



SLOVENSKI STANDARD SIST EN 415-1:2001

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Packaging machines safety - Part 1: Terminology and classification of packaging machines and associated equipment

Sicherheit von Verpackungsmaschinen - Teil 1: Terminologie und Klassifikation von Bezeichnungen für Verpackungsmaschinen und zugehörige Ausrüstungen

Sécurité des machines d'emballage - Partie 1: Terminologie et classification des machines d'emballage et de l'équipement associé

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English version

Packaging machines safety - Part 1: Terminology and classification of packaging machines and associated equipment

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Terminologie et classification des machines d'emballage et
de l'équipement associé

Sicherheit von Verpackungsmaschinen - Teil 1:
Terminologie und Klassifikation von Bezeichnungen für
Verpackungsmaschinen und zugehörige Ausrüstungen

This European Standard was approved by CEN on 16 April 1999.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 146 "Packaging machines – Safety", the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2000, and conflicting national standards shall be withdrawn at the latest by October 2000.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Other parts of this standard will include

EN 415 Packaging Machines Safety;
Part 2: Pre-formed rigid container packaging machines
Part 3: Form, fill and seal machines.
Part 4: Palletizers and depalletizers.
Part 5: Wrapping machines.
Part 6: Unit load securing machines.
Part 7: Group packaging machines.

0. Introduction

Packaging machines are used extensively in Europe, in an increasingly wide range of industries. They contain many hazards and have the potential to cause serious injury. There are an enormous variety of packaging machines, but hitherto there has been no internationally agreed nomenclature. This has led to confusion when reporting accidents and interpreting accident and trade statistics. The purpose of this standard is to name and define each group of packaging machines uniquely. In most cases these names will already be in common use, however in some cases the commonly used name is ambiguous, a trade name, or used to describe more than one significantly different type of machine. In these cases a less familiar name will be defined. Designers, manufacturers, suppliers, importers, users, enforcing authorities and other interested bodies are encouraged to use this nomenclature to improve communication and to avoid confusion, particularly when reporting accidents and preparing the documentation required by EU Directives.

1. Scope

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This European standard defines the field of packaging machines in detail in clause 3, but briefly these are:

Filling and Dosing machines
Closing machines
Labelling, decorating and coding machines
Cleaning, sterilising, cooling and drying machines
Fill and seal machines
Inspection machines
Container and component handling machines

Form, fill and seal machines
Cartoning machines
Wrapping machines
Group or transit packaging machines
Pallet or loading unit forming, dismantling and securing machines

Annex A indicates where hazards and safety requirements for these machines can be found. In most cases this will be in one of the parts of EN415, but in some cases it may be another European or ISO standard. Where no specific standard covers a particular machine Annex A will indicate the most appropriate standard which can be referred to for advice.

2. Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references subsequent amendments to, or revisions of, any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- EN 292-1:1991 Safety of machinery - Basic concepts, general principles of design - Part 1: Basic terminology, methodology.
- EN 292-2:1991 Safety of machinery - Basic concepts, general principles of design - Part 2: Technical principles and specifications.
- EN 415-2:1999 Safety of packaging machines - Part 2: Pre-formed rigid container packaging machines.
- EN 415-3:1999 Safety of packaging machines - Part 3: Form, fill and seal machines.
- EN 415-4:1997 Packaging machines safety- Part 4: Palletizers and depalletizers.
- prEN 415-5 Packaging machines safety- Part 5: Wrapping machines.
- prEN 415-6 Packaging machines safety- Part 6: Unit load securing machines.
- prEN 415-7 Safety of packaging machines - Part 7: Group packaging machines.
- EN 422:1995 Rubber and plastics machines – Safety - Blow moulding machines intended for the production of hollow articles- Requirements for the design and construction
- ISO 10 821 Industrial sewing machines - Safety requirements for sewing machines, units and systems.

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3. Definitions

For the purposes of this standard the following definitions apply.

3.1 Filling and dosing machines

Packaging machines which measure out a product from bulk by some predetermined value, e.g. volume, level in a container, mass or count. The terms listed below describe the method of measuring out or dosing the product. The filling machine may comprise one or a number of dosing devices which may be arranged with or without a mechanism to control containers or packages as they are filled.

