Integrating Companies in a Sustainable Apprenticeship System

Project 2017-1-DE02-KA202-004174

Intellectual Output 3

Train-the-Trainer Manual

Lasting

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1. Introduction

1.1. Aims of the ICSAS Project

The aims of the Erasmus+ project «Integrating Companies in a Sustainable Apprenticeship System» are to

- induce the existing Vocational Education and Training (VET) systems to train skilled workers for footwear manufacturing in Romania and Portugal to develop towards work-based learning (WBL) and improve the sector-specific tutor training in Spain and Germany
- develop a sector qualification framework and the referencing of national qualifications of Germany, Portugal, Romania, and Spain.

1.2. Eleven Manuals to Guide In-Company Tutors

Within this project, the project consortium has committed to editing eleven manuals which are intended to prepare in-company tutors and provide support for the work-based learning phases of the apprenticeship.

The work-place specific know-how (for example in the lasting department) will be imparted by skilled workers from this department. They will take on the role of in-house workplace instructors/trainers.

- demonstrating the operations which the apprentices are supposed to learn to perform
- guiding und supervising the apprentices during their first approaches as their skills are becoming more and more advanced
- leading them towards an independent performance of the task

Furthermore, each company enrolled in work-based learning will appoint a Head of Training who is responsible for

- planning of the order of the overall training of each apprentice (how long each apprentice will be trained at each learning station and in which order)
- assessing and documenting the learning progress of each student at each learning station

The chapters of this document are not meant to replace a textbook. They are meant to provide support to the trainers to plan the work-based learning activities with the trainees. The workplace trainers are invited to gather more information from other sources.

1.3. Take Your Apprentices on a Guided Tour

Before you start the hands-on training in a specific department, please make sure that the apprentice has been given a tour of the entire company including all departments.

For example, you could start with presenting the types of products your company manufactures and their intended use, the different customer segments, the distribution channels etc. Allow the apprentices insight into the product creation and manufacturing

processes, i.e. product design, pattern making, purchasing department, production planning, and all production departments to warehouse and logistics.

Present some shoe models your company produces (as in Fig 1). Your trainees will better understand the complexity of the product “shoe.

Fig. 1: Views of shoe parts like on this photo can be very helpful for the trainee to understand the complexity of a shoe

1.4. What the Lasting is about

Lasting: The upper lasted or pulled over and stuck down or tacked to the insole.

Fig. 2: The shoe lasting

Explain the different construction systems of the footwear models - specific characteristics and processes:

- Flat lasting/Cement lasting;
- Veldtschoen lasting;
- Slip lasting/Tubular / California / Strobel and Moccasin construction;
- String lasting;
- Goodyear lasting;
- Vulcanization lasting;
- Injection lasting.

Each construction method has a specific sequence of the lasting operations in accordance with the particular way of attaching the upper to the sole.

Explain the lasting operations, the production processes which your company uses.

This guide presents the essential subjects for the training, however these can be complemented with other sources of knowledge - books, teaching guides, ... in order to promote an autonomous professional performance in the trainees.

2. Footwear construction systems

Currently, we have a variety of styles of shoes and manufacturing techniques which are reflected in the assembly of footwear.

The footwear lasting involves the different connecting processes of the shoe elements - upper, insole and sole - according to the types of construction:

- Flat lasting/Cement lasting;
- Veldtschoen lasting;
- Slip lasting/Tubular / California / Strobel and Moccasin construction;
- String lasting;
- Goodyear lasting;
- Vulcanization lasting;
- Injection lasting;

The last is an essential element in the shoe lasting, considering the purpose of giving volume and shape, modelling the upper. After a correct use of the last the upper maintains its shape after the last has been removed. The last design must be in accordance with the design of the footwear model.

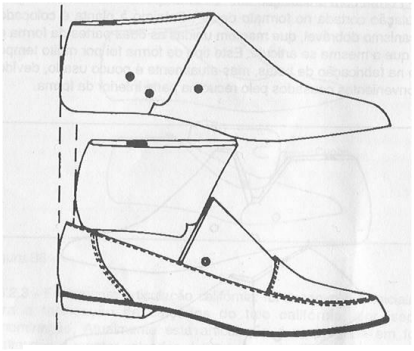

Fig. 3: The last

The lasting operations of the shoe are developed after the preparation operations of the upper, the components and the respective sole.

The correct preparation of the upper is fundamental for the quality of the lasting and the shoe: application and moulding of reinforcements, application of the system for closing the quarters, ...

Pre-lasting checks:

Regardless of the construction method to be used:

- The upper is sewn properly;
- The size of the upper and the components are according to the size of the last;
- The quarter tightening system is correct;
- The materials for the lasting are suitable and compatible with the materials of the shoe.

These are the important factors for efficient shoe lasting.

2.1. Flat lasting / Cement lasting

This lasting type is the most usual in different types of footwear and different materials.

