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## A

**Abraded:** Worn away by friction.

**Abrasion:** Wearing away by friction.

**Abrasion test:** Determination of the rate of wearing away by friction.

**Abrasion tester:** A machine for determining relative abrasion resistance.

**Accelerated aging:** Intensive exposure to operating conditions to obtain an early change in physical properties of an elastomer.

**Accelerated life test:** A method designed to approximate in a short time the deteriorating effects obtained under normal service conditions.

**Across the line starting tension:** Tension developed in a belt when full electrical power is applied to the drive system.

**Adhesion:** Basically, the adhering, clinging, bonding or sticking of two material surfaces to one another, such as rubber to rubber, rubber to metal, rubber to wood, rubber to fabric.

**Adhesion failure:** The separation of two adjoining surfaces due to service conditions.

**Adhesive:** A material which, when applied, will cause two surfaces in contact with each other to stick together.

**Adhesive coating:** A coating applied to a surface to increase its bond to an adjoining surface.

**Adhesive fabric:** A fabric with a surface treatment which will bond two surfaces together when interposed between them.

**Aftercure:** A continuation of the process of vulcanization after the cure has been carried to the desired degree and the source of heat removed.

**Afterglow:** In fire resistance testing, the red glow persisting after extinction of the flame.

**Aging:** To undergo changes in physical properties with age or lapse of time.

**Air bomb aging:** A means of accelerating changes in the physical properties of material by exposing them to the action of air at elevated temperature and pressure.

**Air checks:** The surface markings or depressions which occur due to air trapped between the material and the mold or press surface.

**Air curing:** The vulcanization of a rubber product in air as distinguished from vulcanizing in a press or steam vulcanizer.

**Air oven aging:** A means of accelerating a change in the physical properties of rubber compounds by exposing them to the action of air at an elevated temperature at atmospheric pressure.

**Air trap:** See air checks.

**Ambient temperature:** The environment temperature surrounding the object under consideration.

**Angle of repose:** The angle to the horizontal which a material will naturally assume when dropped in a pile.

**Angle of slide:** The angle at which material begins to slide down an inclined surface.

**ANSI:** American National Standards Institute

**Anti-backdrop:** See backstop.

**Anti-static:** See static conductive.

**Antioxidant:** A compounding ingredient used to retard deterioration caused by oxygen.

**Antiozonant:** A compounding ingredient used to retard deterioration caused by ozone.

**Antislip surface:** A specially treated surface to obtain greater than normal traction.

**Apron feed:** An intermediate feed system.

**Arc of contact:** (1) The portion of a curved surface which is engaged. (2) In belts, it refers to the portion of a pulley which is engaged by the belt and is usually expressed in degrees.

**Armored belt:** A conveyor belt with crosswise insertions in the cover such as steel cables to minimize gouging or tearing of the cover by sharp objects.

**Army duck:** See duck.

**Artificial weathering:** Exposure to cyclic laboratory conditions involving changes in temperature, relative humidity, and radiant energy, with or without direct water spray, attempting to produce changes in the material similar to that observed after long-term continuous outdoor exposure.

**ASME:** American Society of Mechanical Engineers.

**ASTM:** American Society for Testing and Materials.

**Atmospheric cracking:** Small fissures in the surface of a belt cover caused by exposure to atmospheric conditions.

**Automatic take-up:** A mechanical device to maintain proper tension in a belt automatically compensating for belt stretch or shrinkage in service.

**Average modulus:** The total change of stress divided by the total change of strain.

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**B**

**Back cover:** See bottom cover.

**Backstop:** A mechanical device for preventing a loaded, inclined conveyor or elevator belt from running backwards after the belt has been stopped.

**Banbury mixer:** A specific type of internal mixer used to incorporate filler and other ingredients in rubber or plastic operations.

**Bare back:** The textile face of an article which is free of any treatment or covering.

**Bare duck:** The duck surface of a fabricated article wherein the exposed duck surface is free of any covering.

**Bare duck belt:** A belt in which at least one side has the exposed duck surface free of any covering.

**Bare pulley:** A pulley whose face surface is not covered or lagged.

**Bareback surface:** A belt surface where the textile surface is without any coating.

**Base belt:** The portion of a closed belt in a closed belt conveyor which remains flat and provides the necessary tensile strength.

**Basic tension bearing yarns:** One of the two warp systems in a straight warp fabric where the warp yarns are substantially without crimp and provide the tensile strength for the belt.

**Basket weave:** A fabric with ends of yarn side by side in both the warp and filling in a plain weave construction.

**Bead rubber:** An extruded polymeric compound used to fill the void between butted joint of two pieces of fabric.

**Bed:** A continuous surface over which a conveyor belt may slide.

**Belt:** A flexible reinforced band placed around two or more pulleys to carry materials from one place to another.

**Belt carcass:** See carcass.

**Belt clamp:** Beams or metal plates secured transversely on both sides of belt ends to hold the ends in a desired position.

**Belt cleaning device:** A scraper or rotating device pressed against the belt surface to remove material stuck to the belt.

**Belt conveyor:** A mechanical system composed of suitable head, tail, bend pulleys and belt idlers or a slider bed to handle bulk materials, packages, or other objects placed directly upon it.

**Belt drive:** An assembly of power-driven pulley(s) used to transmit motion to a conveyor or elevator belt.

**Belt duck:** An open weave duck made from plied yarns with strength predominately in the warp direction. Used primarily in the manufacture of belts.

**Belt fastener:** A device for holding the ends of belt together.

**Belt fleet:** The lateral movement of a conveyor belt to either side of its intended path.

**Belt grade:** A classification of belting according to the quality and properties of the belt cover.

**Belt modulus:** The ratio of stress to strain.

**Belt pitch line:** See pitch line.

**Belt sag:** The amount of vertical deflection of a conveyor belt from a straight line between idlers, usually expressed as a percentage of the center to center spacing of the idlers.

**Belt slip:** The action that takes place, causing a differential movement between the pulley surface and the belt.

**Belt slope tension:** See tension, slope.

**Belt surface finish:** Final surface condition of belt.

**Belt tracking switch:** A limit switch actuated by the edge of a conveyor belt when the belt moves abnormally to either side of its centered path.

**Belt training idler:** An idler having a belt-actuated swivel mechanism to control the side runoff of a conveyor belt.

**Belt turnover:** A system of pulleys arranged to turn a belt over. Frequently used to prevent building-up on return idlers by turning the dirty side (carrying side) up. See also twist.

**Belting deflector:** A mechanism which deflects the conveyed material off of the belt at specific points along the conveyor.

**Belting, flat conveyor:** See flat belt.

**Bench test:** A modified service test in which the service conditions are approximated in the laboratory.

**Bend pulley:** A pulley used to change direction of belt run.

**Bending force:** The force required to bend a belt under prescribed conditions.

**Bending modulus:** That force required to induce bending around a specified radius and, hence, a measure of stiffness.

**Bias angle:** The smaller included angle between the warp yarns of a fabric and the diagonal line across the warp yarns.

**Bias cut:** A cut of a textile material made diagonally at an angle less than 90 degrees to the longitudinal axis.

**Bias laid:** Material laid on or wrapped around so the warp yarns are at an angle less than 90 degrees to the longitudinal direction.

**Bias seam:** The seam at which bias cut fabrics are joined together.

**Binder warp yarn:** One of the warp systems in a straight warp fabric interlaced with the filling yarn to provide the strength to hold mechanical fasteners.

**Bite:** See nip

**Bleeding:** Migration to the surface of plasticizer, waxes or similar materials to form a film or beads. See also Bloom.

**Blemish:** A mark, deformity, or injury which impairs the appearance.

**Blisters:** A raised spot on the surface or a separation between layers usually forming a void or air-filled space in the vulcanized article.

**Bloom:** A discoloration or change in appearance of the surface of a rubber product caused by the migration of a liquid or solid to the surface. Examples: sulfur bloom, wax bloom. Not to be confused with dust on the surface from external sources.

**Blow-up:** A blister between plies of an article.

**Bolted plate hinge fastener:** Steel plates both sides and both ends of two belt ends to be fastened together (secured to the belt with bolts with the ends of the plates constructed into a circular hole for accepting a hinge pin to secure the two ends of the belt(s) together.

**Bond:** See Adhesion.

**Boot:** Enclosure for the loading end of a bucket elevator belt.

**Bootlegging:** (1) Progressive ply delamination. (2) The separation of plies in belting due to flexing.

**Bottom cover:** The protective rubber cover on the surface contacting the driving mechanism of a conveyor belt.

**Bow:** (1) Curvature from flat plane in the surface. (2) The deviation from the straight line of the fill yarn in a fabric. (3) The deviation from the straight line of a product when unrolled and laid on a flat surface.

**Brand:** A mark or symbol identifying or describing a product and/or manufacturer: may be either embossed, inlaid, or printed.

