



# ***NOVUS-1200***

**THE FUTURE OF METAL PACKAGING**



## Metal packaging under scrutiny

### Incompatibility

- Migration, corrosion, porosity of laquers
- Food compatibility of laquers - regulations FDA / BGA

### Costs

- Raw materials (Tinplate, Laquer)
- Energy

### Image

- Competition against other packaging materials



## Metal packaging under scrutiny

### Incompatibility

- Migration, corrosion, porosity of laquers
- Food compatibility of laquers - regulations FDA / BGA

- „BADGE“ „BFDGE“ „NOGE“

Toxicological studies – alternative inside coating systems etc.

- IVLV research project - Subject „Laquer Immunity“

Porosity – Influence on corrosion stability

from the yearly report - technical committee - VMV 2003



## Metal packaging under scrutiny

### Costs

- Raw materials (Tinplate, Laquer)
- Energy
- **No control over steel prices**  
**Increased steel prices can not be always recharged to customers**
- **Laquer cost, especially it's handling cost, will increase due to the REACH - regulation and BImSchV (2007 Germany)**
- **Energy, especially gas cost, highly used in the coating and decorating process are today in a price spiral due to increased oil prices**



## Metal packaging under scrutiny

### Image

- **Competition against other packaging materials**
  - **Changes from traditional to so called modern packagings**
    - **Flexibles (e.g. pouches for pet food)**
    - **Compound packaging (Tetrapak, e.g. for vegetables)**
    - **PET - Bottles/Containers (re-closable)**
  - **Ecological balance - steel/plastic**



# Chances for the metal packaging

## Alternative materials

- Compound Materials - Tinplate / Film
- Polymer coated steel

## Alternative production principles

- Laminating
- Printing technologies for flexible plastics

## Image

- Modern for the consumer – attractive in design and price



## Chances for the metal packaging

### Alternative materials

- Compound Materials - Tinplate / Film
  - Polymer coated steel
- New Technologies / Products already on the market
- Shrink Sleeve for cans (worldwide)
  - ex-coil film laminated cans (Asia)
- Steel sheets co-extruded with polymers (Arcelor, Corus)
- Laminated with protection foil - PET or PP (Rasselstein)



# Chances for the metal packaging

## Alternative production principles

- Laminating
- Printing technologies for flexible plastics,
  - Laminating of metal sheets
    - with plain film
    - with pre-printed film
  - Flexo-, Gravure-, Offset Print for Film / Foil
  - Digital print for small jobs, individual designs etc.