Characteristics:

- The lasting edge is turned to the inside of the shoe and it is attached upon the insole through the glue;
- The sole is attached to the insole and to the upper through the adhesive/glue and/or the tacks/nails.

Fig. 4: The shoes with flat or cement lasting

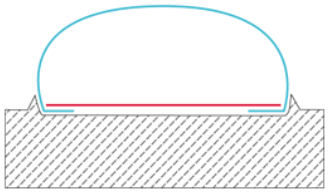

Fig. 5: Scheme of the flat or cement lasting

Traditionally, this type of the lasting has 2 or 3 operations:

- Forepart lasting;
- Side and seat lasting;

or

- Forepart lasting;
- Side lasting;
- Seat lasting.

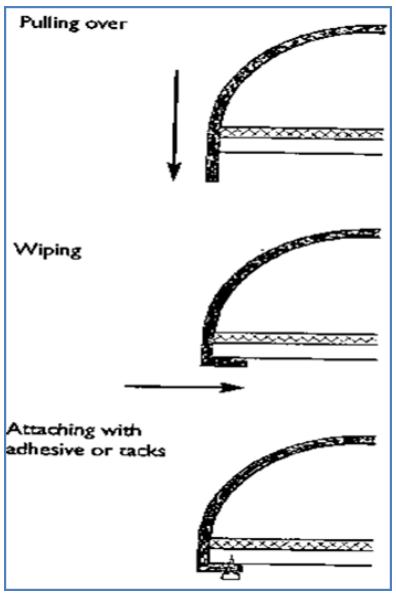

Fig. 6: Scheme of the flat or cement lasting

In support of the lasting, the uppers must be conditioned in the heat setting machine in order to better adapt the materials to the shape of the last, maintaining their characteristics and quality.

2.2. Veldtschoen lasting

Characteristics:

- The lasting edge is turned to the outside of the shoe;
- The upper is attached to the insole through a seam;
- The sole can also be sewn

Fig. 7: Shoe of the Veldtschoen lasting

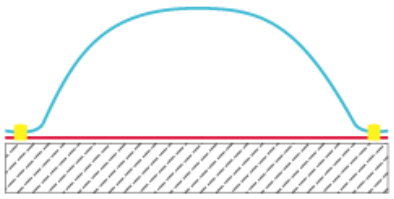

Fig. 8: Scheme of the Veldtschoen lasting

2.3. Slip lasting/ Tubular / California / Strobel/ Moccasin

This type of construction is often used in sports, comfort and safety shoes.

The main feature of this type of lasting: the upper is sewn to the insole making a bag. There is no lasting allowance. The last is introduced in under pressure.

Fig. 9: Slip lasting shoe

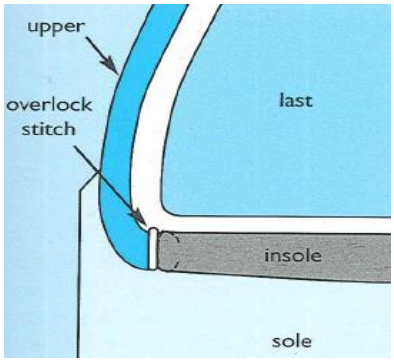

Fig. 10: Scheme of the slip lasting

In order to join the upper to the insole different types of seams, as well as the tubular construction, may be chosen.

Fig. 11: California lasting shoe

Characteristics California Lasting:

- The insole (in cloth or leather), the upper and the edge cover are sewn together at the top. All the construction is based on this seam;
- There is no real lasting;
- The shoe is shaped and the edge cover is turned inwards.
- The sole is attached/glued by the normal process;
- No insock is required.

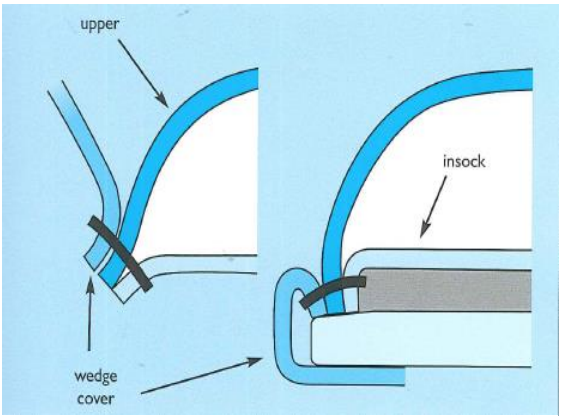

Fig. 12:Scheme of the California lasting

Strobel lasting

This is a similar construction which is characterized by sewing the upper to the insole through a specific seam; it took the name of the machine in which it is made - Strobel.

