Tuning

Advanced Top Rollers for TD 02 and TD 03 Draw Frames

TRÜTZSCHLER SPINNING

Advanced Top Rollers for TD 02 and TD 03 Draw Frames

Increased efficiency with new top rollers

We have developed a new bearing technology specifically for top roller application. Signifi - cantly reduced friction means measurably lower temperatures in the drafting system. This results in increased durability of the coatings and consistent sliver quality over extended periods.

Completely maintenance-free low friction bearings

Conventional top rollers have a steel core. Bushings with needle bearings are attached to the journals of this steel core. To be able to even attach these bushings, a certain tolerance must be provided. The small gap thus created between the bearing and the journal of the top roller core is the reason for relatively fast wear. These bearings require regular manual lubrication to make the use of such top rollers even possible. It is inevitable that dirt particles enter the bearing during the process.

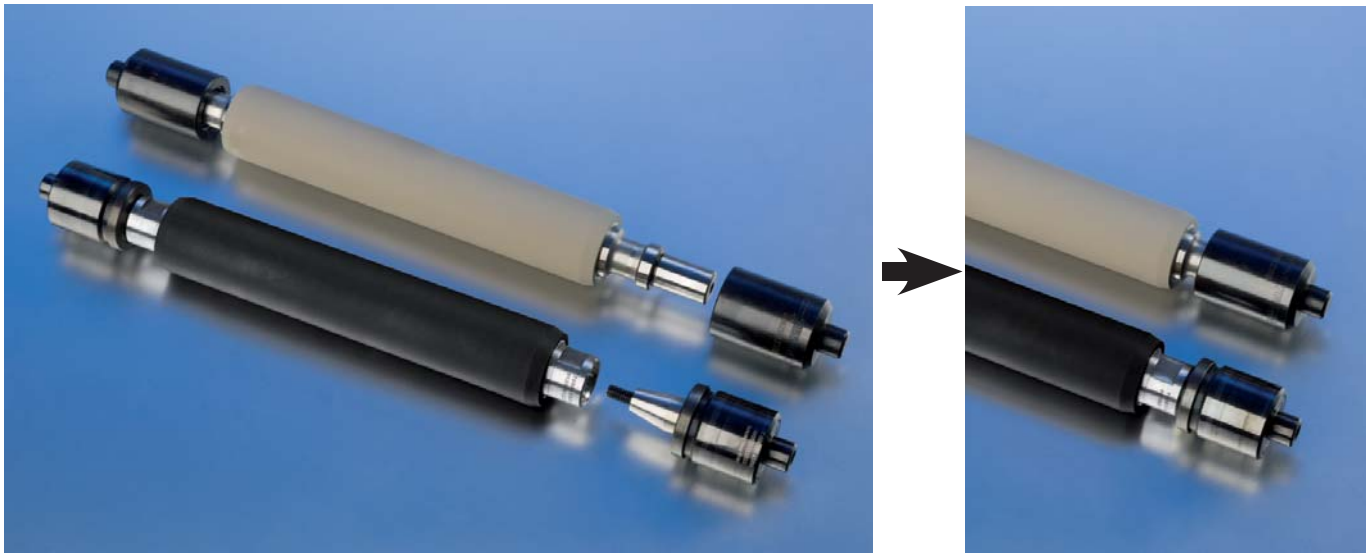
On the new Trützschler top rollers, the core has been completely separated from the bearing. The precision bearing, with lifetime lubrication, is attached to the core by means of cone connection - clearance-free and self-centred. This also eliminates run-out.

The bearing itself is fully sealed and protec ted from contamination. A sufficient amount of special grease in the bearing ensures that regular lubrication is no longer required. Thus, the new top rollers are completely maintenance-free.

Low temperatures increase the service life.

