

# Rieter - E 35 OMEGA lap



The E 35 OMEGAlap combing preparation machine offers maximum output and economy. Lap production is based on an entirely new technology. The core element is a belt winding system. The belt specially developed for this purpose is wrapped around the lap during its buildup. This results in optimum distribution of the contact pressure over the circumference of the lap. This enables uniformly built laps to be produced in optimum quality and with maximum productivity.

## E 35 OMEGALAP – ADVANTAGES

- Gentle web guidance from beginning to end of the lap
- Uniform pressure distribution over up to 75% of the lap circumference
- Very high batt uniformity and superior lap quality
- Constant winding speed of 180 m/min, regardless of staple length and lap diameter
- Effective output of up to 520 kg/h
- Low energy consumption per kg of yarn
- Most economical combing set with 1 E 35 OMEGAlap and 6 Rieter E 66 / E 76 high-performance combers

E 35 OMEGAlap – revolutionary combing preparation for maximum productivity and economy.

## NEW BENCHMARK FOR PRODUCTION SPEED

The batt being fed in is passed over 180° of the lap circumference at the start of the lap and over 270° of the lap circumference by the end of the lap. The contact pressure necessary for lap buildup is thus distributed ideally over the outside diameter of the lap. The OMEGAlap produces at a constant speed of 180 m/min, regardless of raw material and lap diameter.

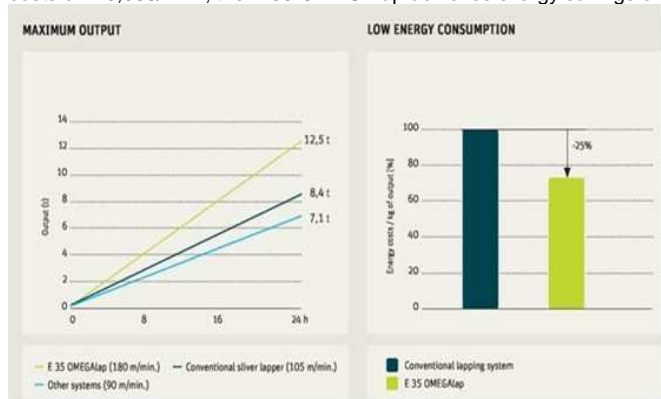
## MAXIMUM PRODUCTIVITY

The high speed results in a quantum leap in productivity. Compared to the most productive combing preparation systems currently on the market, the E 35 OMEGAlap achieves an increase in output of 50% and more, to over 500 kg/h.

## LOW ENERGY CONSUMPTION

With a 25% reduction in energy consumption per kg of output, the OMEGAlap meets the market's requirement for lower energy consumption. Optimum distribution of pressure between belt and lap and the resulting reduction in rolling friction during the winding process have the greatest impact on energy consumption.

The energy-optimized selection of electronic and mechanical drive elements makes a further contribution to the reduction of energy consumption. With energy costs of € 0,068/kWh, the E 35 OMEGAlap achieves energy savings of € 2 271,- per year and machine compared to other systems.



SB-D 40 breaker drawframe



E 35 OMEGAlap

## E 35 OMEGAlap for large sets

### IDEAL COMBING PREPARATION FOR HIGH-PERFORMANCE COMBING OPERATIONS

Superior combing quality requires optimally coordinated combing preparation. The Rieter SB-D 40 pre drawframe in combination with the E 35 OMEGAlap is recommended for the Rieter high-performance combing system.

### ECONOMY WITH LARGE-FORMAT CANS

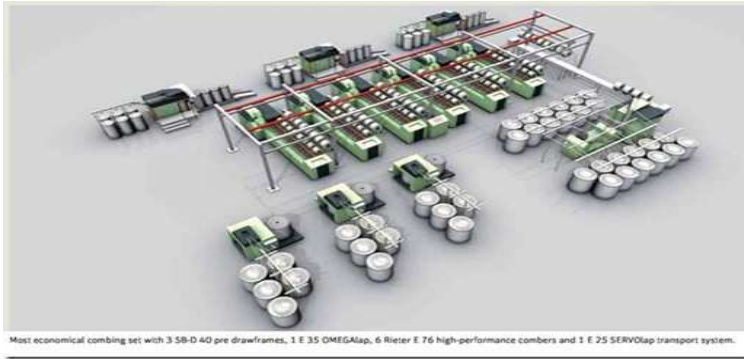
Feed cans with a diameter of 1 000 mm increase efficiency.

At the request of the customer, cans with a diameter of 600 mm can also be supplied.

### LARGER COMBING SETS

Larger combing sets can be operated with the E 35 OMEGAlap. Ideally, one E 35 OMEGAlap supplies 6 E 66 / E 76 high-performance combers.