3.1.1 Volumetric filling machines

3.1.1.1 volumetric cup filling machine - Filling machine which measures out a product, usually free-flowing solids or powder, in a cup of predetermined volume.

3.1.1.2 volumetric piston filling machine - Filling machine which measures out a product, usually a liquid, paste or gas, using a reciprocating piston of predetermined volume.

3.1.1.2.1 displacement filling machine - Filling machine which measures out a product, usually liquid, by displacing a predetermined volume of product with a loose fitting piston.

3.1.1.2.2 aerosol gassing machine - Volumetric piston filling machine designed specifically to fill propellant gas into an aerosol or gas canister.

3.1.1.3 rotating chamber filling machine - Filling machine which measures out a product, usually a liquid, paste or gas, using a metering pump which operates for a predetermined number of cycles.

3.1.1.4 flow meter filling machine - Filling machine which measures out a product, usually a liquid, using a flow meter.

3.1.1.5 auger filling machine - Filling machine which measures out a product, usually a powder, using an auger which rotates for a predetermined number of revolutions.

3.1.2 Level filling machines

3.1.2.1 vacuum filling machine - Filling machine which fills a product, usually a liquid or powder, to a predetermined level in a rigid container, flow being initiated by applying a vacuum to the container.

3.1.2.2 gravity filling machine - Filling machine which fills a product, usually a liquid or powder, to a predetermined level in a container, the product flowing under gravity.

3.1.2.3 pressure filling machine - Filling machine which fills a carbonated liquid product under gravity, to a predetermined level in a rigid container, with the product under pressure.

3.1.3 timed flow filling machines - Filling machines which measure out a product, usually a liquid or powder, by controlling the product flow duration to a predetermined value.

3.1.4 Gravimetric filling machines

3.1.4.1 nett weighing machine - Filling machine which measures out a predetermined mass of product, usually free-flowing solids, before dispensing it as a fill.

3.1.4.1.1 selective combination weighing machine - Nett weighing machine with multiple weighing units, which computes an appropriate combination of loads to achieve the predetermined mass and discharges them together as a fill.

3.1.4.2 gross weighing machine - Filling machine which measures out a predetermined mass of product, which may be liquid, powder, gas or solids, directly into the package, while it rests on a weighing instrument which controls the filling operation.

3.1.5 count filling machines - Filling machines which measure out solids according to a predetermined count.

3.2 Closing machines

Packaging machines which seal or close filled packages.

3.2.1 Closing machines which do not use a closure or closing material

3.2.1.1 fold closing machine - Closing machine which seals a package, usually a bag or collapsible tube, by folding.

3.2.1.2 tuck closing machine - Closing machine which closes a package, usually a carton, by engaging pre-cut tabs in slots. See also 3.9.2.1.

3.2.1.3 crimp closing machine - Closing machine which closes a package, usually a bag or collapsible tube, by crimping.

3.2.1.4 weld sealing machine - Sealing machine which seals a package, usually metal, by welding.

3.2.1.5 fusion sealing machine - Sealing machine which seals a package, usually glass, by fusion welding.

3.2.1.6 solder sealing machine - Sealing machine which seals a package, usually metal, by soldering.

3.2.1.7 heat sealing machine - Sealing machine which seals a package, usually plastic, by heat sealing.

3.2.1.7.1 blister sealing machine - Sealing machine which seals a filled plastic blister to a piece of coated cartonboard, by the application of heat.

3.2.1.7.2 rigid container sealing machine - Sealing machine which seals a lid or flexible film to a tray, cup, bottle or other container by the application of heat.

3.2.1.7.3 bag sealing machine - Sealing machine which seals a bag by the application of heat.

3.2.1.7.4 sack sealing machine - Sealing machine which seals a sack by the application of heat.

3.2.1.8 induction sealing machine - Sealing machine which seals a foil laminate lid to a container in a electromagnetic field. [SIST EN 415-1:2001](https://standards.iteh.ai/catalog/standards/sist/86175d98-e056-453f-997e-07046c292849/sist-en-415-1-2001)

3.2.2 Closing machines which use a closure

3.2.2.1 screw capping machine - Closing machine which applies a threaded cap or lid, usually to a rigid container.

3.2.2.2 steam capping machine - Closing machine which sterilises the cap and filled rigid container with steam during the closing process.