**Breaker ply:** An open weave fabric used next to the carcass fabric and/or in the cover to improve the attachment of the cover to the carcass and to improve cover cut and gouge resistance.

**Breaking strength:** The tensile which a textile yarn or cable, a steel cord, or a belt is at rupture.

**Brushed finish:** The mechanical removal of any surface impregnation or coating from the belt fabric.

**Bucket:** One of the cups on an elevator belt.

**Bucket cover:** The cover of an elevator belt next to the carrying buckets.

**Bucket elevator:** Belt with buckets attached.

**Bucket projection:** The distance the bucket protrudes beyond an elevator belt.

**Buckled ply:** A deformed ply, usually the result of a fold or wrinkle, which distorts it from its normal plane.

**Buffing marks:** The characteristic surface condition after a buffing operation.

**Bumping:** In the operation of a flat press, the alternative application and release of ram pressure to vent trapped air and gases.

**Butt seam:** A seam made by placing the two pieces to be joined edge to edge.

**Butt strap joint:** The connection of elevator belt ends with a piece of belting the width of the elevator belt placed over the butted belt ends, usually extending under at least two buckets and secured with bolts to the belt.

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## C

**Cable yarn:** Two or more plied yarns twisted together.

**Calculated center distance:** In belt drives, the distance between two shaft centers calculated from pulley diameters and belt length being used.

**Calender:** A machine with three or more internally heated or cooled cylinders used to (1) continuously sheet out polymeric compound or fused PVC (2) to wipe polymeric compound into the interstices of a fabric leaving a small portion of it on the surface of the fabric, or (3) to lay a continuous sheet of compound on a fabric.

**Calendered "rubber" sheets:** Continuous film of uncured elastomer produced from a calendar.

**Camber:** The curvature of a belt relative to the center line (see bow).

**Capacity:** The maximum number of pieces, volume, or weight of material a belt conveyor can handle in a given time interval and belt speed.

**Capped edge:** A rubber protective edge placed around a product internally reinforced with textile or other material.

**Capped end:** A belt end covered with an elastomer to protect the carcass end.

**Carcass:** The fabric, cord and/or metal reinforcing section of any rubber product such as a belt, as distinguished from the rubber cover.

**Carcass break:** A ply or plies of fabric ruptured by impact or gouging.

**Carcass tear strength:** The resistance of a belt against tearing.

**Carcass tear test:** The determination of the tension at which a belt may be torn.

**Carrier:** See idler (2).

**Carry (or carrying) side cover:** See top cover.

**Carrying roller:** See carrying idler.

**Carrying run:** The portion of a conveyor that carries the load between the loading and discharge points.

**Carrying surface:** The outward face or side of the belt which carries the conveyed material.

**Castfilm:** A film made by depositing a layer of plastic, either molten, in solution, or in a dispersion onto a surface, solidifying and removing the film from the surface.

**Catenary idler:** A type of flexible belt-carrying idler with ends supported in pivoted stands. The tube or rollers sag under the weight of the load to form trough.

**CEMA:** Conveyor Equipment Manufacturers Association.

**Cement:** A mixture of polymeric compound or elastomer used as an adhesive or sealant.

**Cemented edge:** An application of cement around the edge of a fabricated product with or without internal reinforcement for protection or adhesion. (A form of Capped Edge.)

**Cemented end:** A belt end sealed with the application of elastomeric cement.

**Center roll:** The horizontal roll between the side troughing rolls.

**Center-to-center:** The distance between the center of two pulleys or idlers. Also called centers or center distance.

**Centrifugal bucket elevator:** A type of bucket elevator having a belt which travels at sufficient speed to discharge material from the buckets by centrifugal force.

**Chafer duck:** A relatively open weave duck of approximately square woven construction made with single or ply yarn.

**Chalking:** Formation of a powdery surface condition due to disintegration of surface binder or elastomer due in turn to weathering or other destructive environments.

**Checking:** Short shallow cracks on the surface generally due to effect of destructive action of environmental conditions.

**Chevron:** A ridge or profile arranged in a Vee shaped configuration on a belt carrying cover to stabilize material carried up an incline.

**Chute lining:** Highly abrasion resistant elastomeric lining in a chute to protect the metal chute from abrasion wear.

**Chute slope:** Angle relative to the horizontal a chute is inclined.

**Cleated belt:** Transverse raised sections on a conveyor belt to stabilize material carried up an incline.

**Closed belt conveyor:** A moving, endless conveyor belt formed into a tubular shape by joining its edges while carrying material, and opening the edges while in motion to receive and discharge material.

**Cloth impression:** See fabric impression.

**Cluster end:** A flat disc idler with several discs adjacent to each other at the ends of the idler.

**Coefficient of friction:** The ratio of the force required to move a package across a belt surface to the weight of the package.

**Cog:** A tooth on the rim of a wheel or rubber product.

**Cogged V-belt:** A V-belt cut or produced with a series of evenly spaced V-shaped indentations in the inner face.

**Cohesive:** Tendency of a material to stick to itself.

**Cold feed:** The introduction of plastic pellets into processing equipment without milling.

**Cold flex:** See low temperature flexing.

**Cold flexibility:** The relative ease of bending following exposure to low temperature.

**Cold flow:** Continued deformation under stress. See Creep.

**Cold splice/bond:** Usually the joining of two or more sub-straits together, using a two-part cement that is chemically cured without using supplemental heat from an external source.

"Cold bond cement" usually is an uncured mixture of varied elastomers, chemicals, and solvents that will not self-cure or vulcanize until mixed with an activator to create a chemical vulcanization (usually exo-thermic).

**Commercially smooth:** A degree of smoothness of an article which is acceptable in accordance with industry practice.

**Compound:** A mixture of a polymer(s) and other materials to give the desired chemical and physical properties in the elastomeric components of a belt.

**Compression member:** The portion of a belt beneath the pitch line as the belt bends around a pulley.

**Compression set:** The deformation in a material remaining after it has been subjected to and released from a compressive force.

**Conductivity:** Quality of power of conducting or transmitting heat or electricity.

**Contact stain:** When staining occurs on the area of an object directly in contact with the rubber article it is known as "contact stain".

**Continuous bucket elevator:** A bucket elevator belt that discharges by gravity over the inverted bottom of the preceding bucket on the descending side of the elevator.

**Control:** A material or a product of known characteristics included in a series of tests to provide a basis for evaluation of other products.

**Conveyor:** A system for the continuous movement or transport of bulk materials, packages or objects along a predetermined path.

**Conveyor belt:** A belt that carries materials from one place to another

**Conveyor belt package deflector:** A mechanical diverter placed at an angle across the belt to deflect packages off the belt at specific locations.

**Conveyor belt stretch:** The increase in belt length which takes place when tension is imposed. Stretch is either elastic or permanent. Elastic stretch is a temporary change in length which varies directly with the pull. Permanent stretch is the residual change in length after tension has been removed; it generally accumulates over a period of time.

**Conveyor width:** In belt conveyors, the width of a belt.

**Copolymer:** A substance consisting of molecules characterized by the repetition of two or more types of monomeric units.

**Cord:** Several strands of yarn twisted together.

**Cord belt:** A belt with textile or steel cords for the longitudinal tension-bearing member.

**Cord fabric:** A fabric with plied or cabled yarns in the warp direction and a light weight filling yarn spaced only sufficiently to process the fabric.

**Cotton:** A natural fiber of high cellulosic content.

**Count:** In fabric, the number of warp ends, the number of filling picks, or both in a square inch of fabric.

**Counter weight:** In conveyor belting, the weight applied to the take-up assembly to maintain proper belt tension.

**Cover:** The outer component of a belt.

**Cover seam:** See cover splice.

**Cover splice:** The transverse joint formed by connecting two lengths of cover stock.

**Cover surface profile:** A cross-sectional view of the cover surface.

**Cover wear:** The loss of material during use due to abrasion, cutting, or gouging.

**Cracking:** A sharp break or fissure in the surface. Generally due to excessive strain.

**Crater:** A small shallow surface imperfection.

**Crazing:** A cover surface with many fissures.

**Creep:** (1) The deformation occurring with the lapse of time in both cured and uncured rubber, in a body under stress in addition to the immediate elastic deformation. Some related terms and properties are stress-relaxation, hysteresis, damping, flow, compression set and viscosity. See Cold Flow. (2) In belts, the action of a belt alternately losing speed on the driving pulley and gaining speed on the driven pulley.

**Creeper drive:** An auxiliary drive, usually consisting of a small motor and speed reducer, used to keep a belt conveyor in motion at a very low speed during non-operating periods in extremely cold weather. It is used to prevent freezing of a belt and other components.

**Crimp:** (1) The waviness of the yarn in a woven fabric. (2) The difference in distance between two points on a yarn as it lies in a fabric and the same two points when the yarn has been removed and straightened. Expressed as a percentage of the distance between the two points as the yarn lies in the fabric.