E 35 OMEGAlap is the ideal combing preparation for maximum output and economy with large combing sets.



SUPERIOR LAP QUALITY

The E 35 OMEGAlap produces superior lap quality at maximum production speed.

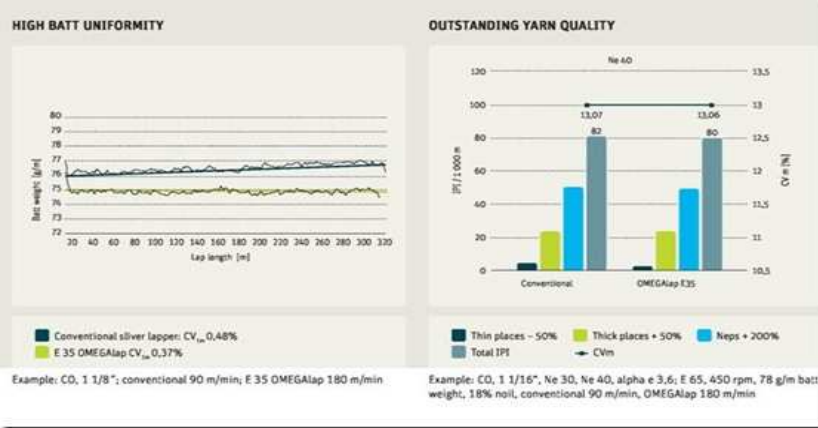
This means:

- homogeneous lap buildup
- good fiber orientation and batt structure
- uniform batt weight over the entire length of the lap, i.e. low  $cV_m\%$  value
- optimum take-off behavior on the comber

**HIGH YARN QUALITY**

As a systems supplier, Rieter attaches great importance to assuring quality throughout all process stages. This means that lap quality is tracked right through to the yarn.

Compared to the conventional system currently in use, yarn quality – similar to batt uniformity – proves to be at least as good. Imperfections, yarn regularity and dynamic values are at best level.



**Pioneering winding technology**  
**PIONEERING TECHNOLOGY**

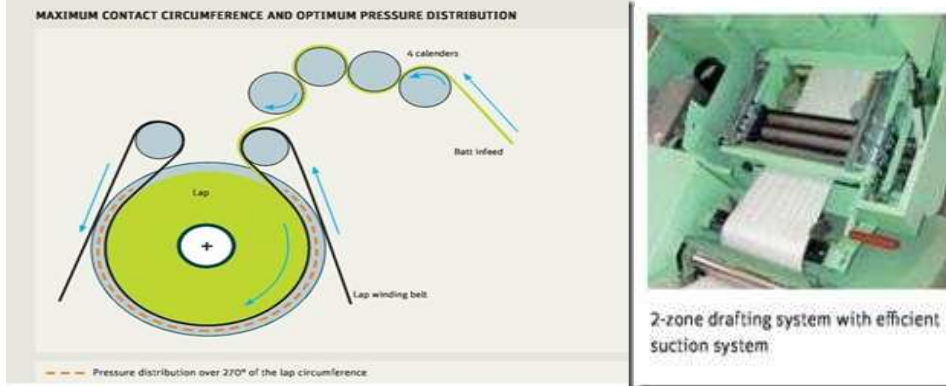
The technologically crucial process of winding-up the batt takes place in the machine head. That is where the unique belt lapping system is located. The width of the lapping belt

corresponds to the tube width, i.e. the lap width. The speed of the batt entering the belt system is identical to that of the belt. The belt is wrapped around the lap throughout lap buildup. Instead of the linear contact pressure of the lapping rollers on the lap that has prevailed to date, in OMEGAlap the pressure is distributed over the surface of the lap circumference by the lapping belt.

The wrapping action and the optimum pressure distribution permit significantly higher production speeds compared to other systems. At the same time, lap quality is maintained at a high level.

**fi – WINDING TECHNOLOGY**

The path of the belt around the lap (wrapping) resembles in cross section the Greek letter fi standing on its head. The name OMEGAlap has been derived from this in order to distinguish this novel technology from lapping systems used to date.



**FROM SLIVER TO LAP**

The E 35 OMEGAlap consists of infeed, winding head and delivery sections.

