

APPENDIX I

Glossary and Index

NOTE: There are other definitions for terms marked with an asterisk.

Definition	Index Page	Literature Reference
<i>Abrasion resistance</i> – The degree to which a fabric or yarn is able to withstand surface wear due to rubbing or chafing with another surface.	166, 175	2
<i>Acceleration</i> – The rate of change of velocity, (N.B. Force = mass x acceleration).	200, 211, 219, 230 263, 275, 282, 289 295, 300, 306, 316	
<i>Air-Conditioning</i> – The treatment of air to maintain set levels of temperature, humidity and dust or lint content.	98, 328, 336, 340	3
<i>Air-jet loom</i> – A loom in which the filling is inserted with a blast of air instead of using a shuttle.	30, 290, 296, 313, 318	36
<i>Air permeability</i> – The porosity of a fabric as measured by the ease with which air passes through it.	142	4
<i>Alacrity</i> – A term which expresses the degree of rapidity with which a shuttle responds to the force applied to the picking stick; it is related to natural frequency of the picking mechanism.	223, 282	5
<i>Amplitude</i> – A term which defines the maximum excursion of an oscillating body from its mean position or of a curve from the mean line.	103, 147, 274, 277	
<i>Annual fixed cost</i> – Those costs which remain unaffected by the rate of production, expressed on a per annum basis (e.g. rent, depreciation, interest, overheads, etc.)	71, 325, 334, 336	14
<i>Appearance rating</i> – A visual rating of a fabric when viewed under standard conditions.		21

Definition	Page	Index	Literature Reference
<i>*Aspect ratio</i> – A term which expresses the degree of flattening of a yarn when assembled in a fabric.	147		
<i>Automatic loom</i> – A loom in which empty quills are replaced by full ones automatically whilst the loom is running.	24, 253		1, 6, 29
<i>Automatic winder</i> – A winding machine in which an empty package is automatically replaced by a full one when required; it also has an automatic device to detect and repair broken yarn ends.	49, 70, 71, 75		41
<i>Automation</i> – The use of automatic devices to reduce the amount of manual labor required.	223		7
<i>Auxiliary shaft</i> – An additional shaft in a loom which carries cams for operating the shedding motion and which is capable of rotating at sub-multiples of the normal cam shaft speed.	184		34
<i>*Back rest</i> – A support rod with a curved surface that extends from side to side of a loom (usually at the rear) to support the warp on its way from the warp beam to fabric forming zone. Often the back rest is caused to move to lessen the tension variations in the warp.	240, 286		
<i>*Balanced</i> – (1) The term describes a fabric in which the number of ends/inch is equal to the number of picks/inch and both of the yarns are of the same count (or number). See square construction.			20
(2) A term relating to rotating bodies which specifies that the rotating body should generate no force due solely to its rotation.			31
<i>Balanced twill</i> – A twill weave in which the floats in both warp and filling directions span equal numbers of crosswise yarns.	166		20
<i>*Balloon</i> – A term to describe the solid of revolution produced by a yarn when it is wound on or off a package in a direction essentially parallel to the axis of the package.	51, 56, 70, 82, 96		41
<i>*Ball warping</i> – A process of winding a group of yarns, which are treated like a single end, onto a cross wound package. Normally used to prepare yarns for storage, mercerization or dyeing.	85		9
<i>Band warping</i> – See pattern warping.			

Definition	Index Page	Literature Reference
<i>Barre</i> – A stripe-like effect extending across the width of the cloth caused by variations along the length of the yarn or by a machine fault. It is regarded as a blemish.	244, 255, 292	10, 15, 33, 41
<i>Basis weight</i> – Mass/unit area of fabric, e.g. oz./sq yd.	144, 152	
<i>Basket weave</i> – A weave where groups of adjacent warps are each woven as one and picks are inserted in groups of two or more in each shed. The formation resembles a plaited basket.	162, 163, 175	20
* <i>Battery</i> – A device for storing quills on an automatic loom in a way which makes them immediately available as the need arises.	254	6
<i>Battery hand</i> – A person who keeps the loom batteries filled with quills.		
* <i>Baulk</i> – (Jack back) – A lever which is operated by the hooks in a dobbie to transmit motion to the jacks.	206	
* <i>Beam</i> – A cylindrical body with end flanges on which a multitude of warp yarns are wound in such a way to permit the removal of these yarns as a warp sheet.	20, 26, 35, 62, 85, 111, 128, 237	9
<i>Beam creel</i> – A frame on which are mounted a large number of yarn packages from which yarn is taken in the manufacture of a beam.	112, 115	9
<i>Beam-dyeing</i> – A method of dyeing warp yarns on a perforated beam.	38	25
<i>Beam ruffle</i> – A pulley-like appendage on a weaver's beam used to apply a drag force to control the warp let-off.	237	
<i>Beam warping</i> – The manufacture of a warp beam.	35, 62, 85, 111	9
* <i>Beat effect</i> – The interference between two oscillations whose frequencies are close; the effect appears as another oscillation whose frequency is the difference in the primary ones.	283	31
* <i>Beating</i> (action) – See beat-up		
* <i>Beat-up</i> – The process of forcing a filling yarn into position in a fabric.	21, 23, 28, 101, 178, 185, 191, 210, 214, 251, 274, 316, 323	10

Definition	Page	Index	Literature Reference
*Beck – A large vessel used for the preparation of size liquor or for dyeing yarns and fabrics.	110		
Biaxial load – A system of two loads (usually mutually perpendicular) acting in a plane coincident with that of the fabric.	156		11
*Binder – A device which forms part of a shuttle box and which is intended to decelerate the incoming shuttle and to restrain the outgoing shuttle.	220, 229, 250, 282, 289		13
*Blend – (1) To mix dissimilar fibers prior to subsequent processing. (2) The mixture of dissimilar fibers in any fibrous assembly such as sliver, yarn or fabric.			
Blended fabric – A fabric which has blended yarns in either the warp or the filling or both.			
Blended yarn – A yarn that contains more than one type of fiber.			
Boardy – An adjective to describe fabrics that are hard, stiff or tough in handling; they are board-like.			18,20,21, 26,37
Bobbin – A small spool-like body on which yarn is wound – used in various forms in spinning, weaving and sewing.	33, 38, 71, 75		
Bobbin loader – A type of loom in which the bobbin in the shuttle is changed when needed (rather than the shuttle).	253		6
*Body – The area of woven fabric between the selvages.			
Bottom shaft – The shaft in a loom which carries the picking cams and which is normally situated below the crankshaft.	183, 204, 272, 283		
Bottom shed – A term given to the warp yarns when they are in the lower sheet during shedding on a loom.	183, 191		
Box chain – A pattern chain which controls the shuttle box selection in a multi-shuttle loom.	259		
Box motion – The mechanism by which the pattern requirements are translated in shuttle box movement.	255		

Definition	Page	Index	Literature Reference
<i>*Breaker bar</i> – A heavy lease rod used for the initial separation of a warp sheet.	120		
<i>Buckling length</i> – The unsupported length below which a given strut under a given load will not buckle.	295, 298, 320		
<i>Buckling load</i> – The load above which a given strut of a given unsupported length will buckle.	320		
<i>*Buffer</i> – An energy absorbing device designed to reduce shocks: commonly used in picking mechanisms.	224, 227, 281		
<i>*Bumping</i> – A condition in which the beat-up is so severe that the cloth tension reduces to zero during part of the beating action; the condition produces high warp tension peaks which increases the end breakage rate.	217, 274		
<i>*Bunch</i> – A small quantity of yarn wound onto a quill or bobbin to provide a reserve in weaving between detection of approaching exhaustion and replenishment.	82, 253		41
<i>Bunter</i> – A protuberance attached to a moving part which can come into contact with a feeler or other mechanism and initiate a sequence of operations.	255		
<i>Bursting strength</i> – The resistance of a material to rupture when subjected to a pressure acting perpendicular to the plane of the fabric. The load is carried by both warp and filling yarns.			11,37
<i>Cam</i> – A device which when moved with respect to a follower, causes that follower to move in a prescribed manner.	26, 184, 195, 219, 225, 274, 303, 316		12
<i>Cam loom</i> – A loom which uses cams to operate the shedding (limited to small repeat weaves).	184, 197		
<i>Camshaft</i> – A shaft which contains one or more cams.	183, 204, 283		
<i>*Can drying</i> – See cylinder drying.			
<i>Canvas</i> – A plain fabric woven from ply yarn which is similar to duck cloth.			20
<i>Capacitor</i> – An electrical storage device which is frequently used to improve the power factor in factory (it also has many other electrical uses).	271		19