**Crown:** The difference between the diameter at the center and at the edges of a pulley or a roll.

**Crowned pulley:** A pulley with a greater diameter at the center, or other points, than at the edges.

**Crystallization:** A change in physical properties resulting from the crystalline reorientation caused by temperature.

**Cure:** The act of vulcanization.

**Cure time:** Time required, at a given temperature, to produce optimum physical properties in an elastomer.

**Curing temperature:** The temperature at which the rubber product is vulcanized.

**Curl:** The action of the edges of a belt bending upward on the carrying run and downward on the return run. Also called cupping.

**Cushion breaker:** A leno or cord breaker imbedded in a belt cover.

**Cut belts:** See cut edge.

**Cut edge:** The uncovered edge of a laminated product, such a belt, created by cutting after vulcanization.

**Cut resistance:** The ability of a belt cover to withstand the cutting action of sharp objects.

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## D

**Data code:** Any combination of numbers, letters, symbols, or other methods used by a manufacturer to identify the date of manufacture.

**Decking:** A protective covering over the return run of a belt conveyor.

**Deflector:** A board or plate at an angle across the path of a belt traveling over a flat surface to transfer material off the belt.

**Deformation:** Any change of form or shape produced in a body by a stress.

**Degradation:** A deleterious change in the chemical structure of a material.

**Delamination:** The separation of layers of material in a laminate.

**Denier:** A yarn sizing system for continuous filament synthetic fibers on the basis of the weight in grams of 9000 meters of the yarn.

**Density:** The ratio of the mass of a body to its volume or the mass per unit volume of the substance. For ordinary practical purposes, density and specific gravity may be regarded as equivalent.

**Diameter:** The length of a straight line passing through the geometric center to the periphery of an object.

**Dielectric strength:** The measure of electric potential strength of a rubber product. Measure of its ability as an insulating compound to resist passage of a disruptive discharge produced by an electric stress. Measured as volts per mil of thickness.

**Dip coat:** A thin coat on a surface obtained by dipping the material to be coated into the coating materials.

**Dipped fabric:** Coated with rubber compound by passing through a rubber solution and drying.

**Discharge:** Removal of material from a belt.

**Dog leg:** A bending from a straight line.

**Double plate bolt fastener:** Two ends of belting joined together with a plate on both sides across both ends of the joint.

**Drive:** An assembly of electrical and mechanical parts that provide motive power to a belt.

**Drive, dual:** See dual drive.

**Drive factor:** A numerical factor used for calculating the belt minimum slack side tension required for a given driving condition and or configuration.

**Drive, head-tail:** See head-tail drive.

**Drive pulley:** A pulley mounted on a drive shaft which transmits power to the belt.D

**Drive, single:** A one-pulley drive.

**Drive snubbed pulley:** An undriven pulley located close to the drive pulley to provide a greater arc of contact around the drive pulley.

**Drive, tandem:** See tandem drive.

**Drive-on hinged fastener:** Two ends of belting joined together with a pre-packaged fastener assembly having prongs for driving through the belt end.

**Drive-on plate fastener:** Two ends of belting joined with a single plate, across the top cover joint, with rivets or sharp teeth clinched over on the bottom cover side of the belting.

**Drop ply:** The omission of a reinforcing ply for a specified distance from each edge. Usually the bottom or next to bottom ply in flat conveyor belting.

**Dry blend:** A free-flowing dry compound prepared without fluxing.

**Dual drive:** A belt driving system employing two adjacent pulleys each powered with its own motor.

**Duck:** A term applied to a wide range of medium and heavyweight fabrics, commonly made of cotton, including the heaviest and strongest of all single-woven fabrics. There are three main types: number duck, army-type duck and flat duck.

**Dumbbell:** A test specimen with lesser width at the middle of its length than at its ends.

**Durometer:** An instrument for measuring the hardness of rubber. Measures the resistance to the penetration of an indenter point into the surface of rubber.

**Durometer hardness:** An arbitrary numerical value which measures the resistance to penetration of the indenter point of the durometer. Value may be taken immediately or after a very short specified time.

**Dutchman:** A short section of belting mechanically spliced into a length of belting and removed when the take-up allowance is exceeded.

**Dynamic fatigue:** Loss in properties of a material when continually subjected to flexing and or cyclic stress.

**Dynamometer:** An apparatus capable of inducing various loads for evaluation of dynamic belting properties.

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## E

**Edge wear:** Damage to the edge of a belt by abrasion.

**Effective tension:** Difference between the tight side and the slack side tension at the drive pulley providing the necessary pull to move the load.



**Elastic limit:** The limiting extent to which a material may be deformed and yet return to approximately its original shape after removal of the deforming force.

**Elasticity:** The property of an article which tends to return it to its original shape after deformation.

**Elastomer:** An elastic rubber-like substance, such as natural or synthetic rubber.

**Elastomeric properties:** The chemical and physical properties of an elastomer.

**Elevator belt:** A belt that raises material vertically in buckets attached to the belt.

**Elongation:** Increase in length expressed numerically as a fraction or percentage of initial length.

**Embossing:** Operation of transferring a design to a rubber or rubber-like surface.

**Endless belt:** A belt made endless without a joint.

**Ends:** See fabric count.

**Equivalent free fall:** The calculated vertical distance material falls from the discharge point to end of a belt.

**Exposed fabric:** An area of a belt where the fabric reinforcement shows due to lack of cover.

**Extensibility:** The capability of increased center distance in a belt conveyor.

**Extensible conveyor:** An adjustable conveyor system with a loop of belting between the carrying idlers and the return idlers for changing the center distance.

**Extraction test:** A test in which certain components are separated from a solid by dissolving them in a liquid solvent under suitable conditions.

**Extruded:** Forced through die of tubing machine in either solid or hollow cross section.

**Extrusion:** A process whereby heated or unheated plastic forced through a shaping orifice becomes a continuously formed piece.

**Fabric:** A planar structure produced by nonwoven or interwoven yarns, fibers, or filaments.

**Fabric count:** The number of warp ends per inch and the number of filling picks per inch.

**Fabric design:** The combination of size and numbers of fibers or yarns, in both warp and filling, and the manner in which they are processed.

**Fabric finish:** See fabric impression.

**Fabric impression:** A pattern in the cover of a belt formed by contact with a fabric during processing.

**Fabric picks/inch:** The number of filling (weft) yarns per inch.

**Fabric rating:** The maximum tension per ply of fabric a belt should be operated under ideal conditions.

**Face:** The outer surface of a pulley or belt.

**Face cover:** See top cover.

**Fastener:** See belt fastener.

**Fatigue:** The weakening or deterioration of a material caused by a repetition of stress or strain.

**Feeder belt:** A belt that discharges material onto another conveyor belt.

**Fiber:** A unit of matter having a length at least 100 times its diameter and which can be spun into a yarn.

**Filament:** A continuous fiber of extreme length.

**Filler:** A material mixed with a polymer to improve quality or lower cost of a compound.

**Filler seam:** Extruded polymeric compound used to fill the void between two pieces of belt cover or fabric.

**Filling threads:** The yarns in a fabric running at right angle to the warp.

**Filling yarns:** The transverse yarns in a fabric.

**Film:** A sheet of plastic not greater than 0.010" in thickness.

**Finger splice:** Belt ends cut into mating fingers.

**Finish, fabric:** See fabric impression.

**Finish, plate:** See plate finish.

**Finish, platen:** See platen finish.

**Fire resistance:** See flame retardance.

**Fire resistant:** Retards the burning action of fire or flame.

**Fisheye:** A small globule that has not blended completely into the surrounding material.

**Flame performance:** The manner in which belting after being ignited will burn and/or self extinguish.

**Flame retardance:** Intensity of flame diminished by fire retardant ingredient(s) in the plastic compound.

**Flame test:** A means, under specific condition, for establishing the flame performance of a belt. This will not indicate the performance of the belt in any fire in which the belt may be involved.

**Flange:** A raised edge on a plastic article.

**Flanged edge:** In conveyor belting, an edge built up to prevent spillage.

**Flanged pulley:** A pulley with a raised rim at the edges for the purpose of keeping the belt on the pulley.

**Flash:** Material protruding from the surface of a molded part, appearing at the mold parting line or mold vent points.

**Flat belt:** (1) A belt the cross section of which is in the general form of a rectangle; (2) A belt which operates on a smooth flat bed or straight idlers or rollers.

**Flat press:** A belt finishing press with flat platens, between which the belt is heated and compressed.

**Flat spots:** Thin spots on a conveyor belt surface stored on a flat surface for a long time.

**Flat wire braid:** Flattened braided wire, frequently used for armoring the belt.

**Fleet:** The lateral movement of a conveyor belt to either side of its intended path.

**Flex cracking:** A surface cracking induced by repeated bending or flexing.

**Flex life:** The relative ability of a rubber article to withstand dynamic bending stresses.

**Flex life test:** A laboratory method used to determine the life of a plastic product when subjected to dynamic bending stresses.

