

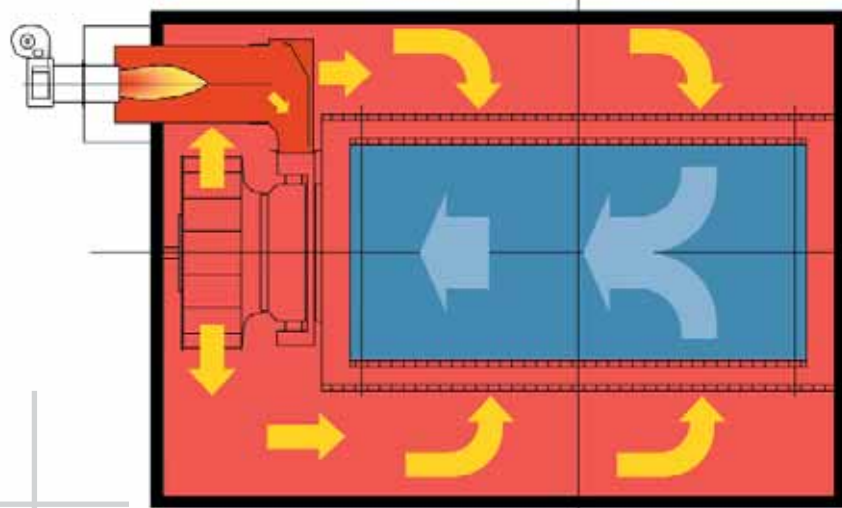
Drums

Perforated Drum Systems

FELISSNER



Function principle of through-air dryer



Through-air drying is based on a combination of perforated drum and radial fan. The fan sucks air out of the perforated drum and returns it over heating elements to the outside of the drum. This creates a suction draft on the drum surface, which safely keeps the fabric to be dried on the drum. At the same time, air flows through the fabric.

For large working widths, the air is sucked off by two fans installed on both sides of the drum.

Comparison of dryings systems	Horizontal stenter	Belt dryer	Perforated drum dryer	Can dryers
Machine length [%]	100	85	40	depending on height
Insulation losses due to dryer surface	High	High	Low	High
Energy losses due to transport system	High/chain	High/belt	None	Low
Level of water in exhaust air	Low	Low	High	Low
Heat recovering from material with fresh inlet air	No	No	Yes	No
Specific required energy [kWh/kg Water]	1,3...1,6	1,1...1,4	0,9...1,1	1,8...2,2
Specific evaporation [kg water/h/m ²]	...30	...40	...100	10...20

Wherever possible the preferred technology should always be the perforated drum technology due to the very high performance and rentability.

