USTER® *LABORATORY SYSTEMS*

Application Report

Yarn package carrier

Textile Technology / February 2008 / SE 615

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1 Introduction

During the development phase of the USTER® *TESTER* 5 it was necessary to modify the yarn package carrier. This modification had to be made because there was a potential risk that the bobbins could be snatched off the bobbin holder when tests were run at a speed of 800 m/min, particularly in case of poorly wound bobbins.

Various customer visits have revealed that there was a high degree of uncertainty among certain customers how to use the different features of the yarn tensioners.

2 Position of the yarn package carrier

The yarn package carrier has to be placed at a distance of 80 cm behind the USTER® *TESTER 5* (Fig. 1). It has to be displaced slightly to the left and positioned such that the yarn tensioners point toward the USTER® *TESTER 5*. This displacement is necessary to avoid that the yarn touches the nose of the eyelet (see Fig. 2).

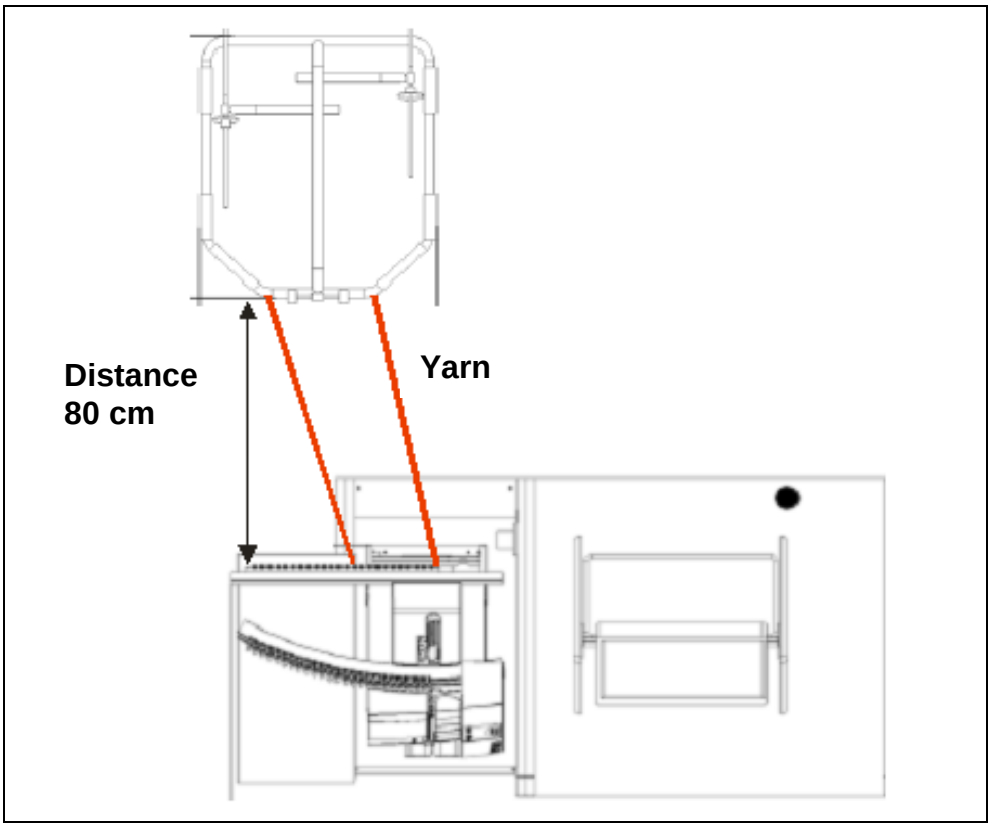

Fig. 1
Yarn package carrier
Minimum distance from the UT5: 80 cm
Position: displaced slightly to the left