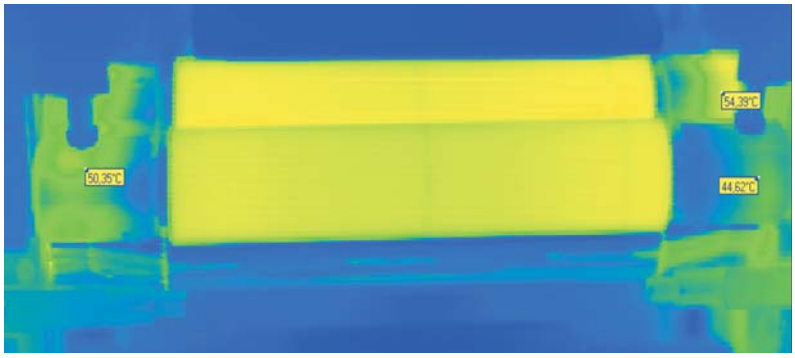
The high frictional heat generated by conventional bearings moves from the bearing to the top roller core and the coatings. Increased temperature reduces the durability of these coatings and requires more maintenance. The operational life between two grinding processes is reduced.

The level of heat generated by the new Trützschler top roller bearings is so low that the process heat from the coatings dissipates through the core of the top roller and, via the bearings, to the machine frame. Naturally, lower friction means not only lower heat generation but also lower energy consumption.

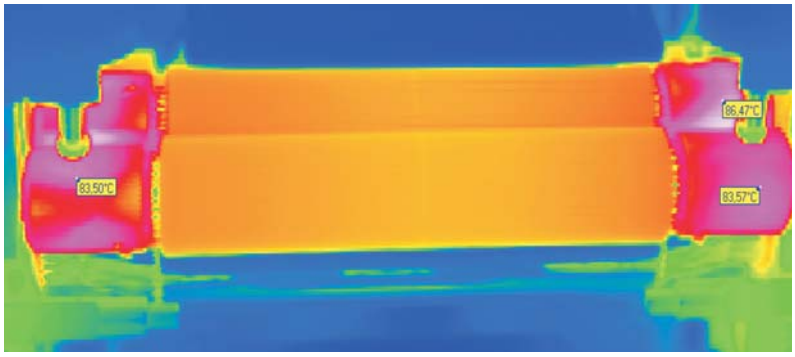


On conventional bearings (above), the shaft of the metal core forms the inner part of the bearing. The new sealed bearing (below) is attached to the top roller via the cone connection, clearance-free.

Conventional top rollers

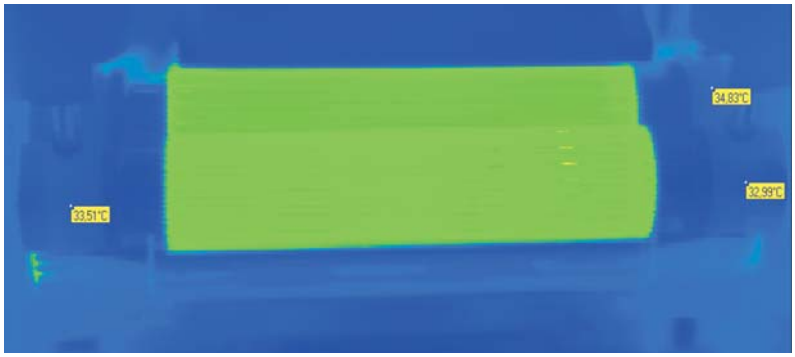


Conventional top rollers reach a temperature between 55 and 60°C after running for about two minutes. The bearings also indicate a temperature of about 50°C.

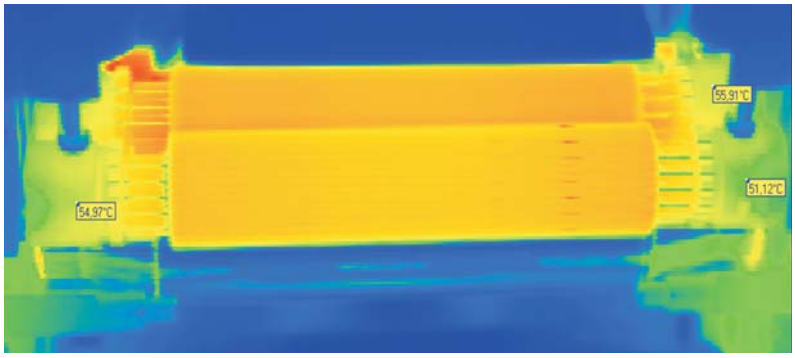


The operating temperature is reached after about 15 minutes. The bearings are considerably warmer than the top roller. For this reason, the heat is dis sipated from the bearings to the top rollers. This causes further heating of the top rollers.