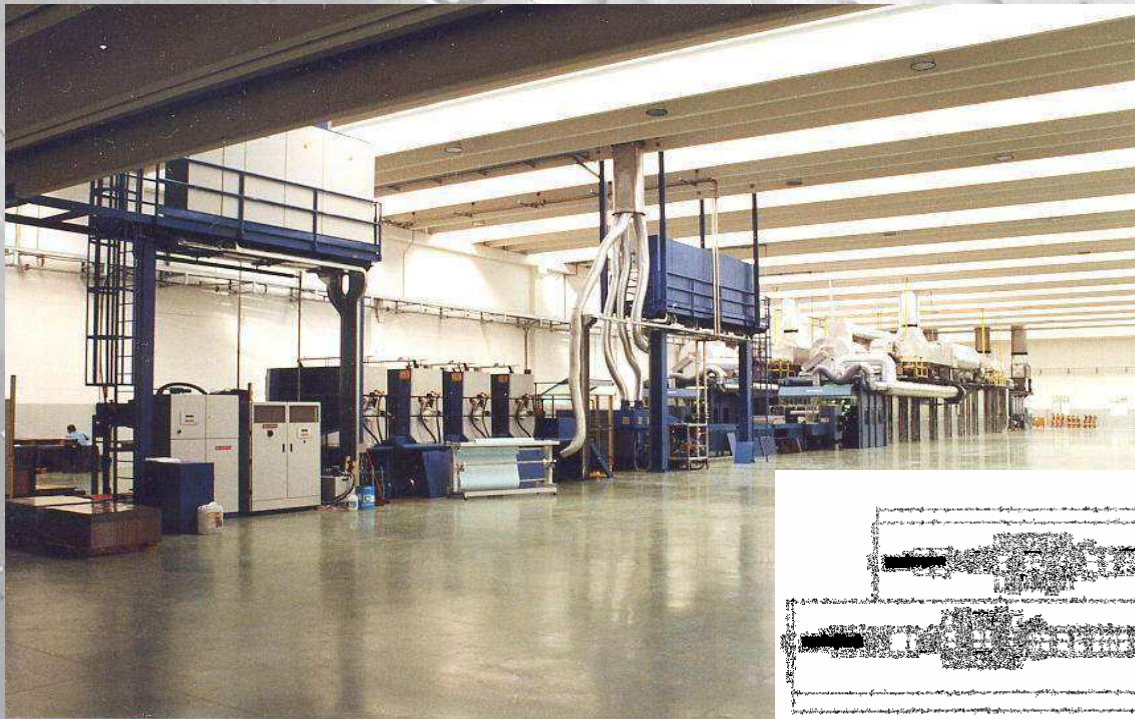
# Chances for the metal packaging

## Image

- **Modern for consumer – attractive in design and price**
- **Attractive in design**
  - intelligent packaging (e.g. tracking storage temperatures)**
  - RFID „communicative packaging“**
  - Copy prevention (hologram foils)**
  - Feel and shine of the surface**
- **Attractive in price**
  - through modern production technologies**

