

Study on New Garment-Sewing Equipment in Clothing Application

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Abstract: This paper describes a number of sewing equipment in garment application to explain the role of sewing equipment in the modern garment business, as they could decrease the difficulty of tailoring technology by using the modern tailoring equipment. Besides they could also improve the quality of products and shorten production cycles, etc. With the rapid development of the garment industry, pattern theft is extremely serious. Particularly in garment industry, such phenomenon is difficult to avoid. But we could use some special equipment to achieve a hard-to-copy style to ensure the interests of the companies.

Keywords: Sewing Equipment, Supporting Sewing Equipment, Sewing Technology

Clothes market has many requirements for its products, such as variety, small batches, high quality and speedy delivery. This stimulates the development and innovation of clothing equipment with good efficiency and quality, vice verse.

In the whole process of clothes making, sewing requires the most work and equipment. As a result, various kinds of sewing equipment appear with more complex structure, higher precision spare parts and more functions. They largely reduce the clothes-making difficulties and labor intensity, increase efficiency and quality, shorten production period, and realize additional value. Besides, they also promote the development of clothes business toward automation and modernization. The following text focuses on the application and important role of sewing equipment in clothes-making process.

1. the application of sewing equipment in clothes making.

In fact, before the development of various automatic, multi-functional and intellectual modern sewing equipment being mature, the clothing quality and efficiency mainly depends on workers' technology familiarity. However, due to workers' frequent mobility, and the long training period in complex and crucial links, it is hard to make various kinds of clothes in a short period of time. The operation of sewing machine is very complex, even the skilled workers may make mistakes in sewing process as they can not fully control the needles needed. Thanks to the development of computer-controlled sewing equipment, they can counter the impact of hand operation on clothes quality, make the training process simple and truly bring about high quality products. The frequent-use equipment in clothes making is listed below:

1.1 Sewing machine

Sewing machine has another name of lock stitch sewing

machine. Its stitch structure is simple and firm. It consumes little thread, produces the same stitches on both sides and is easy to use. Sewing machine undertakes many tasks in clothes making, such as piecing together, etc. When installed with various supporting equipment, it can also play the roles like curling. Therefore, it is widely used in clothes making. However, the technological progress made in sewing machine brings with it other functions, such as automatic reverse stitch, automatic cutting, automatic dialing, automatic presser lifting, automatic stopping needle in the right position and multiple protections. The following is a sewing machine with special purpose. (Figure 1)



Figure 1 Sewing machine

This sewing machine has a flat panel. It adopts an automatic lubrication system with thread-picking rod and a rotary thread hooking. It is equipped with a feeding structure up and down as well as a structure lifting the presser alternately which forms the 301 stitches. It is good at thick cloth stitching, layer-to-layer stitching. It produces small errors in stitches from both sides. It has flat stitches, low noise, and easy maintenance. The cloth-feeding structure adopts a rod-connecting structure which is of stable performance and durable use.

1.2 Crochet sewing machine

Its stitches are chain-formed, among which two-way chained stitches are better than lock form stitches in terms of potency and flexibility. Two-way chained stitches are usually used in knitwear, shirt, pajamas, sportswear and jeans. The following one is an eight-pin platform crochet machine with vertical hook and double circular seam. (Figure 2)



Figure 2 Crochet sewing machine

1.3 Overlock machine

Overlock machine is mainly used for cutting the loose edges to make it orderly, firm and durable, such as bag edges, parts of knitwear, wristband or the unnatural curling edges. The following one is a five-string overlock machine. It is used for sewing sportswear and troubles with its low noise and vibration. Besides, it is equipped with high loop, dilatary foot and feed dog used for sewing thick cloth.

1.4 Interlock machine

It has good potency and stretches. It can avoid the loose edges. Equipped with decorative lines, it can beautify the stitches. As it has the character of sewing edges and interlocking the overlock stitches, it is also widely used in knitwear production, specific to the neck, wristband of women knitwear, rolling edge, rolling neck, rolling lace, curling edge, split joint and decorative lamp sewing. The reason why interlock-stitched cloth enjoys good stretches is that there are some reserve lines in interlocking stitches. The following one is an interlock sewing machine.