Definition	Page	Index	Literature Reference
<i>Capital intensive system</i> – A factory system in which productivity is achieved by investing more money in appropriate machinery than in manual labor.	324		14
<i>Carrier</i> – A device for carrying filling across a loom.	305		
<i>Center filling fork</i> – A device which detects when a filling yarn has broken or when the quill is exhausted.	248		6
<i>Centroid</i> – That point in a body at which the mass may be considered to be concentrated.	266		12
<i>Chain draft</i> – The outline (on design paper) indicating the order of lifting harnesses on successive picks.	157		20
<i>Chain plan</i> – See chain draft			
<i>Change gear</i> – The wheel in a gear train which is changed to give the desired overall gear ratio.	242		
<i>*Chase</i> – A term used in winding to define the traverse length when making a long thin yarn package.	43, 80		41
<i>Chase length</i> – See chase.			
<i>*Check (checking)</i> – The deceleration of a body – usually a shuttle or picking stick.	29, 182, 219, 227, 229 282, 289		13
<i>*Cheese</i> – A cylindrical yarn package whose diameter is usually larger than its length.	40, 54, 62, 293		
<i>*Clearing (clearing operation)</i> – An operation to remove flaws and faults in a yarn.	34, 61, 97, 105, 322		41
<i>Clear shed</i> – A warp shed unobscured by single or multiple yarn ends.	193, 198		34
<i>Closed shed (closed warp shed)</i> – (1) A form of warp sheet.	178, 195		34
(2) A condition when the warp sheets are about to cross.	186, 215		
<i>Cloth roller</i> – A roller onto which cloth is wound.	240		
<i>Cloth take-up</i> – The winding of cloth onto a cloth roller during weaving.	29, 240		28
<i>*Clutch</i> – A device for connecting or disconnecting two concentric shafts whilst they are in motion.	263		12
<i>CMC</i> – Carboxy Methyl Cellulose – A water-soluble cellulose gum which is used as sizing material.	106, 112, 117, 124		9

Definition	Page	Index	Literature Reference
<i>Coefficient of restitution</i> – A coefficient which relates the relative velocity of approach of two bodies about to collide with the relative velocity of recession after the collision.	231		12
<i>Coiling drum</i> – A drum on which flexible material (such as rapier) may be wound.	320		
* <i>Comb</i> – A comb-like device to separate yarns in a warp.	120		
<i>Comber board</i> – A perforated board to separate the drawstrings in a jacquard loom.	208		27
<i>Complete shed</i> – A form of warp shed.	194		34
<i>Compound shed</i> – See semi-open shed.			
<i>Conditioning</i> – The process of changing the moisture regain of a textile material to a standard value.	40		
* <i>Cone</i> – A yarn package shaped like a frustum of a cone.	30, 29		
* <i>Cone angle</i> – The angle of the cone defined above.	81		
<i>Cone winding</i> – See Coning			
<i>Confuser</i> – A device to partially confine an air jet.	298		
<i>Coning</i> – The operation of making a cone wound package.	34		41
<i>Coning oil</i> – An oil added in small quantities to yarns to lubricate them – especially valuable in high speed winding and knitting.	110		
<i>Connecting rod</i> – A rod which connects a crankshaft to an oscillating member of a mechanism.	210, 265, 273		12
<i>Contracting vee reed</i> – A device which enables pins to be positioned in such a way as to cause yarns running between them to be spaced as required.	94, 120		9
* <i>Contraction</i> – The reduction in fabric width or length during weaving or subsequent processes.	144, 189, 245		17,20
<i>Controlled binder</i> – A binder which is controlled by a linkage synchronized with the picking; usually used as an auxiliary binder.	234		13
* <i>Count</i> – (1) A measure of the end and pick densities in a fabric (see end and pick densities)	158		20
(2) A measure of yarn size in length/unit mass.	146, 158		
(3) A count in numerical sequence.			

Definition	Page	Index	Literature Reference
<i>*Counter</i> – (1) A device for counting. (2) A distance in a fabric design.	97 169		
<i>*Cover</i> – A term given to woven fabrics to indicate the even appearance of the fabric. See also cover factor.	140		15
<i>Cover factor</i> – A measure of the percentage area covered by one or more threads. May be related to filling, warp or woven fabric.	141, 147		15
<i>*Crank</i> – A device in which an eccentric pin drives a connecting rod and causes a member to oscillate.	183, 210, 264, 284		12
<i>Crankshaft</i> – A shaft which contains one or more cranks.	183, 284		
<i>Crease resistance</i> – The property of a fabric to resist creasing; molecular cross-linking may be used to improve crease resistance.	176		16
<i>*Creel</i> – The arrangement of a multiplicity of supply packages to supply sliver, roving or yarn to a textile machine.	86, 112		
<i>Creeling</i> – The operation of filling or refilling a creel.	49, 62, 70, 86, 112		
<i>Creel package</i> – A package used in a creel.	62, 66, 112		
<i>*Crimp</i> – (1) The sinuous form taken up by a fiber in a bulked yarn. (2) The sinuous form taken up by a yarn in a fabric.	144, 151, 174		17
<i>Crimp balance</i> – A state when the crimp in both warp and filling are equal.	145, 148		
<i>Crimp factor</i> – A factor which expresses the length change caused by crimping.	144, 155		
<i>Crimp interchange</i> – The transfer of crimp from warp to filling or vice versa.	148, 189		11,37
<i>Crimp removal</i> – The removal of crimp.	152, 174		37
<i>Crossed shed</i> – A condition in which the warp shed has just passed the closed shed condition.	186, 215		
<i>*Cross section</i> – The shape or shapes which could be seen if the fibers, yarn or fabric were cut and viewed in or under a microscope.	145, 157		

Definition	Page	Index	Literature Reference
<i>Cross wound package</i> – A package in which the yarn is wound in helical fashion in successive layers; the traverse is substantially identical with the package width and there are few coils of yarn wound per traverse.	43, 64		41
* <i>Crowns</i> – Those points on the surface of a woven fabric which protrude.	152, 174		
* <i>Cutter</i> – A device for cutting yarns during the various textile processes.	294		
* <i>Cylinder</i> – (1) A drying cylinder over which wet fabric or yarn is passed. (2) The main component of a carding engine which aligns fibers before they are converted to sliver. (3) A part of a jacquard loom.	115 208		
<i>Cylinder drying</i> – See cylinder			
* <i>Dagger</i> – A stiff lever which is moved to cause contact with another component to operate a control device.	251		
* <i>Damping</i> – Energy absorption to reduce the amplitude of oscillation.	279		31
<i>Damping coefficient</i> – A coefficient which expresses how a vibration will decay; because the damping force which opposes movement is usually proportional to velocity, the units are quoted in terms of damping force/unit velocity. The velocity is the local vibrational velocity of a given particle in the structure.	279		31
<i>Damping pad</i> – A pad which is introduced into or under a mechanism to reduce the transmission of noise and vibration.	287		31
<i>Decrimping</i> – The removal of crimp.			37
<i>Dent</i> – A term to describe the space between adjacent reed wires.	30, 37, 127, 131		
<i>Denting plan</i> – The plan used to determine how the warp should be threaded through the reed.	128, 131		20
<i>Design</i> – The design of the pattern of interlacing in a woven fabric.	134, 152, 157, 170, 311		20
<i>De-sizing</i> – The removal of size from fabric.	101		
* <i>Direct drive</i> – A form of drive in which the angular speed of the driven member is the same as the driver – often at constant angular speed.	41		

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<i>Direct sizing</i> – The operation in which a slashing machine is supplied with warp from a single beam which contains all the warp yarns needed for weaving.	85, 115	9
<i>Direct take-up</i> – A form of cloth take-up in any fabric forming machine.	240	28
<i>Dobby</i> – A device which controls the harnesses in a loom to give small geometric patterns in the fabric being produced.	26, 195, 206	
<i>Dobby head</i> – See doobby.		
<i>Dobby loom</i> – A loom fitted with a doobby head.	195, 206	
<i>*Doffing (doff)</i> – The removal of the textile product from a textile machine.	49, 70, 74	
<i>Double ends</i> – Two warp yarns drawn through the same heddle eye and reed dent to weave as a single end.		
<i>Double-lift doobby</i> – A doobby in which two hooks are used to actuate each harness. According to the combination of hook positions used, it is possible to keep the harness in the up position for a number of picks (which is not possible with a single-lift doobby).	206	
<i>Down time</i> – The time during which a machine is unproductive.	36, 71, 90, 101, 189, 322	14, 38
<i>*Drape</i> – The quality of a fabric which permits it to mold sufficiently to hang in pleasing folds.	18, 134, 139, 170, 176	18
<i>Drawer-in</i> – One who draws-in.	127	
<i>*Drawing-in</i> – The operation of threading warp yarns through the correct heddles and reed dents.	36, 85, 120, 127, 170	
<i>Drawing-in draft</i> – The plan used to determine how the warp ends should be drawn-in.	128, 170	20
<i>*Drawstrings</i> – Strings used to control single warp ends or groups of them in the shedding process in a jacquard loom.	24, 195, 209	
<i>Drop wire (droppers)</i> – Thin flat perforated plates supported by individual warp ends which fall into a mechanism when the end breaks and cause the loom to stop.	29, 37, 127, 246	