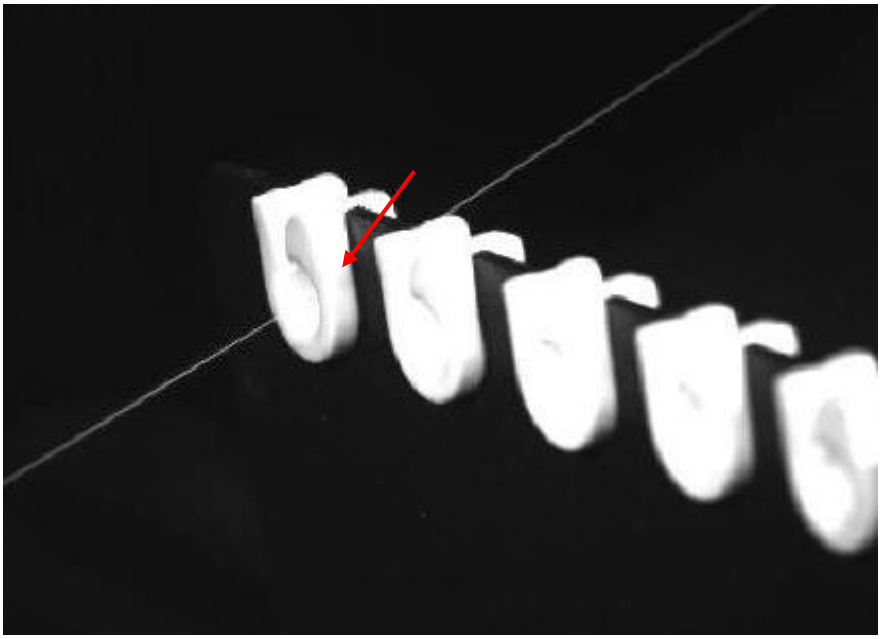

Fig. 2
The yarn package carrier is displaced slightly to the left behind the UT5, to ensure that the yarn does not touch the edges marked with a red arrow

3 Bobbin holder

A new bobbin holder was designed which can be used for most tube sizes. The advantage of this bobbin holder is that the yarns of most bobbins can be drawn off in the centre, but this depends on the size and weight of the bobbin or cone.

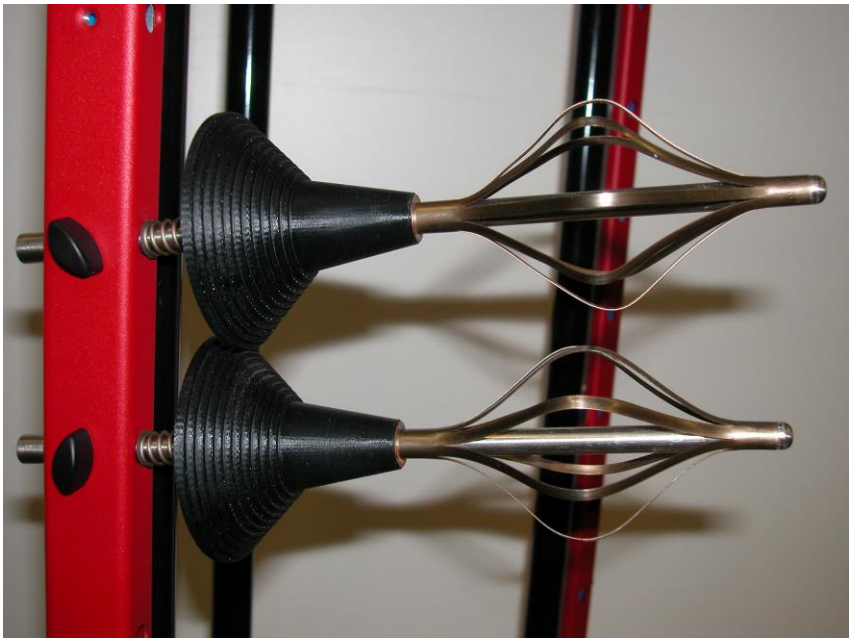

Fig. 3
Bobbin holder
Bobbin holder for the use of 48 holder positions

Fig. 3 shows the layout of the bobbin holder when 48 holder positions are used.

4 Yarn tensioners

There are two types of yarn tensioners, one is marked with a green ring, the other with a red ring. The yarn tensioner with a green ring (Fig. 4) is used for short staple fibers which are shorter than 40 mm such as cotton, cotton / blends, viscose, etc. The yarn tensioners with a red ring (Fig. 5) are used for long staple fibers which are longer than 40 mm such as wool, wool/polyacrylics blended yarns, filament yarns, etc.