The interlock sewing machine is mainly used for sewing knit vest, sportswear, T-shirt, bra, elastic band surrounding the skirt waist, neck and wristband of other resilient knitwear. It can basically produce the multi-thread chained stitches. Equipped with other supporting equipment, it can be used to sew nylon zippers, embroider lotus-leaf edges. It adopts a totally enclosed automatic cold lubrication system. Its main transmission adopts synchronous belt drive to ensure its speedy transmission and low noise. It can also use improve the low vibration and durability of the machine by choosing

the lighter parts and other special treatment. (Figure 3)



Figure 3 Interlock machine

1.5 Blind stitch machine

This machine is use for sewing jacket's tops and lower parts, coat neck, trousers' bottom, as these parts allows no clear stitches. The following one is a blind stitch machine.

Blind stitch machine is an industrial sewing machine. It embroiders cloth by way of swinging its single arch needle and it draws the lines through swinging its hook and finally it forms the 103 single chained stitches. It is used to sew the blind stitches of moderately thick cloth, such as trousers' bottom lace, coat bottom and the blind-stitched breast parts of suits. (Figure 4)



Figure 4 Blind stitch machine

1.6 tacker

This machine is used to sew belt loop, attach trademark, make and fasten various knots. The right picture is a high-speed tacker.

This machine has the character of low-tension sewing, stable cutting and high quality. It can enhance operation efficiency, convenience of cloth moving, durability and reliability. It is used for clothes knotting, sewing buttons, attaching belts and tags.

In addition, some special sewing machines are used in clothing making, such as computer-controlled insert pocket machine, patch pocket machine and sleeve attaching machine because they can not only increase production efficiency and product quality, but also reduce

the technological requirement for workers and enhance business flexibility. Besides the machines mentioned above in sewing process, there are other machines used in decoration process, such as sewing machine, embroidering machine and stitcher. To increase product's competitiveness, many designers use jewelry edges, knots and embroidery to decorate women or children's clothes. The machines with such function can not only reduce clothes-making difficulties, but also increase efficiency and quality. Meanwhile, it also demonstrates the crafts beauty, enhance additional value and more its products more competitive. The following are some frequently-used machines with special purpose.

Furthermore, various kinds of simple and effective tools-supporting sewing machines are gradually favored by many clothing businesses, such as the developed and applied edge-curling equipment, dewrinking panel, positioning equipment, roller equipment for cloth delivery and other supporting equipment. With their high automation and controllable quality, such machines have largely reduced the collateral movement in sewing process. Consequently, those supporting machines are used more widely. The above supporting machine is a good example.

As technology develops, many machines with special purpose equip themselves with manipulator-like, clothes parts-grabbing equipment in order to reduce workers' collateral operations and increase machines efficiency. At present, the supporting sewing equipment, as a derivative one, has already gained high recognition of many manufacturers of sewing machines.

2.the application of sewing machines in real situation.

With the development of technology, sewing machines manufactured are more adjusted to clothing technologies. Therefore, breakthroughs can be made in equipment innovation if the manufacturers seek to have a better knowledge of clothing technologies, such as insert pocket machine, closing machine, upper zipper machine and patch pocket machine, etc. The following is a brief illustration of the role of front fly machine in clothing technologies.

2.1 The requirements for the opening of clothing front fly

As is known to all that T-shirt's front flies can be divided into front band and plain front. Front band stitches are two designated parallel straight lines among which there are two opens. Plain front stitches are one straight line and a sloping line or a reversed“八”-shaped stitches among which there is one open.(Figure 5)

In old days, most of the front flies were sewed by hand, such as drawing lines, sewing, tailoring the opens, ironing and other process. Consequently, the sewing width and stitches of the front flies are affected greatly by those

human factors. Besides, even the skillful worker may cause unstable controllability over sewing machine or incorrect width, position and opens, which influence the product quality severely. Therefore comes the requirement for sewing machine manufacturers to research and develop better-targeted equipment for front flies. In fact, this also stimulates the innovative R&D of sewing machines for relevant business.

