

**84.45 - Machines for preparing textile fibres; spinning, doubling or twisting machines and other machinery for producing textile yarns; textile reeling or winding (including weft-winding) machines and machines for preparing textile yarns for use on the machines of heading 84.46 or 84.47.**

- Machines for preparing textile fibres :

8445.11 -- Carding machines

8445.12 -- Combing machines

8445.13 -- Drawing or roving machines

8445.19 -- Other

8445.20 - Textile spinning machines

8445.30 - Textile doubling or twisting machines

8445.40 - Textile winding (including weft-winding) or reeling machines

8445.90 - Other

**Subject** to the exclusions mentioned later, this heading covers machines used in the textile industry for the following processes :

(I) The preparation or preliminary treatment of textile fibres to make them suitable for :

(i) Spinning into yarns, twine, etc.

or (ii) Manufacturing into wadding, felt, stuffing material, etc.

(II) The working up of various textile fibres into yarns by spinning, twisting, doubling, throwing, etc. (including the preparation of paper yarn from strips of paper) but **excluding** specialised processes of rope making (**heading 84.79**).

(III) Reeling, whether of slivers or rovings, yarns, twine, etc. and preparing textile yarns for use on the machines of **heading 84.46** or **84.47**.

**(A) MACHINERY FOR PREPARING NATURAL TEXTILE FIBRES  
OR SHORT MAN-MADE FIBRES UP TO THE SPINNING STAGE,  
AND SIMILAR MACHINES WHICH PREPARE THE FIBRES FOR USE  
AS STUFFING OR FOR THE MANUFACTURE OF FELT OR WADDING**

This group includes :

(1) **Blower-grader machines** for sorting animal hair according to length. These consist of a long box divided across its width into compartments into which the hairs are blown by a current of air. The hairs are distributed into the various compartments according to their size.

- (2) **Machines for separating cotton fibres from the seeds, hulls and other impurities (e.g., cotton gins), and similar machines for separating linters from the seed.**
- (3) **Scutching or similar machines** for separating the fibres from vegetable stalks (flax, hemp, etc.) after retting.
- (4) **Machines for tearing rags, old cordage or similar scrap textiles** to reduce them to a fibrous condition suitable for carding (e.g., garnetting machines and rag pickers), but **excluding** rag cutters used in paper-making (**heading 84.39**).
- (5) **Bale breakers**, used for opening out into lumps the cotton from compressed bales.
- (6) **Automatic feeders**, fitted with a spreading device to secure an even flow to the openers.
- (7) **Beaters and spreaders** for further cleaning and opening out the web of cotton fibres; **preparing machines for opening wool.**
- (8) **Wool scouring machines with mechanical arrangements** for feeding in the wool and pumping in hot water; and **raw wool washing machines (e.g., Leviathans) equipped with stirring mechanism** and sometimes means for drying.
- (9) **Raw stock dyeing machines** for dyeing unspun wool fibres in the mass.
- (10) **Machines for impregnating wool, ramie, etc., with oil or chemical products** to facilitate carding and combing.
- (11) **Wool carbonising machines**, equipped with a vat for acid, arrangements for removing excess liquor, for drying and for dusting out the charred impurities.
- (12) **Carding machines** of various types for cotton, wool, short man-made fibres, bast fibres (flax, hemp, etc.), etc. These continue the cleaning begun by the openers and beaters, and separate and straighten the fibres. In principle they consist of large rollers covered with saw-toothed steel wire or with fabric fitted with wire teeth (card clothing); these work against fixed plates or other rollers which are also covered with card clothing. A cleaning device keeps the teeth free from clogging with fibres, and in wool carding machines there is a device for eliminating burrs. Different carding machines are used at different stages for different materials (e.g., breaker cards, intermediate cards, finisher cards, condenser cards). The fibres leave the carding machines in the form of a wide web or lap, or may be condensed into a sliver, and are then wound on spools or bobbins or coiled into rotating bins.

This group also covers carding machines for preparing fibres for felting or for use as wadding or stuffing; these are usually a simpler type consisting of a cylindrical segment covered with card clothing, which oscillates over a flat table also covered with card clothing.

- (13) **Draw boxes, gill boxes, etc.** These draw out the slivers to a smaller cross-section, combine them and re-draw them to produce an even product; these machines are used after carding and, in the case of wool, sometimes also after combing.
- (14) **Combing machines.** The principal function of these machines is to comb out short fibres; the sliver is held between nippers while being acted on by an arrangement of combs or pins. They are used at various stages of manufacture : to treat the material in the raw state (e.g., hackling flax), or after carding or drawing out. The most common types are combing machines for flax, hemp or similar fibres, intermittent (French or rectilinear) combs for cotton, and circular combs for wool.
- (15) **Flax, jute, etc., spreaders.** These combine the bundles of flax or other fibres, and draw them out into a continuous sliver.
- (16) **Backwashing machines** for removing the oil and other impurities from wool after carding or combing. They consist of a number of vats for warm soapy water, equipped with guide and squeeze rollers, drying cylinders and a gill box to open out the wool again.
- (17) **Drawing or roving machines** for finally drawing and slightly twisting the slivers or rovings to make them ready for spinning.
- (18) **Coilers.** These consist of a turntable designed to rotate a can in which the slivers or rovings are collected as they leave the various machines; they usually have a coiling device at the top.