**Flexibility:** The ability to be bent repeatedly without cracking.

**Flexing:** The bending of a belt.

**Flight:** (1) One of a series of belt conveyors discharging one to another. (2) A series of cleats or profiles on a belt.

**Floating breaker:** A leno or cord breaker embedded in a belt cover with a distinct layer of elastomer separating the breaker from the carcass.

**Floating idler pulley:** See take-up pulley.

**Flow crack:** A surface imperfection caused by improper flow and failure of a compound to blend with itself during the molding operation.

**Flow line:** See flow mark.

**Flow mark:** A surface imperfection similar to a flow crack, but with a minor depression.

**Folded-edge:** (1) A belt construction wherein the inner carcass is enclosed in an envelope ply or plies. (2) An edge where an outer covering has been wrapped around a carcass and folded over the edge so that the carcass is closed on the edges.

**FPM:** Abbreviation for "Feet per Minute".

**Frequency factor:** The duration of time in minutes required for one complete cycle of a conveyor belt.

**Friction:** (1) The resistance to motion of a belt due to the contact between two surfaces. (2) Improperly used to indicate the bond between two surfaces.

**Friction coat:** An impregnation of rubber material calendered by friction motion to a fabric so that the material is forced into the weave of the fabric.

**Friction, coefficient of:** The ration between the force pressing the surfaces together and the force required to move it.

**Friction, kinetic:** The force which is required to keep a body sliding at a uniform rate. Also called "friction of motion".

**Friction pull:** See adhesion.

**Friction, static:** The force which is required to start a body sliding.

**Friction surface:** The exposed portion of a belt finished with a layer of impregnated plastic as distinguished from being completely covered with a layer of plastic.

**Frictioned fabric:** Coated with rubber compound on a friction (uneven speed) calender.

**Frosting:** Light scattering surface resembling fine crystals.

**Full rated tension:** See rating.

**Fungicide:** An agent that destroys fungi or inhibits their growth.

**Fusion:** An irreversible process during which a PVC compound or platisol undergoes a physical change and becomes a homogeneous mixture by the mutual solvation of the PVC resin and the plasticizer in the compound, as result of heating to an appropriate temperature.

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## G

**Gauge:** The measure of thickness of the individual elements making up a rubber product.

**Gel:** The initial semi-solid stage that develops during the solvation of a resin by a plasticizer.

**Gel point:** The stage at which a liquid begins to exhibit pseudo-elastic properties.

**Glass fiber:** Glass extruded through a die with many fine holes into continuous filaments.

**Gouging:** The effect of sharp heavy material falling onto a conveyor belt cover to loosen or tear out pieces of the cover.

**Grab test:** A tensile test for woven fabric using specimens considerably wider than the jaws holding the ends of the test specimen.

**Grade:** The ration of incline or decline of a conveyor expressed a s percent of the vertical height to the horizontal distance.

**Grade of belting:** The quality of belting cover on the basis or gouge, cut, and abrasion resistance.

**Gravity take-up:** A mechanical system that adjusts for the stretch or shrinking of a conveyor belt automatically by a weighted pulley in the system.

**Grooved lagging:** Lagging with round or angular grooves to minimize material buildup on the pulley.

**Ground finish:** Surface produced by grinding or buffing. See Buffing.

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## H

**Hammock belt idler:** See catenary idler.

**Hank:** A length of 840 yards of a yarn.

**Hardening:** An increase in resistance to indentation.

**Hardness:** Property or extent of being hard. Measured by extent of failure of the indenter point of any one of a number of standard hardness testing instruments to penetrate the product.

**Haze:** The cloudy appearance of an otherwise transparent film.

**Hazing:** A dull finish.

**Head:** The delivery end of a conveyor belt.

**Head pulley:** The terminal pulley at the discharge end of the conveyor.

**Head-tail drive:** A belt driving system using one or more powered pulleys at or near both the head and tail pulleys with each pulley independently driven.

**Heat degradation:** Change in chemical and/or physical properties due to excessive exposure to heat.

**Heat mark:** Extremely shallow depression or groove in the surface of a plastic visible because of a sharply defined rim or roughened surface.

**Heavy weight belt:** A belt with a rated maximum working tension equal to or greater than 160 pounds per inch width, when operating under ideal conditions.

**Herringbone weave:** The longitudinal appearance of a row of parallel lines slanting at an angle in the opposite direction to another row of slanting parallel lines.

**Hinge pin:** A cable or rod to join together hinged fasteners.

**Hinged fastener:** A fastener attached independently to each of the belt ends designed with an opening in the end of the fastener to accept a pin through the opening to complete the joint.

**Hold back:** See backstop.

**Holland cloth:** A filled sheeting (usually starch filled) with a smooth, glossy finish on both sides, used as separating medium.

**Homogenous:** Of uniform composition throughout.

**Horizontal belt curve:** The portion of a conveyor system which deviates from a straight line in the same horizontal plane as the rest of the system.

**Horsepower:** A unit of power equal to 33,000 foot-pounds per minute (746 watts).

**Horseshoe:** A fold in a surface in a definite U-shaped pattern. Particularly used in describing squeezed-out blisters in a belt cover. Also called ring blisters, dog ears and pig ears. Colloquial.

**Hot air cure:** Vulcanization by using heated air, with or without pressure.

**Hugger belt conveyor:** Two belt conveyors whose conveying surfaces combine to convey loads up steep inclines or vertically.

**Hysteresis:** A loss of energy due to successive deformation and relaxation. A measurement of the area between the deformation and relaxation stress-strain curves.

**Hysteresis loop:** The configuration of the graphical plot of stress and strain from the initial application of stress to some reduced stress. The measure of hysteresis is the area under stress-strain curves of increasing and decreasing stress.

**Hysteresis loss:** A loss of mechanical energy due to successive deformation and relaxation. It is measured by the area between the deformation and relaxation stress-strain curves.

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**Idler:** (1) A nonpowered pulley around which a belt travels (2) a nonpowered roll or rolls supporting a belt.

**Idler pulley:** See idler.

**Idler stand:** The mechanical system that supports an idler pulley.

**Immediate set:** The amount of deformation measured immediately after removal of the load causing the deformation.

**Impact:** The single instantaneous stroke or contact of a moving body with another either moving or at rest, such as a large lump of material dropping on a conveyor belt.

**Impact energy:** The effective combination of force (weight of the body and height) when one body falls on another.

**Impact force:** The energy power of impact.

**Impact idler:** A belt idler having a resilient roll covering, resilient molded elastomer rings, pneumatic tires, springs or other means of absorbing impact energy at or close to the place where material contacts the belt.

**Impact rating:** The maximum rating of a belt construction based on the fabric, impact rolls, design of loading, size of material falling on the belt, relative speed of the material and the belt, etc. to withstand the energy of impact loading.

**Impact resistance:** The relative ability of a conveyor belt assembly to absorb impact loading without damage to the belt.

**Impregnated:** Fabric interstices filled and/or yarns saturated with plastic compound.

**Impregnation:** To fill the interstices of an article with a rubber compound. Generally applies to treatment of textile fabrics, yarns and cords.

**Impression:** Design formed during vulcanization in the surface of any rubber article by a method of transfer, such as fabric impression or molded impression.

**Impulse:** An application of force in a manner to produce sudden strain or motion.

**Indentation:** (1) The extent of deformation by the indenter point of any one of a number of standard hardness testing instruments; (2) A recess in the surface of a belt cover.

**Inside length:** A belt length measured along its inside circumference.

**Installation allowance:** The amount by which the center distance can be adjusted so a belt can be installed without damaging.

**Instantaneous modulus:** The ratio of stress to strain at a single point on the stress-strain curve.

**Interstice:** A small opening, such as between fibers in a cord or threads in a woven or braided fabric.

**Interstice of fabric:** Spaces between the yarns or cord of a woven fabric.

**Interwoven conveyor belt:** A type of conveyor belt construction similar to that of a solid woven belt, with plies interwoven such that it is impossible to separate them.

**Irons:** Strips of metal at the edges of a belt in a flat press to confine the edge elastomer for making a molded edge or to obtain uniform thickness of the edges of a slit edge belt near its edges.

**ISO:** The abbreviation for the International Organization for Standardization.

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## J

**Jaws:** Clamps to hold a specimen when applying stress to the specimen for certain tests.

**Joint:** The area where two ends of a belt are fastened together, either by heat and pressure or mechanical means. See also splice.