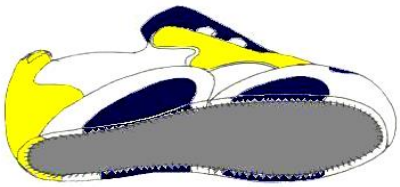

Fig. 13: Strobel lasting shoe

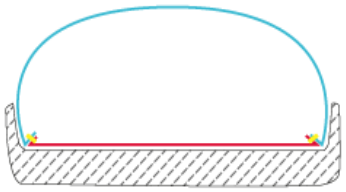

Fig. 14: Scheme of the Strobel lasting

Mocassin lasting

The moccasin lasting can be considered a variant. The upper acts as the insole and it is extensive to enclose the lateral part of the foot with an "apron" or a coupled part so, by using the seam to attach this part of the shoe to the upper, it also becomes decorative.

Characteristics:

- Bag-shaped shoe made from a piece of leather (upper) that surrounds the plantar surface, manually sewn to an apron;
- The upper is sewn to the sole (although the original moccasin did not have sole).

Fig. 15: Moccasin shoe

Fig. 16: Scheme of the moccasin lasting

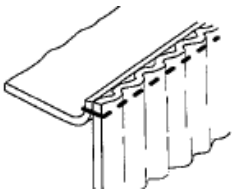

Fig. 17: Moccasin seam

2.4. String lasting

Construction system similar to the flat or cement lasting, under pressure to prevent the spreading of the upper/vamp over the last, tightening the lasting edge on the plantar surface of the insolen.

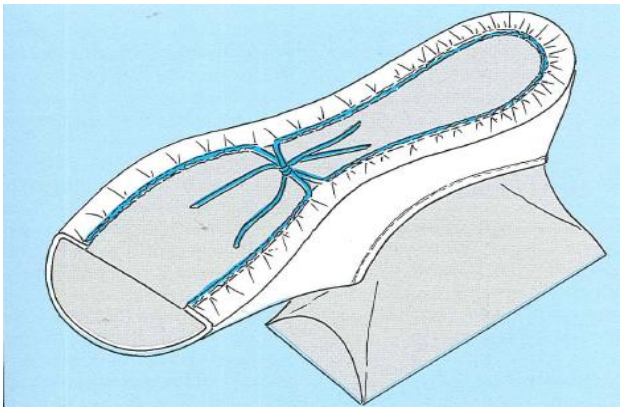

Fig. 18: String construction 1

After all the components of the upper/vamp have been sewn together, a strong thread is applied around the lasting edge of the upper/vamp using a specific sewing machine.

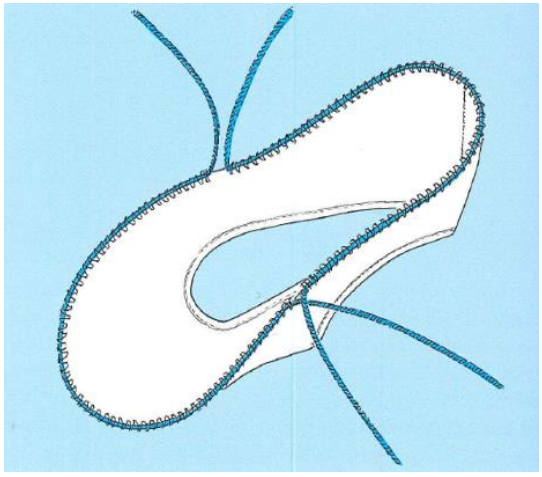

Fig. 19: String construction 2

Then the upper/vamp is placed either straight over the last or over the last of the moulding machine. Finally the thread should be well stretched, thus pulling the upper over the last. This operation can be performed manually or mechanically.

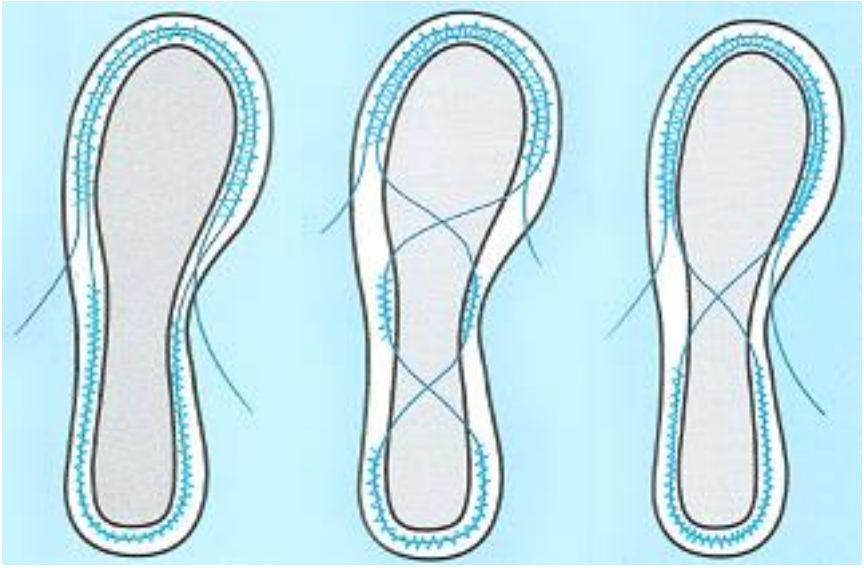

Fig. 20: String construction 3

This type of construction is widely used when there is application of the sole by injection system.

