

Neueste Entwicklungen für Nonwoven Automobil Innenteile

Hannes Pum, Neumag Saurer Austria GmbH

21. Hofer Vliesstofftage 2006

Neumag Nonwoven Technology Portfolio

- ▶ Fehrer Aerodynamic Webforming Technology

 - V21/R K12**

 - Structural parts**

 - Insulation material**

 - V21/R K12 High Loft**

- ▶ Fehrer Needle Punching Technology

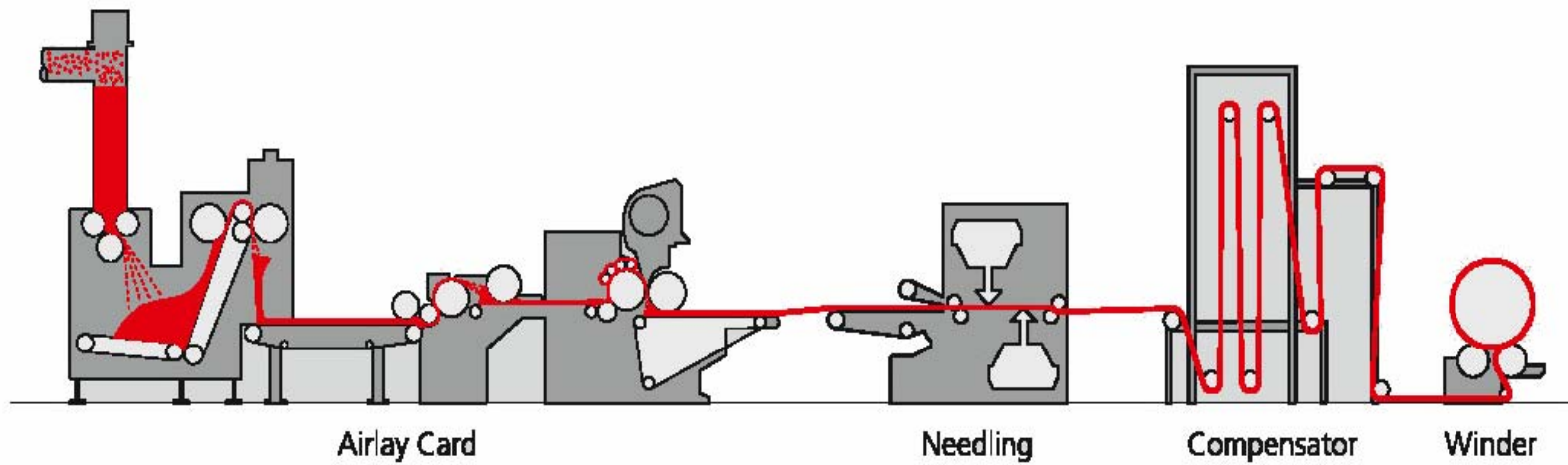
 - Neumag Nonwoven Flat Felt/Headliner Lines**

 - Structured Felts**

 - Rib Velour**

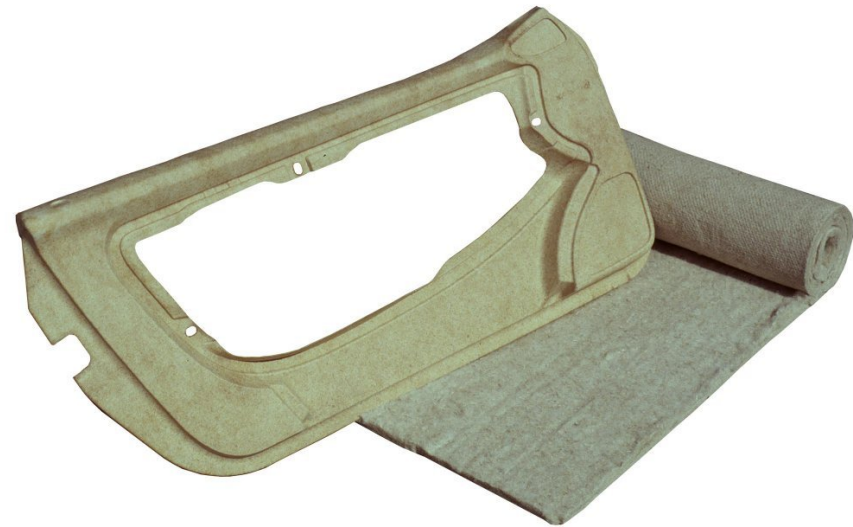
 - Rhombic Velour**

Automotive „Substrates“ and Noise Insulation Felts



Structural Parts

- ▶ V21/R + K12 + NL9/SRS
- ▶ Needled/thermobonded roll goods/plates for moulding
- ▶ Material: flax / hemp + PP
 - Kenaf +PP
 - PES + PP
 - glass fiber + PP
- ▶ Web weights 600 - 2000 g/m²
- ▶ Capacity up to 450 kg/h/m