The new Trützschler top rollers



These two new top rollers also run about 2 minutes: The bearings are still at room temperature. The top rollers are beginning to warm up.



The final temperature of the new top rollers is about 10°C lower than with conventional top roller coatings. This is achieved by heat dissipation to the bearings. They are about 25°C colder than with conventional system.

The 4 photos of a thermal imaging camera show the bearing and top roller coating temperatures.

Long-lasting consistent quality

A lower top roller temperature has also technological benefits. Excessive temperatures often lead to formation of fine surface cracks in the coating. They result in laps and slow deterioration of sliver evenness. Thus, the new Trützschler top rollers run longer at consistent quality before they require regrinding.

Higher performance with temperature-sensitive materials

When processing some man-made fibres, the delivery speed is limited by the temperature in the drafting system. In case of such temperature-sensitive materials, the new Trützschler top rollers allow increases in production.

Less and easier maintenance

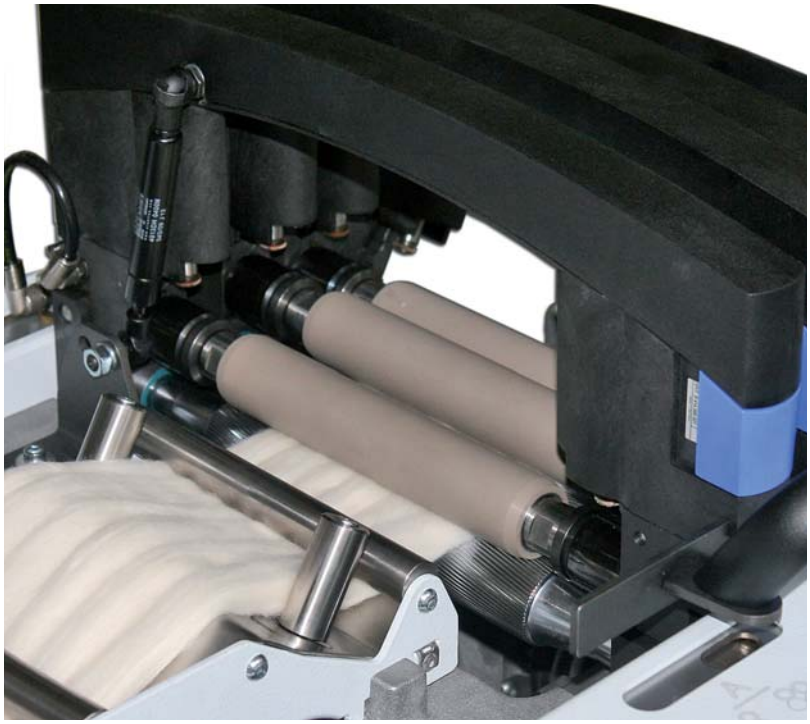
The new top rollers require considerably less maintenance:

- No more lubrication
- Longer grinding intervals
- More durable top roller coatings
- The provided universal grinding adapters allow optimal regrinding with all grinders known to us.

These grinding adapters allow precision grinding with any existing grinder.

The 4 photos of a thermal imaging camera show the temperatures of bearings and top roller coatings.

The measured temperatures correspond to the colours in the scale on the right.



The new top rollers are 1:1 compatible and can be used in any Trützschler Draw Frame TD

Reduced costs

In addition to the already mentioned cost advantages based on longer service life and less maintenance, the design of the top roller offers yet another advantage. In the event of damage, a bearing can be replaced in a few moments by removing just one screw. On conventional systems, the entire top roller and the bearings must be scrapped.

Easy conversion

The new top rollers are compatible to the old top rollers of all Draw Frames TD. They can easily be replaced by making a small modification to the machine.

For more information please contact:

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