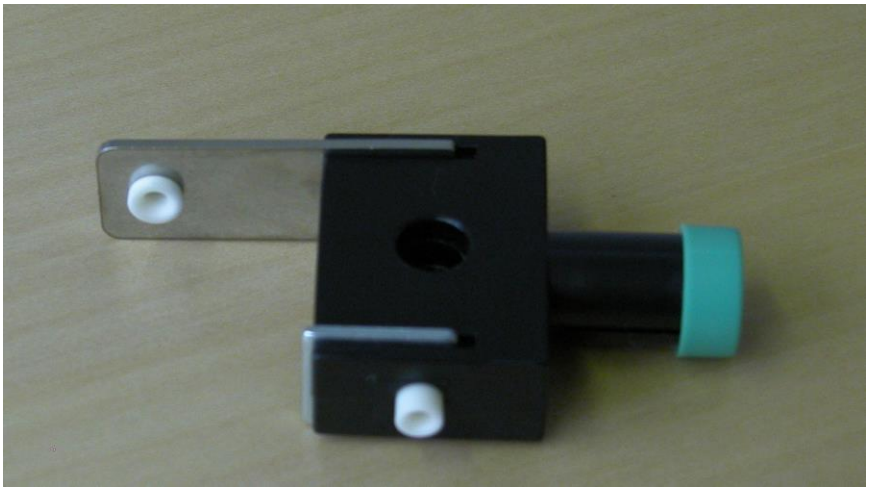

Fig. 4
Yarn tensioner with a green ring for short staple fibres which are shorter than 40 mm

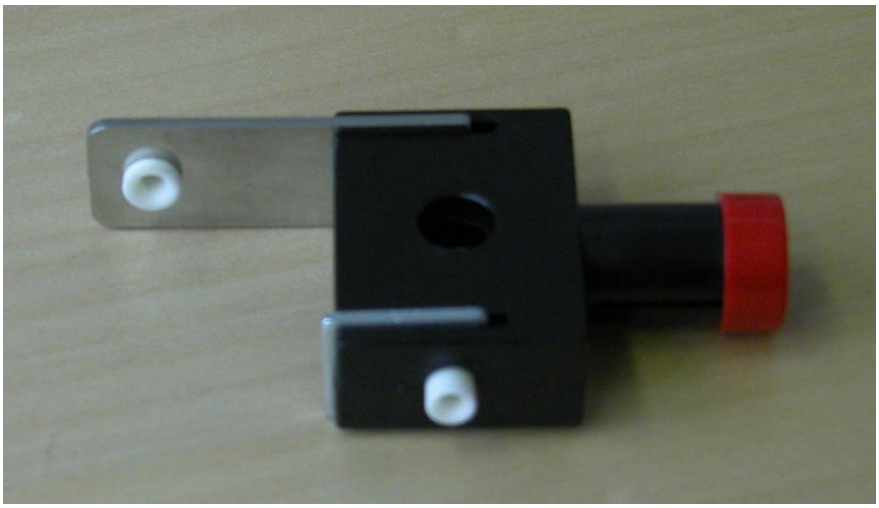

Fig. 5
Yarn tensioner with a red ring for long staple fibers which are longer than 40 mm

	Ring	**Yarn tension**	**Range of application**	**Example**
Yarn tensioner	green	5 cN	Short staple fibers < 40 mm	Cotton, cotton/polyester, viscose etc
Yarn tensioner	Red	2 cN	Long staple fibers > 40 mm	Wool, wool/polyacrylics, filament yarns, etc.

Table 1

The external eyelet is used for yarns which are finer than Nec 60, Nm 100 or 10 tex. Please pay attention to the test direction (Fig. 6)!

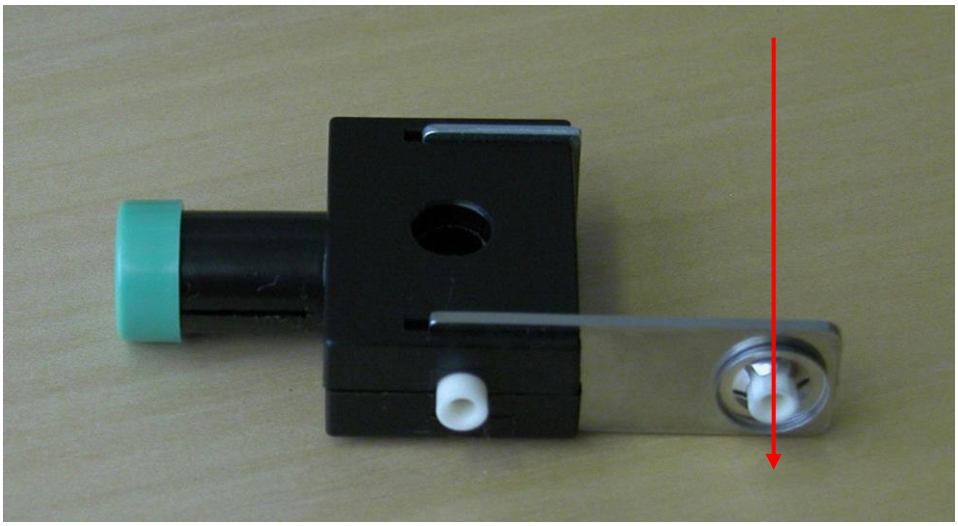

Fig. 6
Test direction

4.1 Cleaning the yarn tensioners

The yarn tensioners have a lateral opening (Fig. 7) which is a new feature. Thus dirt is made visible and can also be cleaned more easily. The yarn tensioners are cleaned with compressed air which is blown in the direction of the red arrow (see Fig. 7).