Neumag Nonwoven Technology Portfolio

- ▶ Fehrer Aerodynamic Webforming Technology

 - V21/R K12**

 - Structural parts**

 - Insulation material**

 - V21/R K12 High Loft**

- ▶ Fehrer Needle Punching Technology

 - Neumag Nonwoven Flat Felt/Headliner Lines**

 - Structured Felts**

 - Rib Velour**

 - Rhombic Velour**

Insulation Materials for Automotive Applications

- ▶ **V21/R + K12 + NL9/SRS**
- ▶ **PU - foam pieces**
 - + recycling fibers
 - + low-melting fibers
- ▶ **Web weight approx. 1,000 g/m² (30oz/yd²)**
- ▶ **Production speed 7m/min (23 ft/min)**
- ▶ **Capacity 420 kg/h/m (285 lb/h/ft)**
- ▶ **Layering distribution of different raw materials in the web thickness adjustable through deflector tube**



Effects of the Deflector Tube

- ▶ Influence on blending degree along the cross-section.
- ▶ Influence on material properties along the cross-section of web, e.g. different insulation properties.



Natural and Shoddy Fibre Processing

Flax/PP

1.600 g/m²



Shoddy / PP

1.350 g/m²

Neumag Nonwoven Technology Portfolio

- ▶ Fehrer Aerodynamic Webforming Technology

 - V21/R K12**

 - Structural parts**

 - Insulation material**

 - V21/R K12 High Loft**

- ▶ Fehrer Needle Punching Technology

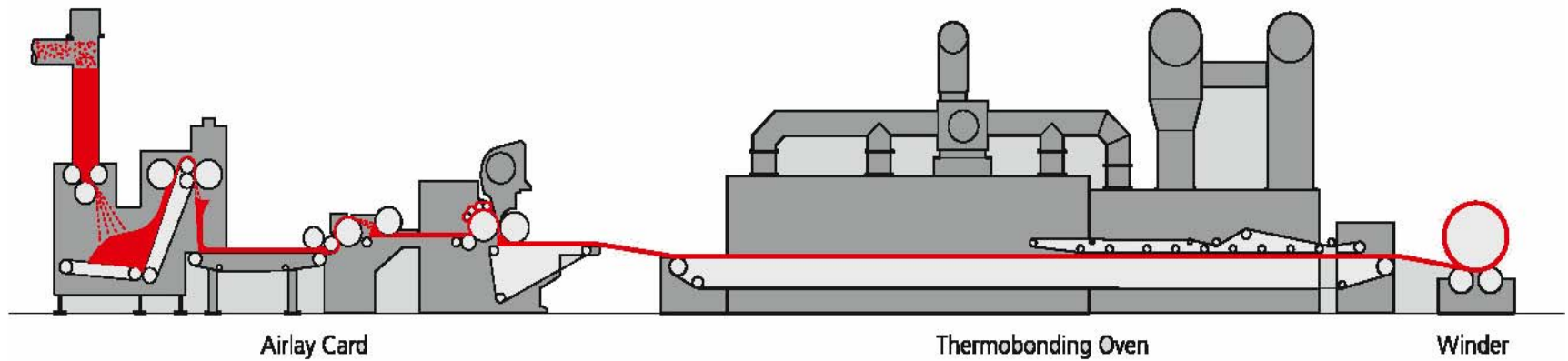
 - Neumag Nonwoven Flat Felt/Headliner Lines**

