



Shearing to Perfection

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Shearing to perfection

Heusch Introduction



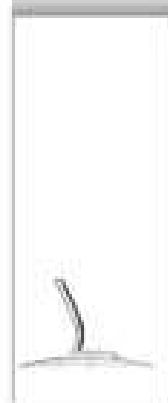
1850

ESTABLISHMENT
OF INDUSTRIAL
MANUFACTURE OF
TEXTILE KNIVES



1900

1ST COMPLETE
SHEARING UNIT



1903

INTRODUCTION OF
MODERN CONCRETE
SPALLS



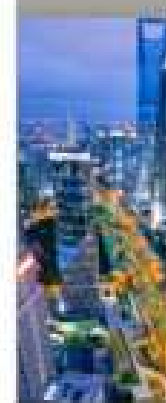
1975

INTRODUCTION
OF INDUCTIVE
HARDENING FOR
TEXTILE SPALLS



1979

APPLICATION FOR
THE PATENT 'New
Shear Cat' FOR
TEXTILE SPALLS



1980

1ST ORDER FROM
CHINA



1982

1ST FULL HARDENED
LEDGER BLADE

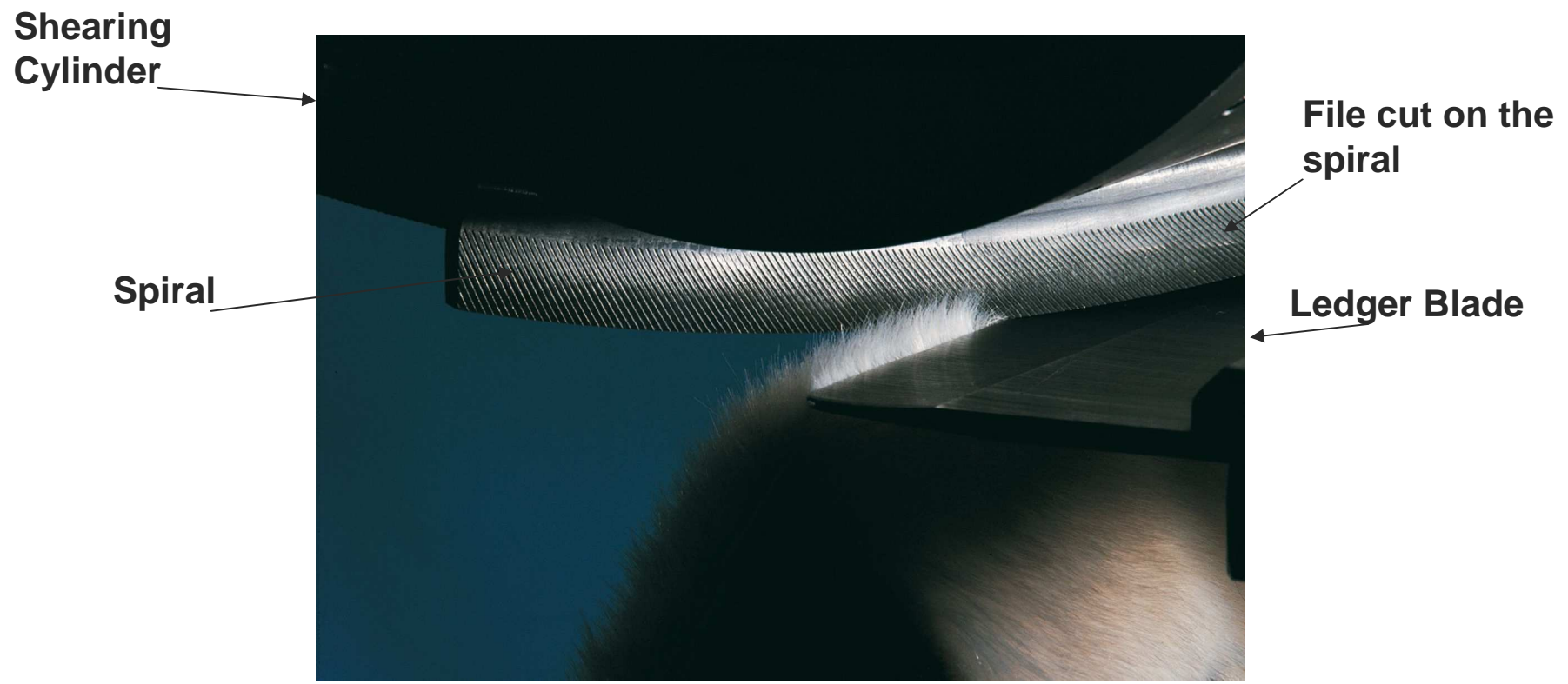


1994

1ST POLYWAN
LEDGER BLADE

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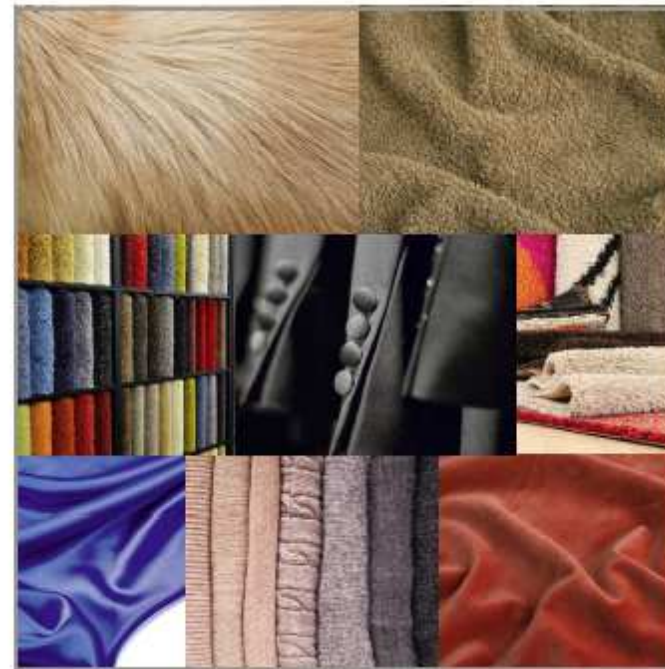
How textiles are shorn



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What type of textile are suited for shearing?