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## K

**Kinking:** A temporary or permanent distortion of belting caused by doubling the belt on itself.

**Knitted Ply:** Spirally interlaced loops of yarn forming a continuous tubular structure.

**Knuckles:** Raised loops of a woven textile structure.

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## L

**Lagged drive pulley:** See lagged pulley.

**Lagged pulley:** A pulley having its surface covered with lagging.

**Lagging:** A smooth or embossed covering on a pulley to increase friction between belt and pulley.

**Laminate:** A product made by bonding together two or more layers of material.

**Laminated:** Build up from thinner layers.

**Lap joint:** An elevator joint where one end of the belt laps over the other end with the leading edge on the bucket side.

**Lap:** A part that extends over itself or a like part.

**Lap seam:** A seam made by placing the edge of one piece of material extending flat over the edge of the second piece of material.

**Lateral:** Coming from the side.

**Lateral misalignment:** Offset of pulleys, idlers, or structure from a design longitudinal reference line.

**Leno breaker:** An open-mesh fabric made from coarse ply yarns, with a leno weave. A leno weave is one in which certain warp threads-termed doup or crossing threads-are passed from side to side of one or more ends-termed standard threads and are found in by the filling in this position. Where the crossed interlacing occurs an open, perforated structure is formed.

**Leno weave:** An open mesh fabric in which the warp yarns are held by the filling yarns with the filling yarns twisted around alternating warp yarns in opposite direction.

**Life test:** A laboratory procedure used to determine the resistance of rubber article to a specific set of destructive forces or conditions.

**Lift:** The net vertical distance material is moved by a conveyor or bucket elevator.

**Light weight belt:** A belt with a rated maximum working tension of less than 160 pounds per inch width.

**Lined bolt holes:** Bolt holes which have been given a protective coating to cover the exposed carcass.

**Liner:** A separator, usually cloth, plastic film, or paper, used to prevent adjacent layers of material from sticking together.

**Live roller conveyor:** A roller bed conveyor system with frequently placed rollers above and in contact with the belt so the powered belt turns-makes "alive"-the rollers above the belt. The packages, etc. are conveyed on the rollers above the belt.

**Live rolls:** A series of rolls over which objects are moved by application of power to all or some of the rolls.

**Live storage:** (1) The storage of objects on a conveyor belt having a low coefficient of friction surface or on live rollers so the objects can accumulate while they are added to or removed at different rates (2) The storage of material in a silo while material is being discharged or poured in at the same time (3) An extensible conveyor with a loop of belting between the carrying and return idlers where the length of the loop is continuously decreased as the equipment at the mining face is advanced.

**Load support:** The ability of a fully loaded conveyor belt to bridge the idler gap without creasing into the idler gap and carry material without excessive sag between the carrying idler pulleys.

**Load weight:** The weight of material per unit of time.

**Loading angle:** The angle to the horizontal at which material is loaded onto a conveyor belt.

**Loading impact:** The energy with which material is loaded onto a conveyor belt.

**Longitudinal:** A lengthwise direction.

**Longitudinal seam:** A seam joining two materials in the length of the finished product.

**Loop edge:** A selvage formed by having the filling loop around a catch cord or wire, which is later withdrawn, leaving small loops along the edge of the cloth.

**Loose cover:** A separation of the cover from the carcass or textile reinforcement.

**Loose edge:** An edge which has separated from a textile carcass.

**Loose ply:** A separation between adjacent plies of fabric.

**Low spot:** A depression below the general surface of an object.

**Low temperature flexibility:** The ability of belting to be bent or flexed at low temperatures without loss of serviceability.

**Low temperature flexing:** The act of bending a product under conditions of a cold environment.

**Lump size:** The size of larger material on a conveyor belt.

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## M

**Masterbatch:** A preliminary mixture of two or more compound ingredients for purposes of more thorough dispersion or better processing, and which will later become part of the final compound in a subsequent mixing operation.

**Maximum horsepower:** The highest power requirement.

**Maximum ply:** (1) The maximum number of plies permissible that will permit for satisfactory troughability; (2) The maximum number of plies permissible to satisfactorily operate around a pulley of a given diameter.

**Maximum safe working stress:** The greatest tension at which a belt should be operated.

**Maximum tension:** See tension, maximum.

**Mechanical fastener:** Any mechanical device used to join the ends of belting.

**Migration:** The transfer of an ingredient in a rubber compound from one layer to an adjacent layer or to the surface.

**Migration stain:** When staining occurs on the area of an object adjacent to the rubber article it is known as "migration stain".

**Mildew:** Growth on organic matter produced by fungi, generally in textile components of rubber articles. Usually causes deterioration.

**Mildew inhibited:** The article contains material to prevent or retard mildew.

**Mill:** A machine with two horizontal rolls revolving in opposite directions used for the mastication or mixing of rubber.

**Minimum accelerating time:** The least time allowed to accelerate a conveyor belt from rest to normal speed without exceeding its maximum safe working stress.

**Minimum braking time:** The least time allowed to decelerate a conveyor belt from normal speed to rest without exceeding the maximum safe working stress or causing the belt to double up on itself.

**Minimum ply:** The least number of plies that will support the load on a belt without damaging deformation.

**Minimum pulley diameter:** The smallest pulley diameter around which a belt is recommended to operate.

**Minimum tension:** See tension, minimum.

**Mirror finish:** A bright, polished surface appearance.

**Mix:** See compound

**Modified grab test:** A tensile test for woven fabric using specimens wider than the jaws holding the specimen cut midway between the jaws to the warp yarns held by the jaws. Minimizes warp yarn popout experienced by raveled specimen test.

**Modulus:** (1) A coefficient or numerical measure of some property. (2) In rubber, modulus usually refers to one of several measurements of stiffness or resistance to deformation. The use of the word without modifying terms may be confusing and such use should not be encouraged. Modulus in rubber may be either static or dynamic; static moduli are subdivided into tangent, chord, and compounder's. Compounder's modulus is always in tension, but all the others may be in shear, compression or tension. Other terms used in connection with "modulus" are elasticity, rigidity, Young's tangent, and elongation. (3) All elastic moduli in rubber (except compounder's) are ratios of stress to the strain produced by that stress, the stress, usually p.s.i.

**Modulus, belt:** The force per unit width of belt required to produce a stated percentage of elongation.

**Modulus of elasticity:** The force divided by the percent elongation (divided by 100) to cause the elongation.

**Moisture regain:** The reabsorption of water by a textile.

**Mold edge:** A belt edge formed during vulcanization by curing in a mold or against edge irons.

**Mold lubricant:** The material used to coat the surfaces of a mold to prevent the rubber adhering to the metal during vulcanization.

**Mold mark:** An indentation or embossment on the surface of a molded product caused by irregularities in the mold surface.

**Mold register:** The means used to align the parts of a mold.

**Mold release:** See mold lubricant.

**Monofilament:** A single extruded strand of material.

**Monomer:** A relatively simple compound which can react to form a polymer.

**Mooney viscosity:** A measure of the plasticity of a polymeric compound determined in a Mooney shearing disc viscometer.

**MSHA:** Abbreviation for Mine Safety and Health Administration.

**MSHA flame retardant test:** Flame test procedure for underground conveyor belting prescribed by the Mine Safety & Health Administration of the U.S. Department of Labor.

**MSHA flame retardant test:**

Flame procedure for underground conveyor belting prescribed by the Mine Safety & Health Administration of the U.S. Department of Labor.

**Multifilament:** Many extruded fine strands of material grouped together.

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## N

**Narrow disc idler:** A flat pulley with discs attached around the pulley at certain intervals across the pulley.

**Necking down:** A localized decrease in the cross-sectional area of a product.

**Needle punched:** Nonwoven fabric punched with a hack latched needle to improve its strength and stability.

**Net endless length:** The manufactured length necessary to provide proper initial fit and tensioning of a belt on a specified drive.

**Nicks:** Cuts in the surface or edge of belting.

**Nip:** The clearance between two rolls of a calender.

**Nitrile:** Common name for nitrile-butadiene polymer.

**Nominal:** An approximate amount.

**Nonblooming:** The absence of bloom.

**Nonwoven fabric:** A mat of nonaligned fiber bonded together.

**Norway type elevator bolt:** Flat top, squared shoulder bolt for attaching elevator buckets to elevator belts.

**NR:** Abbreviation for isoprene polymer.

**Numbered duck:** Fabric weight designated by numbers based on linear yard of cloth 22" in width.

**Nylon:** Common name for polyamide fiber.

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## O

**Offset idler:** The center carrying roller which is offset and transversely lapping the troughing idlers.

**Oil proof:** Not adversely affected by exposure to oil.

**Oil resistant:** Withstands the deterioration effect of oil (generally refers to petroleum) on the physical properties.

**Oil swell:** The change in volume of a rubber article due to absorption of oil.

**Oil well splice:** Two ends of a belt each bent 90 degrees around a steel form and bolted together through the belt and steel form.

**Oligomer:** A polymer consisting of only a few monomer units such as in dimer, a trimer, a tetramer etc. & their mixtures.