3.2.2.3 plugging; corking machine - Closing machine which pushes a plug or cork into the mouth of a rigid container.

3.2.2.4 press-on lidding machine - Closing machine which pushes a lid, usually metal, plastic or other material, on to a rigid container.

3.2.2.5 crown capping machine - Closing machine which places a pre-formed metal cap over the mouth of a rigid container, before crimping the edges of the cap to secure it to the container.

3.2.2.6 roll-on capping machine - Closing machine which places a deformable capsule over the mouth of a rigid container, before rolling the capsule to form a thread and secure the capsule to the container.

3.2.2.7 can seaming machine - Closing machine which places a pre-formed lid onto the mouth of a can, before rolling the edges of the lid and can together to form a seal.

3.2.2.8 cork wiring machine - Closing machine which applies a wire cage to the neck and cork of a rigid container, to prevent the cork being pushed out by gas pressure in the container.

3.2.2.9 aerosol valve closing machine - Closing machine which places an aerosol valve into the mouth of a rigid container before seaming the valve to the container.

3.2.2.10 pump applicator - Closing machine which places a dispensing pump into the mouth of a rigid container before attaching the pump to the container.

3.2.3 Closing machines which use a closing material

3.2.3.1 staple closing machine - Closing machine which closes packages, usually corrugated cases, with metal staples. See also 3.11.3.3.

3.2.3.2 nail closing machine - Closing machine which closes packages, usually wooden boxes, with nails.

3.2.3.3 rivet closing machine - Closing machine which closes packages, usually metal, with rivets.

3.2.3.4 clip closing machine - Closing machine which closes packages, usually rigid containers, with metal clips.

3.2.3.5 sewing machine - Closing machine which closes packages, usually paper sacks, by sewing.

3.2.3.6 glue sealing machine - Sealing machine which seals packages, usually bags, cartons or corrugated board cases, with an adhesive. See also 3.11.3.1.

3.2.3.7 gummed tape sealing machine - Sealing machine which seals packages, usually corrugated board cases, with gummed tape. See also 3.11.3.2.2.

3.2.3.8 tape sealing machine - Sealing machine which seals packages, usually corrugated board cases, with pressure sensitive tape. See also 3.11.3.2.1.

3.2.3.9 strapping machine - Sealing machine which seals packages with a metal or plastic strap.

3.2.3.10 twist-tie closing machine - Closing machine which closes packages, usually bags, by twisting a wire closure around the neck of the package.

3.2.3.11 foil sealing machine - Packaging machine which applies a reel fed foil or plastic cover to a rigid container, which is usually plastic.

3.3 Labelling, decorating and coding machines

Packaging machines which apply labels, decoration or codes and other markings to packages.

3.3.1 Labelling machines

3.3.1.1 wet glue labelling machine - Labelling machine which applies labels, usually to a rigid container, using an adhesive which is liquid at room temperature.

3.3.1.2 hot melt glue labelling machine - Labelling machine which applies labels, usually to a rigid container, using an adhesive which is solid at room temperature.

3.3.1.3 pressure sensitive labelling machine - Labelling machine which applies pre-glued labels, which are supplied on a reel of release paper or film

3.3.1.4 heat seal labelling machine - Labelling machine which applies labels coated with a heat sealable material.

3.3.1.5 pre-gummed label applicator - Labelling machine which applies pre-gummed labels to packages.

3.3.1.6 print and apply labelling machine - Labelling machine on which a label is first printed and then applied to a package.

3.3.2 Decorating machines

3.3.2.1 tag labelling machine - Packaging machine which applies a tag, usually to a rigid container, either by placing it over the neck of the container, or by fixing it to the container with glue.

3.3.2.2 foiling machine - Packaging machine which applies a decorative foil to the neck of a closed rigid container.

3.3.2.3 shrink sleeving machine - Packaging machine which places a tube of plain or printed thermoplastic material over the neck of a rigid container, before heat shrinking it so that it closely fits the container

3.3.2.4 capsuling machine - Packaging machine which applies a decorative capsule to the neck of a rigid container.

3.3.2.5 stretch sleeving machine - Packaging machine which stretches a tube of plain or printed plastic material over the neck of a rigid container.

3.3.3 Coding machines

3.3.3.1 emboss coder - Machine attachment which marks a package by embossing or debossing with raised type.