2.5. Goodyear lasting

Goodyear construction consists of the following elements: Upper, Insole, Shank, Midsole, Welt, Sole.

Characteristics:

- Use a insole with a pre-cemented rib;
- The lasting edge is turned towards the inside of the shoe;
- The surplus material must be eliminated,

- The welt, the upper and the rib are stitched. This seam is not visible in the finished shoe.
- The filling is used to fill the space to the height of the rib. This filling also brings a supplementary comfort.
- The midsole or the sole is attached to the welt through the seam. This seam is visible in the finished shoe.

Fig. 21: Goodyear lasting shoe

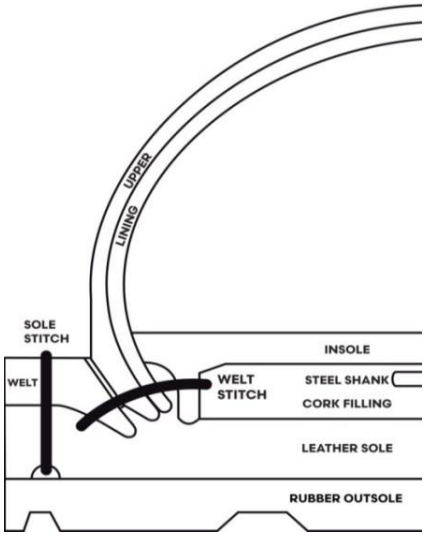

Fig. 22: Scheme of the Goodyear lasting

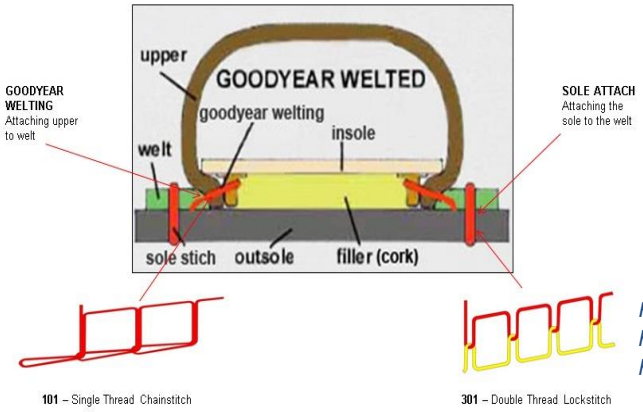

Fig. 23: Scheme of the Goodyear lasting; http://www.coatsindustrial.com/pt/information-hub/footwear-expertise/goodyear-welted-footwear

2.6. Vulcanization Lasting

Characteristics:

- The upper preparation is similar to the California, Moccasin or “String-lasting”;
- The last is made of metal;
- Rubber strips are applied in a mould;
- The mould is closed (last with the upper) and subject to heating - vulcanization;
- After the operation, the sole has the desired configuration

Fig. 24: Vulcanization lasting shoe

2.7. Injection Lasting

Characteristics:

- Technically, it could use any lasting type as a base, however the most used are: Tubular, moccasin, string lasting.
- The last is made of metal;
- A heel is placed;
- The mould is closed by the shoe already assembled on the last;
- The granulate is liquefied and injected - PU, TR and PVC;
- The sole can present various profiles, imitations, colours or combinations – different design.

Fig. 25: Injection lasting shoe

3. Lasting Operations, Machines and Tools

3.1. Last

The last is a utensil used in the process of creating and manufacturing footwear, replacing the foot in this process.

The final appearance of the shoe and the comfort of the foot depend, to a large extent, on a good design and proportionality of the measures of the last.

Functions of the last

- Reproduce the characteristics and dimensions of the human foot;
- Serve as base for the dimensioning of the parts that make up the footwear;
- Serve as base for the assembly and finishing of footwear;
- Determine the style/design of the shoe in its development.

Fig. 26: Lasts

Materials

PVC, wood, metal. PVC is the best alternative for the manufacture of lasts. The material is generally polyethylene of medium or high density, which determines good properties in abrasion resistance, high temperatures and deformation. The metal is used for vulcanization and direct injection.

