Your roller **expert**

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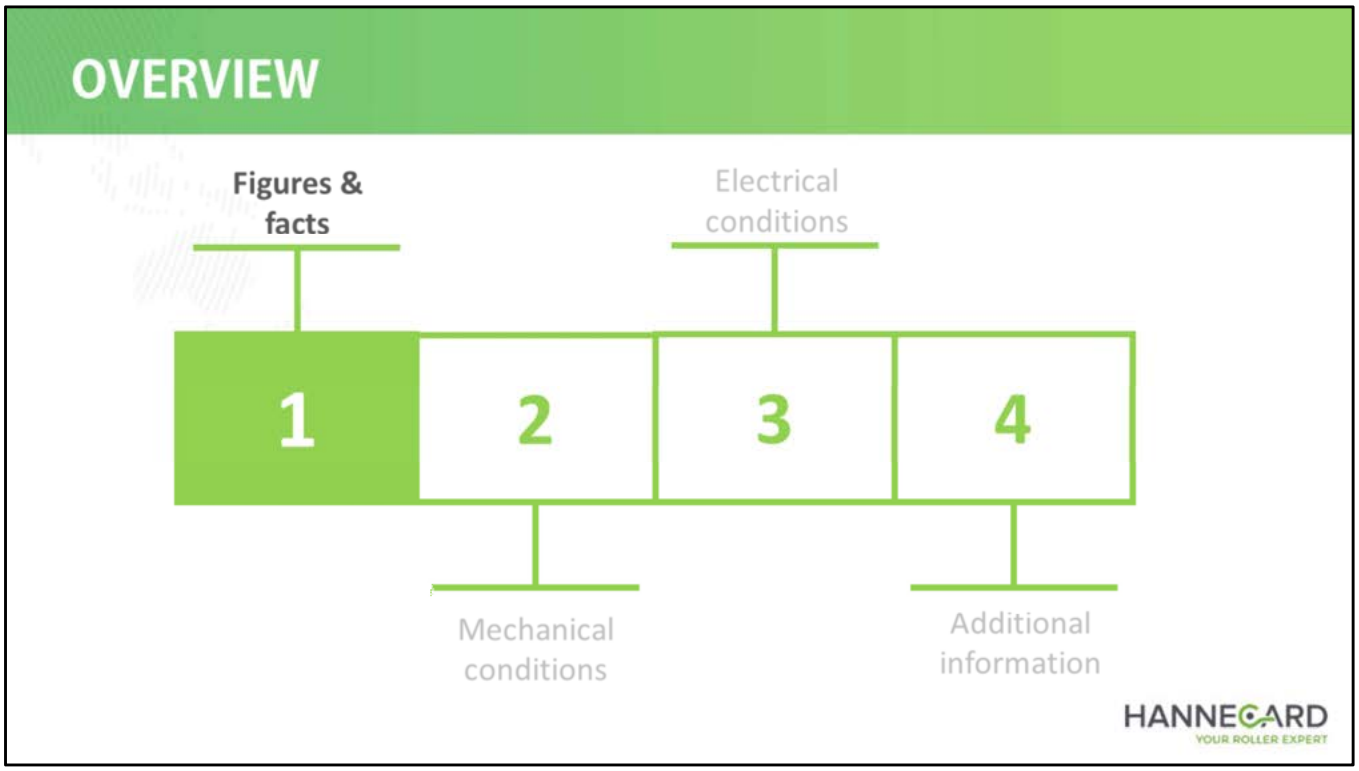
Coverings of Pressure rollers and Sleeves used in Gravure play a critical role in the final quality of your print job.
They are often considered as a consummable product.

The most successful printers consider the roll covering as an **asset**. This is one of the reasons of their leadership.



These are the 4 sections of this presentation where the goal is to give you tips and tricks to get more from your pressure rollers and/or sleeves

Today Hannecard is big like this.

It makes us probably the **World Leader** in general applications covering companies.

We are present in all area where roll covering are involved.

We are **both** organically growing and by aquisitions

SOME FIGURES

- Established in 1896 (**123 years**)
- +50 years experience in **Gravure Printing**
- +30 years experience in **ESA** Gravure Printing
- +300 **customers** in Gravure Printing
- 4-5% of turnover reinvested continuously in R&D

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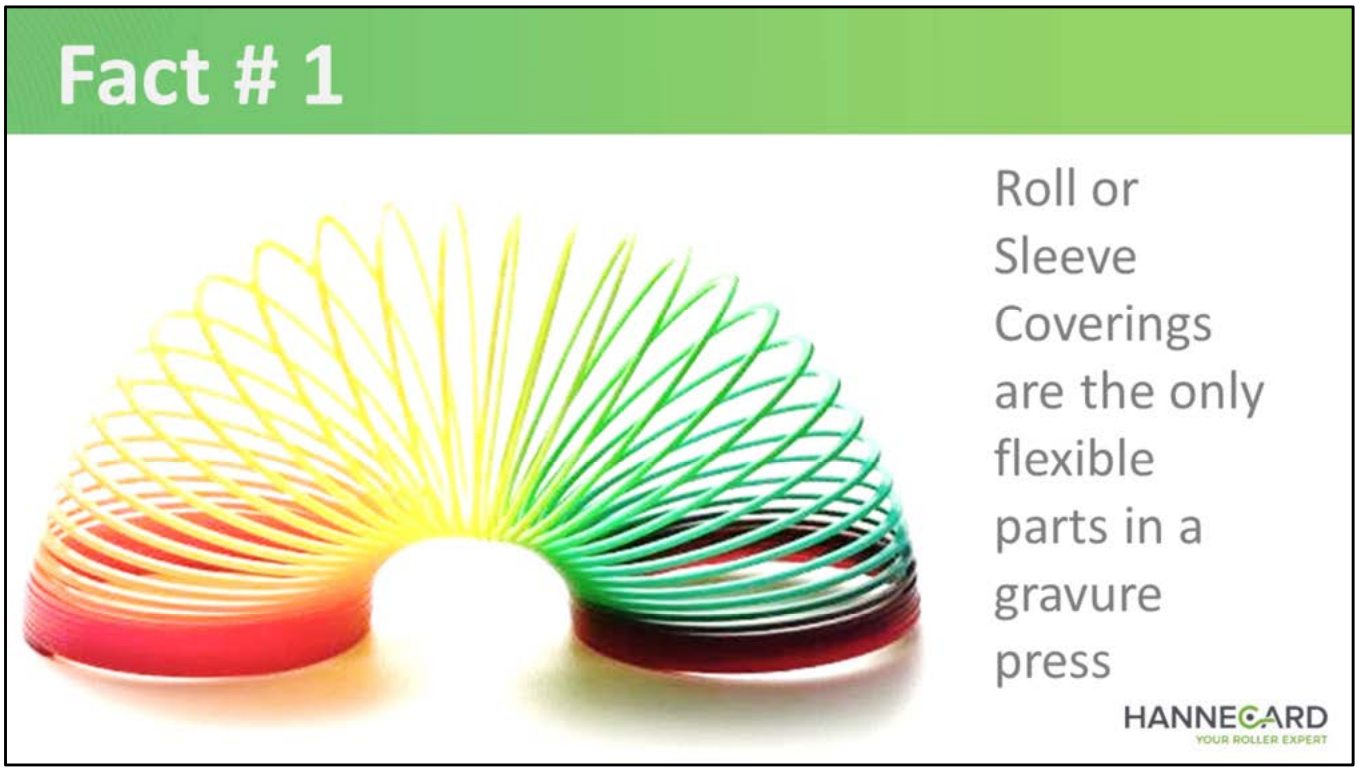
With regards to Gravure printing it gives this experience and will to increase our market share by offering the best possible **both ESA and NON-ESA coverings**.