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3.3.3.2 wet ink coder - Machine attachment which marks a package by printing it with wet ink.

3.3.3.3 hot foil coder - Machine attachment which marks a package by transferring dry ink, carried on a reel of film, with a heated die.

3.3.3.4 solid ink coder - Machine attachment which marks a package by transferring dry ink from a solid block, with a heated die.

3.3.3.5 ink jet coder - Machine attachment which marks a package by jetting ink in a predetermined pattern.

3.3.3.5.1 drop-on-demand ink jet coder - Ink jet coder which prints a character by jetting ink from a matrix of nozzles.

3.3.3.5.2 continuous stream ink jet coder - Ink jet coder which prints a character by applying varying electrostatic charges to droplets of ink.

3.3.3.6 laser coder - Machine attachment which marks a package with a laser.

3.4 Cleaning, sterilising, cooling and drying machines

Machines which clean, sterilise, cool or dry containers or filled packages.

3.4.1 Cleaning machines

3.4.1.1 air cleaning machine - Packaging machine which cleans the inside of rigid containers by injecting a gas, usually air, into the inverted containers.

3.4.1.2 rinsing machine - Packaging machine which cleans the inside of a rigid container by injecting a liquid, usually water, into the inverted container.

3.4.1.3 bottle washing machine - Packaging machine which cleans the inside and outside of rigid containers, usually with water and detergent.

3.4.1.4 crate washing machine - Packaging machine which cleans crates, usually with water and detergent.

3.4.2 Sterilising machines

3.4.2.1 container sterilising machine - Packaging machine which sterilises empty rigid containers, before they are filled.

3.4.2.2 continuous steriliser - Packaging machine which sterilises packaged products by heating and then cooling them continuously under controlled conditions.

3.4.2.3 batch steriliser - Packaging machine which sterilises packaged products by heating and then cooling them under controlled conditions in a batch process.

3.4.3 Pasteurising machines

3.4.3.1 continuous pasteuriser - Packaging machine which pasteurises packaged products by heating and then cooling them continuously under controlled conditions.

3.4.3.2 batch pasteuriser - Packaging machine which pasteurises packaged products by heating and then cooling them under controlled conditions in a batch process.

3.4.4 Cooling, warming and drying machines

3.4.4.1 cooling machine - Packaging machine which reduces the temperature of empty or filled and sealed packages.

3.4.4.2 drying machine - Packaging machine which removes surface moisture from empty containers or filled sealed packages.

3.4.4.3 warming machine - Packaging machine which raises the temperature of empty or filled and sealed packages.

3.5 Fill and seal machines

Packaging machines which combine the functions of filling and closing in one machine. There are a great variety of machines combining the functions of filling machines in 3.1. and closing machines in 3.2. However the following machines are typically supplied as combined fill and seal machines.

3.5.1 Rigid container fill and close machines

3.5.1.1 ampoule/vial fill and close machine - Packaging machine in which glass ampoules or vials are first filled with a liquid and then fitted with a closure or fusion sealed.

3.5.1.2 bottle fill and cap machine - Packaging machine in which bottles are first filled with a liquid and then fitted with cap or other closure.

3.5.1.3 can fill and seam machine - Packaging machine in which cans are first filled and then seamed.

3.5.1.4 cask or keg fill and seal machine - Packaging machine in which casks or kegs are first filled and then sealed.

3.5.2 Flexible package fill and seal machines

3.5.2.1 bag fill and seal machine - Packaging machine in which a pre-made bag is taken from a magazine, opened, filled with product and then sealed.

3.5.2.1.1 reel fed bag fill and seal machine - Packaging machine in which a bag is separated from a reel of pre-made bags, before being opened, filled with product and then sealed.

3.5.2.2 sack fill and close machine - Packaging machine in which a pre-made sack is taken from a magazine, before being opened, filled with product and then closed.

3.5.2.3 tube fill and seal machine - Packaging machine in which collapsible tubes are taken from a magazine, filled and then folded, crimped or heat sealed.

3.5.2.4 cup/tub fill and seal machine - Packaging machine in which a pre-made cup or tub is taken from a magazine, filled and then closed with a heat sealed foil or a press-on lid.

