the old belt, or cable, must be strong enough to overcome all frictional forces of the belt against the idlers and pulleys, the gravitational forces of any changes in elevation, and the inertia forces involved with the start of the pull. **We would always recommend that a proper Line-Pull calculation be done.** This can then be used to ensure that suitably rated equipment is used for the job. Depending on the length and weight of the belting being installed, **the most common methods of pulling the belt on are either a winder or a winch.**

The winder or winch reels the cable or old belt at a controlled speed. In doing so, the new belt is fed on to the conveyor.



Specialized methods are required when a straight pulling force is not practical. In some cases, the use of a support or diverting roller will aid the pull.



We would always recommend that in whatever scenario a belt installation is being done, that experienced, specialist people plan the task.

A belt winder or a winch is the preferred method for pulling a belt on the system as the old belt or the cable is conveniently wound during the installation process. Not only does this **saves time and expense**, as extra steps to handle the old belt or cable are not required but **it is also the safest option.**

If the optimum splice station is different than the installation point, a means of moving the two ends of the belt to the splicing area must be used. Frequently, this is accomplished by temporarily joining the belt ends together and using the system drive to move the belt. Alternatively, pulling one end of the belt with a winch or other suitable piece of equipment can move the belt ends to the desired position.

Other considerations with belt installation include the positioning of the take-up and spotting the belt ends at the desired splice station. The take-up positioning is important whenever belt stretch must be considered, as with fabric carcass belts. The take-up should be positioned to allow for the anticipated stretch of the belt. Ideally, it can be placed so that an additional splice is not required.

Once the new belt is installed and properly positioned, it can be vulcanized and put into service.

5. INSTALLATION WITH INCLINE OR DECLINE

When the installation of the belt is for a system that is on an incline or a decline then **special attention needs to be given.** If being pulled up a slope the accumulating force required to pull the belt needs to be considered. If a belt is being lowered down a slope then the increasing weight and strain on the equipment needs to be acknowledged. The u rollers, suitably engineered belt clamps etc. will all aid to manage the risks in the proper way.



Given that those **potential risks can be the total loss of control of the belt the damage to anything – or anyone** – in its passed could be not just financially catastrophic but more importantly a human fatality could occur. **Proper planning and the use of specialist technicians is an absolute must.**

6. INSTALLATION WITH PRE-FLAKING OF NEW BELT

Pre-flaking is a method used to limit the actual time required to install the belt. It allows for a large percentage of the belt vulcanizing to be done away from the conveyor.



Pre-flaking is a specialist task and we would always recommend suitably trained specialists be used to plan and perform the work.



Careful consideration needs to be given to the condition of the working floor area where the belt will be flaked, the length and height of the flaked piles, the method and equipment used to move the belt as it is uncoiled and flaked, the equipment used to make-safe and secure the piles so that belt is not unstable and the angle of wrap as the belt is folded



back on itself to form the flaked piles. As a minimum we recommend that the diameter of any pipe sections used be the same as the diameter of the core section of the spool the belt was delivered on. **Careful thought also needs to be given to how the flaking will affect roll sequencing** given that all rolls are delivered with the assumption that they are all installed in the direction of travel. Smartwire and sensor loop location may also have to be considered at this stage.

Final consideration when flaking is being done is **how long the belt will stay flaked for before it is pulled on to the conveyor?** Our recommendation would be no more than 2 months. Additionally **if the flaking is done in winter months** where there is extended cold and wet conditions, then **some efforts should be made to protect the flaked belt.**

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