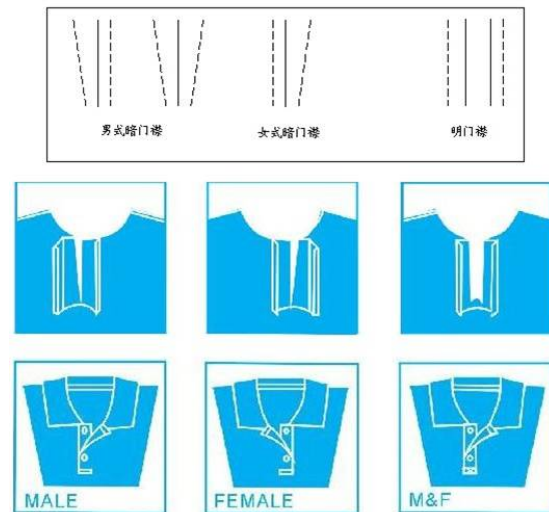


Figure 5 The requirements for the opening of clothing front fly

2.2 The application of front fly machine

The YACIQI3500-1closing machine from Turkey adopts the nose of a single needle flat panel sewing machine as its sewing unit. The cloth moves forward and backward under the force of the pressing board(Y direction) while the power-driven screw of the sewing machine moves left and right on the guidance rail(X direction),(Figure 6). This can sew any stitches on the same flat panel. Although the movement of the cloth is just toward one single direction, the nose of such machine moves in two-way direction that is X and Y. Thus, it can avoid the placement of cloth. Meanwhile, there is the special foot presser structure to assist the pressing cloth, which can prevent the cloth from wrinkling. The perfect structure of the front fly machine met the technological requirement of clear and blind front flies and it solved the fundamental problem: one machine, multi-functions.



Figure 6 The application of front fly machine

When the nose of the machine moves left and right, the projected needle board hole under the foot presser moves in the long manger to adjust to the width of the front flies. The projected needle board hole and small foot presser can effectively press the cloth, which avoid the loose thread or wrinkled cloth when needling. Although these have met the requirement of clothing technology, there are still flaws in detail. The small needle board can easily cause the cloth to get into the long manger under the force of small foot presser. Subsequently, the cloth may not get through smoothly, resulting in needle failure, thread failure or cloth damage caused by blocked cloth. Moreover, the single axle and single blade of the machine has bad stability. Its blade can be damaged easily and it is impossible to realize two-blade cutting when opening a clear front fly.

The severe competition between clothing businesses brings more and more difficulties for their survival. Therefore, the business managers are in urgent need of reducing their management and production pressures by using automatic equipment with good performance and low price. Under such circumstances, the manufacturers of sewing machines need to learn more knowledge about clothing business' demand and movement so as to provide them with the capable automatic equipment and unleash their development potentials. The development of automatic closing machine is a vivid example: it upgraded to the third generation to meet the requirements of clothing technology.

3. conclusion

All in all, the rapid development of sewing machine is playing a very important role in the promotion of clothes-making industry toward mechanic, integrated, automatic and standard production. Modern clothes-making equipment not only reduces the clothing difficulties and labor intensity, but also enhances production

efficiency and product quality.

Modern clothing business is as always a labor-intensive industry. To save human power and clothing cost, they must increase production efficiency and reduce working staff. Therefore, various kinds of high-tech sewing machines came into being. With higher automation and less requirement of workers' operational skills, the specialized sewing machines can better ensure their processing quality and enable one worker to operate many machines. As a result, the number of streamline workers is reduced and production efficiency is greatly enhanced, which lays a solid foundation for clothing business to transform its labor-intensive situation.

The supporting sewing machines with various functions have played a very important role in largely reducing sewing period and enhancing the clothes quality.

As competition in clothing business is becoming more severe, the R&D of sewing machine in clothing industry will continue to be a physical pavement for clothing competition. With regard to clothing business, its products are very special and there are no products that can be called the best ones. All those sold well are well-designed ones. Pattern plagiarism occurred and is becoming serious. But such phenomenon can be reduced by using special sewing machines. Meanwhile, it can also contribute to the increase of additional value and gaining more markets and profits for clothing business.

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