Definition	Index	
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<i>*Drying section</i> – A section of a slashing machine where the warp is dried.	117	9
<i>*Dusting off</i> – The involuntary removal of particulate material (e.g., size) from yarn during processing.	109	40
<i>Duplicated creel</i> – A system of traversing headstock and fixed creels.	87	9
<i>*Dwell</i> – A phase in the cycle of operation of an oscillating body where the body is stationary.	178, 186, 269, 314	12
<i>Dyeing</i> – A process of coloring fibers, yarns or fabrics.	38, 64, 86, 99	25
<i>Dynamic equivalence</i> – A simple system of masses used in calculations to simulate a more complex system under dynamic conditions.	267	12
<i>Dynamic magnifier</i> – A term which categorizes the propensity of a resonant system to magnify a periodic disturbance when the frequency of that disturbance approaches the natural frequency of the system.	280	31
<i>Effective lay mass</i> – A single mass used in calculation to simulate the lay mechanism in a loom.	316	
<i>Effective mass</i> – A single mass used in calculation to simulate a complex system of masses.	306, 316	
<i>*Elasticity</i> – The property of material to deform (usually to elongate) in proportion to the load applied and to recover its original shape when the load is released.	223, 276	
<i>Electrical slip</i> – The difference between the synchronous and actual speeds of an electrical motor.	269	19
<i>*End</i> – A term used to denote a single length of yarn.	20, 33 etc	
<i>End-breakage</i> – The breakage of a yarn during a manufacturing operation.	32, 61, 73, 88, 96, 103, 114, 131, 218, 322, 336	33,38,41
<i>End-density</i> – The number of ends per unit loomwidth. Usually measured in ends/cm or ends/inch.	129, 131, 142, 152, 328	

Definition	Index Page	Literature Reference
<i>Equilibrium position</i> – The position at which a body would come to rest under the influence of a system of steady forces.	276	
* <i>Evaporation rate</i> – The capability of a drying system to remove water in the drying process. Usually measured in Kg/h per sq. meter or in lb/h per sq. ft.	117	
<i>Even-sided twill</i> – See balanced twill.		20
* <i>Excited</i> – The condition of a resonant system when periodic disturbing forces are applied to it.	275	31
<i>Exfoliate</i> – The removal of thin layers of material from a body.	See dusting off	40
<i>Expansion reed</i> – See contracting vee reed.		
* <i>Fabric</i> – An assembly of fibers and/or yarns which is generally in a sheet-like form – also known as cloth.	134, 174	15,16,18,20, 21,37
<i>Fabric construction</i> – The term describes the organization of components and in weaving it describes the weave.	17, 134, 174, 328	20
<i>Fabric count</i> – See count.		20
<i>Fabric design</i> – See design.		20
<i>Fabric extension</i> – The amount by which a fabric extends, usually under load and in the direction of that load.	155, 174	37
<i>Fabric finish</i> – Chemical and other treatments used to modify the fabric to make it more capable of fulfilling its function.	12, 19, 139, 159	
<i>Fabric structure</i> – See fabric construction.		
<i>Fancy rib weave</i> – A rib weave in which the float length is varied to change the width of the ribs to give a patterned effect.	162	20
* <i>Feeler</i> – A light lever-like device used to detect the presence or absence of a component or textile material in a textile machine.	82, 206, 248, 253	
* <i>Fell</i> – The line where the warp shed and the newly woven fabric meet; the filling is beaten into the fell.	29, 181, 192	10
* <i>Fiber</i> – The smallest unit used in a textile structure; a thin flexible element which may be combined with others to make yarn or fabric.		22

Definition	Page	Index	Literature Reference
<i>Fiber finish</i> – A chemical compound coating a fiber to improve lubrication and prevent electrification.	98		
<i>Fiberling off</i> – The involuntary removal of fiber or lint from yarns during processing.			40
<i>*Filling (weft)</i> – A yarn which is interlaced with warp threads to make a fabric.	10, 17, 22 etc		
<i>Filling face twill</i> – A twill fabric in which the filling yarns float on the face of the fabric more than the warp yarns.	166		20
<i>Filling insertion</i> – The insertion of filling into fabric during the weaving process.	5, 22, 30 etc		29,32,35,36
<i>Filling insertion rate</i> – The rate at which filling is inserted; may be measured in picks/min or yds/min.	180, 314, 318		29,32,35, 36
<i>Filling preparation</i> – The preparation of filling yarn to make it suitable for weaving.	38		41
<i>Filling retraction</i> – The retraction of one end of the newly inserted filling to straighten it prior to beat-up.	294		36
<i>Filling rib weave</i> – A fabric in which the warp yarns are grouped together to form ribs running in the filling direction.	163		20
<i>Filling satin (sateen)</i> – A satin fabric in which the filling yarns float on the face of the fabric more than the warp yarns.	167		20
<i>Filling transfer</i> – The changing of any empty quill by a full one	253		
or the transfer of filling from one rapier to another.	308		
<i>Filling transfer mechanism</i> – The mechanism for achieving a filling transfer.	253		6
<i>Filling winding</i> – The operation of winding yarn on to quills.	39		
<i>*Finishing</i> – See fabric finishing.			
<i>Fixed costs</i> – Costs which do not vary with production rate.	335		
<i>Flexible rapier</i> – A flexible long thin blade used to insert filling into the warp shed from the side.	308, 314, 320		36
<i>Flexible rapier loom</i> – A loom using flexible rapiers.	308, 314, 320		36
<i>*Float</i> – A yarn in a fabric which passes over two or more crosswise yarns.	143, 160, 170, 174, 204		20
<i>*Fly</i> – See lint.			

Definition	Page	Index	Literature Reference
<i>Flying shuttle</i> – A shuttle which flies outside the loom.	182, 226		
<i>Flywheel</i> – A heavy cylindrical body used to conserve angular momentum.	264		12
<i>Forcing frequency</i> – The frequency of a force applied to a resonant system which may or may not coincide with the natural frequency.	278		31
* <i>Fork</i> – A device used to detect the absence of a filling yarn during the weaving process; a kind of feeler.	248		
* <i>Four bar chain</i> – A theoretical model of a system such as a normal lay motion; the four bars represent crank, connecting rod, lay sword and loom frame.	269		12
<i>Friction</i> – A mechanism by which energy is lost when surfaces rub together.	32, 56, 68, 81, 101, 137, 175, 190, 216, 231, 238, 253		24
* <i>Fringed</i> – A term to describe an edge of fabric which has numerous yarns or fibers protruding in a common direction.	292		
<i>Frog</i> – A rugged stop built into the loom frame capable of checking the lay in the case of need.	251		
<i>Gelatinization</i> – The conversion of granular size to a viscous adhesive fluid.	109		9
* <i>Giver</i> – A term to describe the rapier which first takes filling into a warp shed and carries it to the center where it transfers the filling to a taker which carries it the rest of the way through the warp shed.	308		36
<i>Give-way</i> – A weak link inserted in a mechanism for safety reasons.	262		
* <i>Grate</i> – A board used to guide and limit the motion of the hooks in a jacquard loom.	208		27
* <i>Gray fabric</i> – Loom-state fabric which has not undergone chemical finishing.			
<i>Greige fabric</i> – See gray fabric.			
<i>Griffe</i> – An oscillating head which carries the knives in a jacquard loom.	208		