- The infeed section comprises the creel, arranged centrally, the web table with the 2 drafting units, positioned linearly and without deflection plates, and web

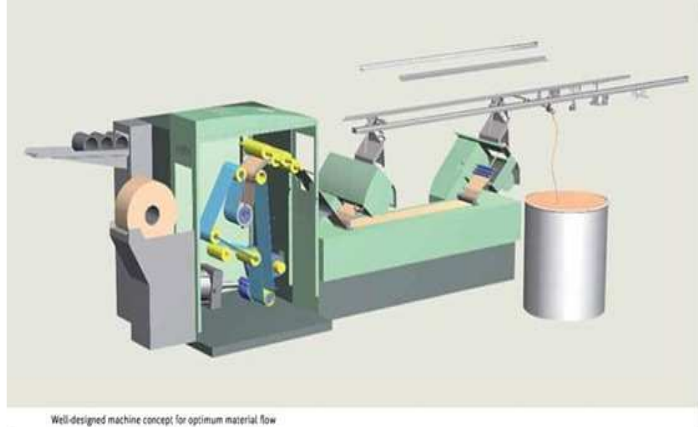
doubling toward the winding head.

- The winding head accommodates the drive, 4 calender rolls and the belt winding and tensioning system.

- At the customer's option, the delivery section can be supplied for semiautomatic or fully automated lap transport.

Drawframe slivers are fed from cans to the OMEGAlap. The material is fed via sliver-preserving guide elements to the 2 drafting units, where 2 webs are formed.

The webs are laid one on top of the other on the web table and fed to the winding head. The material passes between the 4 calender rolls, which compress the web into a uniform batt. Studies have shown that 4 calender rolls produce better technological results than systems using 3 rolls. The batt is wound onto a tube by means of belt technology. The full lap is then ejected from the winding head and placed on a lap trolley or lap conveyor belt.



### OPERATING PRINCIPLE OF THE BELT SYSTEM

Production of laps by means of the belt drive and tensioning system is fully automated.

1. The empty tube is inserted; the two winding discs are closed pneumatically to secure the tube axially in position.
2. The belt unit is closed, the belt is tensioned, and the fiber fleece is fixed pneumatically in position on the tube, the winding-up process starts.
3. The batt is wound up at constant speed until full lap diameter is reached.
4. The machine is stopped, the belt unit is opened, the full lap is ejected toward the front.



Functional design

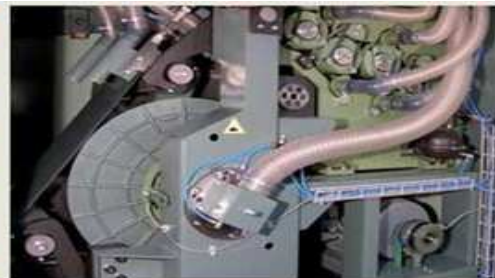
**CREEL** :Sensors monitor all sliver infeeds for missing or stationary slivers. Fault displays enable operating personnel to deal with sliver breaks systematically and rapidly.

**WEB TABLE WITH DRAFTING UNITS** :Break and main draft can be adjusted in the 2-zone drafting system depending on the raw material, and the system is equipped with efficient drafting system extraction. Adjustable guide elements on the lap table ensure that the lap enters the winding head in the optimum width.

**WINDING HEAD** : An effective dust extraction concept supplements the belt drive and tensioning system in the winding head and performs the following tasks:

- suction of the batt onto the empty tube after lap change
- keeping the calender rolls clean
- cleaning the lapping belt

**BELT** :The lapping belt is the key element of the E 35 OMEGAlap. It is in constant contact with the raw material being processed. In the same way as the card clothing, the circular and top combs on the comb or the top rollers and spinning rings on the ring spinning machine, the belt is therefore also a technology component and is subject to a certain degree of wear. Belt changes can be performed during normal machine cleaning.



### Lap transport system

### GENTLE AND EFFICIENT LAP TRANSPORT

The E 35 OMEGAlap can be supplied optionally with a semiautomatic or a fully automated lap transport system.

#### SEMI-AUTOMATIC SERVOTrolley TRANSPORT SYSTEM

4 laps can be transported using the SERVOTrolley. Transfer to the comber is performed manually. SERVOTrolley and the comber are loaded and unloaded automatically.

The advantages of this system are:

- high degree of flexibility
- easy handling
- low capital cost

#### FULLY AUTOMATED TRANSPORT SYSTEM SERVOlap E 25

8 laps are transported simultaneously using the fully automated SERVOlap. The following options are available for system and layout flexibility:

- transverse conveyor incl. lap rotating station for 90° and 180°
- combination with earlier machine generations
- linking of 2 SERVOlap systems

The advantages of the SERVOlap system are:

- reduced space requirements
- savings on operating personnel
- increased flexibility
- high quality consistency
- enhanced efficiency

The most economical combing set consists of 1 E 35 OMEGAlap and 6 E 76 combers in combination with the E 25 SERVOlap fully automated lap transport system.



SERVOTrolley for semi-automatic lap transport



Maximum economy with fully automated E 25 SERVOlap lap transport

