



FEEDING SYSTEMS

Model Series
CBF, CBF-T, ZBS, DBF



▲ DI-LOOM OUG II HVSCS with feeding system

FEEDING SYSTEMS

Dilo Feeding Systems

Each needling task requires a suitable system for feeding the fibre batt. Especially the pre-needling process has high demands on systems feeding the batt without draft or lateral shrinking.

Dilo offers a total of five batt feeding systems in preparation to the needling tasks.



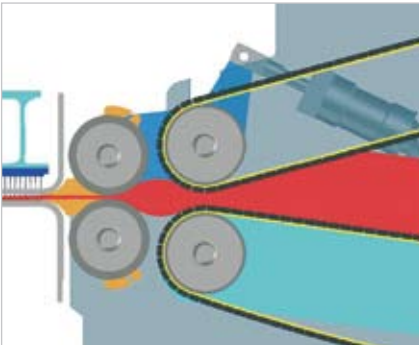
Features of the DILO feeding systems

- **Separate installation from the needle loom**
 - Vibration free
 - Small roll diameters
 - Compact dimensions
- **Separate AC drives for base apron, pre-compression apron, feeding rollers**
 - Easing exact speed adjustments to material requirements
 - Resulting in easy maintenance
 - Yielding optimum adjustment to material thickness and type of fibre
- **Separate drafting zone (only for DBF System)**
 - Controlled pre-drafting of the material before consolidation
- **All feed rollers are available in hardened and stainless execution**

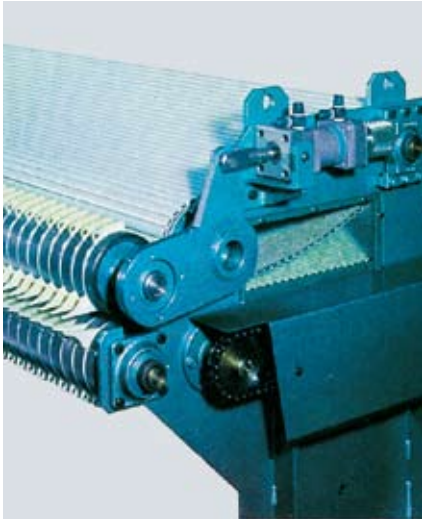
Dilo CBF System

For pre-needling Dilo offers the proven CBF system which consists in its standard execution of a base apron, a pre-compression apron and a pair of grooved rolls which are equipped with fingers in order to bridge the gap between roller nip and the needle zone.

This ensures that even the heaviest batts are reduced to a manageable bulk for optimum presentation into the needling zone of the loom.



▲ Scheme CBF-System

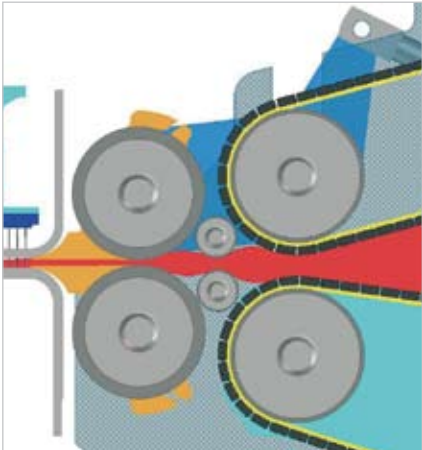


▲ CBF-System with base apron, pre-compression apron and finger rollers

Dilo CBF-T System

For further reduction of drafts the CBF-Transfer system is used.

The CBF-T applies two additional transfer rollers to fill the gap between the aprons and the finger rollers. This ensures a straight line material flow resulting in a reduced draft through the needle zone.



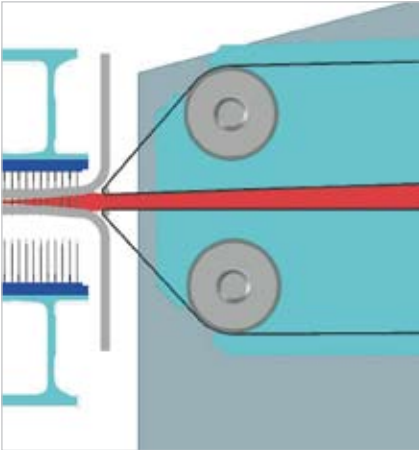
▲ Scheme CBF-T System

Dilo ZBS System

For special applications such as the needling of mineral fibre, rock wool or ceramic fibre the system ZBS with flat aprons has been used successfully.

These aprons are guided around two rollers with a very small diameter just in front of the first row of needles and are designed to self align avoid lateral apron wear.

The angle and distance of these rollers relative to each other are adjustable. This elaborate design is particularly useful if short and abrasive fibre is to be processed.



▲ Scheme ZBS System

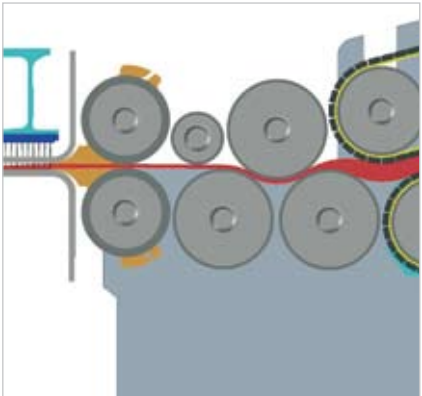


▲ Dilo Needling Line with ZBS feeding system

Dilo DBF System

The DBF system combines the proven CBF system with additional, wire clothed rolls which are incorporated into the feed system. This results in effective pre-compression of the fibre mass.

At the same time a slight controlled draft of the fibres provides a pre-orientation in MD direction.



▲ Scheme DBF System



▲ CBF-T System, Transfer roller with finger roller (lower section)

Technological requirements

Normally the term draft is used for the speed differential between feed and draw-off system. For the production process it is important to differentiate between detrimental uncontrolled draft and mere tension without fibre dislocation.

In addition the difference between flexible and fixed elongation is important.



▲ DI-LOOM OUG II HVSCS with DBF feeding system

Draft

Detrimental uncontrolled draft is by definition the irregular extension of the web resulting in thick and thin places throughout the batt.

Thus the contact movement of individual fibres against each other is affected.

During batt compression and needling the needle action results in additional fibre being inserted into the base of the felt. These fibres tend to elongate without negative effect to evenness.

Elongation

All elongations – permanent or flexible or those induced through consolidation are subjected to the speed differential between draw-off and feeding rolls.

Another important element within the needling zone is the design and shape of the bed and stripper plates. An ideal design ensures that these two permanent equipment features follow the reduced thickness of the felt in its passage through the loom in order to minimize friction. Another influential factor is the dwell time of the needles in the material. The dwell time is dependent on stroke length, depth of penetration and stripper plate gap and tends to hinder the transport of the felt while in engagement. In some cases this drag can induce detrimental drafting but in most cases results in extension rather than fibre relocation (draft).

The Dilo feeding systems represent the optimum methods for feeding of staple fibre or filaments as well as spun-bondeds and for bonding of other batts to existing felts (composites).



Subject to alterations.
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