#### (B) MACHINES FOR PREPARING SILK PRIOR TO THROWING

This group includes :

- (1) **Machines for removing the outer parts of cocoons, and machines for removing, by beating the cocoons, the outer filaments which cannot be reeled.**
- (2) **Vessels for unreeling by hand the silk threads from cocoons,** equipped with a device for assembling and slightly twisting together several filaments and sometimes with the reel on which the raw silk obtained is wound; the reel is sometimes separate from the vessel but **provided** the reel and vessel are presented together the whole unit remains classified here.
- (3) **Machines for removing lumps, thicker parts, etc., from the raw silk yarn.**

**(C) SPINNING MACHINES FOR CONVERTING ROVINGS INTO YARN;  
TWISTING MACHINES AND MACHINES FOR DOUBLING YARNS TO  
FORM MULTIPLE OR CABLED YARNS**

This group includes :

- (1) **Spinning frames** which by a further drawing out and twisting convert the roving into a yarn. The essential feature of a spinning frame is the spinning mechanism (flyer ring and traveller, etc.) associated with a revolving vertical or oblique spindle; a complete spinning frame consists of a number of these elements mounted side by side. The heading includes flax, hemp, jute, etc., spinning machines, intermittent spinning frames (mules, etc.) and continuous spinning frames (flyer spinning, ring spinning, cap spinning, etc.). It also covers hand spinning wheels.
- (2) **"Tow-to-yarn" machines.** These complete the whole process of breaking the filaments of the tow, drawing out into a roving and spinning into yarn.
- (3) **Twisting or doubling machines** for giving a supplementary torsion to yarns, or for twisting together two or more yarns to form a multiple or cabled yarn or to form twine; special machines for rope-making are, however, **excluded (heading 84.79)**. Certain machines of this group may include devices for producing fancy yarns (e.g., looped yarns).

This group also includes **throwing machines** for twisting together continuous filaments of silk or of man-made textiles.

- (4) **Machines for knotting together, end to end, lengths of horsehair.**

**(D) WINDING OR REELING MACHINES**

These are used for putting up yarns (or rovings), twine or string, on bobbins, spools, cops, cones, cheeses, cards, etc., or in balls, hanks or skeins, etc., whether for manufacturing or trade purposes, or for retail sale. For the classification of warping machines, see Part (E) below. Machines for coiling ropes or cables are classified in **heading 84.79**.

The heading also includes machines for recovering and re-reeling yarn from faulty knitted or crocheted goods. It also covers **weft winders** specially designed to wind the weft yarns on to bobbins ready for use in weaving.

**(E) MACHINES FOR PREPARING TEXTILE YARNS FOR USE  
ON THE MACHINES OF HEADING 84.46 OR 84.47**

This group includes :

- (1) **Warpers** for preparing a series of yarns parallel, under the same tension, and in the right order (as regards colour and type of yarn) for weaving. The complete number of yarns required for the warp may be prepared as a whole, or they may be prepared in sections (sectional warping); they may be wound directly on the warp beam ready for use on the loom, or provisionally on the roller of the warping machine or on other supports (e.g., bobbins).

The machine consists of a creel for holding a large number of bobbins of yarn, a series of combs and thread guides and a powerful drum winding mechanism; the various parts of this machine are usually quite separate, but when presented together they remain classified here.

- (2) **Warp sizing machines** (e.g., slashing machines). In these the warp yarns, either in sections or as a sheet of parallel yarns, are given a temporary dressing to protect them from fraying on the loom and to make them smooth, thus facilitating weaving. These machines consist generally of a size bath, a system of roller guides, a heated cylinder or hot air dryer and a reeling device, and sometimes also a device for cut-marking (i.e., the application of dye marks at regular intervals on the selvage yarns).

The heading **does not cover** other sizing machines, e.g., for sizing other yarns (including weft yarns) in hanks or as separate yarns (**heading 84.51**).

- (3) **Drawing-in and reeding machines** for drawing the warp yarns through the respective healds (heddles) of the loom, and through the reed or comb.
- (4) **Warp tying-in or twisting-in machines** for uniting the threads of a new warp with those remaining from the former warp.

This heading **does not cover** warp tyers used to join warp threads which have broken during weaving (**heading 84.48**).

- (5) **Machines for assembling warp yarn** on the beam from warper drums.
- (6) **Machines for interlacing and supplying the thread during weaving.**
- (7) **Threading machines** for embroidery.

**PARTS AND ACCESSORIES**

**Subject** to the general provisions regarding the classification of parts (see the General Explanatory Note to Section XVI), parts and accessories of the machines of this heading are classified in **heading 84.48**.

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## 84.45

The heading **excludes** :

- (a) Machines for the heat-treatment of cocoons to kill the silkworms (**heading 84.19**).
- (b) Machines for the drying of textile materials (**heading 84.19** or **84.51**, as the case may be).
- (c) Centrifugal hydro-extractors (**heading 84.21**).
- (d) Machines of **heading 84.44**.
- (e) Machinery for the manufacture or finishing of felts or nonwovens (**heading 84.49**).
- (f) Polishing, glazing, gassing or other finishing machines, and fabric winding machines (**heading 84.51**).
- (g) Hair cutting machines for cutting animal hair from hides (**heading 84.53**).
- (h) Card grinding and comb teeth sharpening machines (**heading 84.60**).
- (ij) Machines for setting the teeth in card clothing (**heading 84.63**).
- (k) Machines for mounting card clothing on card cylinders, etc. (**heading 84.79**).