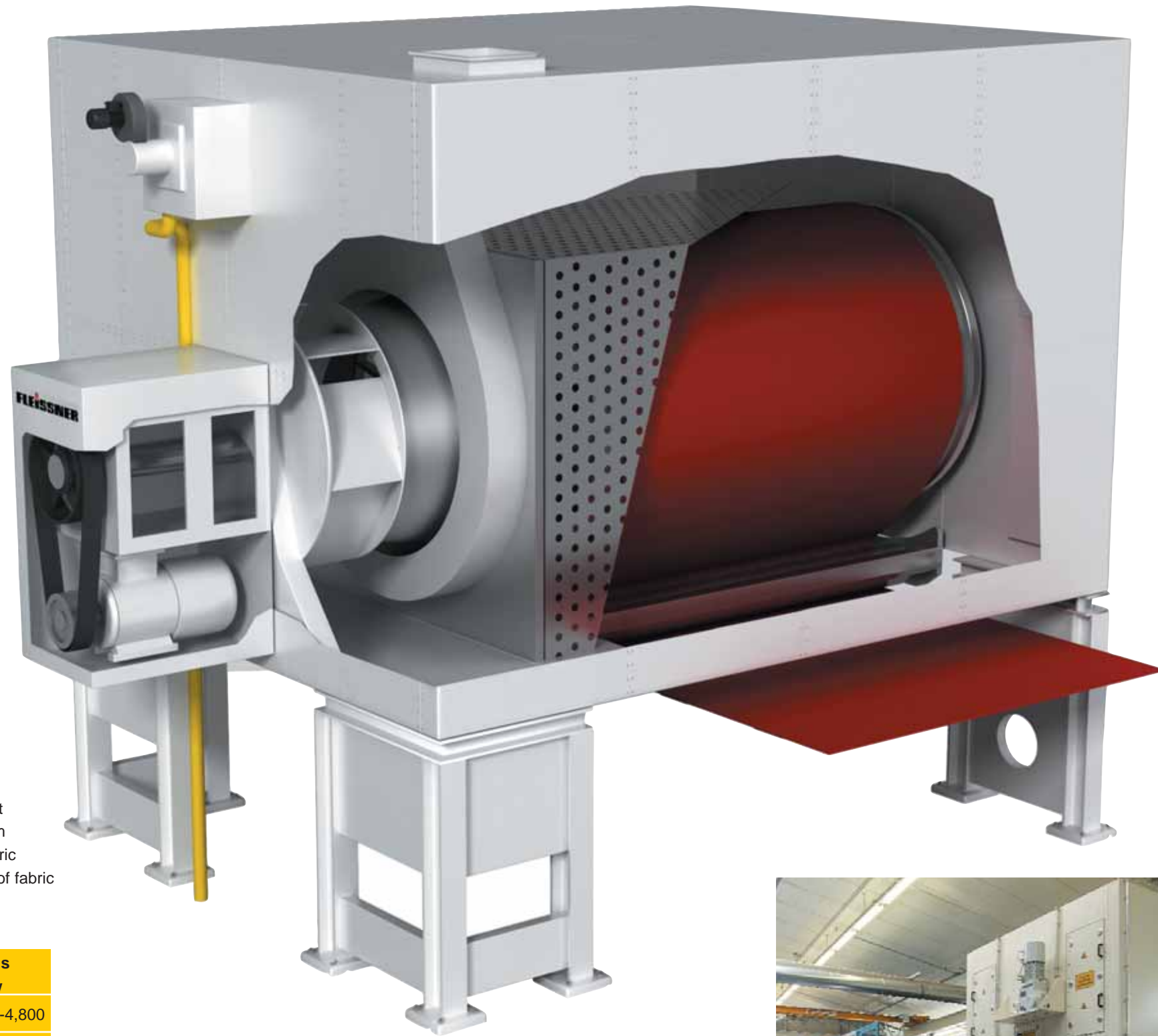
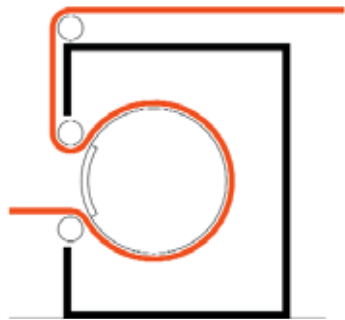
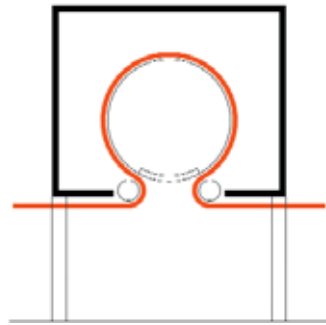
Technical information

- Air-permeable fabrics up to 3,000 g/m²
- Fabric thicknesses up to 50 mm
- Speeds of more than 1,000 m/min
- Improvement of breathability and absorbency
- Temperature precision +/- 1.5°C across working width
- Working width adjustment with deckling system, symmetrical and asymmetrical
- Heating systems:
 - Gas
 - Electrical
 - Thermal oil
 - Steam
 - Hot water
- Good heat insulation, 150 mm thick
- Working widths up to 7,000 mm
- Calibration unit (heated or cooled) after drying or heatsetting
 - for thickness calibration
 - for surface finish
- Cooling drums can be installed at the outlet
- Possible combination with integrated or downstream hotflue dwelling sections
- Drying rates up to 100 kg/h/m² and more, depending on product
- High-pressure cleaning system available for drums
- Fabric is supported on the drum (no sagging)

Perforated drum technology can be used as following:

Design	Drying	Heatsetting	Thermobonding
Omega	✓	✓	✓
Multi drum	✓	-	✓
Circular stenter	✓	✓	-