 - Structured Felts**

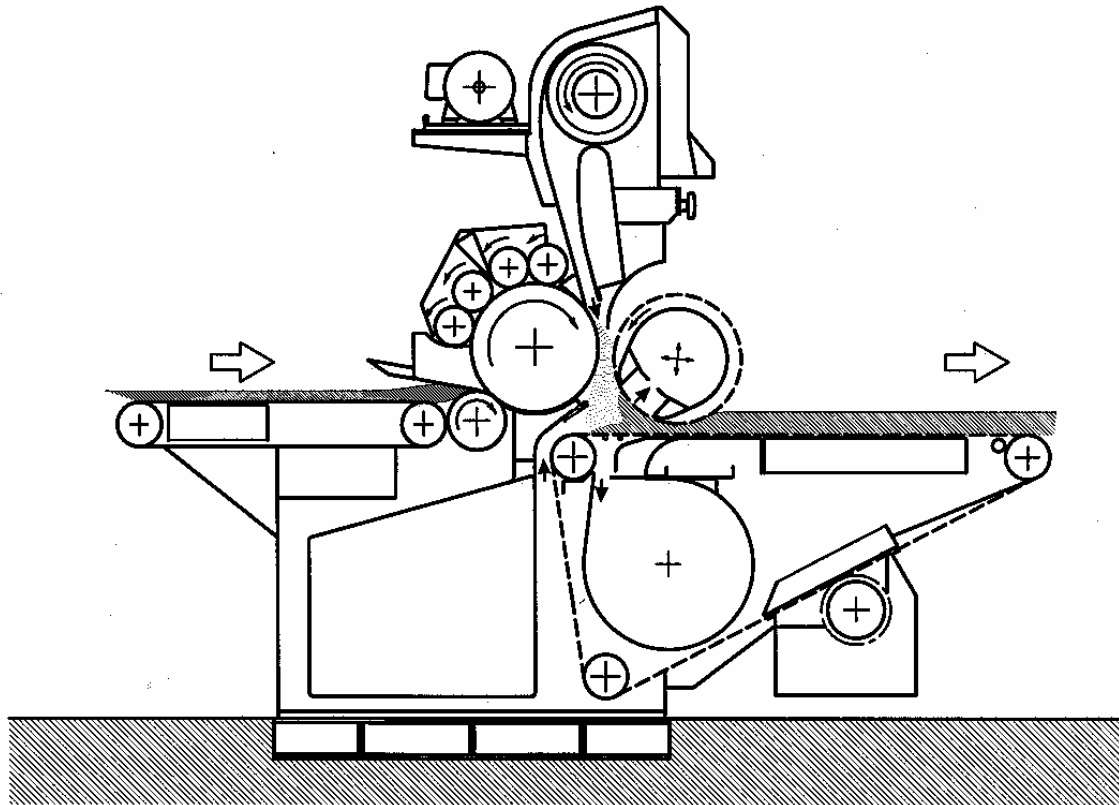
 - Rib Velour**

 - Rhombic Velour**

The Aerodynamic Nonwoven Line V21/R + K12 High Loft



Random Card K12 „High Loft“



Advantages of the High Loft Device

- ▶ **Increased “loft” or volume for the same product weight or density**
- ▶ **Compatible “loft” or volume with reduced weight or density**
- ▶ **Possibility of influencing the fiber orientation in the web**
- ▶ **Increased de-lamination resistance**
- ▶ **Improved product resilience**

High Loft Webs

- ▶ **PES + BiCo blends**
- ▶ **Nearly vertical fiber orientation**
- ▶ **Excellent noise absorption properties**