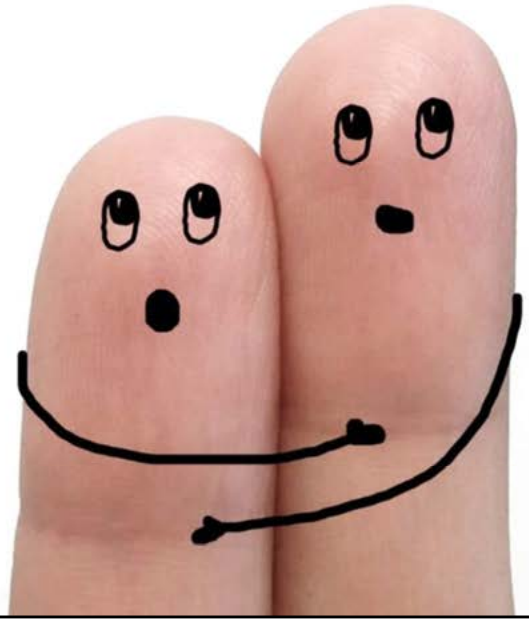


Which means all vibrations, or irregularity working of the machine will go through the coverings.

It happens that the covering reacts as a fuse. Then the fuse is often considered like being the problem….
In electricity we would consider the electric circuit to be the problem.

Fact # 2

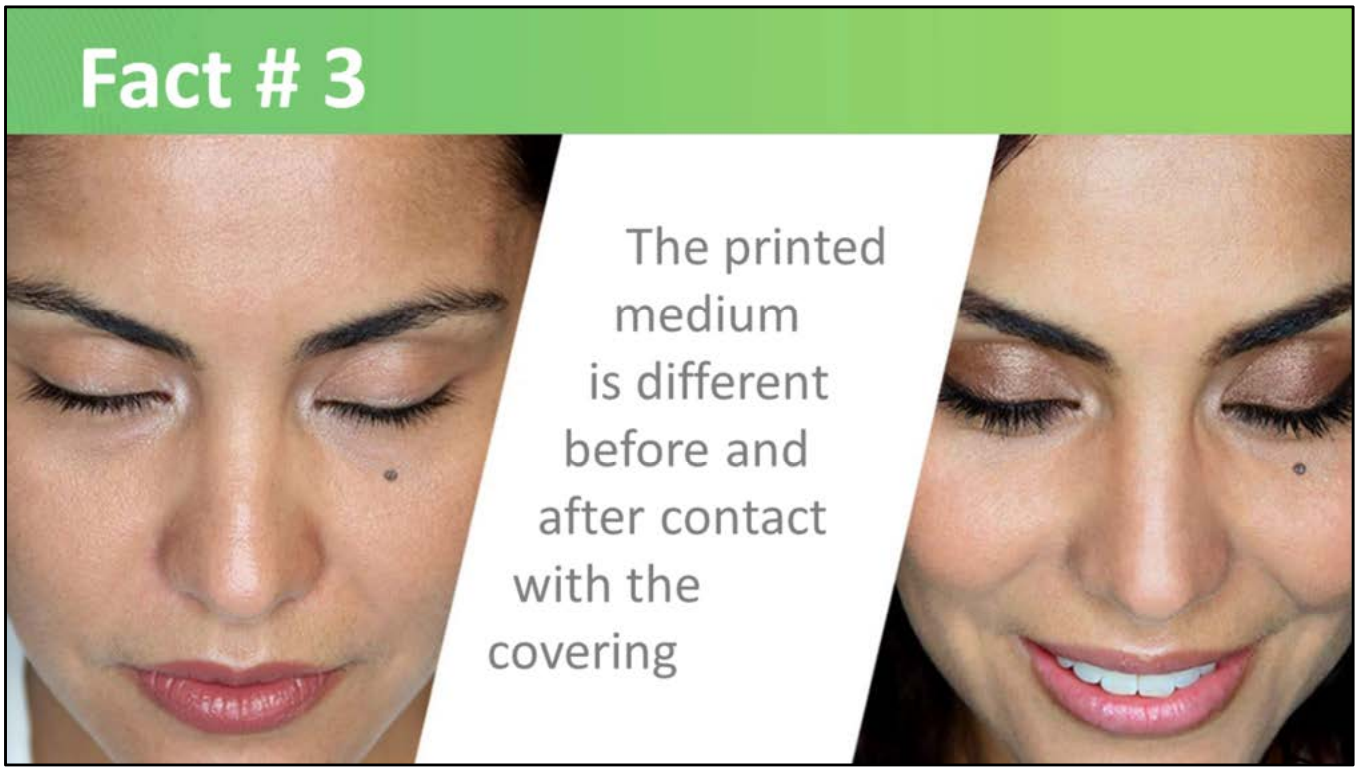
Coverings are in contact with the printed medium



They have to be friends but not to damage each other :

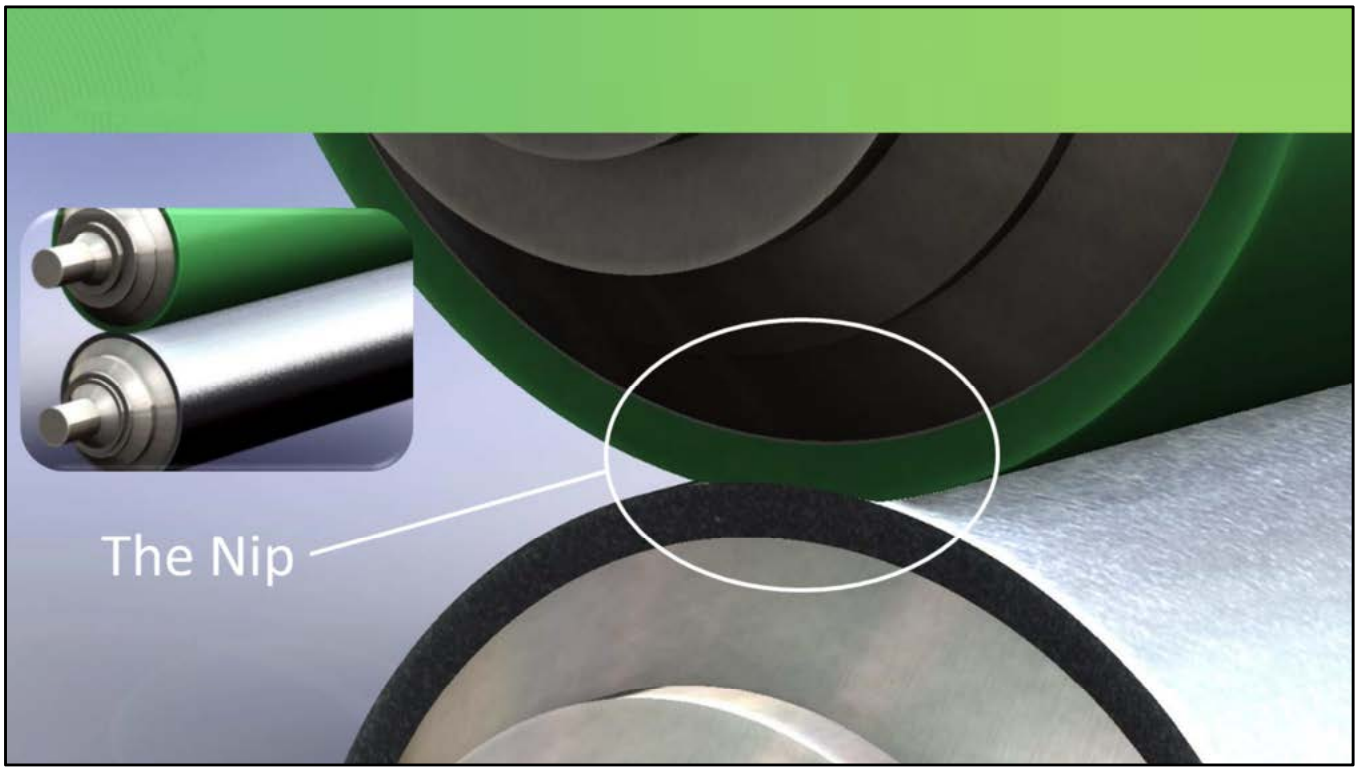
- A surface could scratch the printed medium
- A surface can become sticky