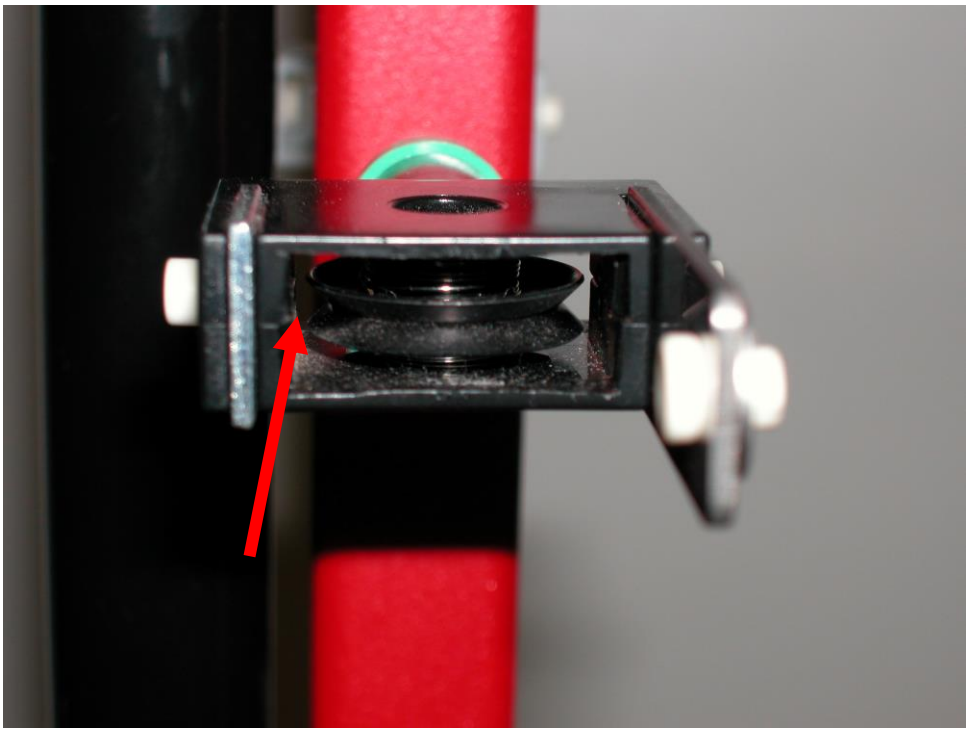

Fig. 7
Open yarn tensioner compressed-air is blown in the direction of the red arrow

5 Positioning the bobbins

The bars, where the bobbin holders are fixed, can be moved sideways and thus they can also have to be positioned correctly whenever the external eyelet is used. It is important that the centre of the yarn tensioner (external eyelets as well as eyelets on the yarn tensioners) points to the centre of the eyelets. However, this does not apply when heavy test specimen are used because the spring of the bobbin holder will be compressed in such cases.

The clamps, which are compressed to unlock the locking device, are marked with red arrows in Fig. 8. Zoomed clamps are shown in Fig. 9. The bar, where the bobbin holders are mounted, can be moved sideways by compressing the two clamps simultaneously in the direction of the red arrows.