Definition	Index Page	Literature Reference
<i>Gripper</i> – A device which grips one end of a filling yarn and tows it through the warp shed – see Projectile	30, 291, 300, 315	36
<i>Gripper loom</i> – A loom which uses one or more grippers – see Projectile loom		
<i>Gripper shuttle</i> – See projectile.		
* <i>Guides</i> – Generally devices which constrain moving yarn to a fixed path.	50, 302, 312, 322	
* <i>Hammer</i> – A device used to force a full quill into a shuttle which in turn forces out the empty one.	249, 253, 255	6
<i>Hammer lever</i> – The lever to which the hammer is fixed.	249	
* <i>Hand (Handle)</i> – The character of a fabric as determined by handling it.	148	26
<i>Hank sizing</i> – The sizing of yarn in the form of hanks or skeins, normally used for experimental work or short warps.		
* <i>Harmonic</i> – A term used to describe an oscillatory motion which may be described mathematically as sinusoidal.	266, 280	31
* <i>Harness</i> – A frame containing a number of heddles which is moved up and down in a loom to help form the warp shed (also harness frame).	26, 129, 170, 191, 200	
<i>Harness chain</i> – See pattern chain.		
<i>Head end</i> – The beginning of a new piece of fabric in the loom.		
* <i>Heading</i> – The beginning and the end of a piece of woven fabric.		
* <i>Headstock</i> – A geared head used to drive a warp beam in the beaming, warping or slashing operations.	86, 90	9
<i>Heald</i> – A wire or thin perforated plate through which a warp end is threaded; the heddle is normally fixed in a harness (which is described above).	26, 37, 120, 128, 194	34
<i>Heddle</i> – See heald.		
<i>Helper/weaver system</i> – A system of dividing the weaveroom tasks so as to employ the weaver to best advantage.	329	14

Definition	Page	Index	Literature Reference
<i>Hiding power</i> – The ability of a fabric to obscure what lays underneath it.			15
<i>*Hook</i> – A device which can latch onto another part of a mechanism when required for the purpose of transmitting some desired motion.	206		
<i>Hopsack weave</i> – See basket weave.			
<i>Hot-air drying</i> – A system of drying slashed warp (or other material) by subjecting it to a stream of hot air.	118		9
<i>Idle time</i> – Time during which a man or machine is idle.	325		14
<i>*Immersion roller</i> – A roller under which yarn or fabric passes in such a way to cause the yarn or fabric to be immersed in a fluid.	116		9
<i>Incomplete shed</i> – A form of warp shed.	194		
<i>Indirect sizing</i> – An operation in which many beams are used to supply the slashing machine and the emerging warps are combined into a single weaver's beam.	115		9
<i>Induction motor</i> – A motor in which the rotor has no electrical connections; the torque is created by currents induced in the rotor by a polyphase system of coils.	269		19
<i>Inertial system</i> – A system which relies on the tendency for any body to persist in its state of motion unless some opposing force is applied.	295		36
<i>Infra-red drying</i> – The drying of (textile) materials by means of infra-red heaters.	118		
<i>Integrated mill</i> – A textile mill which has a complete series of operations to produce fabric from the fibrous raw material.	326		
<i>*Interest</i> – The periodic payment made to reimburse the owner of money or property for its use.	324		
<i>*Jack</i> – A lever which transmits movement from dobby head to the harness frames.	206		
<i>Jack back</i> – See baulk.			
<i>Jacquard</i> – An intricate method of weaving which uses punched cards to control the movement of individual groups of warp ends.	5, 26, 196, 208		27

Definition	Index	
	Page	Literature Reference
<i>Jammed fabric (Jammed)</i> – A fabric in which the ends are jammed so closely together that no more could be fitted in; a jammed fabric is usually very stiff.	156, 217	20
<i>Kinetic energy</i> – The energy contained by a moving body by virtue of its motion.	227	12
<i>*Knives (Knife)</i> – Links held in a griffe (which oscillates) to which the hooks are connected to give the desired pattern motion in a jacquard loom.	208	27
<i>Knock-off device (motion)</i> – A device which stops the machine when a fault or emergency arises.	247	
<i>*Knot</i> – A joint in a yarn made by tying ends together.	32, 70, 89, 101, 128, 133	38
<i>Labor cost</i> – The cost of employing labor, often expressed in money units per pound of product.	71, 334	14
<i>Labor intensive system</i> – A factory system in which productivity is achieved by investing more money in hiring manual labor than in buying advanced labor saving machinery.	324	14
<i>*Lay (slay, sley)</i> – A stiff horizontal structural beam which carries the reed and oscillates in such a manner to cause the reed to beat the filling into the fell of the cloth.	30, 183, 192, 210, 264, 273 284, 303, 314, 317	12, 29
<i>Lay dwell</i> – The dwell of the lay at back center to give the shuttle or gripper more time to pass. (See dwell).	314	12
<i>Lay sword</i> – The supports which connect the lay to the rocking shaft about which the lay oscillates.	30, 210, 267	
<i>Lease bands</i> – Bands laid across a warp being wound onto a beam to make later handling easier.	94, 120, 127	9
<i>Lease rods</i> – Rods interlaced with a warp to separate the warp ends or to tension them.	94, 120	9
<i>*Leasing</i> – The operation of applying lease rods.	94, 118, 127	9

Definition	Page	Index Literature Reference
<i>Left hand twill</i> – Any twill weave in which the twill lines on the face of the fabric run from the lower right-hand corner to the top left-hand corner of the fabric.	167	20
<i>Leno-selvage</i> – A selvage in which warp threads are crossed and interwoven into the edges of a fabric to strengthen the edges.	292	
<i>Let-off motion</i> – The controlled release of yarns or fabrics during an unwinding operation.	27, 66, 101, 236	28
<i>Lift</i> – Rectilinear movement generated by a cam system.	191, 195, 198	
<i>Lifting plan</i> – The plan which determines the sequence of lifting the harness	170	20
<i>Linear density</i> – Mass per unit length of yarn.	105, 128 etc	
<i>Lingoes</i> – Weights used to tension drawstrings in a jacquard loom.	208	
* <i>Lint</i> – Debris from the textile fibers which accumulates in and around the machinery.	98, 104, 271, 340	
* <i>Loom</i> – A mechanical device which interweaves yarns into a fabric. Usually there are two sets of yarns which are interlaced and these sets are called warp and filling (weft).	2, 21, 32 etc	
<i>Loom assignment</i> – The number of looms assigned to a single weaver.	329, 332, 336	14
<i>Loom efficiency</i> – The percentage running time during normal working hours.	326	
<i>Loom fixer</i> – One who is responsible for the maintenance of the looms in good mechanical condition.		
<i>Loom production</i> – The output of a loom in sq yds/unit time.	326	14
<i>Loom state</i> – The state of a woven fabric when it is just removed from the loom.		
<i>Loom speed</i> – Usually measured in picks/min.	269, 283, 289, 298, 300, 318	14, 29
<i>Loom timing</i> – The synchronization of the various loom functions so that they occur in the proper sequence and at the proper relative times.	30, 182, 184, 316	29
<i>Loom width</i> – See also width in reed.	180, 298, 300, 304, 314, 318, 339	14

Definition	Page	Index	Literature Reference
<i>Loose reed</i> – A protective device which enables the reed to move out of its normal position if it strikes an obstruction.	251		
<i>Lug strap</i> – A strap or other component which is used to accelerate a picking stick on a loom.	226		13,32
<i>Luster</i> – A property describing the brilliance of light reflection from the surface.	141, 170		15
<i>Machine interference</i> – An organizational term which relates to the idle time of a machine arising from the need for it to wait for attention because of the needs of other machines. (Also refers to weaving and machine efficiency.)	71, 331		30
<i>*Magazine</i> – A device capable of holding many yarn packages.	77, 254		
<i>Magazine creel</i> – A special form of creel in which the tail end of one package is tied to the leading end of the next.	86		9
<i>Magazine creeling</i> – See creeling.			
<i>Magazing</i> – The process of replenishing a magazine.	80		41
<i>*Mails</i> – Wires which carry warp ends and are similar to heddle wires which are not mounted in a frame.	208		27
<i>*Mass</i> – The quantity of matter in a body. When a mass is subjected to acceleration, a force is involved; when that acceleration is due to gravity, the force is known as weight.			12
<i>Mass-elastic system</i> – A system in which a mass is restrained by one or more springs and which can be caused to oscillate in simple harmonic motion.	219, 286		12
<i>Mass moment of inertia (I)</i> – A parameter which establishes a relationship between torque and the resulting rotational acceleration. Physically, $I = \sum ma^2$ where m = elemental mass and a = distance from the axis of rotation. (\sum means "the summation of").	264, 267, 275		12
<i>Matt weave</i> – See basket weave.			
<i>Midget feeler</i> – A device which detects whether a quill needs replenishing or not.	253		