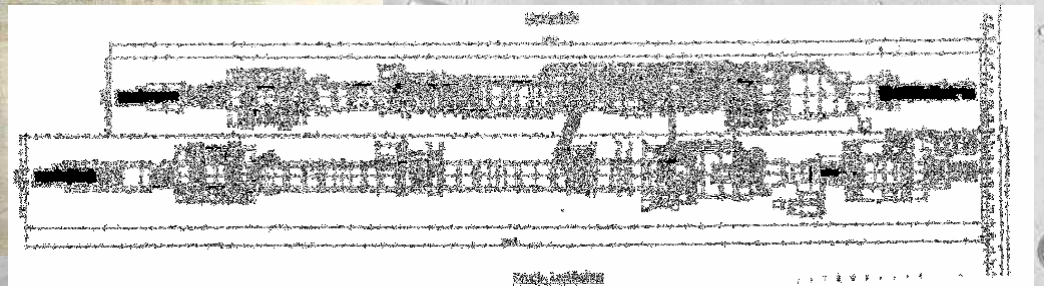


# Present - production of coated and printed metal sheets



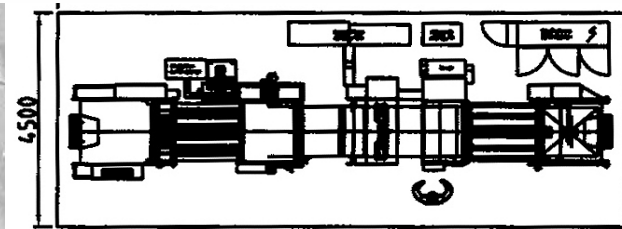
**1st pass**  
- Inside Coating

**2nd + 3rd (+4th) pass**  
- Outside base coating  
- Printing  
- Overvarnish