To avoid above all is that the covering is releasing some abrasion powder to the printed medium



After each station in the press, or each contact with pressure roller you get your printed media modified.

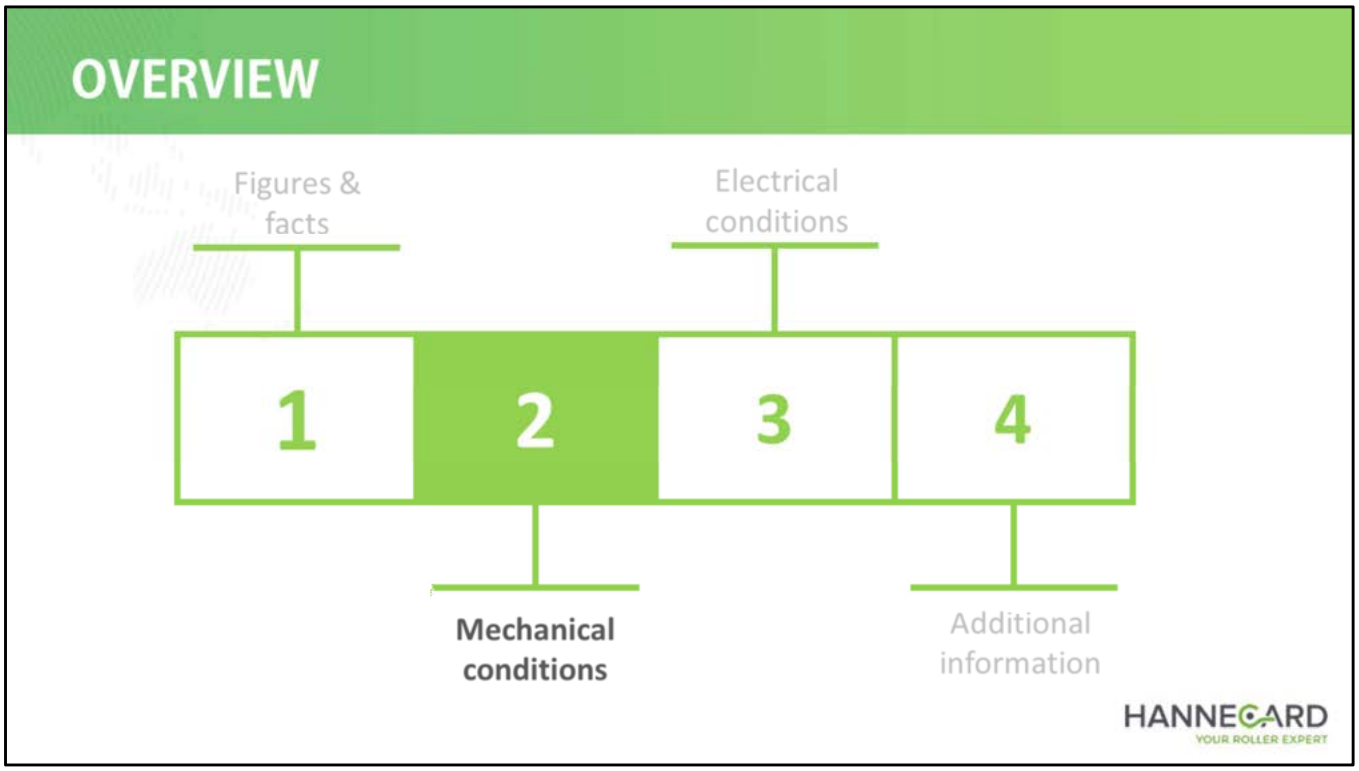
May I ask a much more simple question : «*why do you use covered pressure rollers or sleeves in your gravure printing machines*»



This is what you buy ; THE NIP.

This contact zone makes the job.
It has to remain the same revolution after revolution.

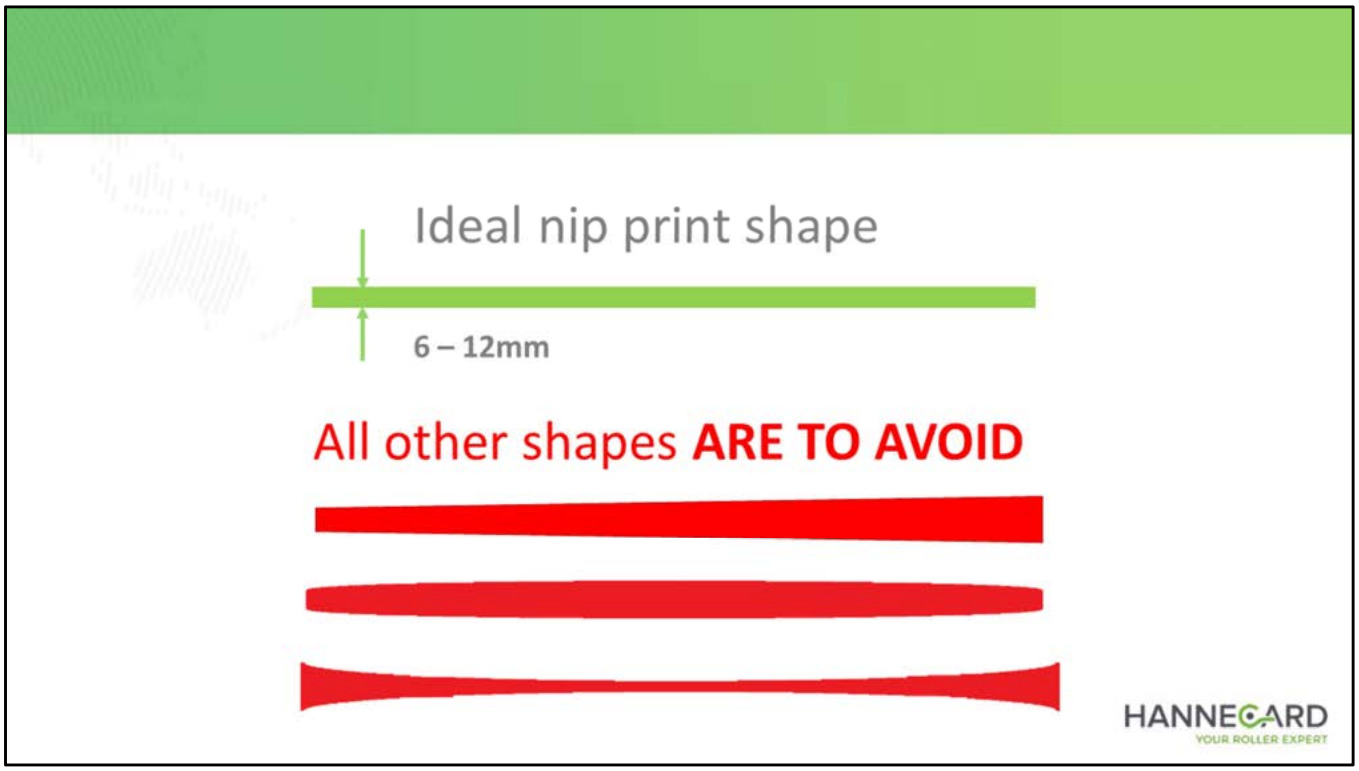
We come back to this point later



After the Figures and Facts we need to dig a little bit more in details

As entrance control you can measure the hardness quite easily. It is not enough.