Fig. 27: The last: replace the foot in the design and manufacture of the shoe

Elements of the last

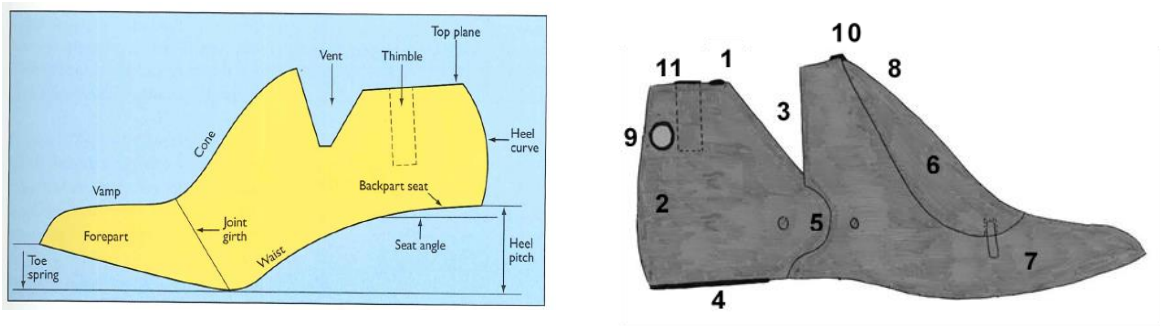

Fig. 28: Elements of the last

There are elements in the last that offer specific and complementary information that facilitate a correct use

1. Coloured dot
2. Reference
3. Size
4. Metal sheet
5. Hinge
6. Scoop
7. Scoop block fixing pin
8. Spring
9. Hole for manually unmoulding
10. Scoop block's position hook
11. Thimble

3.2. Applying the insole to the last

Insole

The piece that represents the plantar surface of the foot, located on the sole, reinforcing it and serving as support to the lasting edge of the upper.

Fig. 29: The insole

Materials

Cardboard, leather, fabric, reinforcement screen, carbon, steel ...

Fig. 30: Insole: pieces

The elements

The insole base – Represents the foot plantar surface.

The shank – Steel elongated piece placed between the plantar and the heel to give stability and support the curvature of the plantar vault.

Reinforcement of the insole or heel - Reinforcement piece located at the back of the insole, allowing a correct fixation of both the shank and heel.

Function: The insole serves to support the lasting edge of the upper and its temporary fixing to the last is necessary during the assembly process.

Different means can be used:

- Staples / Nails
- Glue/Adhesives
- Band
- Pins (Unifast System)

Fig. 31: How to attach an insole using the machine

Application on the last

The position of the insole on the last depends of the lasting type

Flat/cement lasting: The edge of the insole should be 0.5 to 1mm inside the last's featheredge.

Veldtschoen lasting: The insole edge should be about 18mm from the last's featheredge.

Goodyear lasting: The edge of the insole should be at the last's featheredge, with the edge of the rib (part placed in the insole serving as a support for the upper edge) being placed between 3 and 4 mm from the edge of the insole.

There are other lasting types, such as California, Goodyear, Injected, Vulcanized, etc., in which the insole is already applied in the sewing sector

Safety and health

- Remove your hands from the staple outlets of the stapling machine - avoid perforations on the skin;
- - Remove your hands from the glue injectors of the attaching insoles machine - avoid burns;
- - Remove your hands from the machine stopper of the attaching insoles machine - avoid entrapment;
- - Switch off the machine whenever it is not needed.

3.3. Glue/Adhesives

Glue/adhesives

Sticky substance used to join two surfaces, whether of the same nature (Rubber with rubber) or of a different nature (Rubber with leather).

Bonding / cement

The bonding of two surfaces through a chemical which is the glue.

For a good bonding it is necessary that

- The glue adheres well to surfaces - ADHESION.
- Ensure the bonding of these surfaces through two glue films, allowing them to interlace to become one, very compact and well cohesive - COHESION

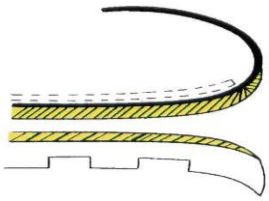

Fig. 32: Glue adhesion process in materials

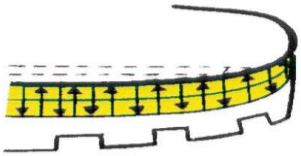

Fig. 33: Cohesion of the glue in the gluing process

Types of the glues/adhesives

Aqueous glues

Aqueous base composition; absence of toxicity; (e.g. bonding of certain types of linings, bonding of counters and socks); it can't resist the action of plasticizers and materials with high grease content.

Solvent glues

Composition based on organic solvents, very toxic and flammable; Used in operations subject to great efforts - for bonding soles.

- Polychloroprene / Neoprene
- Polyurethane

Hot-Melt glues

Move from solid to liquid under the action of heat.

These are used in various machines and especially in forepart lasting and side and seat lasting machines. They may be presented in granules or in string.

Fig. 34: Hot-melt glues

Glues	Characteristics
Polyamide	• Polyamide based. • Drying time 3-6 sec. • Melting temperature 160 ° C
Polyester	• Polyester based. • Drying time approx. 3 sec. • Melting temperature approx.230 ° C

Fig. 35: Tabel of glues

3.4. Toe puff moulding

Humidify and / or reactivate toe cap

This operation makes the toe puff malleable and increases the malleability of the leather, so that through the lasting process of the toe cap, it moulds properly to the last.