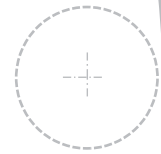
Omega design

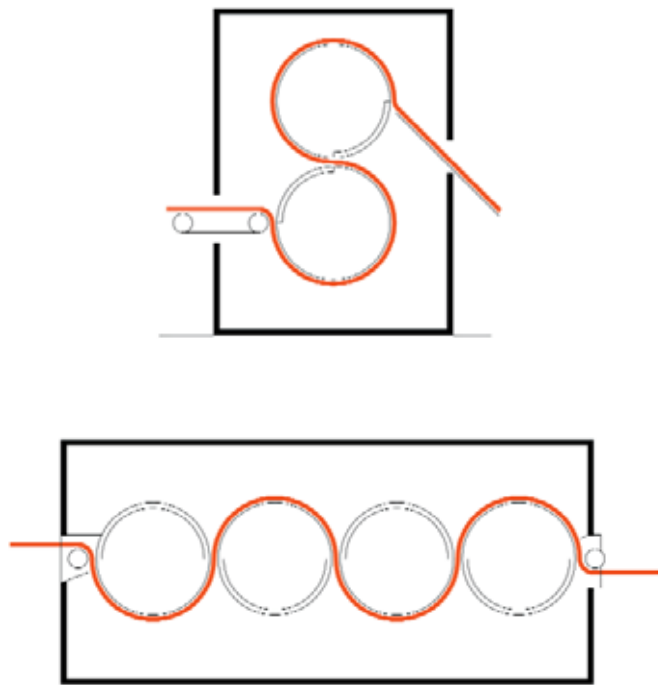
- Compact design with small footprint
- Can be combined with suction drum at dryer entrance for unbonded fabric
- Needle rings available for keeping of fabric

Textiles		Nonwovens	
Ø	ww	Ø	ww
1,414	600-4,800	1,414	600-4,800
1,895	1,800-7,000	1,895	1,800-7,000
2,600	1,800-7,000	2,600	1,800-7,000
3,000	2,200-7,000	3,000	2,200-7,000