2 balls same hardness = different behaviors



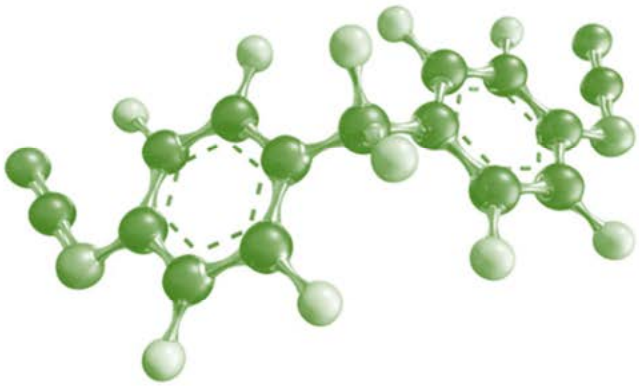
How often do you control this point?

You can do that with carbon paper or with sensors.

Signification of the shapes to avoid

- Misalignment of the press : check the guides, pneumatic cylinders, mechanical cantilever, etc….
- Too much pressure in the middle : surface needs probably a grinding. As the pressure is given by the sides the surface deforms and becomes crowned
- Too much pressure at the sides : the roller or the supporting mandrel is bending. Do you need such pressure ? If yes some suppliers have low deflection solutions.

PUR coverings have the best resistance against **repeated deformations**



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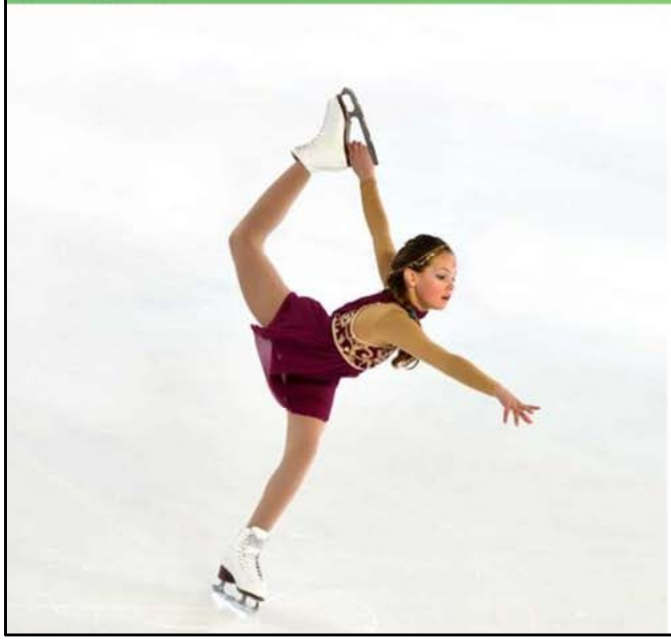
Polyurethane is more than 2 times resistant to repeated deformations. And this is what you do with coverings from Ø140 to Ø180mm in 97% of the cases at 200 to 500 metre per minute.



Surface quality = quality of final product

New coverings are delivered :
- N7 (Swiss norm)
- Ra 0.8 to 1.5µm (ISO)
- Rz 3.2 to 6.2 µm (DIN)

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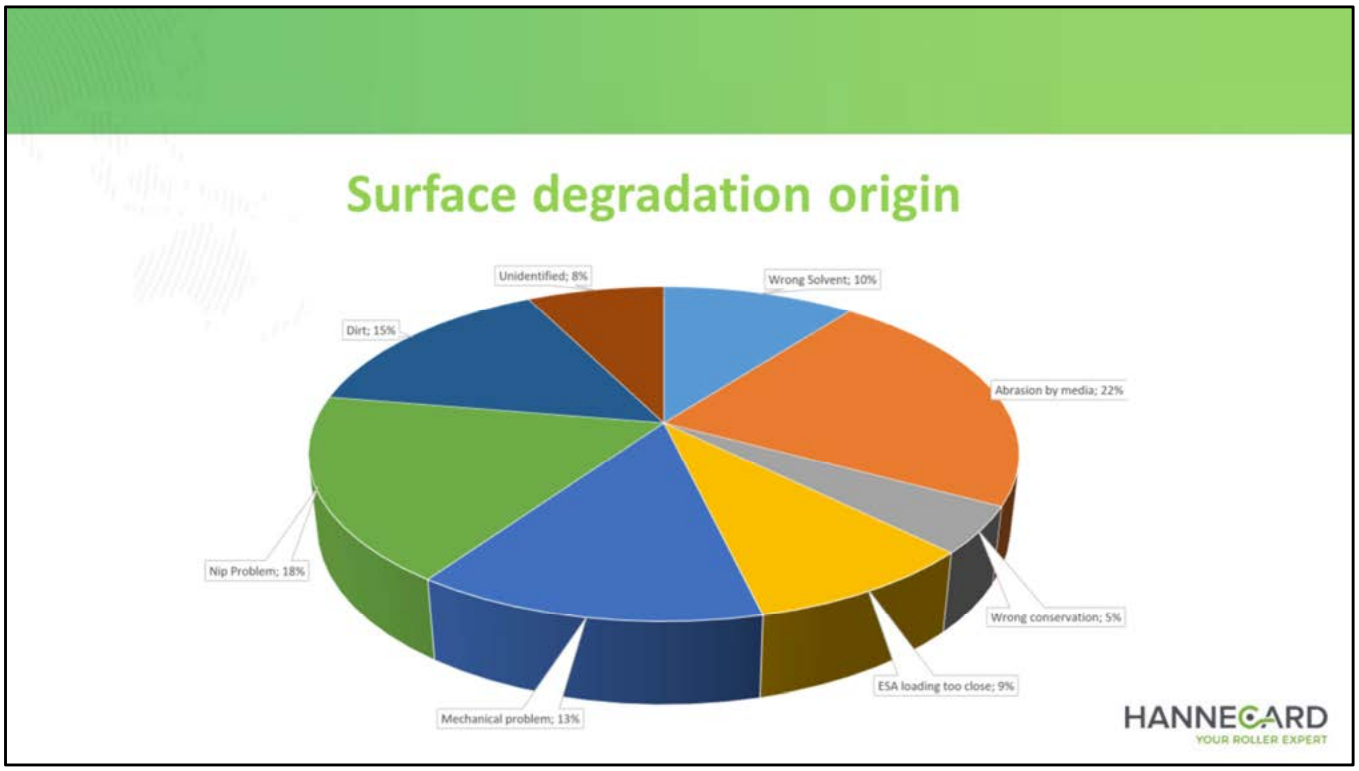
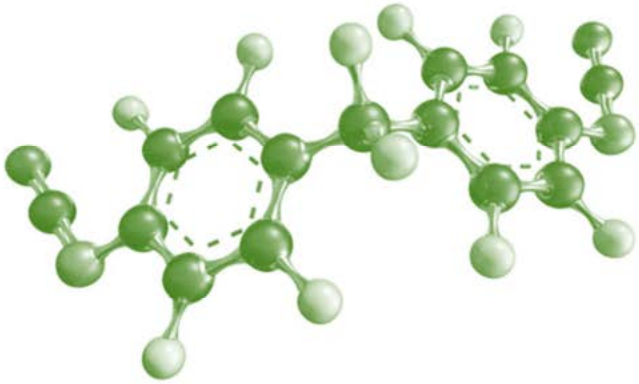
We already talked about surface.
This is what we deliver : Smooth but rough enough to drive the medium.



