A **conveyor belt** (or **belt conveyor**) consists of two or more [pulleys](http://en.wikipedia.org/wiki/Pulley), with a continuous loop of material - the conveyor belt - that rotates about them. One or both of the pulleys are powered, moving the belt and the material on the belt forward. The powered pulley is called the drive pulley while the unpowered pulley is called the idler. There are two main industrial classes of belt conveyors; Those in general [material handling](http://en.wikipedia.org/wiki/Material_handling) such as those moving boxes along inside a factory and [bulk material handling](http://en.wikipedia.org/wiki/Bulk_material_handling) such as those used to transport industrial and agricultural materials, such as grain, coal, ores, etc. generally in outdoor locations. Generally companies providing general material handling type belt conveyors do not provide the conveyors for bulk material handling. In addition there are a number of commercial applications of belt conveyors such as those in [grocery stores](http://en.wikipedia.org/wiki/Grocery_store).

The [belt](http://en.wikipedia.org/wiki/Belt_(mechanical)) consists of one or more layers of material. They can be made out of [rubber](http://en.wikipedia.org/wiki/Rubber). Many belts in general material handling have two layers. An under layer of material to provide linear strength and shape called a carcass and an over layer called the cover. The carcass is often a cotton or plastic web or mesh. The cover is often various rubber or plastic compounds specified by use of the belt. Covers can be made from more exotic materials for unusual applications such as silicone for heat or gum rubber when traction is essential.

Material flowing over the belt may be weighed in transit using a [beltweigher](http://en.wikipedia.org/wiki/Beltweigher" \o "Beltweigher). Belts with regularly spaced partitions, known as *elevator belts*, are used for transporting loose materials up steep inclines. Belt Conveyors are used in self-unloading bulk freighters and in live bottom trucks. Conveyor technology is also used in [conveyor transport](http://en.wikipedia.org/wiki/Conveyor_transport_(disambiguation)) such as [moving sidewalks](http://en.wikipedia.org/wiki/Moving_sidewalk) or [escalators](http://en.wikipedia.org/wiki/Escalator), as well as on many manufacturing [assembly lines](http://en.wikipedia.org/wiki/Assembly_line). Stores often have conveyor belts at the [check-out counter](http://en.wikipedia.org/wiki/Check-out_counter) to move shopping items. [Ski areas](http://en.wikipedia.org/wiki/Ski_resort) also use conveyor belts to [transport skiers](http://en.wikipedia.org/wiki/Magic_carpet_(ski_lift)) up the hill.

A wide variety of related conveying machines are available, different as regards principle of operation, means and direction of conveyance, including [screw conveyors](http://en.wikipedia.org/wiki/Screw_conveyor), vibrating conveyors, pneumatic conveyors, the [moving floor](http://en.wikipedia.org/wiki/Moving_floor) system, which uses reciprocating slats to move cargo, and roller conveyor system, which uses a series of powered rollers to convey boxes or [pallets](http://en.wikipedia.org/wiki/Pallet).