**One side:** Pertains to one of the two outward faces or surfaces of a conveyor belt (not the edges of the belt).

**Open seam:** A seam whose edges do not meet creating a void.



**Operating tensions:** The tension of longitudinal sections of a belt system (tight side and slack side) when moving material, as distinguished from tension when the belt is running empty.

**Optimum cure:** The time, temperature and compression of vulcanization or of fusion at which a desired combination of properties is attained in an elastomer.

**Organosol:** A suspension of a finely divided plastic in a plasticizer with a volatile organic solvent.

**Outside diameter eccentricity:** The degree a pulley is out-of-round with respect to its central axis.

**Oven:** A low pressure hot air chamber used for the purpose of heating, drying, baking or vulcanizing rubber products. See Aging.

**Oxidation:** The reaction of oxygen on a rubber product, usually detected by a change in the appearance or feel of the surface or by a change in physical properties.

**Oxygen bomb:** A chamber capable of holding oxygen at an elevated pressure which can be heated to an elevated temperature. Used for an accelerated aging test.

**Oxygen bomb aging:** A means of accelerating change in the physical properties of rubber compounds by exposing them to the action of oxygen at an elevated temperature and pressure.

**Ozone cracking:** Belt cover cracks or crazing caused by exposure to ozone in the atmosphere.

**Ozone resistant:** Withstands the deteriorating effects of ozone (generally cracking).

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P

**Package conveyor:** A conveyor which transports packaged, boxed, or bagged material.

**Package deflector:** See conveyor belt package deflector.

**Packed material:** Material on belting compacted as the belting moves along the system.

**Performance test:** See service test.

**Permanent set:** The amount by which an elastic material fails to return to its original form after deformation.

**Permanent stretch:** Elongation permanently removed from belting when it is first used.

**Permeability:** The quality or condition of allowing passage of liquids or gases through a rubber layer.

**Physical properties:** A measure of mechanical characteristics of a material.

**Pick:** An individual filling yarn of a fabric.

**Picking idler:** A short-sided troughing idler for readily removing material by hand from a belt.

**Pierce tape:** A woven mesh of steel wire or cord.

**Pimple:** A small sharp or conical elevation on the surface of a product.

**Pit:** A small crater in the surface of a product with width about the same as its depth.

**Pitch line:** The plane within a belt which undergoes neither stretching nor compression when the belt rounds the pulley, i.e., the neutral plane of the belt structure.

**Plain weave:** The simplest type of weave with both adjacent warp and filling yarns crossing over and under each other.

**Planished cover:** An irregular coated surface transformed into a smooth surface by some means.

**Planished finish:** See planished cover.

**Plastic:** A material that contains as an essential ingredient one or more organic polymeric substances of large molecular weight, is solid in its finished state, can be shaped by flow.

**Plasticity:** (1) A measure of the resistance to shear of an unvulcanized elastomer; (2) a measurement of resistance to shear with heat history.

**Plasticizer:** A compounding ingredient which can change the physical and chemical properties and processibility of a polymeric compound.

**Plastisol:** A dispersion of a powderous polymer in a plasticizer.

**Plate finish:** A finish resulting from contact with commercially smooth but not polished press platens.

**Plied yarn:** A yarn made by twisting together two or more single yarns.

**Plows:** Plates across a belt to remove material lying on or sticking to the belt.

**Ply:** A layer of rubberized fabric.

**Ply adhesion:** The force required to separate two adjoining strength reinforcing members in a rubber product.

**Ply separation:** Lack of adhesion between plies.

**Ply tensile:** The ultimate breaking strength of a belt expressed in force per inch width per ply.

**Polymer:** A macromolecular material formed by the chemical combination of monomers having either the same or different chemical composition.

**Polymerization:** The process that converts monomers into polymers.

**Polyvinyl chloride:** A polymer prepared by the polymerization of vinyl chloride as the sole monomer.

**Porosity:** The condition of containing numerous small holes or voids.

**Portable conveyor:** A conveyor system readily moved from one place to another.

**Portable vulcanizer:** A vulcanizer readily moved from one place to another, usually used for making field splices and repairs.

**Pot life:** The period of time during which a reacting polymeric compound remains suitable

for its intended use after having been mixed with a reaction-initiating agent.

**Powered roller conveyor:** A term used by the U.S. Postal Service to mean a live roller conveyor. See live roller conveyor.

**Press:** A machine consisting of two or more heated plates which can be brought together and separated by hydraulic pressure or mechanical action.

**Press cold ends:** The area of reduced temperature at the press platen end.

**Press lap:** The area of overlap of one press cure length on the next.

**Press length:** The length of a belt which can be pressed at one time.

**Press marks:** Irregularities in the surface of a vulcanized product caused by the press ends or by corresponding irregularities in the press surface.

**Press, rotary:** See rotary press.

**Pricker marks:** Small marks in the cover of a vulcanized belt where a roll with sharp needles had penetrated the uncured belt to allow trapped air in the uncured belt composite to escape.

**Processing:** The operations in the manufacture of a belt.

**Profile top cover:** Belt surface having a series of continuous or interrupted, straight or curved ridges, across the belt at regular intervals to enhance the belts ability to move materials up inclines or down declines.

**Prong:** The sharp point of a mechanical fastener that penetrates the belt.

**Pulley:** A cylinder, mounted on a central axis rod.

**Pulley cover:** See bottom cover.

**Pulley lagging:** See lagging.

**Pulley projection:** The amount a pulley face width extends beyond belt edge.

**Pulley wear cover:** (1) Elastomeric material attached to the pulley to minimize pulley surface wear (2) Additional belt bottom cover thickness where extraordinary wear is anticipated.

**Pulley wrap:** See arc of contact.

**Pure gum compound:** A natural rubber or isoprene compound containing only the ingredients necessary to process it, to protect it from aging, and to cause vulcanization.

**PVC cover:** Cover using a PVC compound.

**PVC impregnated:** Impregnated with PVC compound.

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## Q

**Qualification conformance inspection:** The examination of samples from a production run to determine conformance to a given specification.

**Qualification inspection test:** The examination of samples from a typical production run to determine conformance to a given specification for approval to become a supplier.

**Quarter turn drive:** A belt system in which the axes of the adjacent pulleys are at right angles to each other to cause a 90 degree twist in the belt about its longitudinal axis.

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## R

**RAC:** Abbreviation for The Rubber Association of Canada.

**Raised cover center:** A belt cover with increased thickness along the center portion of the belt.

**Raised edge:** A flanged edge conveyor belt to minimize spillage.

**Raised rib belt:** A belt with transverse or diagonal bars or cleats on the top cover.

**Rated conveyor belt:** The manufacturer's recommended maximum working tension for a conveyor belt.

**Rated working tension:** See rating.

**Rating:** The normal working tension recommended for a belt.

**Raw edge:** The uncovered square edge of a belt created by cutting after vulcanization.

**Recovery:** The degree an elastomeric material returns to its original dimensions after being stressed.

**Reefed:** A belt folded back and forth on itself.

**Reinforcement:** The textile strengthening member of a belt. See also carcass.

**Reinforcement agent:** An ingredient in a polymeric compound not basic to its vulcanization used to increase its chemical and physical properties.

**Reinforcing element:** The strengthening members of a belt.

**Repair:** The area of new material replacing damaged material in a belt.

**Repose angle:** See angle of repose.

**Resin:** Certain materials produced by chemical synthesis.

**Resistance:** The property or ability of matter to withstand the effects of force, pressure, heat or chemical action.

**Return idler:** A roll(s) that supports a belt on its return run.

**Return run:** The part of a conveyor system where the belt returns to the tail.

**Reversion:** (1) The change which occurs in vulcanized rubber as the result of aging or overcuring in the presence of air or oxygen usually resulting in a semi-plastic mass. (2) It is the basis of rubber reclaiming processes and is aided by the use of swelling solvents, chemical plasticizer and mechanical disintegration to obtain a workable mass.

**Ribbon blender:** A type of internal mixer used to mix powders and liquids into a dry powdery viscous or liquid mass.

**Ribs:** Transverse configurations on the carrying side of a belt to facilitate carrying material on an incline.

**Riveted plate joint:** A mechanical fastener with rivets projecting through a plate on both sides of the belt.

**RMA:** Abbreviation for The Rubber Manufacturers Association, Inc.

**RMBT:** Abbreviation for Rated Manufacturers Belt Tension.

**Roll belting:** Belting made to ordered width but of nominal lengths for cutting later into shorter lengths.

**Roller bed conveyor:** A conveyor belt operating over a series of steel support rollers.

**Rosin:** The hard amber-colored material of the residue from the distillation of oil of turpentine.

**Rotary press:** A vulcanizing machine consisting of a rotating, heated drum with a flexible steel band partially encircling the drum, which continuously advances a material while under pressure and heat between drum and band.