Neumag Nonwoven Technology Portfolio

- ▶ Fehrer Aerodynamic Webforming Technology

 - V21/R K12**

 - Structural parts**

 - Insulation material**

 - V21/R K12 High Loft**

- ▶ Fehrer Needle Punching Technology

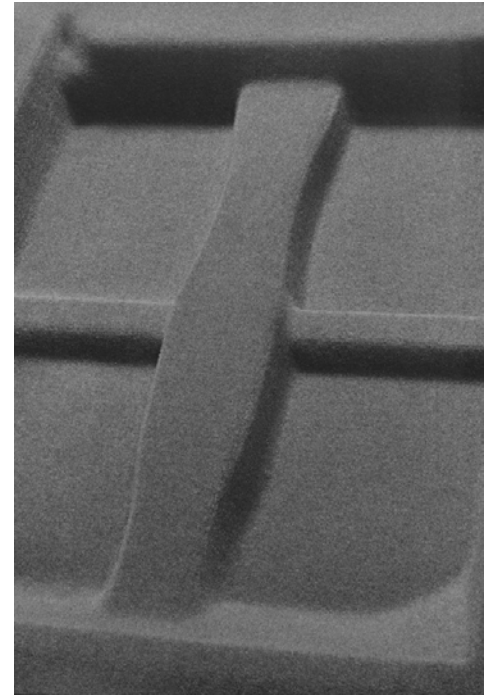
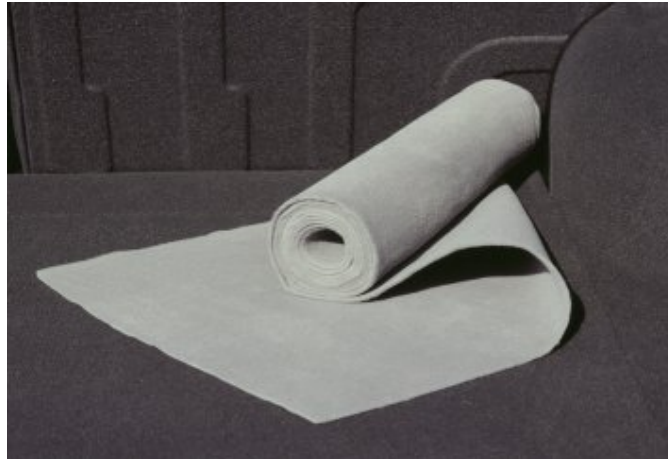
 - Neumag Nonwoven Flat Felt/Headliner Lines**

 - Structured Felts**

 - Rib Velour**

 - Rhombic Velour**

Needled Products

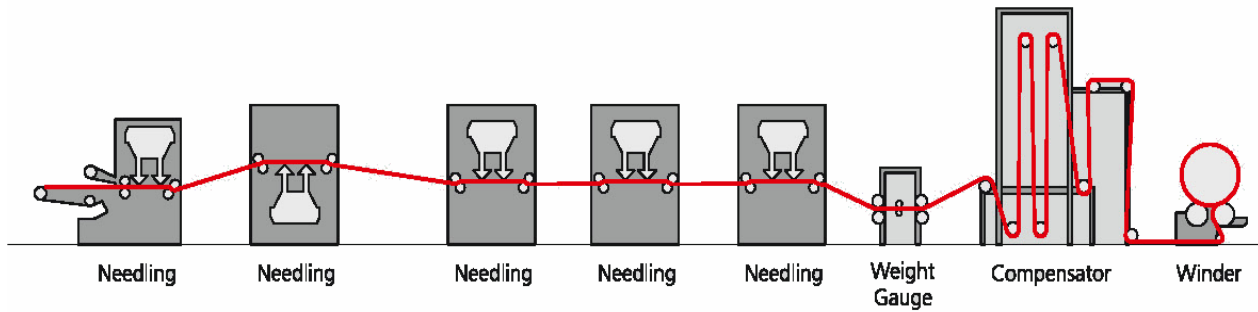
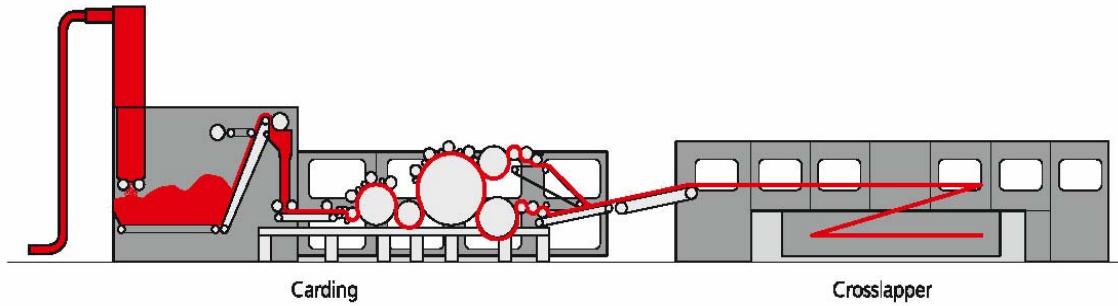


Nonwoven Headliner

- ▶ **100% PES 3.3 dtex / 2½ inch**
- ▶ **High penetration densities**
- ▶ **Most applications with flat surface (flat needling)**
- ▶ **Some applications with random velour surface.**