Definition	Page	Index	Literature Reference
*Mill – (1) A factory unit such as a weaving mill. (2) To abrade the surface of a fabric to give it a special appearance and hand.	326, 341		
Mixing beck – See beck.			
Momentum (G) – A term which describes the ability of a body to persist in its established state of motion until a force is applied. Quantitatively, $G = MV$, where M = mass and V = velocity.	295		12
*Motif – A design, repeat, pattern or figure used to give a certain effect in a fabric.			
*Motion – (1) Movement. (2) A mechanism.			
Multiple package creel – Creeling systems in which two or more packages per end are warped.	86		
Multiplier chains – Pattern chains used in combination with others to cause a pattern element to be repeated for a desired number of times.	261		
Natural frequency – The frequency at which a body will vibrate if it is given a small impulse.	223, 275, 286		31
*Neck – The connecting point of the jacquard machine between the hook and the harness.	208		27
*Needle – A long wire with an eye.	206		
Negative beat-up – An impulsive beat-up system using a light reed and lay which are not positively driven.	317		10
Negative feed back – The feed back of a signal from the output of a system to the input in such a way that it opposes any change.	239		7
Negative let-off – A mechanism for controlling the delivery and tension of the warp during weaving by means of a braking force applied to the warp beam.	66, 116, 237		28
Negative take-up – A take-up system not positively driven, often powered from the beat-up mechanism.	241		28
*Nominal movement – The movement obtained from a cam assuming the use of an infinitely stiff linkage.	222		32

Definition	Page	Index	Literature Reference
<i>*Nose</i> – Cam tip or the zone of smallest yarn diameter in a conical yarn package.	94		
<i>*Offset</i> – Non-concentric.	269		
<i>*Open shed</i> – (1) A warp shed that does not close every cycle and is only closed as indicated by the fabric design. (2) A condition where the warp shed is open and ready for filling insertion.	195		34
<i>Optimization of cost</i> – Establishment of production conditions to minimize the cost of conversion of yarn into fabric.	186, 215		
<i>Optimization of cost</i> – Establishment of production conditions to minimize the cost of conversion of yarn into fabric.	100, 336		
<i>Over-end withdrawal</i> – The unwinding of yarn from a package generally along the axis of the package.	49, 56, 68, 80		41
<i>*Overhead</i> – A cost component which includes items which cannot be assigned to specific production items.	324, 334		
<i>*Overlaps</i> – Bands of yarn found at the ends of a yarn cone or cheese caused by faulty winding. They are associated with winding patterns (ribbons).	48		
<i>Overpick loom</i> – A loom on which the picking stick is above the level of the shuttle box.	227		
<i>Overwaxing</i> – The operation of waxing a yarn after sizing.	121		
<i>*Package</i> – A length of yarn wound on a carrier or bobbin. (See also yarn package).	20, 32, 41		41
<i>Package build</i> – The manner in which the yarn coils are arranged on a package.	54, 64, 80		41
<i>Parallel motion</i> – A linkage (or equivalent) that causes one end of a lever to move in rectilinear fashion.	199, 226		
<i>Parallel wound package</i> – A package on which the yarn coils are wound side-by-side roughly perpendicular to the package axis.	35, 43, 80, 85		41
<i>Partial picks</i> – The insertion of an insufficient length of filling.	82		
<i>*Pattern</i> – (1) The manner in which yarns are arranged in a fabric. (2) See winding pattern.	24, 134, 157		20
	46, 323		41
<i>Pattern chain</i> – A chain used on looms to control the pattern of the fabric.	129, 195, 260		

Definition	Page	Index	Literature Reference
<i>Pattern warping</i> – A process for preparing warp beams over two stages; first winding the yarn in narrow tapes on a large drum or reel, and then rewinding the complete warp on to the beam.	35, 85		
<i>Pawl and ratchet</i> – A wedge-like member (pawl) which engages a toothed wheel (ratchet) when it moves in one direction. When the pawl returns it disengages; thus when it oscillates, it causes the wheel to move intermittently and each oscillation moves the ratchet wheel a fixed amount.	240		12
<i>*Peg</i> – An appendage attached to a pattern chain which causes a change in the pattern mechanism.	208, 260		
<i>Pegging plan</i> – See chain plan.			
<i>*Penetration</i> (of size) – The extent to which a size solution penetrates into the yarn structure	116, 120		9
<i>*Pick</i> – A single length of filling yarn, or the process of inserting the filling yarn (see Picking).	80		
<i>Pick and Pick</i> – Same as Pick at will.	259		
<i>Pick at will</i> – A loom on which it is possible to pick more than once from one side or single picks from different sides.	259		
<i>Pick counter</i> – Counter used on looms to record the number of picks inserted in a given time.	331		
<i>Pick density</i> – The number of picks per unit length of fabric (see pick spacing).	129, 142, 152, 243, 292, 327		
<i>*Picker</i> – The part of the picking mechanism which comes into contact with the shuttle.	183, 224, 229, 281, 289		13,32
<i>*Picking</i> – The action of filling insertion.	21, 28, 178, 219		13,32
<i>Picking bowl</i> – The follower of the picking cam.	185		
<i>Picking cam</i> – The cam that operates the picking mechanism.	29, 183, 222		32
<i>Picking mechanism</i> – A device for accelerating projectiles or shuttles.	28, 181, 220, 300		
<i>Picking stick</i> – A lever (usually of wood) which is used to propel the shuttle.	29, 183, 220, 227, 281, 289		32
<i>Pick spacing</i> – The distance between two picks in a woven fabric.	142, 152, 155, 243, 285		10

Definition	Page	Index	Literature Reference
*Piece – (1) A standard length of fabric usually between 30 and 100 yards. (2) See piecing.			
Piecing – Joining the ends of a broken yarn. – see end breaks	49, 62, 96, 131, 329		
Pilling – The formation of balls of fiber on the surface of a fabric due to wear.	176		21
*Pinned – (1) The placement of drop wires on a warp. (2) A description of a roller containing pins used in various textile processes.	246		
Pirn – See quill.			
Pirn winding – The winding of yarn on pirns or quills – see quill winder.	38, 58, 79		41
*Pitch – (1) The distance between two yarns or other components. (see pick and spacing) (2) The up and down movement of a shuttle during transit across the loom.	283		
Plain weave – A weave in which half the ends pass over one pick and the other half pass under, then the action is reversed on the next pick. The adjacent ends and picks interlace differently.	140, 158, 176		20
*Plasticise – The softening of a synthetic material or polymer usually by the addition of a lubricant.	111		
Pointed draft – The arrangement of warp yarns in the harness frames in sequence and then reversing the order of the next series of warp yarns in the sequence.	131		
Positive beat-up – A beat-up mechanism in which the filling is moved by a positively controlled reed. (See also beat-up).	316		10
Positive let-off – A mechanism for controlling the delivery of the warp during weaving by keeping the delivery rate constant.	239		28
Positive take-up – A take-up system that is directly driven.	241		28
Power factor – The quotient $KW \div KVA$ ($KW =$ kilowatts, $KV =$ kilovolts, $A =$ amps).	271		19

Definition	Page	Index	Literature Reference
<i>Precision winding</i> – The winding of a yarn package in such a way that consecutive coils are closely spaced irrespective of package diameter.	46		41
<i>Productivity</i> – The rate of production. (See also loom production.)	324		14
<i>Projectile</i> – A device used in place of a shuttle. Instead of carrying a supply of yarn on a bobbin or quill, the projectile grips single ends of filling yarn and carries them through the warp shed at the appropriate times.	291, 300		
<i>Projectile loom</i> – A loom that uses projectiles instead of shuttles	300, 314		
<i>Protector feeler</i> – A light mechanism which detects whether the loom is in a safe or desirable state to continue operation.	225		
<i>Punched card</i> – A card perforated in such a manner to control operations; in weaving to control the pattern in a fabric.			27
<i>PVA</i> – Polyvinylalcohol, used as a size.	107		
<i>Quality control</i> – The testing and inspection of products to ascertain that they meet established quality standards.	299, 322		33
<i>*Quill</i> – A filling package which is inserted into a shuttle.	23, 38, 58, 61, 80, 229, 253		
<i>*Quiller</i> – See quill winder.			
<i>*Quill winder</i> – A machine for winding quills (pirns).	38, 58, 79		
<i>*Quill winding</i> – See pirn winding.			
<i>Race board</i> – A board over which the shuttle travels and which is attached to the lay.	181, 250		35
<i>Radius of gyration (k)</i> – The radius at which the mass of an object may be considered to be concentrated in calculating the moment of inertia (I) [$I = Mk^2$, M = mass].	267		12
<i>*Rapiers</i> – A device for inserting filling from the side of the loom during weaving.	30, 291, 306, 320		36
<i>Rapier loom</i> – A shuttleless loom which utilizes one or more rapiers to insert the filling.	291, 306, 320		36
<i>Reacher-in</i> – The operator who selects the warp yarns and hands them to the drawer-in on a hook.	128		