Choosing right avoids a lot of troubles.
There are some points where it is not in the hands of the covering supplier.
Mechanical troubles are more than the half of the troubles.

PUR coverings
have the best
resistance
against
abrasion and cuts



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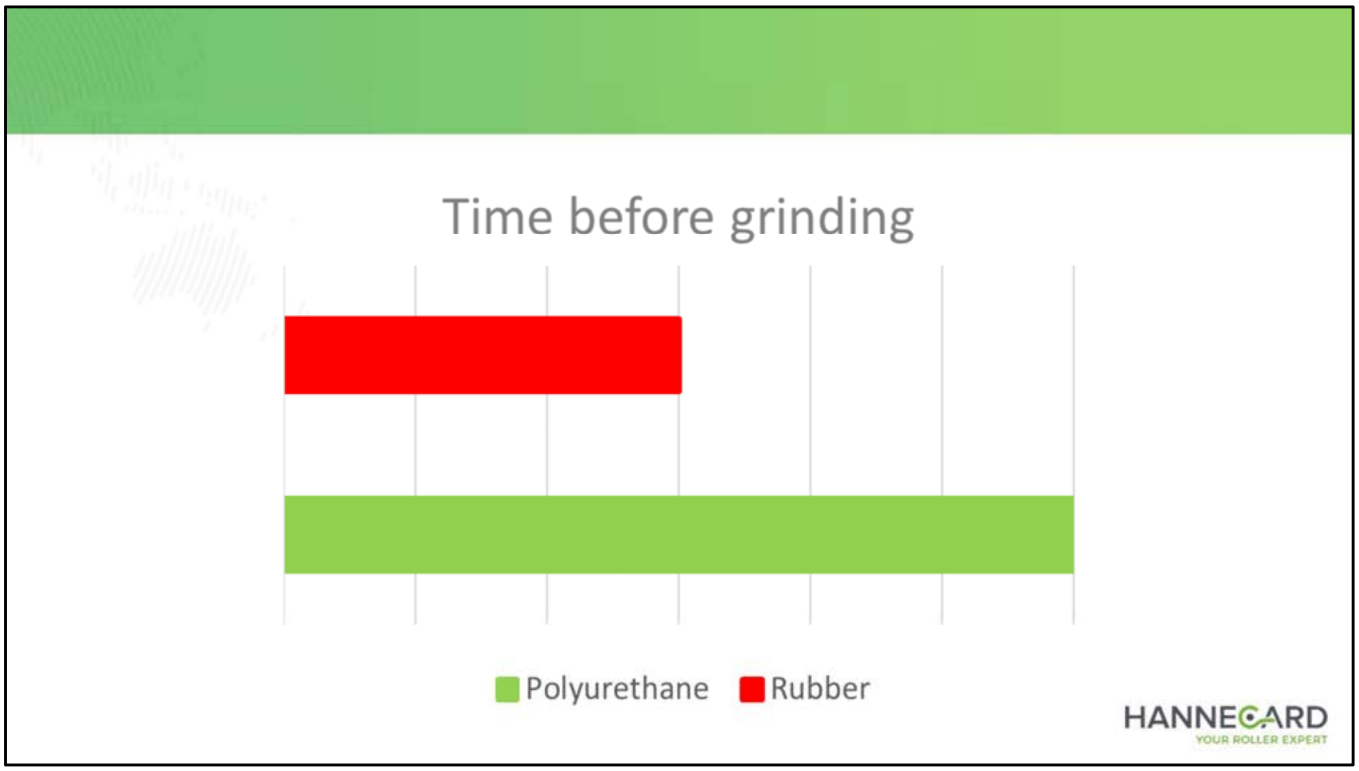
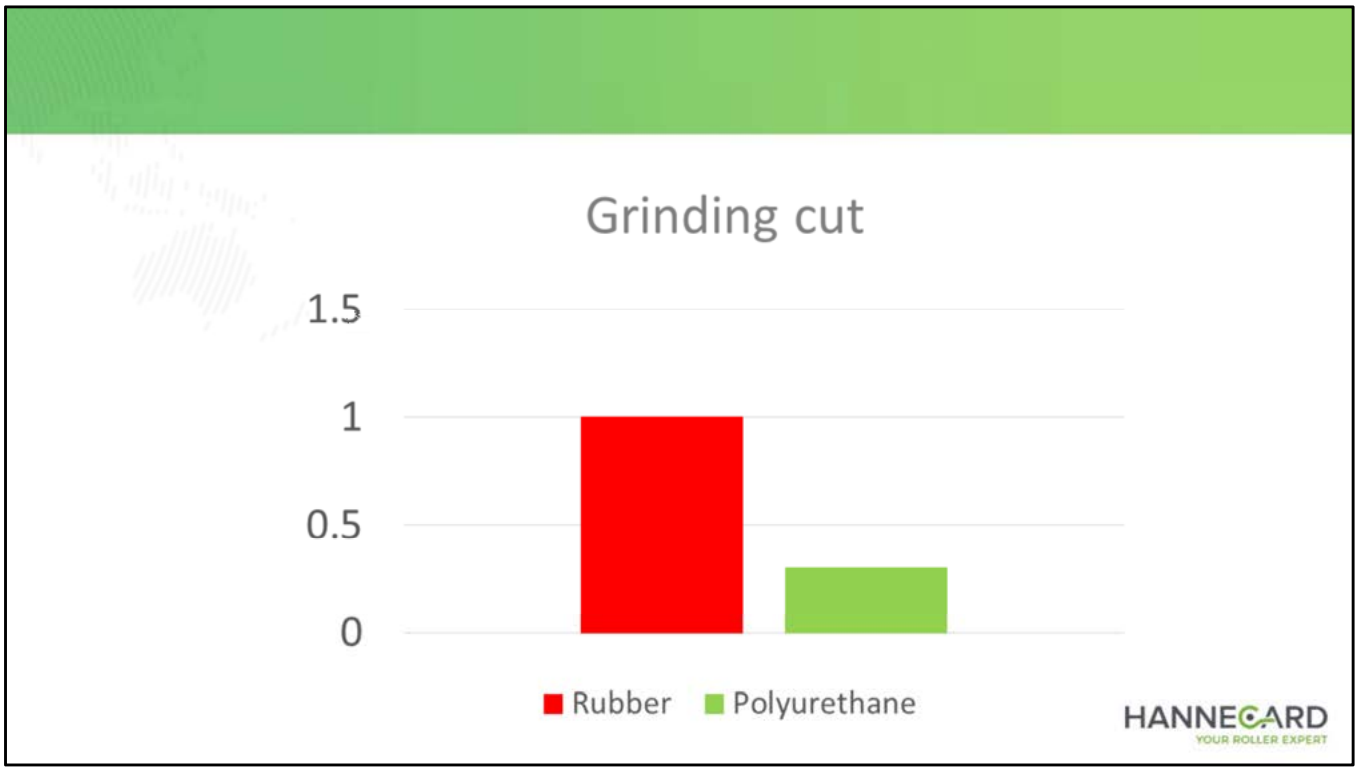
Polyurethane is the solution which offers to reduce the mechanical problems.