History

Primitive conveyor belts were used since the 19th century. In 1892, Thomas Robins began a series of inventions which led to the development of a conveyor belt used for carrying coal, ores and other products.[[6]](http://en.wikipedia.org/wiki/Conveyor_belt#cite_note-5) In 1901, [Sandvik](http://en.wikipedia.org/wiki/Sandvik" \o "Sandvik) invented and started the production of [steel](http://en.wikipedia.org/wiki/Steel) conveyor belts. In 1905 [Richard Sutcliffe](http://en.wikipedia.org/wiki/Richard_Sutcliffe) invented the first conveyor belts for use in[coal mines](http://en.wikipedia.org/wiki/Coal_mines) which revolutionized the mining industry. In 1913, [Henry Ford](http://en.wikipedia.org/wiki/Henry_Ford) introduced conveyor-belt assembly lines at [Ford Motor Company](http://en.wikipedia.org/wiki/Ford_Motor_Company)'s Highland Park, Michigan factory.[[7]](http://en.wikipedia.org/wiki/Conveyor_belt#cite_note-Hounshell-1984-6) In 1972, the French society REI created in New Caledonia the then longest straight-belt conveyor in the world, at a length of 13.8 km. Hyacynthe Marcel Bocchetti was the concept designer.[[*citation needed*](http://en.wikipedia.org/wiki/Wikipedia:Citation_needed)] In 1957, the B. F. Goodrich Company patented a conveyor belt that it went on to produce as the Turnover Conveyor Belt System. Incorporating a half-twist, it had the advantage over conventional belts of a longer life because it could expose all of its surface area to wear and tear. [Möbius strip](http://en.wikipedia.org/wiki/M%C3%B6bius_strip" \o "Möbius strip) belts are no longer manufactured because untwisted modern belts can be made more durable by constructing them from several layers of different materials.[[8]](http://en.wikipedia.org/wiki/Conveyor_belt#cite_note-7) In 1963-64, First Indian Small Scale Industrial Unit with Japanese Plant for Rubber Belts for Conveyor / Elevator / Transmission was installed near National Capital Territory of Delhi and its MrBelts Conveyor Belting has been widely used in Steel, Cement, Fertilizer, Thermal Power, Sponge Iron Plants and Coal / Mineral establishments / Mines, Port Trusts and similar material handling applications of Industry for the last over 4 decades;

## Belt conveyor systems

Conveyors are durable and reliable components used in automated [distribution](http://en.wiktionary.org/wiki/distribution) and warehousing.[[1]](http://en.wikipedia.org/wiki/Conveyor_belt#cite_note-0) In combination with computer controlled pallet handling [equipment](http://en.wikipedia.org/wiki/Equipment) this allows for more efficient [retail](http://en.wikipedia.org/wiki/Retail), [wholesale](http://en.wikipedia.org/wiki/Wholesale), and [manufacturing](http://en.wikipedia.org/wiki/Manufacturing) [distribution](http://en.wikipedia.org/wiki/Distribution_(business)). It is considered a labor saving system that allows large volumes to move rapidly through a process, allowing companies to [ship](http://en.wikipedia.org/wiki/Ship) or receive higher volumes with smaller storage space and with less labor [expense](http://en.wikipedia.org/wiki/Expense).

Rubber conveyor belts are commonly used to convey items with irregular bottom surfaces, small items that would fall in between rollers (e.g. a [sushi conveyor bar](http://en.wikipedia.org/wiki/Conveyor_belt_sushi)), or bags of product that would sag between rollers. Belt conveyors are generally fairly similar in construction consisting of a metal frame with rollers at either end of a flat metal bed. The belt is looped around each of the rollers and when one of the rollers is powered (by an [electrical motor](http://en.wikipedia.org/wiki/Electric_motor)) the belting slides across the solid metal frame bed, moving the product. In heavy use applications the beds which the belting is pulled over are replaced with rollers. The rollers allow weight to be conveyed as they reduce the amount of friction generated from the heavier loading on the belting. Belt conveyors can now be manufactured with curved sections which use tapered rollers and curved belting to convey products around a corner. These[conveyor systems](http://en.wikipedia.org/wiki/Conveyor_systems) are commonly used in postal sorting offices and airport baggage handling systems. A sandwich belt conveyor uses two conveyor belts, face-to-face, to firmly contain the item being carried, making steep incline and even vertical-lift runs achievable.

Belt conveyors are the most commonly used powered conveyors because they are the most versatile and the least expensive. Product is conveyed directly on the belt so both regular and irregular shaped objects, large or small, light and heavy, can be transported successfully. These conveyors should use only the highest quality premium belting products, which reduces belt stretch and results in less maintenance for tension adjustments. Belt conveyors can be used to transport product in a straight line or through changes in elevation or direction. In certain applications they can also be used for static accumulation or cartons.