Automotive Headliner



Neumag Nonwoven Technology Portfolio

- ▶ Fehrer Aerodynamic Webforming Technology

 - V21/R K12**

 - Structural parts**

 - Insulation material**

 - V21/R K12 High Loft**

- ▶ Fehrer Needle Punching Technology

 - Neumag Nonwoven Flat Felt/Headliner Lines**

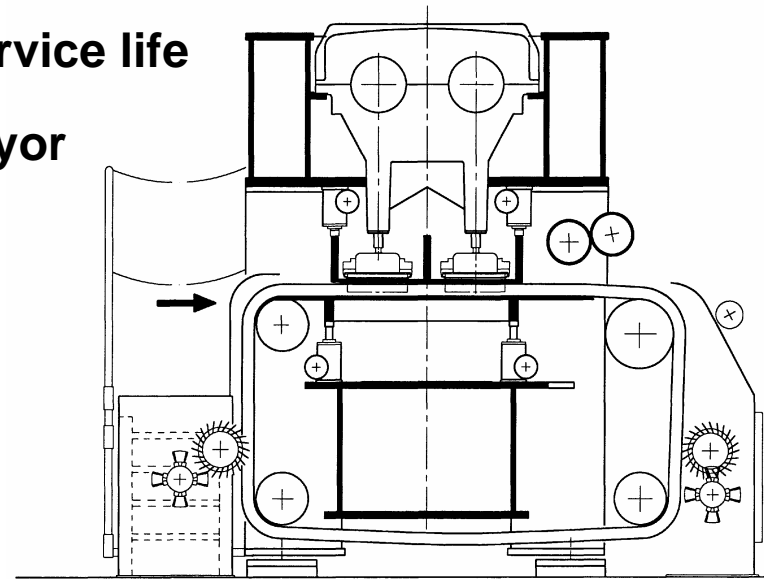
 - Structured Felts**

 - Rib Velour**

 - Rhombic Velour**

NL 21/SRV "Superlooper"

- ▶ **Very solid bottom beam for low deflection**
- ▶ **Multiple support gears for brush**
 - conveyor providing uniform
 - velour surface
- ▶ **Long brush conveyor for enhanced service life**
- ▶ **Two cleaning devices for brush conveyor**
- ▶ **Elongation - free, kevlar reinforced**
 - conveyor belts for brushes.



Simulation of Needle Patterns

Date : 23. February 2004

User : FHA

Notes :