**Rotocure:** See rotary press.

**Rough top:** A belt made with projections in the carrying surface to improve the ability of the belt to carry material on inclines.

**Rubber cement:** A mixture of polymeric compound or elastomer used as an adhesive or sealant.

**Rubberized:** Coated with rubber compound.

**Run:** The distance or route covered by a conveyor.

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## S

**Saddle:** An additional short length of belting added to an existing belt. See butt strap.

**Safety factor:** The ratio of the maximum stress that a belt or a belt splice can withstand to the maximum stress recommended for it by the manufacturer. The ratio of breaking strength to rated working tension.

**Safe working strength:** The manufacturer's recommended maximum working tension for a conveyor belt operating in ideal conditions.

**Sag:** The amount of vertical deflection of a conveyor belt from a straight line between idlers, usually expressed as a percentage of the spacing between idlers.

**Sag belt tension:** The minimum tension in any portion of the carrying run of a belt necessary to prevent excessive sag of the belt between idlers.

**Sample:** A piece of material removed for evaluation.

**Scraper:** A device for cleaning the surface of belting.

**Screw take-up:** A take-up for a conveyor system in which movement of a pulley-bearing block is accomplished by means of a screw. See also take-up.

**Seam:** The place where two edges of fabric or elastomer are adjacent to each other to form a single ply or layer.

**Seaming strip:** A strip of polymeric material laid over and/or in a seam to fill any voids between the adjacent plies of material.

**Self-aligning idler:** An idler having a belt-activated swivel mechanism to control the side movement of an operating conveyor belt.

**Selvage:** The lengthwise woven edge of a fabric. Also called selvedge.

**Semi-cure:** A partial or incomplete cure.

**Service condition:** All the conditions of operation to which a conveyor or elevator belt is exposed.

**Service factor:** The amount by which the normal rating of a unit is altered to compensate for specific service requirements.

**Service test:** A test in which the product is made to operate under service conditions in the actual equipment.

**Set:** The amount of deformation remaining after complete release of the load producing the deformation.

**Shadowing:** A bas-relief or outline of a reinforcement which appears on a cover after vulcanization.

**Sheeting:** A form of plastic in which the thickness is very small in proportion to length and width and in which the plastic is present as a continuous phase throughout.

**Shelf storage life:** The period of time prior to use during which a product retains its intended performance capability.

**Simulated service test:** See bench test.

**Singles yarn:** The product from aligning and twisting together fibers or twisting together filament fibers.

**Sink:** A collapsed blister or bubble leaving a depression in a product.

**Skew:** Amount by which the ends of a single pick yarn in a fabric are offset longitudinally.

**Skim:** A thin layer of polymeric compound applied to a fabric.

**Skim or skim coat:** A layer of rubber material laid on a fabric but not forced into the weave. Normally laid on a frictioned fabric.

**Skirt board:** In a conveyor system, the vertical or inclined plates located longitudinally and closely above the belt to confine the conveyed material.

**Skive:** A cut made on an angle to the surface to produce a tapered or feathered cut.

**Slab belting:** Belting made in wide widths and long lengths for later slitting into narrower widths and cutting into shorter lengths.

**Slack side tension:** The lessor of the tensions in a belt on an operating conveyor. Usually immediately following the drive pulley.

**Slider bed:** A stationary surface on which a belt slides.

**Slider bed conveyor:** A conveyor belt operating all, or in part of its length, over a flat support surface as opposed to being supported by a series of rollers.

**Slip:** The action that takes place, causing a differential movement between the pulley surface and the belt.

**Slip and sequence system:** An interlocking belt conveyor system that stops the system when the speed of the conveyor belt drive pulley exceeds a certain speed of the conveyor belt.

**Slit belt:** A belt cut to lesser width.

**Slit edge:** The square finished edge of a belt after trimming to width.

**Slit edge belt:** See cut edge.

**Slope belt:** A conveyor belt used to carry material along an inclined flight.

**Slope tension:** See tension, slope.

**Snub pulley:** A pulley adjacent to a drive pulley that increases the arc of contact on the drive pulley to increase the effectiveness of the drive.

**Solid woven belt:** A type of conveyor belt wherein the carcass is a single ply consisting of multiple layers of warp and filling yarns interwoven. The carcass usually is impregnated and/or coated with polymeric compound.

**Specification:** Detail description of specific requirements.

**Specimen:** A piece cut from a sample of belting to test.

**Splice angle:** The angle at which belting is spliced.

**Splice:** Methods for joining the ends of belting together without using a mechanical fastener.

**Spread:** To apply a thin coat of liquid material over a surface by means of a knife, bar, or doctor blade.

**Spread coat:** To apply a thin coat of material over a surface determined by means of a knife, bar, or doctor blade.

**Spread coated fabric:** A fabric coated with a liquid plastic by a spreading process and then heated to fuse the coating.

**Spring take-up:** A mechanical device on both sides of the conveyor system where a variable force spring is secured to the conveyor structure and to the tail pulley block for the purpose of maintaining a uniform tension in the belt.

**Spun yarn:** A yarn produced from short fibers by aligning and twisting them together.

**Square edge:** An edge of plastic-covered belting finished against rectangular irons.

**Stacker:** A conveyor adapted to piling or stacking bulk material, packages, or objects.

**Stamped metal:** Perforated metal sheet used for making a rough top design on a conveyor belt.

**Standard:** A quality level set for the results from a belt test.

**Staple:** A textile fiber of relatively short (1" to 3") length which when spun and twisted forms a yarn.

**Staple fiber:** The short fibers from which a spun yarn is made.

**Starting tension:** The tension necessary to accelerate a belt from rest to normal operating speed.

**Static conductive:** Capability to conduct static electricity.

**Static electricity:** Electrical potential resulting from two surfaces rubbing together or parting one from the other.

**Static friction:** The resistance which must be overcome to start a body sliding down a belt surface.

**Steel cable:** Several steel cords twisted together.

**Steel cord:** Several steel wires twisted together.

**Steel cord belt:** A conveyor belt having a tension bearing member of steel cords lying in the same plane with a definite spacing between the cords, elastomer between the cords and an elastomeric cover on both sides of the belt.

**Step ply:** A conveyor belt having a plied textile carcass in which the upper ply or plies are set back toward the edges to increase the cover gauge in loading area.

**Stepped splice:** The joint of one end of multi-ply belting with plies of fabric removed so respective ply ends will butt together and overlap adjacent plies of fabric.

**Stiffness:** Resistance to flexing.

**Stitched belt:** (1) A belt made from plies of non-rubberized fabric sewed together to make a unit structure. (2) A rubberized belt in which the plies have been sewed.

**Stitching:** A method of butting or joining two pieces of material together, usually by means of a stitcher roller.

**Stock roll:** A belt made to some nominal length and width for subsequent cutting to required length and width.

**Straight face pulley:** A pulley without any crown.

**Straight warp weave:** Two warp yarn systems and a filling yarn system where one warp system is essentially without crimp and is the tension bearing member, while the other warp system is interlaced with the filling yarn and provides mechanical fastener holding capability.

**Strain:** Deformation resulting from a force applied to a body.

**Stress:** Force applied to a body that results in the body being deformed.

**Stress-strain:** The relationship of force and deformation in a body during compression, extension, or shear. In a belt this is the relationship of tension (stress) and resulting elongation (strain).

**Stretch:** An increase in length.

**Striated cover:** A cover having grooved or channeled lines, due to transfer of irregularities from contact with surfaces of forming or finishing equipment.

**Strike through:** Penetration of plastic compound through the fabric.

**Strip test:** In fabric testing, a tensile strength test made on a strip of fabric with cut edge or raveled down to a specified number of threads or width of fabric, all of which are firmly held in gripping jaws wider than the test piece.

**Sun check:** Fine cracks and crazing of an elastomeric surface primarily due to the sun's ultraviolet rays.

**Surface finish:** See belt surface finish.

**Swelling:** An increase in volume of an elastomer or belt.

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## T

**Tack:** Having a property of temporary adhesion.

**Tail end:** The end of a conveyor, usually near its loading points.

**Tail pulley:** The belt pulley near the loading end of the conveyor system.

**Take-up:** (1) Removal of slack or stretch in a belt (2) An assembly of structural and mechanical parts to maintain proper belt tension.

**Take-up, automatic:** See automatic take-up.

**Take-up, gravity:** See gravity take-up.

**Take-up pulley:** A pulley which can move in space due to gravity, a spring, or other forces in order to maintain relatively constant tension in a specific strand of a belt.

**Take-up, screw:** See screw take-up.

**Take-up tension:** See tension, take-up.

**Take-up travel:** The distance the take-up can move during the belt operation.

**Tandem drive:** A belt driving system employing two adjacent powered pulleys.

**Tape line measurement-maximum length:** The inside circumference of a belt measured around the pulley surfaces when the take-up idler(s) are moved out to where they take up all the belt slack their movement permits.