Design
Omega





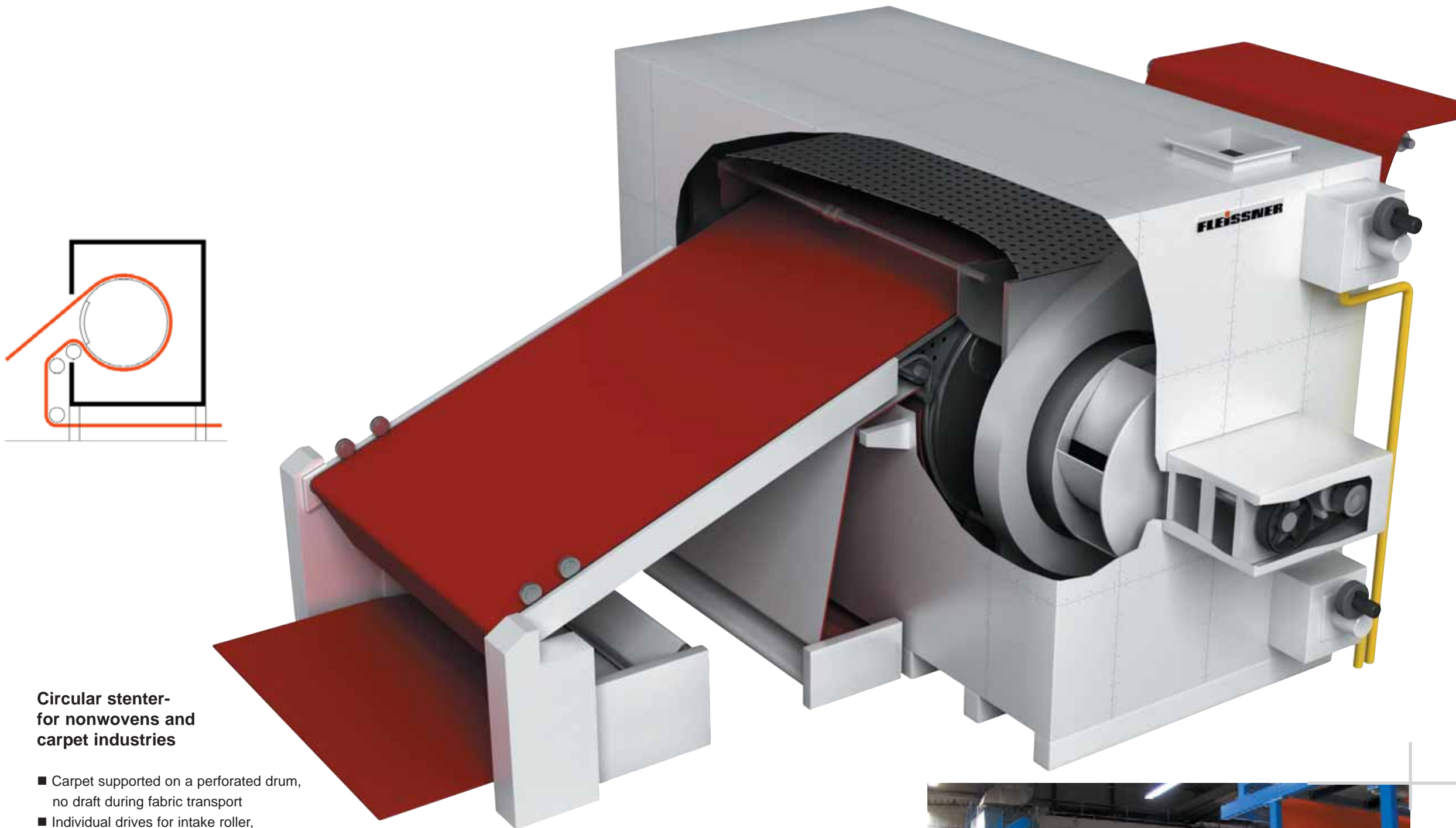
Multi drum design

- Web surface reversed from one drum to the next with alternating air flow direction
- Integrated separating walls create different temperature zones
- Machine can be extended any time due to modular design
- Available both in horizontal and vertical design
- Automatic fabric transport through the dryer

Textiles		Nonwovens		Man-Made Fiber	
Ø	ww	Ø	ww	Ø	ww
1,370		1,414	600-4,800	1,414	200-3,000
1,400	1,000-4,800				
1,414		1,895	1,800-7,000		
1,895	1,400-7,000	2,600	1,800-7,000		
2,600	1,800-7,000				



Design
Multi drum

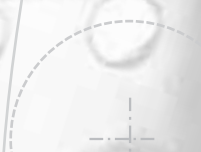
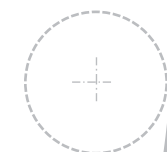


**Circular stenter-
for nonwovens and
carpet industries**

- Carpet supported on a perforated drum, no draft during fabric transport
- Individual drives for intake roller, perforated drum and tensioning chain
- No cooling zone required because of automatic fabric cooling
- Compared to horizontal stenter the circular stenter operates more efficiently with much less energy consumption and less space requirement at higher drying rates

Carpet		Nonwovens	
∅	ww	∅	ww
3,000	4,400 5,400	3,000	2,200-5,400

Design
Circular stenter



Highlights of drying technology



Dryer in stainless steel

In 1929, Hans Fleissner received his first patent for through-air drying technology. Since then, Fleissner has delivered more than 45,000 perforated drums to customers worldwide.

We have successfully complied again and again with the constantly increasing demands made on products and the requirements of our customers. Going beyond the origins of our machines in the traditional textile industry, we also deliver machines to the nonwoven, carpet, man-made fiber and paper & tissue industries.

Our innovative force is marked by a number of engineering milestones ...



- Highest requirements on material**
 Dryers made of stainless steel for special products
- Largest working width**
 Up to 7 meters for production of geotextiles
- Highest speeds**
 Production speeds up to 1,000 m/min for spunbonded products
- Highest evaporation capacities**
 Up to 100 kg/h/m² and more, particularly for use in spunlace processes
- Most sophisticated engineering**
 For use in the paper & tissue industries up to 2,000 m/min at 400 - 500 kg/h/m² water evaporation



High speed dryer for spunbond

Highlights Dryer

Patent

Nonwovens
Textiles
Man-Made Fibers
Paper & Tissue

Fleissner GmbH
Beijing Lufthansa Centre
Office Building
50 Liangmaqiao Road
Chaoyang District
Beijing 100016 (PR China)

Fon: +86 (0) 10-646 510-40
Fax: +86 (0) 10-646 510-42
e-mail: fbj01@263.net

Drying
Thermobonding
Heatsetting

Fleissner GmbH
Wolfsgartenstr. 6 • D-63329 Egelsbach
A company of Trützschler group
Fon: +49 (0)6103-401-0 • Fax: +49 (0)6103-401-440
e-mail: info@fleissner.de

Visit us at
www.fleissner.de

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