3.5.2.5 blister fill and seal machine - Packaging machine in which a pre-formed plastic blister is taken from a magazine, filled with product and then sealed to a backing card.

3.5.2.6 liquid bag-in-box fill and seal machine - Packaging machine in which pre-made bag is filled with liquid before being placed into a carton which is then sealed.

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3.6 Inspection machines

Packaging machines which inspect products, packages or packaging components, for a particular attribute, e.g. colour, size, mass, and reject items which fall outside pre-set values.

3.6.1 Inspection machines for products

3.6.1.1 checkweigher - Measuring instrument which measures the mass of a package or product, usually as it travels on a conveyor, records the mass of the item and rejects any that fall outside pre-set values.

3.6.1.1.1 weight classifying machine - Checkweigher which divides products into groups according to their mass.

3.6.1.1.2 weigh price labelling machine - Checkweigher which weighs filled packages, calculates the selling price, prints a label with the mass and price and then applies the label to the package.

3.6.1.2 fill height inspection machine - Packaging machine which detects the level of fill in a container, and rejects containers which fall outside pre-set values.

3.6.1.3 foreign body detecting machine - Inspection machine which detects the presence of foreign bodies in a product, and rejects them.

3.6.1.3.1 metal detecting machine - Inspection machine which detects the presence of metal in products and rejects the product or the packaging in which it is contained.

3.6.2 Inspection machines for packages

3.6.2.1 aerosol testing machine - Inspection machine which checks filled aerosol cans for leaks.

3.6.2.2 cap inspection machine - Inspection machine which inspects filled and closed rigid containers for the presence of a cap, and rejects containers without caps.

3.6.2.3 empty bottle inspection machine - Packaging machine which inspects empty bottles for some attribute, e.g. size, wall thickness, cleanliness, and rejects bottles which fall outside pre-set values.

3.6.2.3.1 empty bottle sorting machine - Packaging machine which inspects empty bottles and sorts them according to size, colour or some other attribute.

3.6.2.4 label inspection machine - inspection machine which detects labels on packages and checks that they comply with pre-set requirements e.g. orientation, print quality, alignment.

3.6.2.5 open flap detector - inspection machine which detects the presence of an open flap on a carton or case and rejects them.

3.6.2.6 seal checking machine - inspection machine which tests the integrity of package seals and rejects faulty packages.

3.7 Container and component handling machines

Packaging machines which arrange, dispense or accumulate packages or packaging components.

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3.7.1 Arranging machines

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3.7.1.1 rigid container unscrambler - Packaging machine which accepts a bulk supply of randomly oriented containers, usually plastic bottles, and dispenses the containers in a predetermined orientation.

3.7.1.2 component unscrambler - Packaging machine which accepts a bulk supply of packaging components e.g. caps, and dispenses them in a predetermined orientation.

3.7.1.3 rigid container single liner - Packaging machine which accepts a bulk flow of rigid containers and reduces them to a single line of containers.

3.7.1.4 rigid container orienter - Packaging machine which accepts a line of rigid containers with random rotary orientation, and dispenses them with the same rotary orientation.

3.7.2 Dispensing machines

3.7.2.1 rigid container denester - Packaging machine which dispenses rigid containers, usually cups, tubs or trays, from a stack or magazine. See also 3.11.5.

3.7.2.2 leaflet feeder - Packaging machine or attachment which dispenses a leaflet, card or coupon from a stack or magazine.

3.7.2.3 bag presenting machine - Packaging machine which removes a pre-made bag from a magazine and opens it ready for filling.

3.7.2.3.1 sack presenting machine - Packaging machine which removes a pre-made sack from a magazine and opens it ready for filling.

3.7.2.4 sack seal and present machine - Packaging machine which from a reel of tubular film, forms the base of a sack by heat sealing, separates the sack from the reel and opens it ready for filling.

3.7.2.5 straw applicator - Packaging machine attachment which applies a pre-wrapped straw to a package.

3.7.2.6 tear tape applicator - Packaging machine attachment which applies a strip of tear tape to film, usually on a wrapping machine.

3.7.2.7 handle applicator - Packaging machine or attachment to a packaging machine which applies a handle to a package.

3.7.2.8 spoon applicator - Packaging machine attachment which applies a spoon to a package.

3.7.2.9 key applicator - Packaging machine which attaches an opening key to a package.