**Tape line measurement-minimum length:** The inside circumference of a belt measured around the pulley surfaces when the take-up idler(s) are moved in for the installation of the shortest belt possible.

**Tear down:** The removal of a ply of fabric in a multi-ply fabric belt to prepare the stepped down configuration for a stepped splice.

**Tear Propagation:** Continuation of tear.

**Telescoped roll:** At the outside end of a roll of belting, turns of the belting progressively loosened and moved outward from the remainder of the evenly wound turns of the belting.

**Template:** A pattern to guide the punching of holes or cuts in belt ends.

**Tensile member:** See carcass.

**Tensile strength:** The maximum force, stress, applied to a specimen at rupture.

**Tensile stress:** The force applied to stretch a test piece (specimen).

**Tension:** Stress on a material tending to cause extension of the material.

**Tension, effective:** In a belt drive, it is the difference between the two tensions in a belt as it approaches and leaves a driving or driven pulley. In a two-pulley drive, it is the difference between tight and slack side tensions. Being a measure of power requirement, it is sometimes referred to as horsepower pull.

**Tension, maximum:** (1) The highest tension occurring in any portion of a belt drive. In a two-pulley drive it is the tight side tension. (2) In conveyors, the maximum tension may occur at a point other than the drive pulley.

**Tension member:** See carcass.

**Tension minimum:** The lowest tension occurring in a belt in a conveyor or elevator system under operating conditions.

**Tension rating:** Maximum safe working tension recommended by a belt manufacturer.

**Tension ratio:** In an operating belt system, the ratio of the larger to the smaller tension as the belt approaches and leaves a driving or driven pulley.

**Tension, slack side:** In a belt system, where the two portions of the length of a belt on either side of a driving or driven pulley have different tensions, the slack side tension is the smallest of the two.

**Tension, slope:** The tension in an inclined belt caused by the weight of the material being elevated in addition to the belt weight and independent of friction and other sources of tension.

**Tension, take-up:** The amount of tension in each of the runs of belting approaching and leaving the take-up pulley, the total of which is the force exerted by the take-up device.

**Tension, tight side:** In an operating conveyor system, the greater of the tensions as the belt approaches and leaves the drive pulley.

**Tension, working:** The maximum working tension for a fabric or belt recommended by the manufacturer.

**Terminal position:** The maximum working tension for a fabric or belt recommended by the manufacturer.

**Terminal pulley:** The pulley at or near the discharge end of a conveyor belt system.

**Tex:** A yarn size system defined as the weight in grams of 1000 meters of yarn.

**Textile:** A general term applied to yarn, cord, nonwoven, or woven fabric made from a fibrous material.

**Thermoplastic:** Capable of being repeatedly softened by heating and hardened by cooling and in the softened state can be shaped by flow.

**Tie cloth breaker:** A leno or other open weave fabric breaker between a belt cover and the carcass.

**Tie gum:** A thin sheet of unvulcanized rubber inserted between plies in vulcanized repairs of splices.

**Tight side tension:** See tension, tight side.

**Tilted troughing idlers:** Used for belt training.

**Time cycle:** The duration of time, in minutes, required for one complete cycle of a conveyor belt.

**Tire bead wire:** Steel wire placed in or beneath the top cover to minimize rips in the belt by objects that penetrate the belt.

**Tolerances:** The limiting values for a dimension.

**Top cover:** Loss of the elastomer due to abrasion.

**Top cover wear:** The protective rubber cover on the material conveying surface or surfaces of a conveyor belt.

**Tracking alignment:** See training.

**Traction:** The friction between a drive pulley and the conveyor belt.

**Traction top:** See rough top.

**Training:** The process of adjusting idlers, pulleys, and loading conditions to insure the belt runs straight.

**Training idler:** An idler mounted on a mechanical device, actuated by the belt moving against it to make the belt run straight.

**Trajectory:** The arc made by material freely discharged from a conveyor system.

**Transfer system:** A combination of mechanisms to move objects or bulk material to or from a conveyor.

**Transition distance:** The distance between the last fully troughed idler and the flat driving or discharge pulley.

**Transition idler:** A troughed belt idler having a lesser degree of trough than the previous carrying idlers.



**Transverse:** A crosswise direction of a belt.

**Transverse cord breaker:** A cord fabric laid in the top cover at right angles to the belt edges.

**Transverse rigidity:** Resistance to belt deformation in the belt crosswise direction.

**Transverse seam:** The joint, across the belt, of two ends of a fabric ply in the belt or cover material.

**Trapped air:** Air which is enclosed in a product or between a product and a mold surface during cure.

**Traveling deflector:** A mechanism which moves over the carrying surface of the belt and deflects the conveyed material off of the belt.

**Tripper:** A fixed or moveable mechanism at some intermediate place in the conveyor system to discharge material from the belt.

**Troughability:** The property of a belt that permits it to conform to the contour of troughing idlers.

**Troughability index:** The ratio of the deflection of a freely supported transverse section of a belt to the distance between the freely supported ends.

**Troughed belt:** A belt operating in a conveyor system with inclined side idlers to cause the belt edges to turn up and increase the amount of material carried while minimizing side spillage of the material.

**Troughing angle:** The angle troughing idlers are to the horizontal extension of the flat carrying idler.

**Troughing idlers:** An idler system which supports a belt in a troughed configuration. Usually it consists of a center horizontal roll with an inclined roll on each side. See also catenary idler.

**Twill weave:** A fabric woven with the appearance of diagonal lines.

**Twist:** The rotation of a belt on its longitudinal axis. A 180 degree twist is used as a means of inverting a belt through the zone of the twist.

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## U

**Ultimate elongation:** Elongation at rupture.

**Ultimate strength:** The force required to rupture a specimen.

**Ultimate tensile:** Tensile stress at rupture.

**Undercure:** A less than optimal state of vulcanization which may be evidenced by tackiness or inferior physical properties.

**Uncured:** Not vulcanized.

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## V

**Vanner edge:** See flanged edge.

**Vertical curve:** The portion of a conveyor belt where the angle of incline increases.

**Viscosity:** The flow property of a material.

**Void:** The absence of material or an area devoid of materials where not intended. See also blister and sink.

**Volume swell:** See swelling.

**Vulcanization:** A process over a range in temperature during which a polymeric compound, through a change in molecular structure (e.g., crosslinking) becomes less plastic and causes changes in the physical and chemical properties of the resulting elastomer.

**Vulcanized splice:** A joint in a belt made by means of vulcanization.

**Vulcanized splice step length:** The longitudinal distance between steps in the splice.

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## W

**Warp:** (1) The yarns that run lengthwise in a woven fabric or jacket. (2) The total deviation from a straight line of a hose when subjected to internal pressure.

**Warp-yarn:** (1) A longitudinal yarn in a fabric. (2) A corner yarn in a braid.

**Weathering:** Surface deterioration, evidenced by cracks and crazing of an elastomer, during outdoor exposure.

**Weave:** A fabric pattern description denoting a specific relationship of warp and filling yarns at specific locations in the fabric.

**Weft:** The crosswise threads in a fabric; filling threads. The threads or yarns running at right angle to the warp.

**Weftless cord:** A cord ply without filling yarns.

**Winged pulley:** A pulley with radial vanes extending from a supporting structure to the center shaft to minimize trapping material that otherwise would build up and damage the belt.

**Wire hook fastener:** A mechanical fastener consisting of wires capable of being driven through the belt end and bent back into the belt by a special tool device.

**Wires:** Metal in the form of a fine flexible rod.

**Working load:** See working tension.

**Working tension:** Stress on the belt when the belt is loaded with conveyed material and moving.

**Woven fabric:** A flat structure composed of two series of interlacing yarns of filaments, one parallel to the fabric and the other transverse.

**Woven wire carcass:** A belt with woven wire fabric.

**Wrinkled ply:** See buckled ply.

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## Y

**Yarn:** A generic term for continuous strands of textile fibers or filaments in a form suitable for knitting, weaving, or otherwise intertwining to form a textile fabric. It may comprise (1) a number of fibers twisted together (2) a number of filaments laid together without a twist (a zero-twist yarn) (3) a number of filaments laid together with more or less twist or (4) a single filament with or without twist (a mono-filament).

**Yarn number:** The number of hanks in a pound of spun yarn.

**Yield point:** The stress in a material at which a substantial increase in strain occurs with a minimum increase in stress.

**Yield strength:** The stress at which a material exhibits a specified limiting permanent set. Determined by a measurable value of plastic yielding of the material, above which the material is considered to be damaged and below which the damaging effects are considered to be negligible.

**Young's modulus:** Stress per unit strain for perfectly elastic material.

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## Z

**Zero load:** A reference load applied in taking an initial reading and prior to determining compressibility or extensibility.



**GLOSSARY**

**of**

**Industry Terms**

**for the**

**Conveyor and Elevator  
Belting Industry**

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