Definition	Page	Index	Literature Reference
<i>Reclining twill</i> – A twill weave which produces a twill line running at an angle less than 45°.	167		20
<i>Reed</i> – A comb-like device used to separate yarns on a loom and to beat-up the filling during weaving.	29, 37, 128, 181, 210, 214		10
<i>Reed number</i> – The number of dents per unit length of the reed.	171		
<i>Reed plan</i> – A plan indicating the arrangement of warp yarns into the reed dents.	128, 170		20
<i>Relative humidity</i> – Mass of moisture actually present in a given volume of air Mass of moisture which could be held in the given volume of air	98, 329, 340		3
			x 100%
<i>Repair time</i> – Time to repair a yarn break.	330		
<i>*Repeat</i> – A pattern which is repeated in the fabric weave.	157		
<i>Resonance</i> – A state in which the forcing and natural frequencies coincide causing the subject body to vibrate strongly at a level dictated by the amount of damping.	278		
<i>Reserve bunch</i> – See bunch.			
<i>Retraction device</i> – See Filling Retraction.			
<i>Ribboning</i> – See winding pattern.			
<i>Rigid rapier</i> – A stiff rod-like rapier used to insert filling.	307, 314		36
<i>Ring tube</i> – The yarn package produced on a ring spinning machine.	74		
<i>*Riser</i> – (1) A filled-in square on design paper which indicates lifting of an end. (2) A link in a pattern or box chain which activates the lifting of a harness frame or the shuttle boxes.	260		20
<i>Rocking shaft</i> – The shaft about which the lay assembly oscillates.	30, 267		
<i>*Roll</i> – (1) A rotatable cylinder. (2) The oscillating rotation of a shuttle during transit across the loom.	233		35
<i>*Sand roll</i> – Take-up roller.			
<i>Sateen</i> – A filling-faced weave in which the interlacing points are arranged to produce a smooth cloth surface.	167		20

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<i>Satin</i> – A warp-faced weave which is the reverse side of a sateen.	167	20
<i>Section warping</i> – See (1) pattern warping. or (2) beam warping.	92	
<i>Selvage</i> – The longitudinal edges of a fabric that are formed during weaving.	291	
<i>Selvage motion</i> – A shedding motion for operating the movement of the selvage warp only.	161, 189, 210, 291, 305	
<i>Semi-open shed</i> – A form of shed in which the warp yarns that are to remain in the top shed line for the next pick are lowered a short distance and raised again, while those in the bottom shed remain stationary.	195	34
<i>Semi-positive let-off</i> – A driven mechanism which controls the delivery of warp (or fabric or series of yarns or single yarn) in such a way that an adjustment, by slippage, can be made to the delivery rate to maintain tension or path length.	239	
* <i>Shaft</i> – (1) Harness frame. (2) A rotatable long cylindrical rod which usually transmits power.		
<i>Shear strain</i> – Deformation of a material in which a rectangular element becomes lozenge shaped.	19, 138	
<i>Sheath</i> – A device in a semi-positive let-off mechanism which intermittently disengages the pawl and locks the ratchet to adjust the delivery of warp or other material being controlled.	240	
* <i>Shed</i> – The opening formed by the separation of the warp yarns during weaving.	26, 101, 191, 298, 306	34
* <i>Shedding</i> – The operation of forming the shed in weaving. (see warp shed)	21, 178, 187, 191, 195, 206, 208, 263, 306	34
<i>Shedding cam</i> – The cam that operates the movement of the harness frames on a loom to form the shed.	183, 195, 198	34
<i>Shedding diagram</i> – A diagram representing the relationship between the movement of warp yarns during shedding and crank-angle position.	195, 200, 314	

Definition	Index Page	Literature Reference
<i>Shed forms</i> – A term to describe the symmetry or otherwise of the two warp sheets as the warp shed is completely formed in successive picks.	191, 194	
<i>Shed opening</i> – The distance between the warp shed lines.	101, 202	
<i>Shock</i> – The rate of change of acceleration – shock causes noise and vibration.	199, 221, 234, 285, 289, 306	
<i>*Shuttle</i> – A quill carrier that is projected through the warp shed to insert the filling yarn during weaving.	5, 22, 28, 178, 186, 200, 219, 229, 251, 253, 259, 272, 282, 289	13,29,31,32, 35
<i>Shuttle box</i> – The compartment at each end of the lay for retaining the shuttle during beating-up.	182, 222, 229, 251, 259, 285	
<i>Shuttle box length</i> – The length of the shuttle box which can be used for acceleration or deceleration.	222	
<i>Shuttle interference</i> – The interference between the shuttle and the warp due to faulty timing.	202, 304	
<i>Shuttleless loom</i> – A loom in which an alternative to the shuttle is used.	289, 312	36
<i>Shuttle transit time</i> – The time taken for the shuttle to traverse the loom in one direction.	180, 315	
<i>Shuttleless weaving</i> – Weaving with a shuttleless loom.	289, 312	36
<i>Side filling fork</i> – A device located at the sides of the loom which detects the presence of the filling yarn during weaving.	248	
<i>Side withdrawal</i> – The unwinding of yarn from a package with the yarn roughly perpendicular to the package axis.	49, 55, 66	41
<i>Simple harmonic motion</i> – Reciprocating motion which can be defined with respect to time by a sine wave.	214, 223, 277	12
<i>Single end creel</i> – A package creel which has a single package for every yarn.	86	

Definition	Page	Index	Literature Reference
<i>Single end slashing</i> – (1) a system of slashing one end at a time (not the usual meaning); (2) a system in which a series of yarns from a creel are slashed without any intermediate winding.	115 115		
<i>Single lift dobbie</i> – A dobbie mechanism in which a single knife is used to effect the lifting of the harness frames. (See also double lift dobbie).	206		
* <i>Sinker</i> – (1) A blank square on design paper. (2) A link in a pattern or box chain which activates the lowering of a harness frame or the shuttle boxes.	261		20
* <i>Size</i> – (1) A solution normally applied to warp yarns to strengthen, smoothen and lubricate them. (2) The operation of applying a size (see slashing)	99, 107, 120, 138 115, 123		9
<i>Size add-on</i> – See size take-up.			
<i>Size-box</i> – A container in which the size is applied to the yarn.	116, 123		9
<i>Size liquor</i> – See size			9
<i>Size penetration</i> – The degree to which size penetrates to the core of a yarn.	116, 120		
<i>Size recipe</i> – A list of size ingredients perhaps with cooking instructions.	107		
<i>Size shedding</i> – The removal of size particles from the yarn during processing.	109		9,40
<i>Size take-up</i> – The amount of size material added on the yarn during sizing.	113, 120		9
* <i>Sizing</i> – See slashing.			9
<i>Skip draft</i> – The passage of the warp ends of a repeat through harnesses by skipping some of them to obtain a certain effect.	131		20
* <i>Slashing</i> – The application of size solution to yarns by immersion into the solution and squeezing which is followed by drying to make the warp yarn more suitable for weaving.	23, 33, 36, 86 99, 123, 299		9

Definition	Page	Index	Literature Reference
<i>Slay</i> – See lay.			
<i>Slay sword</i> – See lay sword.			
<i>*Sley</i> – The number of warp ends per inch in a woven fabric.			
<i>Slit film</i> – Yarn produced by slitting extruded film.	143		
<i>Slough-off</i> – The slippage of a number of yarn coils during unwinding which usually causes a tangle.	51, 60, 80, 293, 323		41
<i>Slub</i> – A soft, thick and uneven place in yarn.	40		33
<i>Slub catcher</i> – A device used on winding machines to remove slubs from the yarn.			33
<i>Sluff-off</i> – See slough-off.			
<i>*Smash</i> – (1) The action of accidentally breaking a large number of warp ends due to the entrapment of the shuttle. (2) A place in the fabric where a large number of ends have been broken.	251, 330		
<i>Smash hand</i> – A helper weaver.	330		
<i>*Snarl</i> – A part of the yarn where it folds and twists around itself.	40, 95		
<i>*Softener</i> – A chemical which if added to the yarn or fabric improves the feel.	109		
<i>Sonic velocity</i> – The velocity of sound.	297		
<i>Speed of filling insertion</i> – The rate of filling insertion usually in yds/min.	314		29,32,35,36
<i>*Spindle</i> – (1) A slender rod held in a vertical position on a spinning frame. (2) A unit on a winding machine. (3) A post for mounting packages. (4) A part of a jacquard loom.	70, 71, 75, 79 42 208		
<i>Spindle efficiency</i> – The percentage of the total time that a spindle is in useful operation.	74, 79		14
<i>Spinning mill</i> – A factory producing yarn.	326		
<i>Spool</i> – A double-flanged bobbin.	48		
<i>Square construction</i> – A fabric in which the same yarn number and the same yarn density are used in both directions.	154, 163		20