There are certain materials that can't be subjected to water vapour and / or high temperatures (above 60ºC), such as: Crust, nubuck, suede, some synthetic materials (vinyl, lycra, etc.) ....

Fig. 36: Operate in the moulding machine

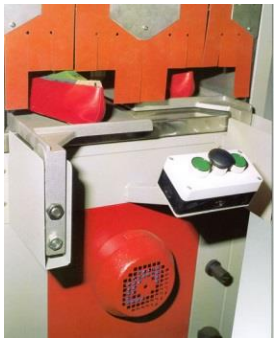

Fig. 37: Operate in the moulding machine

Safety and health

- Keep hands away from moulds - avoid skin burns;
- Switch off the machine whenever it is not needed.

3.5. Forepart lasting

Fig. 38: Forepart lasting machine

The upper is moulded onto the last (cap and sides) and fixed through glue, applied directly by the machine (fusible glue), or manually applied in the pre-assembly stage.

This operation is extremely important because it is from here that the shoe starts to take shape.

Fig. 39: Position the upper on the last

It is possible to detect any problems coming from previous manufacturing sectors:

- Technical pattern making errors;
- Incorrectly shaped counters;
- Incorrectly moulded uppers;
- Leather defects;
- Leather with little malleability;
- Incorrect stretching direction;
- Misplaced parts;
- Irregular stitching;
- Lack of seams;
- Irregular punches;
- etc.

Fig. 40: Centre the shoe in relation to the pincers and teflon

The equipment must be pre-prepared taking into account the characteristics of the last (toe type, width and high or low heel) and material (skin resistance, malleability and lasting edge width) to avoid or minimize defects.

Prepare the equipment taking into account the characteristics of the last and materia:

1. Teflon
2. Glue injector
3. Glue nozzles
4. Plates
5. Pincers/Tweezers
6. Table, boat or elevator

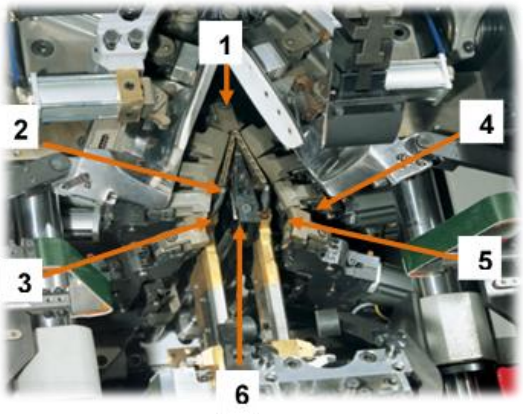

Fig. 41: Prepare the equipment considering the last and material

In order for the shoe to be lasted correctly, certain factors must be taken into account:

- Set the pincers pressure (medium pressure 6 to 8 bar)
- Define hammer pressure (average pressure from 2 to 6 bar)
- Define the teflon pressure (average pressure from 2 to 4 bar)
- Adjust the temperature of the fusible glue (240 ° C to 280 ° C)
- Humidifying or reactivating the toe puff;
- Centre the upper on the last;
- Position the last next to the toe pincers;
- Standardise the length of the toe according to the size of the shoe;
- Adjust the upper to the last;
- Finish the operation after performing the previous items

Solutions for any problems

Folds in the forepart area

- adjust the teflon to the toe of the last;
- decrease elevator route;
- reactivate and / or humidify the upper toe;
- increase hammer pressure without marking the leather

Cracked / broken upper in the toe area

- decrease elevator route;
- decrease elevator speed;
- adjust the elevator by positioning it so that the pincers catch less material;
- decrease reactivation and / or humidification;
- position the table with the same inclination of the pincers.

Folded or creased insole

- increase elevator route;
- check the positioning of the insole on the last (0.5 to 1mm inside the featheredge of the last);
- increase the distance of the pincers from the last (0.5 to 1cm);
- position the table with the same inclination of the pincers;
- check the position of the heel support in relation to the last (focus on the heel zone);
- check the position of the hammer (must be between the toes and the instep.

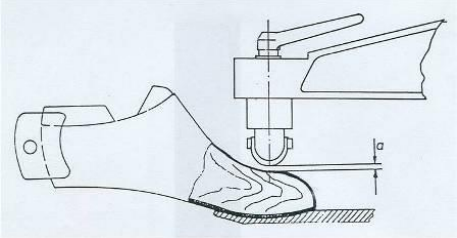

Fig. 42: The Importance of the Machine Adjustment and the correct positioning of the shoe

Safety and health

- Keep the machine engine off while making the necessary adjustments;
- Remove hands from the pincers/tweezers - avoid bruising the fingers;
- Keep your hands off the back of the heel - avoid getting caught;
- Remove your hands from the injectors of the glue - avoid burns;
- Use protective gloves - avoid burns caused by the fusible glue;
- Activate the safety device of the machine (knee pad) in case of emergency;
- Switch off the machine whenever it is not needed.