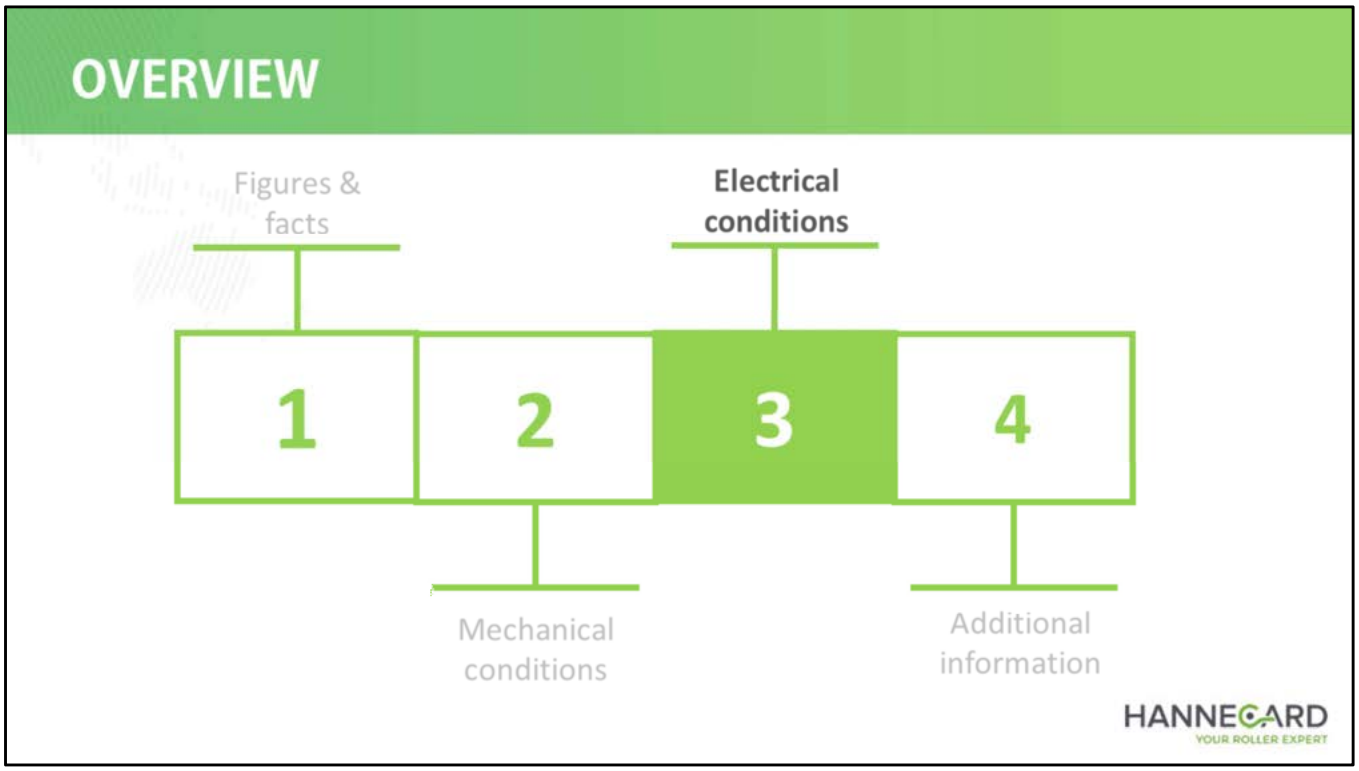
The reasons for regrindings are :

- Mechanical damages
- Increase of resistivity

Thanks to its mechanical resistance PUR will last at least 2 times longer than rubber before grinding

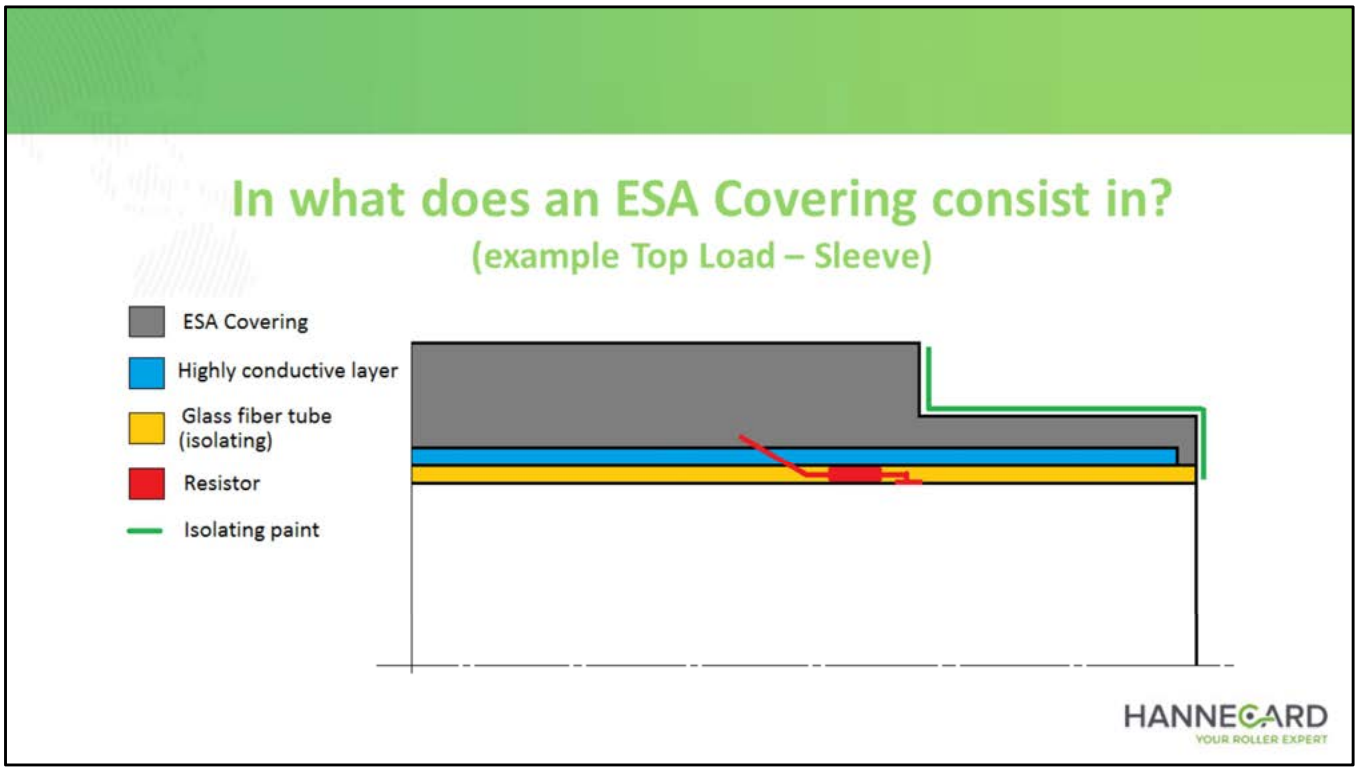


To get back the same surface, when you have to grind 1mm to rubber you only need to take 0.3mm to PUR.
The damages by cuts, deformation… go far less deep with PUR compared to rubber (mechanical resistance)
At the end it makes quite a difference in usage time



ESA and NON ESA are concerned by this point.