pattern : PP75

7556 needles/m

Distances between needles (XD): 6.22 mm

Distances between needles (MD): 276 mm

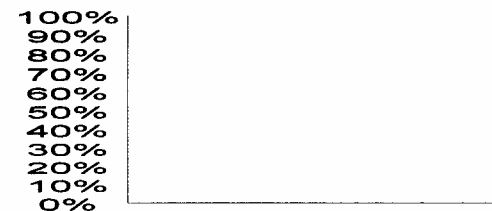
needle density: 2.7377 needles/cm²

Valuations

valuations of needle rows

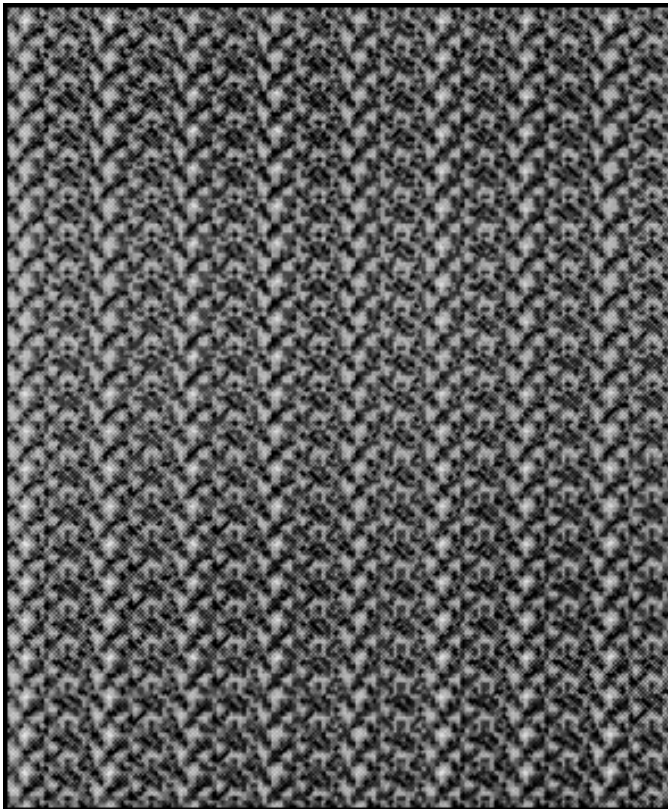


neighbouring punches



Needle Pattern PP 75

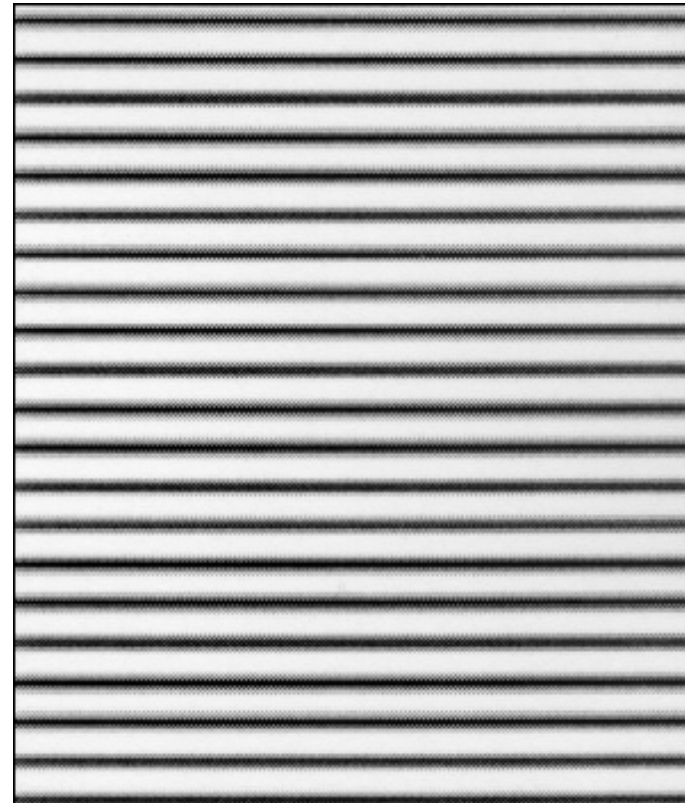
PP 75 7556 N/Lin.m.



**2.90mm/str.
260.55 punch/cm²**



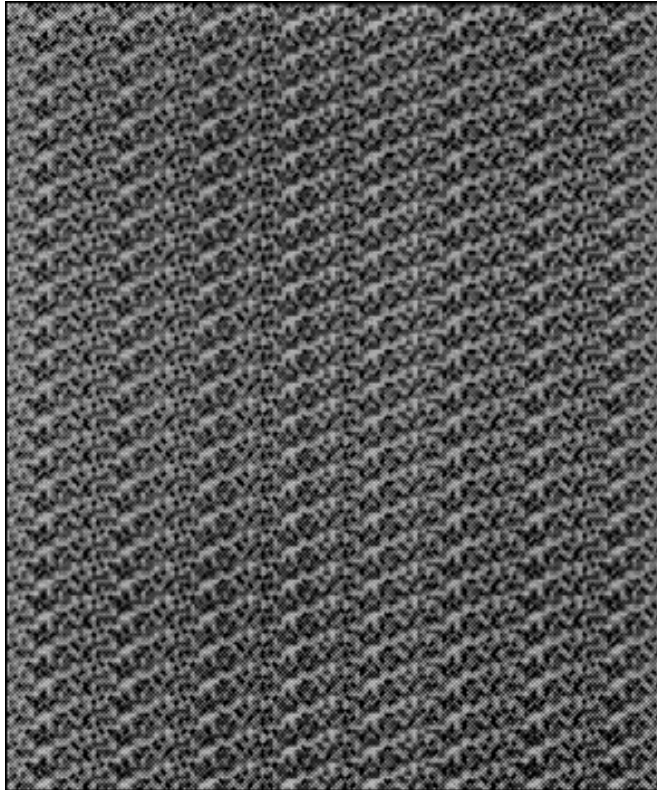
PP 75 7556 N/Lin.m.