# Future - Production of coated and printed metal sheets



**1st pass**  
- Laminating inside film

**2nd pass**  
- Lamination of pre-printed film on the outside

**In the near future 1+2 will be possible in one pass. Today's lines can be retro-fitted.**



**1st pass  
Inside protection film**

**1st pass  
Inside coating**



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**Conventional**

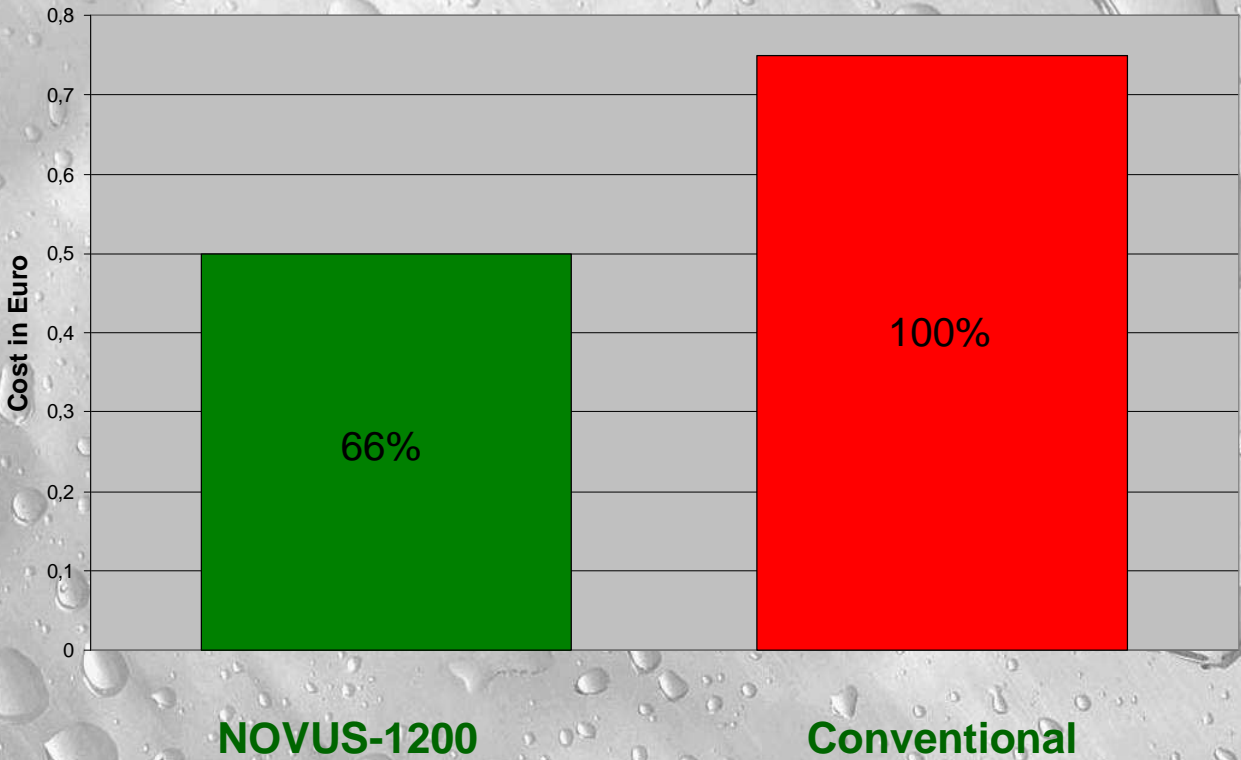


**2nd pass**

**Laminating pre-printed film on the outside for decoration and protection**

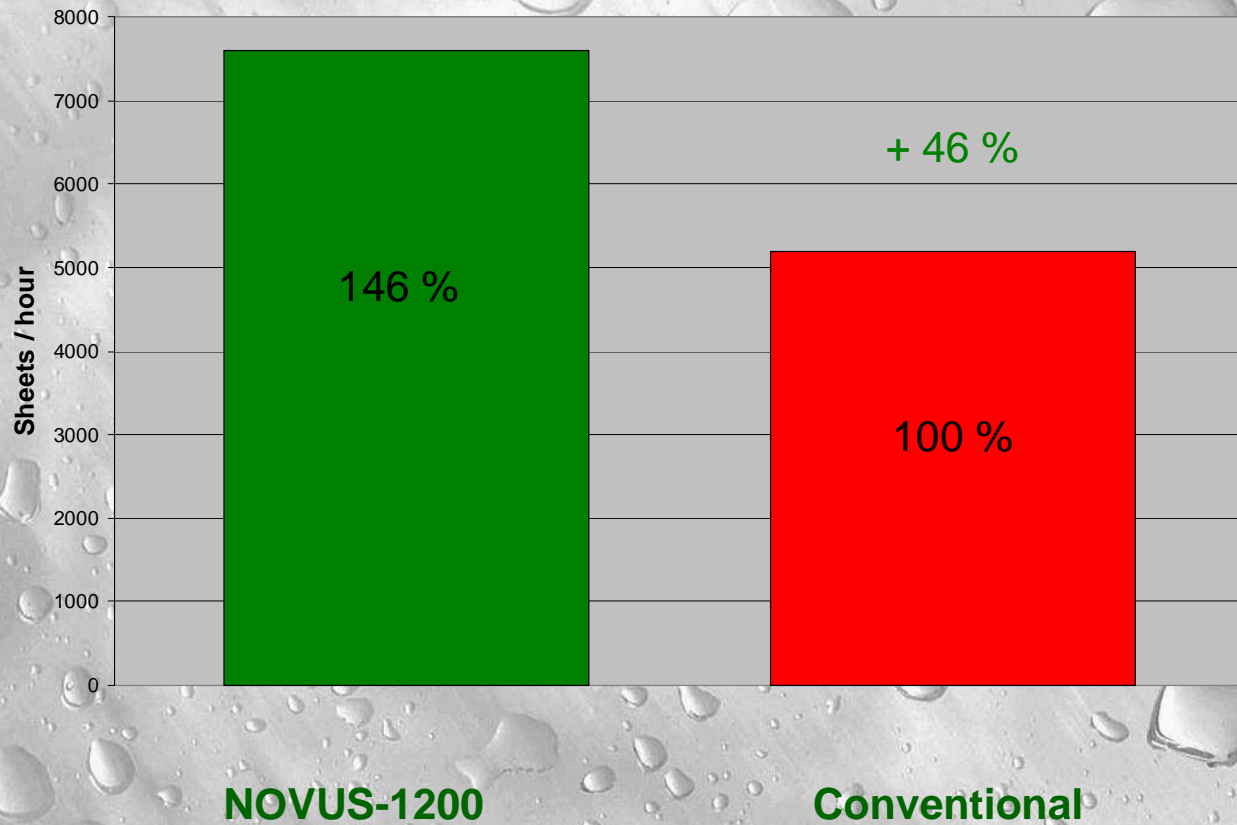
**2nd + 3rd Pass**

- Outside Base Coat
- Printing
- Overvarnish