- Carpets
- Upholstery fabric
- Terry towels
- Dress fabrics
- Blankets
- Fleeces
- Car flooring and panelling
- Embroidery
- Wool, worsted yarn
- Plush, handled plush
- Non-woven



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Reasons for Shearing

- Cleaning
- Color intensity
- Surface texture
- Loop opening (e.g. terry towel, carpet)
- Embroidery threads cut-off
- Planing of surface



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Fibre types for Shearing

- Natural Fibres
 - Wool, cotton, silk, sisal, coco-fibre, ...
- Synthetic Fibres
 - Carbon
 - Polyamide
 - Polyester
 - Polyacrylics
 - Spandex



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Shearing results are defined by:

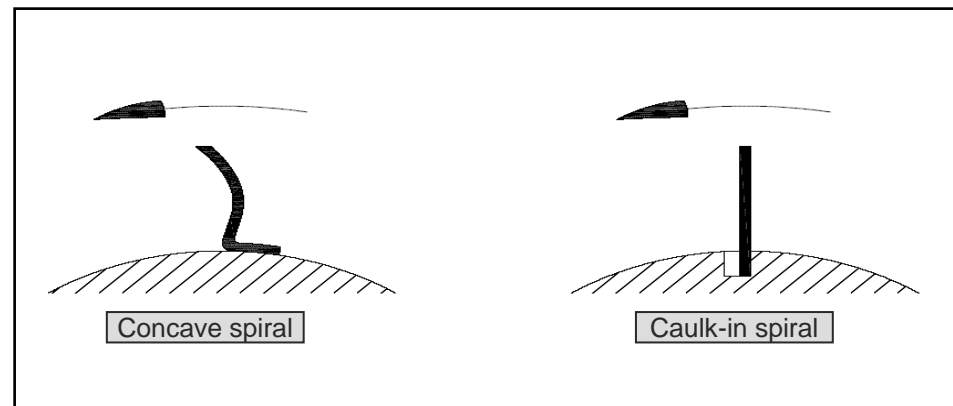
- Mounting of the spiral on the shearing cylinder
- File cut on the spiral
- Type of ledger blade used – perfect results only when using Heusch spirals and ledger blades in combination
- Sharpness & condition of spirals and ledger blades
- Adjustment of shearing unit and shearing table
- Speed of fabric
- Pre-treatment of fabric (brushing, pole rotor)



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Type of shearing spirals

- With or without file cut (e.g. embroidery)
- Concave design of the spiral guarantees always perfect shearing angle for best shearing result
 - **1.5mm** width
 - **2.0mm** width
- Caulked spirals
 - 2.1mm width
 - 2.5mm width



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Type of Mounting

- **Caulked-in spirals** (10 degree angle) (e.g. carpets, brushes, shredding,...)
 - Copper fixed in the grooves
 - Heavy cuts, dense fabric, special purpose
- **Screwed concave spirals** (+/- 25 degree angle) (e.g. carpets, micro fibre)
 - No side disk
 - Heavy cuts, dense fabric
- **Stretched concave spirals with some screws** (e.g. carpets)
 - With side disk
 - Single winding and pitch up to 1400mm
 - Heavy cuts
- **Stretched concave spirals** (e.g. cloth, cotton, velvet)
 - Only side disk
 - Multiple winding and short pitch <1000mm

NEW!



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File cut on the spiral

Fabric to be shorn	Cuts per cm* (depending on type of fibre, fibre density, machine settings)	Number of file cuts
worsted yarn, wool	24	18
embroidery	6-8	13 or 0
napless fabrics	6	13 or 0
plush	24	15
handle plush (aka nicki)	24	13
fleece	24	13
blankets	12	13
carpets	20	9 or 11
non-woven	30	13

*
$$\frac{\text{\# of spirals} \times \text{cylinder rpm}}{\text{fabric speed}}$$

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Ledger Blades

- **HL – High Performance**
 - High alloyed tool steel
 - Hardness up to 57 HRC
 - For low-abrasive fabrics (e.g. wool, cotton)
- **H4 – Maximum Performance**
 - High alloyed chromium steel
 - Hardness up to 62 HRC
 - For medium-abrasive fabrics (e.g. Nylon)
- **Polymant – Extreme Output - Challenger**
 - Powder metallurgy high speed steel
 - Hardness up to 62 HRC – outstanding operation lifetime
 - For high-abrasive fabrics (e.g. Carbon, Polyester)



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Maintenance and Service

- Shearing machines and cylinders are exposed to wear and tear
- Both have to be checked and controlled regularly to ensure best shearing results
 - Check-up on bearings and journals
 - Balancing and true-running
 - Centering of cylinder and shearing table
 - Re-sharpening of spirals
- Heusch offers these services either on your shop-floor or parts can be sent in for repair of preventive services
- Reduce unplanned downtimes and ensure best shearing results



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Management Summary

- There is no „One size fits all“ approach to shearing
- To get the required shearing result the supplier should suggest the best solution
- Heusch provides 168 combinations of mounting types (4), file cuts (7), ledger blades (3) and width (2)
- Including cylinder length, pitch and number of spiral on the cylinder Heusch can provide a nearly infinite number of combinations
- Only Heusch can provide the best shearing solution!

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Thank You!