**3.00 mm/str.
251.87 punch/cm²**

Needle Pattern PP 75

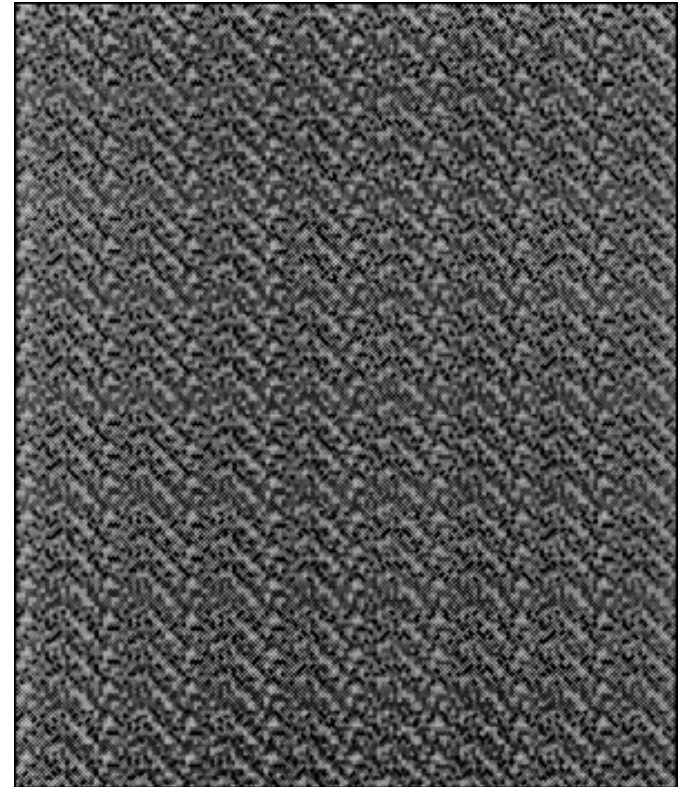
PP 75 7556 N/Lin.m.



**2.60mm/str.
290.62 punch/cm²**



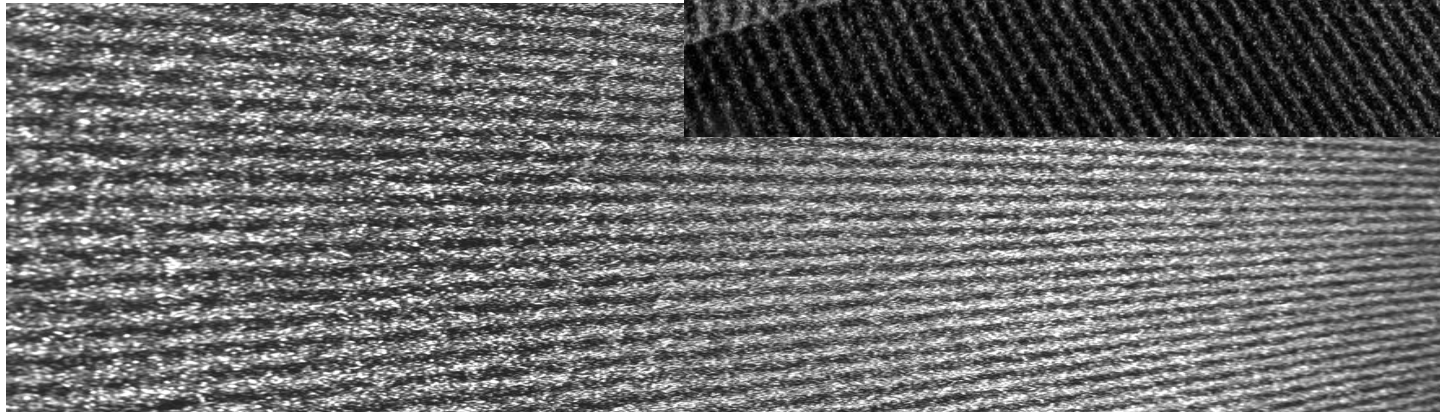
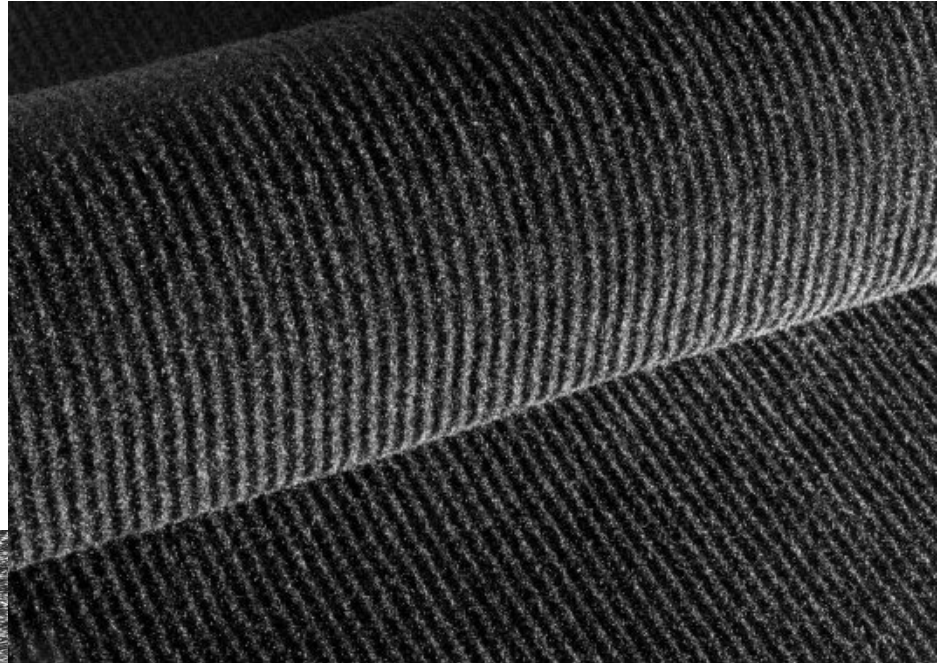
PP 75 7556 N/Lin.m.