Setting the height of the heel counter

It allows to position the heel counter in its correct measurement. The comfort of the foot while walking strongly depends on the height of the heel counter; if it is lower than the appropriate measure, the foot comes out of the shoe and if it is higher it is uncomfortable and it may even injure the Achilles tendon.

Fig. 43: Lasting pliers: tool to adjust the height of the shoe

The height of the heel counter, depends on the size and heel of the shoe:

- High-heeled shoe:

  Heel counter Height = Size x 4/3 + 5 or 6 (mm)

- Low heeled shoe:

  Heel counter Height = Size x 4/3 + 8 (mm).

These formulas are not applied rigidly, it depends on the company, the aesthetic touch and the characteristics of the model.

In a practical and faster way there are those who use the formula: Size + 20 (mm).

Safety and health

- Use the support of the last - avoid excessive effort;
- Remove your hands from the lasting pliers when pulling the heel counter to the desired position - avoid bruising.

3.6. Side and Seat lasting

The upper is moulded onto the last (side and back) and fixed through glue, applied directly by the machine (fusible glue) or manually applied at the pre-assembly stage (solvent glue).

Note: The quarters, inner and outer, must be at the same level. The outer quarter should never be higher than the inner because it causes discomfort due to the actual anatomy of the foot.

When the sides are closed manually, the inner quarter must be the first one to be glued, as it facilitates the positioning of the outer quarte.

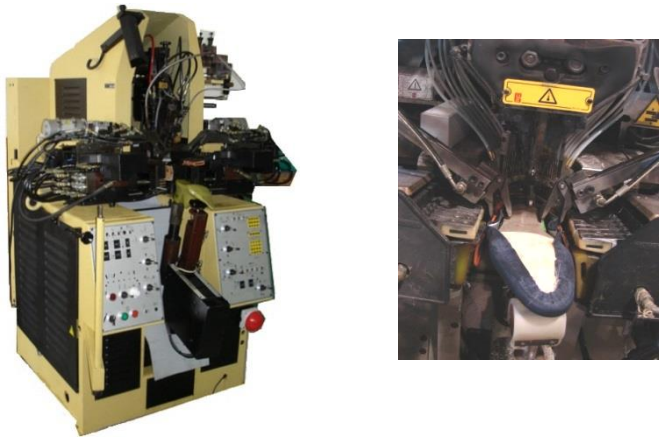

Fig. 44: Side and seat lasting machine

The equipment must be pre-prepared taking into account the last's characteristics (size, height and width) and the thickness of the material:

1. Teflon
2. Pincers
3. Fingers
4. Toe support
5. Side support

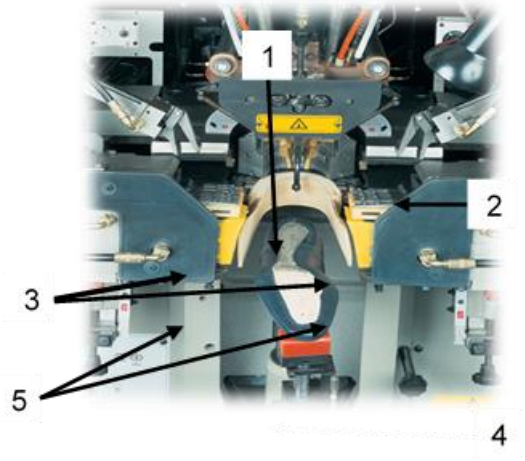

Fig. 45: Machine adjustment: Teflon's sorting and positioning, pincers positioning, toe and side support, proper pressure

Solutions for any problems

Change in height of heel counter

- increase or decrease the elevator route;
- raising or lowering the toe cap support;
- moving away or bringing closer the last's support block in relation to the teflon (about 0,5 cm);
- position the hammer so that the insole is at the teflon level

Cracked/broken upper in the heel zone

- decrease the elevator route and/or lower the hammer;
- increase the reactivation

Folded or creased insole

- lower the elevator route so that the insole is at the teflon level;
- position the toe cap support so that the last is horizontal;
- position the last's side supports so that the fingers adjust to the insole as much as possible.

Insufficient sealing of the quarters

- position the last side supports so that the fingers adjust to the insole as much as possible;
- position the toe cap support so that the last is horizontal;
- lower the position of the lateral pincers in order to grasp more material.

Safety and health

- Position the foot next to the emergency pedal when making the necessary adjustments;
- Wear protective gloves - avoid burns on the skin caused by the fusible glue;
- Switch off the machine whenever it is not needed.

4. Conditioning units / Steamers/Heat setting

The quality of the product and the efficiency of the production processes imply the use of transport equipment, conditioning equipment, drying tunnels, humidification of the uppers and reactivation of glues. In addition to the fastness of transport between workstations, there are important technical aspects to the efficiency of the lasting operations and the quality of the product.