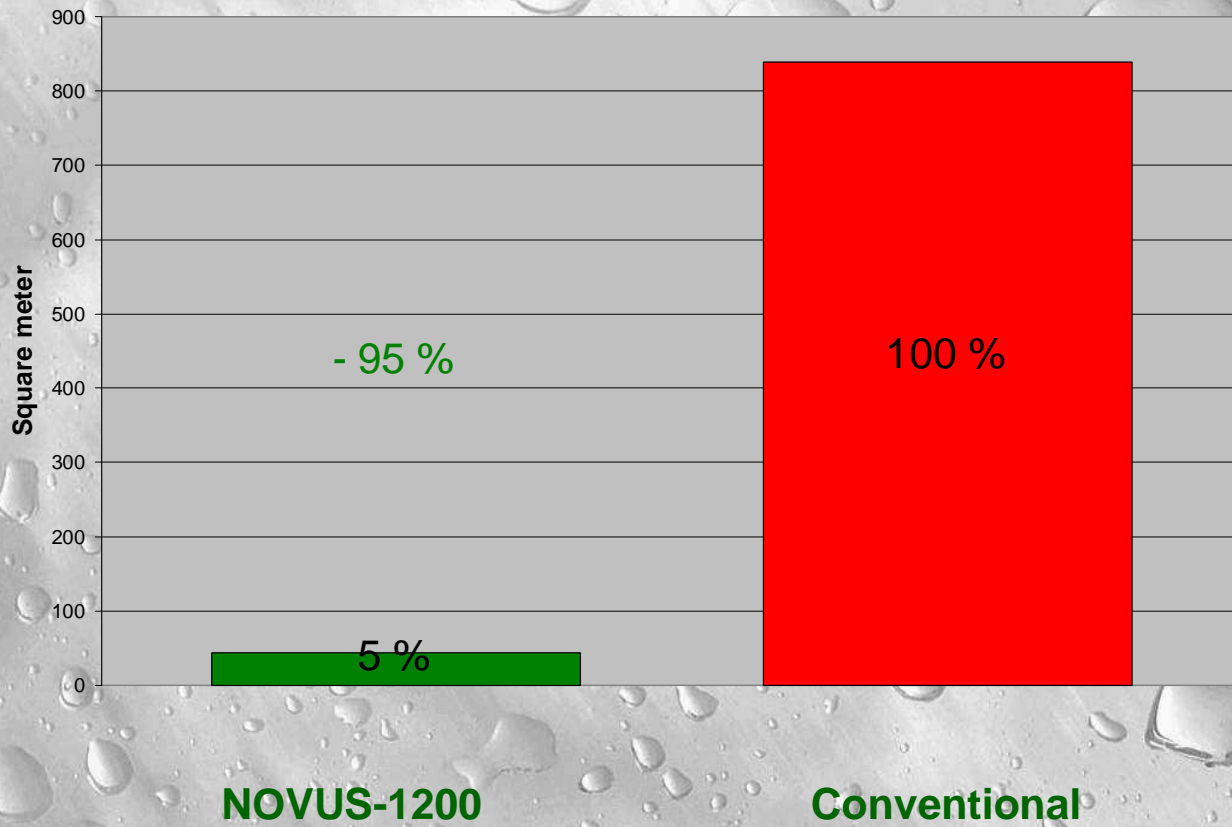


### Net Output



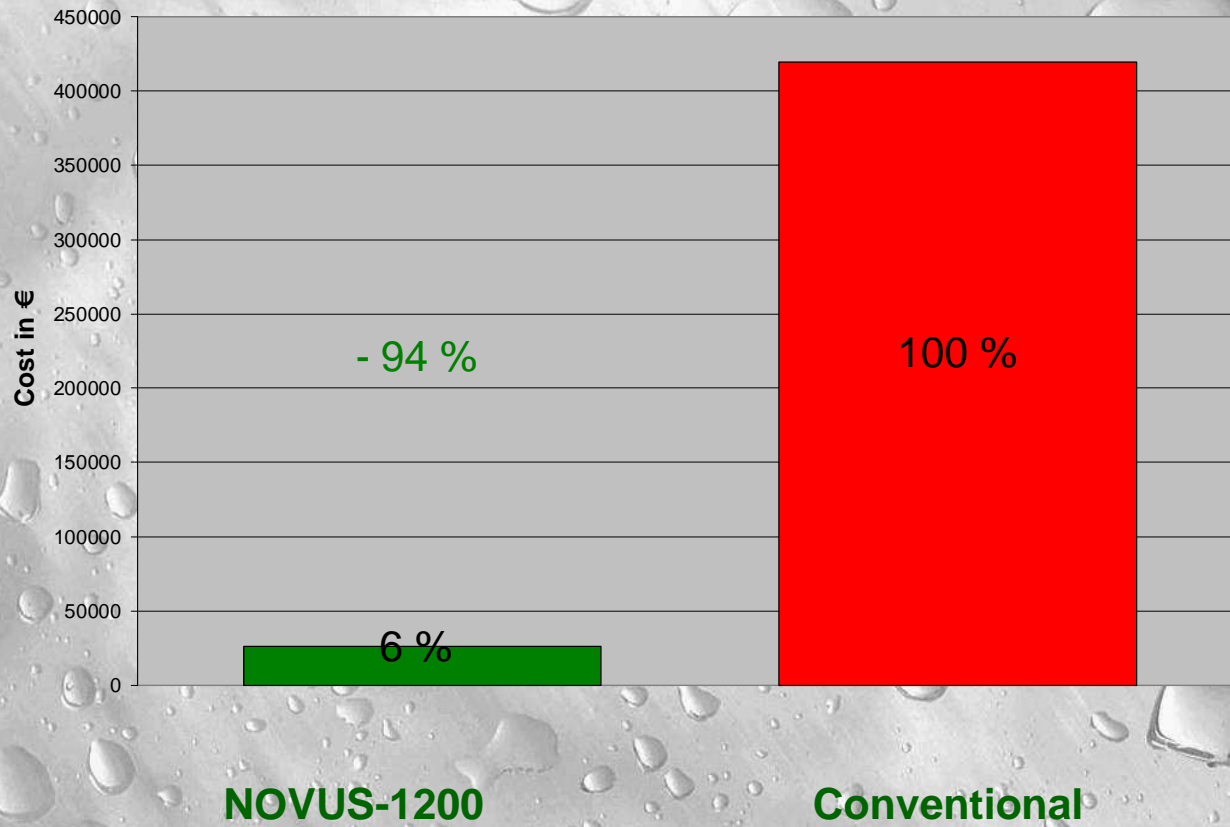


**Space requirement**



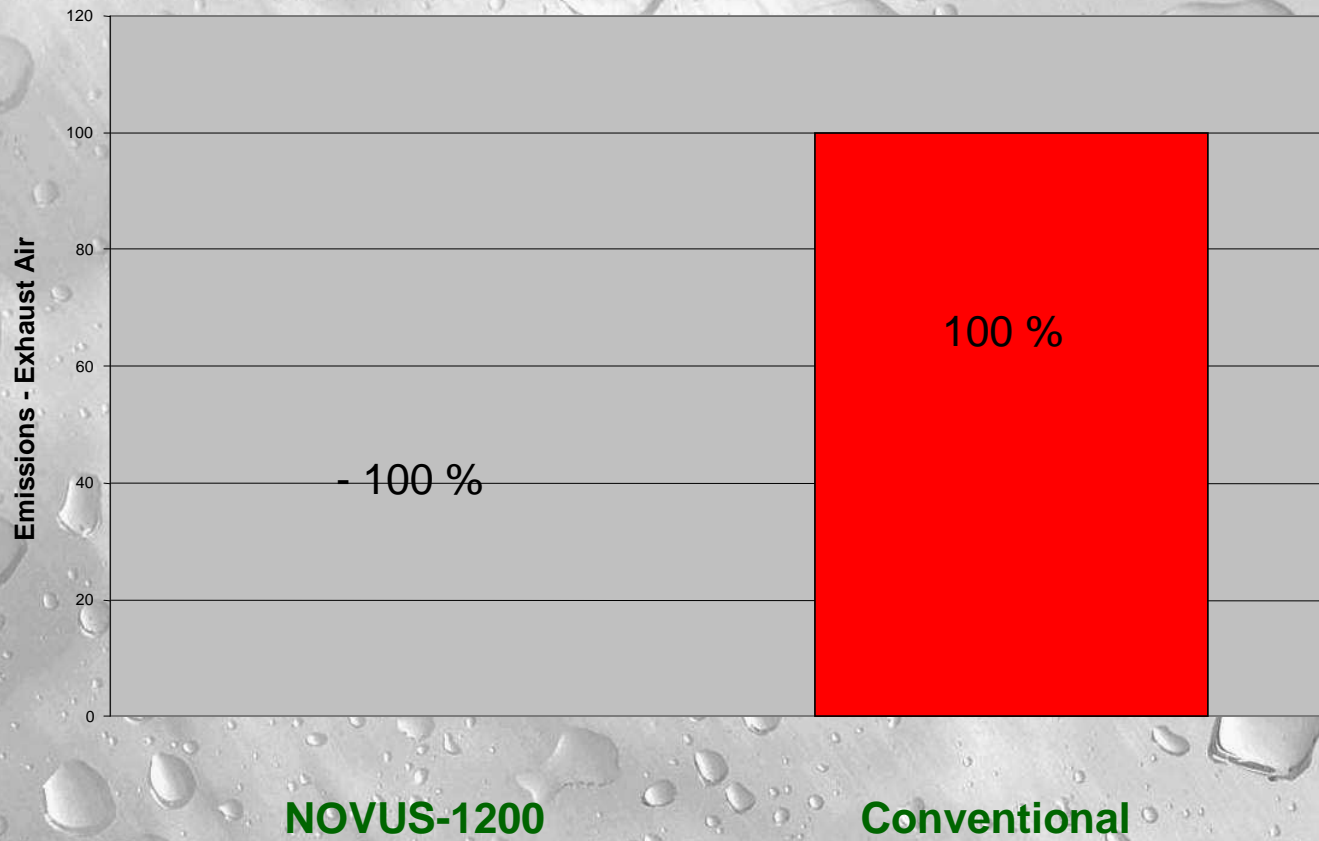


### Energy cost





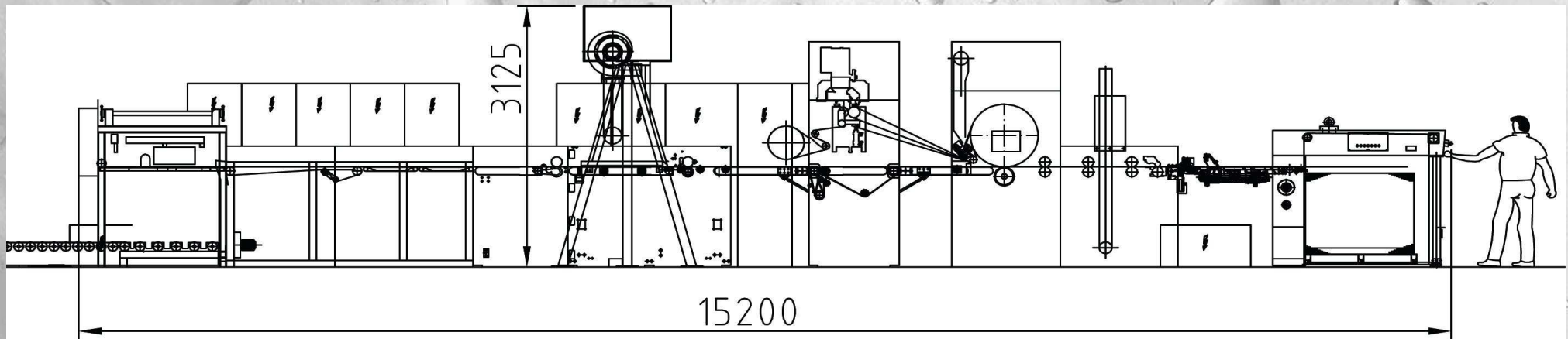
## Emissions





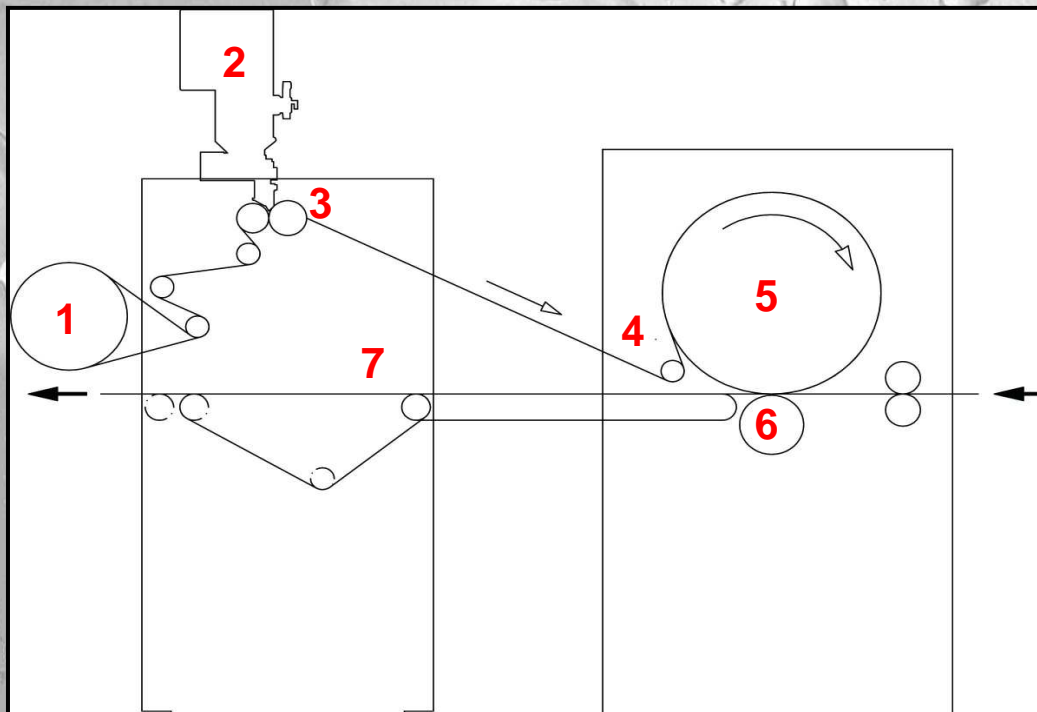