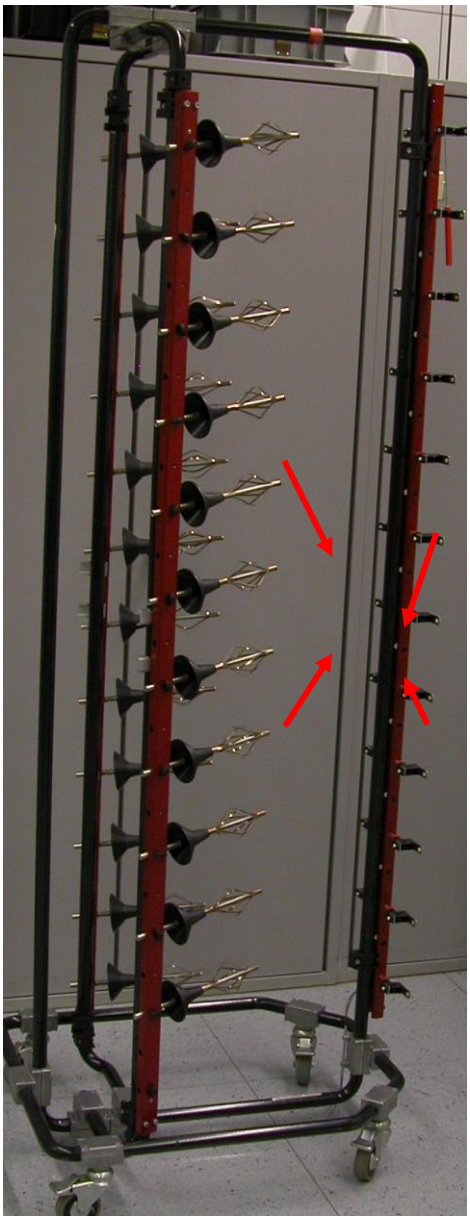

Fig. 8
Yarn package carrier with clamps which are mounted laterally, marked with red arrows

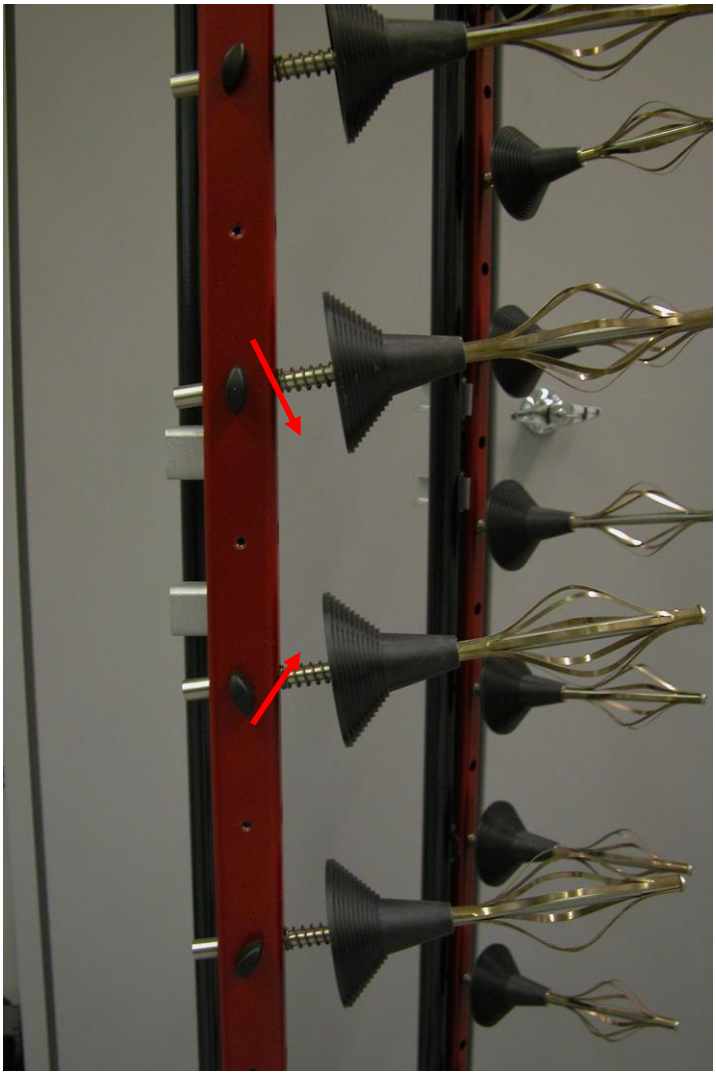

Fig. 9
Clamps, marked with red arrows
Position to the yarn tensioners can be optimized by compressing the clamps

6 Conclusion

The yarn package carrier was also optimized during the development phase of the USTER® *TESTER 5*. It is important, however, that the yarn package carrier is used correctly. The distance to the USTER® *TESTER 5* is 80 cm. The green yarn tensioners are used for yarn consisting of short staple fibers which are shorter than 40 mm, and the red yarn tensioners are used for yarns with long staple fibers which are longer than 40 mm. The lateral eyelets are used for yarns which are finer than Nec 60, (Nm 100 or 10 tex).

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