Definition	Index	
	Page	Literature Reference
<i>Square design paper</i> – Paper used for representing the interlacing of warp and filling in a woven fabric.	157	20
<i>Square weave</i> – A weave in which the number of risers is equal to the number of sinkers in the repeat.	163	20
<i>Squeeze roller</i> – Rollers used to squeeze excess fluids from yarns or fabrics.	116, 121	
<i>Staple yarn</i> – Yarn spun from staple or short fibers.	124, 291, 300	
<i>Static eliminator</i> – A device for ionising the air so that electrical charges on the textile product can be neutralized.	98, 124	
<i>Steep twill</i> – A twill weave in which the angle of the twill line is more than 45°.	167	20
<i>Stick checking</i> – The stopping of the picking stick after picking.	227	13
<i>*Stiffness</i> – Resistance to deflection or other distortion.	17, 105, 134, 137 224, 275, 282, 320	
<i>Stitched basket weave</i> – A basket weave in which the length of floats is reduced to produce a firm fabric.	163	20
<i>Stop motion</i> – A device which stops the machine whenever a fault or a break occurs.	49, 83, 94, 236, 248, 251	
<i>Stop rod finger</i> – A feeler which detects the boxing of the shuttle and allows the loom to continue if all is correct.	251	
<i>Straight draft</i> – The passage of the warp ends of a repeat in sequence from the first to the last harness.	131	20
<i>*Strain</i> – Deformation of a material which is usually expressed in dimensionless form.	219	11,37
<i>Stress</i> – Load per unit area – stress causes strain.	218, 223	11,37
<i>Structure borne vibration</i> – Vibrational energy transmitted through the structure of a machine or building (as distinct from air-borne or fluid-borne vibration).	287	31
<i>*Sword</i> – See lay sword.		
<i>Synchronous speed</i> – A speed dictated by the frequency of the electrical supply.	269	19

Definition	Index	
	Page	Literature Reference
<i>*Taker</i> – See giver.	308	
<i>*Take-up roller</i> – A roller which controls the speed of the fabric leaving the weaving zone.	240	28
<i>Tape selvage</i> – See selvage.		
<i>*Tappet</i> – Another term of shedding cam. (see Cam.)	26, 183	12
<i>Tear strength</i> – The resistance of a fabric to tearing.	166, 175	37
<i>Telescopic rapier</i> – See Rapier	311	
<i>*Temple</i> – A device used on looms to control the fabric width on the loom.	189, 245	
<i>Tensile strain</i> – The extension of a material subject to tension expressed as a proportion of the length of the specimen.		37
<i>Tensile strength</i> – The resistance of a yarn or fabric to tensile loading.	174	37
<i>Tension</i> – The force acting along a yarn or fabric sample tending to elongate it.	64, 66, 80, 95, 101, 148, 182, 187, 194, 236, 245, 293	38
<i>Tension device</i> – (1) A device used to apply tension to yarns.	51, 67, 94	
(2) A device used to control tension.	101	
<i>Tensioner</i> – See tension device.	52	
<i>Thread diagram</i> – A line diagram showing the path of yarn on a machine.	157	
<i>Time constant</i> – A time which typifies the rise (or decline) of a parameter which varies exponentially with time. Frequently the time for the parameter to rise to half its ultimate value is used.	279	12
<i>Tin fillet</i> – A rough surface applied to the take-up roller to enable it to grip the fabric.	242	
<i>*Toggle</i> – A bi-stable device which can rest in either of two possible positions but not in any other.	302	
<i>*Top shaft</i> – Another term for the crankshaft on looms.	183, 285	
<i>Torque (T)</i> – Couple or twisting moment which causes torsion [$T = \sum Fr$; F = force, r = radius and \sum means "the summation of"].	68, 265	12

Definition	Page	Index	Literature Reference
<i>*Torsion</i> – The twisting of one end of a body with respect to the other.	224, 277, 283, 302		12
<i>Torsion bar</i> – A bar which is subject to torsion to store energy.	302		12
<i>*Total cost</i> – The sum of labor, capital and other costs.	329, 335		14
<i>Transfer latch</i> – A part of the filling transfer mechanism of looms.	255		
<i>*Transport efficiency</i> – The percentage of the time a carrier is usefully employed in carrying yarn (e.g., a shuttle)	315		
<i>Traveling package creel</i> – A creel on which the packages are moved so that the empty ones can be replaced with full ones.	71, 89		41
<i>*Traverse</i> – (1) The distance moved by the yarn along the package during winding. (2) An adjective to describe a type of mechanism used in winding.	80 43, 77, 83, 92		
<i>Truck creel</i> – A creel which is mounted on wheels to permit movement to the operating position or away for creeling.	87		9
<i>Tucked-in selvage</i> – A selvage in which the filling ends are doubled back and locked into the fabric.	292		
<i>*Turbulence</i> – A disorderly flow of a fluid.	298		25
<i>Twill weave</i> – A weave which produces diagonal lines in the cloth and repeats over three or more ends and picks.	166		20
<i>Twist</i> – The helical configuration of fibers or filaments in a yarn. See Yarn Twist			
<i>Tying-in</i> – The action of joining the ends on a new warp beam to the corresponding ends in an old warp prior to weaving.	38, 127, 131		
<i>Unclear shed</i> – A warp shed in which the sheets of warp do not form single planes.	192		
<i>Undercam loom</i> – A loom which has the shedding cams under the harness frames.	196		
<i>Underpick loom</i> – A loom in which the picking stick is vertical and under the level of the shuttle box.	185, 226		
<i>Uniaxial load</i> – A load in one direction.	156		11
<i>Unifil</i> – A device attached to the loom which winds the filling quills on the loom.	258		
<i>Variable speed drive</i>	42, 90, 98		

Definition	Index	
	Page	Literature Reference
* <i>Vibration</i> – Oscillation of a body or part thereof.	221, 228, 263, 275, 282, 341	31
* <i>Viscosity</i> – A measure of the fluidity of a liquid.	109, 120	
* <i>Warp</i> – The longitudinal yarns in a woven fabric.	10, 17, 32, 35, 99, 127	9,40
<i>Warp beam</i> – The beam which contains the warp yarns.	20, 33, 37, 84	9
<i>Warp breaks</i> – Breaks in the warp which cause the loom to be stopped. (see end breaks)	32, 247, 322	
<i>Warp end</i> – A warp yarn.	33	9,14,30 38,40
<i>Warper's beam</i> – A warp beam produced by warping.	35, 86	
<i>Warp-face twill</i> – A twill fabric in which the warp appears most on the face of the fabric.	166	20
* <i>Warping</i> – The winding of warp yarns from packages onto a warp beam.	35, 85	9
<i>Warp let-off</i> – See let-off motion.	27	28
<i>Warp preparation</i> – The preparing of a warp for weaving.	12, 21, 32, 61, 85, 99	9
<i>Warp rib</i> – A weave in which floats are extended in the warp direction to produce ribs in the filling direction.	160	20
<i>Warp shed</i> – The opening through which filling is inserted in a loom.	26, 101, 191	34
<i>Warp shed line</i> – The plane of the warp sheet seen in side elevation.		
<i>Warp sheet</i> – A multitude of warp yarns parallel to each other.	21, 120	
<i>Warp sizing</i> – See slashing.		9
<i>Warp stop motion</i> – A device which stops the loom whenever a warp yarn breaks or becomes slack.	127, 246	
* <i>Warp storage system</i> – A system of storing a limited amount of warp yarn during the beaming operation so that a broken end may be retrieved before the end is wound on to the beam.	96	
<i>Warp winding (warping)</i> – Winding of warp yarns into large packages or cones.	34, 62, 85	41