# ***NOVUS-1200***

## **Process of the line**



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## Adhesive- and Laminatingstation

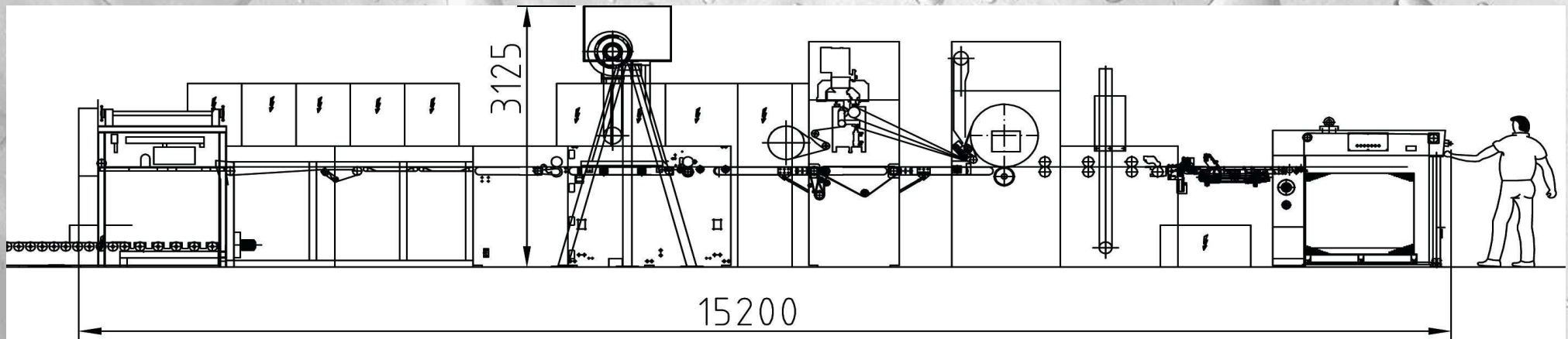


- 1 Film unwinding
- 2 Nozzle application station
- 3 Release roll
- 4 Film cut
- 5 Laminating drum
- 6 Counterpressure roll
- 7 Sheet transport