3.8 Form, fill and seal machines

Packaging machines which form, fill and seal a package in the same machine.

3.8.1 Bag Form, Fill and Seal Machines - Packaging machines which use flexible packaging material, to form a package which is then filled and sealed in a sequence of operations to form a bag shaped or block bottom bag shaped pack.

3.8.1.1 Flowrapping Machine - horizontally operating form, fill and seal machine with material reel mounted above the operating level, the product loaded horizontally and a longitudinal seal formed below the pack.

3.8.1.2 Lower Reel Flowrapping Machine - horizontally operating form, fill and seal machine, with film reel mounted below the operating level, product placed on to the film web and a longitudinal seal formed above the pack.

3.8.1.3 Vertical Form, Fill and Seal Machine - packaging machine which uses flexible packaging material to form a tube, which is then filled vertically with product and sealed in a sequence of operations whilst the film is transported vertically downwards.

3.8.1.3.1 Vertical Form, Fill and Seal Machine for cartonboard- vertically operating form fill and seal machine which uses a cartonboard laminate, which is formed, filled with product and sealed to produce a pack resembling a carton.

3.8.1.4 Mandrel Flexible Package Form Fill & Seal Machine - packaging machine which forms packs from a reel of flexible material, on one or a number of mandrels, before filling the packs with product and sealing their tops within the machine.

3.8.1.5 Tubular Bag Form, Fill and Seal Machine - packaging machine which forms a bag from a reel of lay flat tubular flexible packaging film. The bag is then filled with product and sealed within the machine.

3.8.1.5.1 Tubular sack form, fill and seal machine - packaging machine which forms a sack from a reel of lay flat tubular flexible packaging film. The sack is then filled with product and sealed either within the machine or by separate machines.

3.8.2 Sachet Form, Fill and Seal Machines - Packaging machines which use flexible packaging material, to form a package which is then filled and sealed in a sequence of operations to form a three or four side sealed sachet.

3.8.2.1 Edge Sealing Machine - horizontally operating form, fill and seal machine. in which product is placed on a horizontal web of film before being sealed on 3 or 4 sides to an upper web of film. Machines can have one or two reels of film and can produce one or more lanes of packs.

3.8.2.2 horizontal sachet form, Fill and Seal Machine - Horizontally form, fill and seal machine in which packs are formed, sealed on 2 or 3 sides, filled vertically with product and sealed on the remaining side whilst the film web is moved horizontally with the pack vertical.

3.8.2.3 Vertical Sachet Form, Fill and Seal Machine – vertically operating form, fill and seal machine which uses one or two webs of film which are formed vertically, filled with product and sealed to produce a 3 or 4 side sealed sachet. Machines can have one or two reels of film and can produce one or more lanes of packs.

3.8.2.4 strip packing machine - Vertically operating sachet form, fill and seal machine which produces strips of individually sealed packs joined together in predetermined lengths.

3.8.3 deep draw form, fill and seal machines - Packaging machines which use deformable or thermoformable packaging material, to form a package which is then filled and sealed in a sequence of operations to form a deep drawn pack.

3.8.3.1 cold form, fill and seal machine - Form, fill and seal machine in which a web of deformable material is formed under pressure in a die press, before being filled vertically with product, sealed with a top film or magazine fed lid, and finally cut to produce individual packs. Machines can produce one or more lanes of packs.

3.8.3.2 thermoform, fill and seal machine - Form, fill and seal machine in which a web of thermoformable material is heated and formed with pressure and/or vacuum, before being filled vertically with product, sealed with a top film or magazine fed lid and finally cut to produce individual packs. Machines can produce one or more lanes of packs and may incorporate equipment to evacuate packages before they are sealed.

3.8.4 blow mould fill and seal machines - Packaging machines in which plastic granules are melted, extruded, blow moulded to form a container, filled with product and sealed within the machine.

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3.9 Carton erecting, carton closing and cartoning machines

Packaging machines which erect, close or erect fill and close carton blanks or folded and side seam sealed cartons.

3.9.1 Carton erecting machines

3.9.1.1 Carton blank erecting machine - packaging machine which forms cartonboard blanks into cartons and secures them by engaging pre-cut tabs and slots, by applying adhesive or by applying heat to pre-coated board.