This is what you need to avoid for safe operation.



The part of the roller coverings or sleeve coverings partner is to produce something which ensures safe operations.

3 layer construction:

- Semi conductive layer : the one that is charged by ESA top Load
- Highly conductive layer : this has as role to spread the electrostatic charge in all the covering and keep it even.
- Isolating layer : separate the charge from the rest of the machine. In this layer we have a resistor. This resistor discharges above a certain level the excess of current to avoid sparkles.

The green paint : **EPOXY Isolating <u>Paint</u>** is there to avoid charges in non working zones/areas

Surface resistance

The semi conductive covering has to keep enough charge in to allow the attraction of the ink

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The ESA principle is to bring a certain electro static charge to the surface.
This charge will attract the ink from the cells of the engraved cylinder.

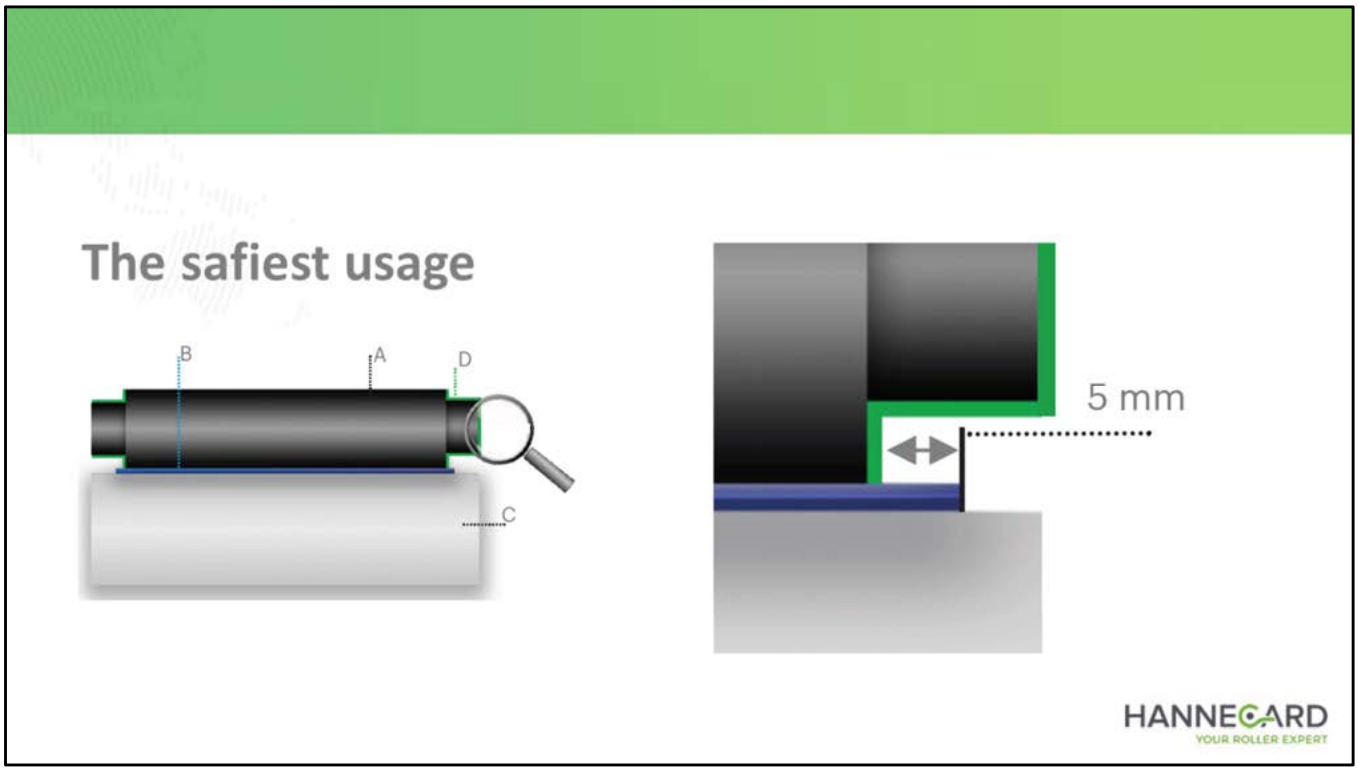
Here as another example for rollers.

This resistor is a safety device

Deformation, cleaning solvents, dust of printed medium.

This has to be controlled for safety and quality operations.

Each ESA supplier has different recommendations.
If it works with Eltex, it will not necessarily work with Enulec or Spengler. And vice versa.

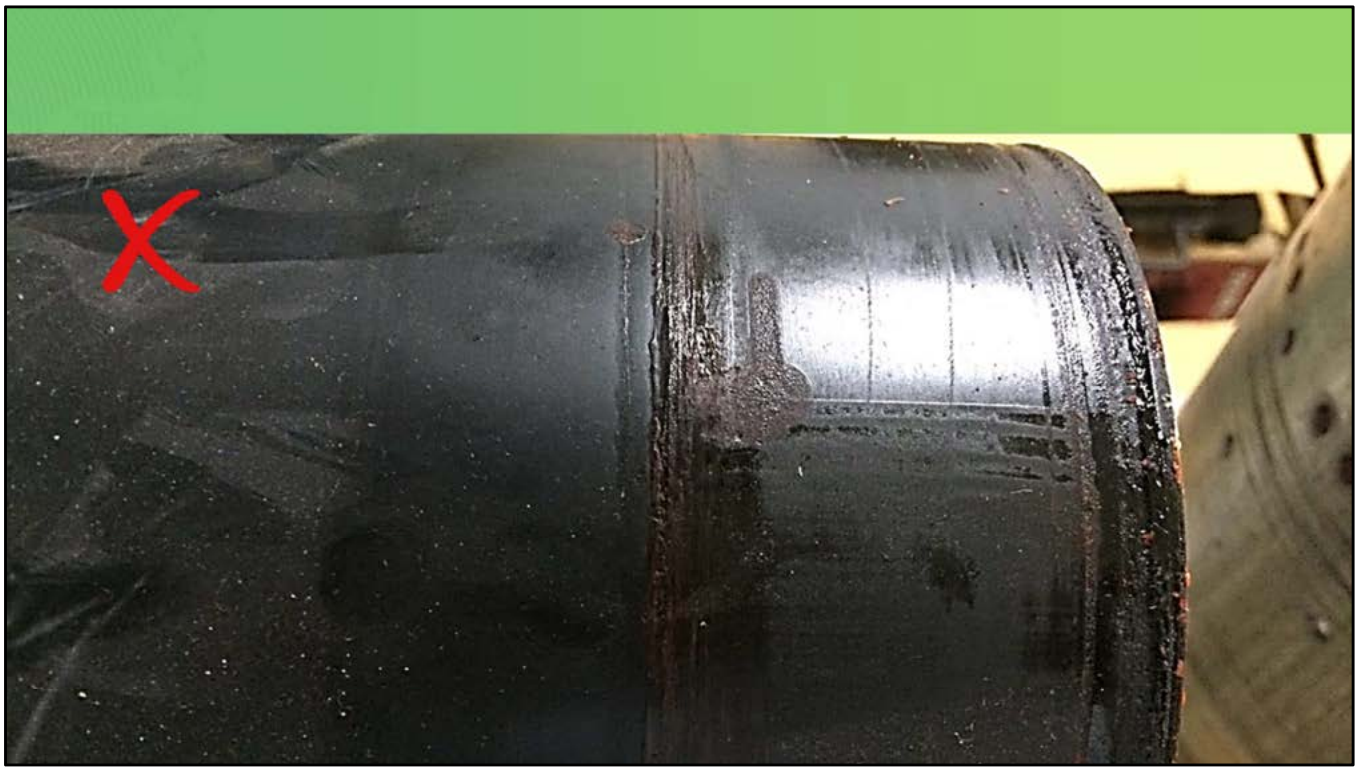


Here is the safiest configuration.