**2.70 mm/str.
279.85 punch/cm²**

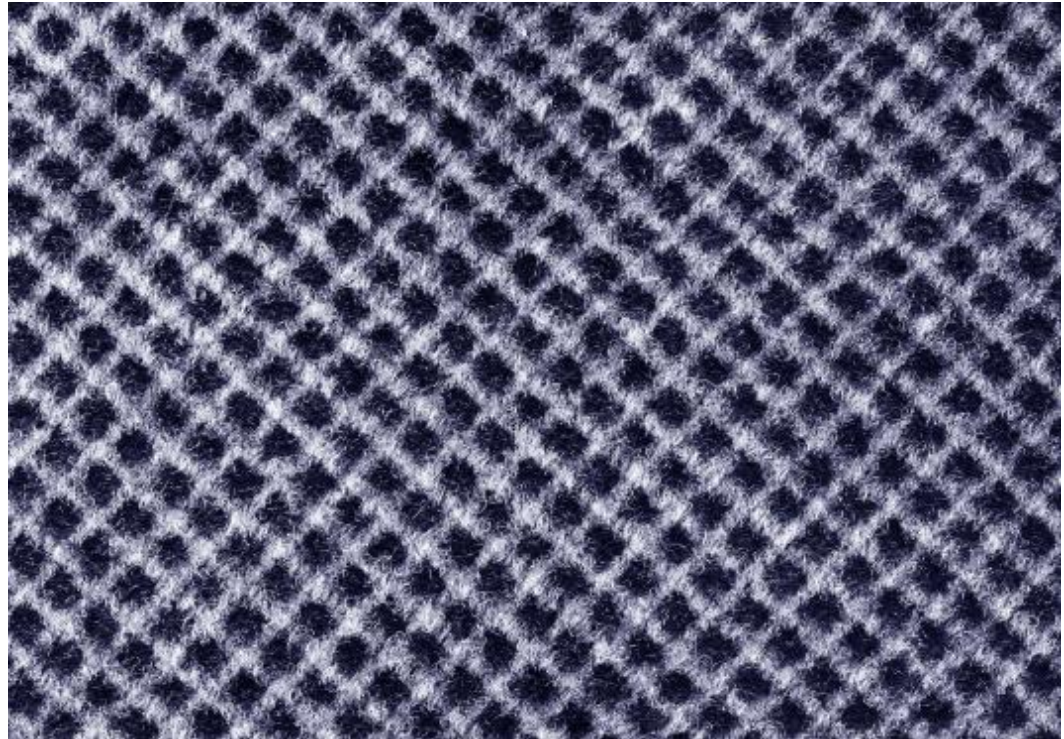
“Pitch Pattern”

- ▶ **Produced on NL 21/SRV**
“SUPERLOOPER”
- ▶ **Needle pattern PP 75**



Rhombic Velour Design for Automotive Carpeting

- ▶ **To create the rhombic effect, the velour goes in TWO passes through ONE machine.**



Neumag Carding Competence Center in Linz



Thank you for your attention!