Definition	Page	Index Literature Reference
<i>Water-jet loom</i> - A shuttleless loom in which the filling is inserted by a jet of water.	30, 101, 291, 299	36
<i>Wave shed looms</i> - Looms in which it is possible to lay in several fillings simultaneously.	305	
* <i>Weave</i> - (1) The action of interlacing yarns. (2) The interlacing pattern - see design.	178 134, 160	
<i>Weave room</i> - A room containing active looms.	326	
<i>Weaver's beam</i> - A beam used on a loom usually containing slashed yarns.	33, 86	9
<i>Weaving cycle</i> - The sequence of events between inserting one pick and the next.	178, 316	29
<i>Weaving efficiency</i> - The efficiency with which a batch of looms is kept running.	32, 320, 322, 326, 331	
<i>Weaving out</i> - (1) Weaving until a warp is exhausted; (2) the gradual equalization of warp tension as weaving proceeds.	106	
<i>Weft</i> - Another term for filling.		
<i>Weft cutter</i> - The filling yarn cutter on the loom which operates after a filling transfer to cut the old yarn tail.	30, 294	
<i>Weft insertion</i> - The operation of inserting the filling yarn between the two warp sheets. (See filling insertion).		
* <i>Well</i> - A slot in the race board which acts as a compartment for the center fork.	250	
<i>Wet finishing</i> - The application of aqueous treatments to impart a certain finish to fabric. (See fabric finish).		
<i>Whip roll</i> - See back rest.		
<i>Winding</i> - The laying of yarn on a yarn package.	34, 39, 41, 58, 61, 65	41
<i>Winding head</i> - Winding unit.	41, 74	
<i>Winding Machines</i> - Machines for winding yarns on to appropriate packages	41, 70	
<i>Winding pattern</i> - The (undesirable) patterns generated by over-lapping helices formed during winding. The patterning is a function of the package diameter.	46, 323	41
<i>Winding speed</i> - The yarn speed in winding.	71, 73, 77	41
<i>Winding tension</i> - The tension developed in yarn during winding.	34, 51, 56, 64	41

Definition	Index	
	Page	Literature Reference
<i>Width in reed</i> – The width of the warp sheet at the reed.	171	
<i>Worm and wheel</i> – A gear with one or more helical teeth (worm) which engages with a toothed wheel to give a large gear ratio.	239, 245	12
* <i>Yarn</i> – An assembly of fibers or filaments into a long, thin strand.	61, 71, 79, 89, 95, 100, 104, 107, 114, 229, 323	37
<i>Yarn balloon</i> – The solid of revolution created by the rotation of a yarn.	56, 70, 82, 96	41, 37
<i>Yarn conditioning</i> – see Conditioning		
<i>Yarn count</i> – A number indicating the length per unit mass of a yarn.	105, 142, 152, 158, 292	37
<i>Yarn end</i> – See end.		
<i>Yarn faults</i> – Defects in the yarn, usually in the form of local thick or thin spots.	34, 61, 64, 101, 299, 322	33
<i>Yarn guide</i> – Any type of guide used to direct the path of yarn on a textile machine.	50	
<i>Yarn linear density</i> – A number indicating the mass per unit length of a fiber or yarn. See Yarn Count.		
<i>Yarn number</i> – Yarn count or yarn linear density. (See yarn count).		
<i>Yarn preparation</i> – The intermediate series of processes performed on the yarn between spinning and weaving or knitting.	12, 19, 23, 32, 61, 85, 99, 127, 335	
<i>Yarn speed</i> – The linear velocity of a running yarn.	70, 77, 90, 117, 301	
<i>Yarn twist</i> – The number of turns of twist per unit length of yarn.	18, 68, 138, 147, 159 174	
<i>Yaw</i> – (1) Sideways oscillation of a shuttle during transit across the loom. (2) A thin place in a fabric which is detrimental to the cloth.	233	35

APPENDIX II

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Key to References

BP	British Patent
IME Conf	Institution of Mechanical Engineers, London, Conference on Noise
J. Photo. Sci.	Journal of Photographic Science, London.
JTI	Journal of the Textile Institute, London
J. Tex. Mach. S.J.	Journal of the Textile Machinery Society of Japan.
Man Made Tex	Man Made Textiles
Proc. I. Mech. E.	Proceedings of the Institution of Mechanical Engineers, London.
Tex Age	Textile Age
Tex Manuf	Textile Manufacturer, Manchester, England
Tex Merc	Textile Mercury, Manchester, England
TM	Textile Month, Manchester, England
TRJ	Textile Research Journal, Princeton, U.S.A.
Tex Rec	Textile Recorder, Manchester, England
Tex Wk	Textile Weekly, Manchester, England
USP	U.S. Patent

APPENDIX III

DETERMINATION OF YARN LENGTH IN A CRIMPED STATE

Assume that the yarn is formed into a sinusoidal shape:-

$$h = A \sin \frac{2\pi x}{\lambda}$$

where the symbols are defined in Fig. 8.7. Consider a small element of yarn $\delta \ell$ in length and associated with this is a difference in height δh and a difference in width δx .

By Pythagoras $\delta \ell^2 = \delta h^2 + \delta x^2$

$$\delta \ell = \left[1 + \left(\frac{\delta h}{\delta x} \right)^2 \right]^{1/2} \delta x$$

In the limit $\ell = \int_0^{\lambda} \left[1 + \left(\frac{dh}{dx} \right)^2 \right]^{1/2} dx$

Let $k = \frac{2\pi A}{\lambda}$ and $\phi = \frac{2\pi x}{\lambda}$, then $\frac{dh}{dx} = k \cos \phi$

$$\ell = \int_0^{\lambda} \left[1 + (k \cos \phi)^2 \right]^{1/2} dx$$

$\left[1 + (k \cos \phi)^2 \right]^{1/2}$ may be expanded binomially and since k^4 and higher powers are negligibly small

$$\left[1 + (k \cos \phi)^2 \right]^{1/2} \approx 1 + \frac{1}{2} k^2 \cos^2 \phi \dots \text{etc.}$$

$$\therefore \ell \approx \int_{x=0}^{x=\lambda} [1 + \frac{1}{2} k^2 \cos^2 \phi] dx$$

but $k dx = A d\phi$

and equation (1) can be rewritten with different variables and limits

$$\frac{k\ell}{A} \approx \int_{\phi=0}^{\phi=2\pi} [1 + \frac{1}{2} k^2 \cos^2 \phi] d\phi$$

$$= 2\pi + \frac{1}{2} k^2 \int_0^{2\pi} \cos^2 \phi d\phi$$

$$= 2\pi + \frac{1}{4} k^2 \int_0^{2\pi} [1 + \cos 2\phi] d\phi$$

$$= 2\pi + \frac{\pi}{2} k^2 + \frac{1}{4} k^2 \int_0^{2\pi} \cos 2\phi d\phi$$

$$\text{but } \int_0^{2\pi} \cos 2\phi d\phi = 0$$

$$\therefore \frac{k\ell}{A} \approx 2\pi + \frac{\pi}{2} k^2$$

Substituting $k = \frac{2\pi A}{\lambda}$ in equation (2) and simplifying

$$\frac{\ell}{\lambda} \approx 1 + \left[\frac{\pi A}{\lambda}\right]^2$$

$$\ell \approx \lambda \left[1 + \left(\frac{\pi A}{\lambda}\right)^2\right]$$

APPENDIX IV

UNITS AND CONVERSION FACTORS

	S.I.	Imperial or other unit	Conversion factor (see note below)
	A	B	C
Length	mm	inch	0.0394
	cm	inch	0.394
	m	yd	1.094
	micron (μm)	mil (0.001")	0.0394
Linear density	tex	denier	9
	tex	cotton count (N_c)	*
	tex	worsted count (N_w)	*
Pick density end density	pick/cm	pick/inch (ppi)	2.54
	end/cm	end/inch (epi)	2.54
Cover factor	$(\text{pick/cm})\sqrt{\text{tex}}$	$\frac{(\text{ppi})}{\sqrt{N_c}}$ or $\frac{(\text{epi})}{\sqrt{N_w}}$	0.1045
	OR $(\text{end/cm})\sqrt{\text{tex}}$	$\sqrt{N_c}$ or $\sqrt{N_w}$	
Basis weight	g/m^2	oz/yd^2	0.0295
Twist	turn/m	turn/inch (tpi)	0.0254
	turn/cm	tpi	2.54
Twist factor (multiplier)	$(\text{turn/cm})\sqrt{\text{tex}}$	$\frac{(\text{tpi})}{\sqrt{N_c}}$	0.1045
	$(\text{turn/cm})\sqrt{\text{tex}}$	$\frac{(\text{tpi})}{\sqrt{N_w}}$	
Breaking load or Tear Strength	millinewton (mN)	lbf	0.000225
	or newton (N)	lbf	0.225
Force	kilonewton (kN)	kgf	0.102
Tenacity		gf/tex	0.102
or Specific stress	mN/tex	gf/den	0.0113
Bursting pressure	kN/m^2	lbf/in^2	0.145

Note: To convert from SI to Imperial or other units cited, multiply the value given in the units quoted in column A by the factor C to get the units quoted in column B.

* These are inverse relationships: $\frac{590.5}{\text{tex}} = N_c$ and $\frac{885.8}{\text{tex}} = N_w$