# ***NOVUS-1200***

## **Process of the line**

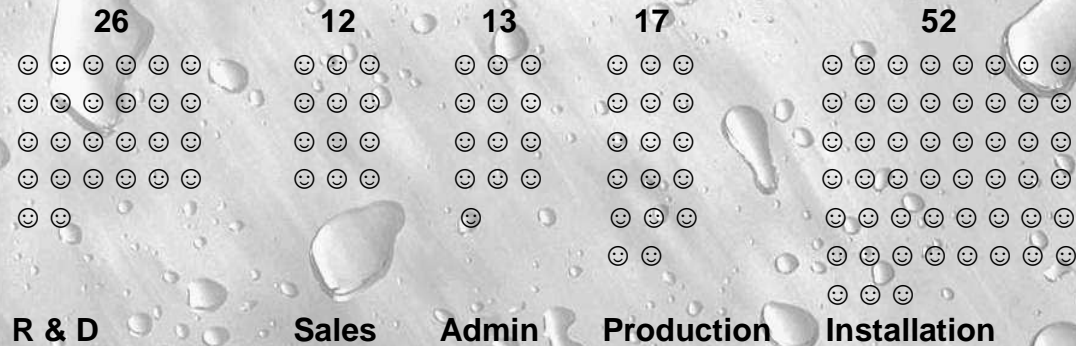




## Who dares to question the present technology?

**WE!**

**founded  
1911**



**today:**

/ appr. 120 employeés + 100 external subcontractors  
 / with cooperation partners for all raw material  
 / with customers worldwide implementing our innovations



## Our Know How

- **Traditional until today**

- Laminating, Coating und Calendering in the print finishing industry
- / Market share worldwide appr. 40%
- / Patents for key technologies
- / Technical know how and experience with laquers, films and adhesives, variable substrate, etc.
- / Production Sheet/Sheet – Coil/Coil
- / Paper/Other Substrats max. 1.500mm wide / 2.050mm long
- / Substrat weight 70 – 600gr/m<sup>2</sup>

- **since 1995**

- MDM – Metal decorating / Drying
- / Entry into the market by questioning the present technologies / speeds
- / Achieving acceptance in the market through our innovative approach (e.g. production speed of up to 9000 sheets / hour)

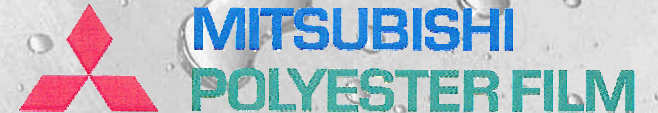
- **since 2003**

- Compound laminating
- / Laminating ( Adhesion) of different materials to one product – Inline – Coil/Coil or combined Sheet/Coil



## Cooperation partners

**BILLHÖFER**  
GRAPHIC MACHINES + SYSTEMS



## Launch customer



Blechwarenfabrik  
Limburg



## **Advantages of the process**

**Fast and flexible application**

**Simplified ways of production**

**Abolition of coating machines and drying ovens**

**Solvent free process - eliminates VOCs and air pollution control**

**Eliminates cost-intensive storage of lacquer and solvents**

**Reduces intermediate inventory of coated and printed material**

**Reduction to a single number of consumables**

**BADGE, BFDGE and NOGE free**

**Reduces costs for waste disposal**

**Environmentally friendly**



## **Advantages for the product**

**Optimum migration barrier**

**Excellent flavor quality in regards to the filling**

**No porosities**

**Higher abrasion and scratch resistance**

**Higher gloss and better feel of the surface**

**Sophisticated printing designs with modern printing techniques**

**Matchless in food safety**

**Opens exciting new ways of packaging products**



**THANK YOU VERY MUCH FOR YOUR ATTENTION !**

**BILLHÖFER**  
GRAPHIC MACHINES + SYSTEMS