4.1. Conditioning units / Steamers

Automatic equipment that through humidification or humidification and heat conditions/shapes the materials to the last, promoting a greater effectiveness in the footwear lasting operations and a better configuration of the shoe. It also promotes the transport of the product between workstations.

Heat Setting

This equipment usually associate heat with the air circulation, which promote a contracting action of the materials and a consequent moulding of the shoe to the last, ensuring a correct size and a better configuration of the shoe. With the association of hot air circulation, they become fast acting means and consequently contribute to reduced production times. However, its use requires considering the characteristics of the materials and a preparation and compatible regulations.

Fig. 46: Heat setting

Material	Process
Suede, nubuck and floater leather	Moist air at 120ºC / Dry air at 120º - 130ºC
PVC – coated leathers	Dry air at 120º - 130ºC
PU and PVC – coated leathers	Dry air at 100ºC
PU - coated materials	Dry air at 120ºC
PVC - coated materials	Dry air at 100ºC
Fabrics	Dry air at 100ºC

Fig. 47: SATRA Recommendations. These values are just reference points. Each equipment and its technology must be taken into account

5. Example: Lasting at Carité / Portugal

Work-based learning / Applying the insole on the last; Source: Carité

Work-based learning / Positioning upper on the last; Source: Carité

Work-based learning / Forepart lasting; Source: Carité

Work-based learning / Heat setting machine; Source: Carité

Work-based learning / Side and seat lasting; Source: Carité

Work-based learning / Side and seat lasting; Source: Carité

6. Assessment/Feedback template

6.1. Introduction to feedback sheet

Unlike learning in formal environments as in classrooms or workshops, learning outcomes (LO) from work-based learning (WBL) in a learning station (LS) depend strongly on the actual equipment of the production line and the models and makes, which a shoe factory manufactures. If the shoe models produced do not require certain work tasks of a whole sphere (in stitching or assembly, for example), then it is simply not possible to acquire skills in this production line related to this method.

A systematic and transparent communication on concrete LOs acquired via WBL by a learner/apprentice between tutors, supporting the learner in the various departments, and the head of training, being responsible for the entire training programme, is of great importance in WBL.

With the intend to provide a concise and handy communication tool, we recommend using the matrices as shown below: They allow tracking the achievements of each trainee in each department in a quick and easy way. The matrices do not refer to any formal assessment; they simply state the degree of autonomy each trainee was able to reach within the given timeframe in each Sphere of Activity.

The matrices list the main work tasks (in bold) and the performance that can be acquired in each department. The work tasks refer to the acquired skills; to indicate that they include key competencies and knowledge the underlying elements for some of the work task are listed.

How to use the matrices: In order to give feedback on the learning progress of each trainee, please tick off the level of autonomy the learner has reached for each work task (choosing between needs assistance / needs instruction / needs supervision / completely independent).

If the work task in the matrix was not part of the training, you can leave it out or erase the work task; if additional work tasks were trained, please feel free to continue the list of work tasks according to your training goals.

In the end, the matrices will document what each learner has been able to acquire and which level of autonomy she/he has reached. And again, although this has already been said: Please bear in mind that you may have to adapt the matrices according to the processes and to the operations in your department.

Sphere of Activity: Lasting

Work task:	Attaching the insole to the last

Reading & understanding work ticket;
Providing and preparing the materials;
Attaching the insole to the last bottom applying the safety measures;
Controlling the work result and identifying possible defects;
Asking for help if needed.

Evaluation

Needs assistance	Needs instruction	Needs supervision	Completely independent
☐	☐	☐	☐

Place, Date Signature

Work task:	Moulding toe puff

Reading & understanding work ticket;
Providing and preparing the materials;
Adjusting the settings of the moulding device
Performing the operation applying safety measures.
Controlling the work result and identifying possible defects;
Asking for help if needed.

Evaluation

Needs assistance	Needs instruction	Needs supervision	Completely independent
☐	☐	☐	☐

Place, Date Signature

Work task:	Forepart lasting

Reading & understanding work ticket;

Providing and preparing the materials (upper, last);

Preparing the machine equipment and settings applying the safety measures, taking into account:

- Last: type of toe puff, heel height …
- Material: features, strength, malleability (“lastability”) ...
- Lasting system: width of lasting margins ...
- Settings: Clamping pressure, hammer, Teflon band pressure, adhesive temperature...

Controlling the work result and identifying possible defects;

Asking for help if needed.

Evaluation

Needs assistance	Needs instruction	Needs supervision	Completely independent
☐	☐	☐	☐

Place, Date Signature

Work task:	Side and seat lasting

[Please set up the criteria in this section in line with your evaluation needs according to the example given above]

Evaluation

Needs assistance	Needs instruction	Needs supervision	Completely independent
☐	☐	☐	☐

Place, Date Signature

Final evaluation (in this department)

Lasting; including all work tasks above

Evaluation

Needs further training	Can perform all work tasks (almost) independently
☐	☐

Place, Date Signature

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