- Only the working with is charged and only in contact with the printed media.
The excess of charge is only dissipated through the resistaor we talked about.

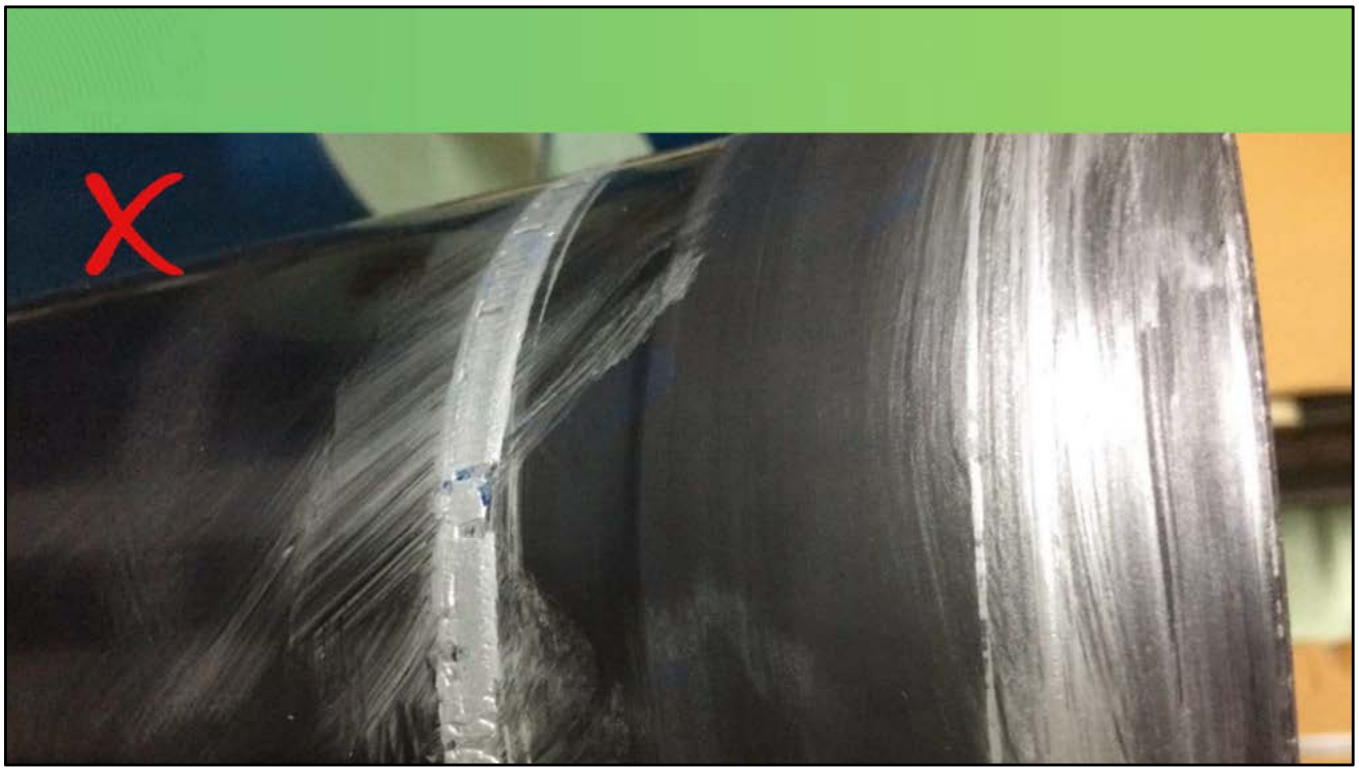
Should you have longer contact between engraved cylinder and covering :
- Short circuit: Electricity goes the quicker way.
- Cleaning complicated

Example 1 :
Sleeve longer than the working width :
- Pollution = cleaning
- Build up = small space = good chances to get a sparkle



Example 2 :
Picture taken in Europe in a big company.
I always ask to visit the stock. Here you learn a lot.

Lack of cleaning = risks of small spaces = chances for sparkles
+ What if we decide to print longerthan the marks here?



Example 3

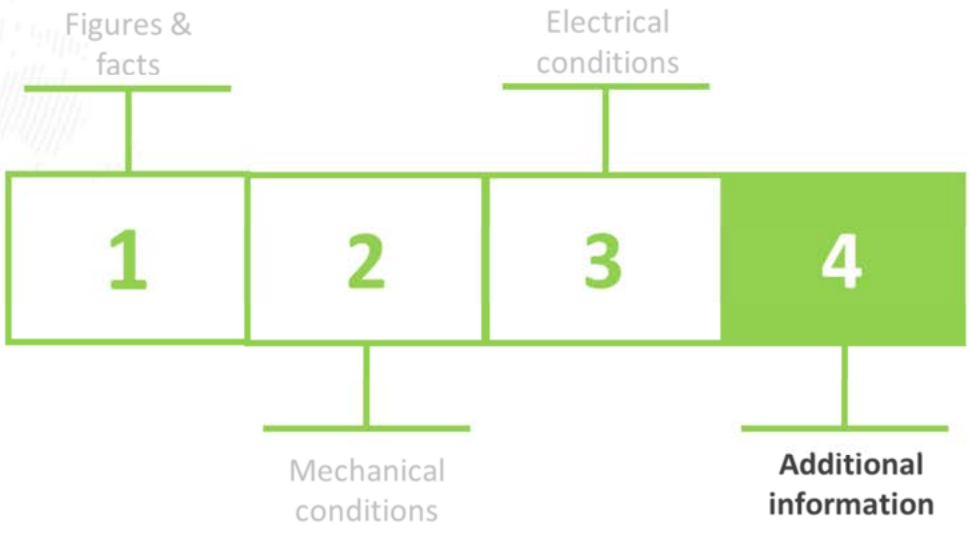
Also taken in Europe in a big company.

2 jobs with silver color = metallic.
1 Job of blue = ESA?

I have seen a lot of stocks at customers

Under a metallic roof in Vietnam where outside it was 38°C
Under a roof but no walls in Russia where outside in winter it is around -26°C

OVERVIEW



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We keep our process secret.
We don’t show to any customer.

It is based on Nano-Particles of carbon.

Nano = 10 power -9 metres = > If we say that earth is 1m diameter = a tennis ball

Interesting product :
- Mechanical reinforcment
- No weight = easy to mix with Polyurethane
- No volume = works in all direction constantly = excellent hysteresis = electrical stability

Sector	Non ESA	ESA (*)	Hardness	Covering on
Decor Printing	HanneVision AS	HanneVision	90 Shore A	Rollers, sleeves & Nipco
Flexible Packaging	HanneCrystal AS	HanneCrystal	70, 80 & 90 Shore A	Rollers & Sleeves
Cardboard Packaging	HannePearl AS	HannePearl	80 & 90 Shore A	Rollers & Sleeves

(*) Versions adapted to Top-Load and Direct Charge – compatible with all systems

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Decor = Water based

If I can answer to your questions now or later just ask.

Thank you
for your attention!

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