

# *State of the Art Coating Equipment for Flexible Packaging*

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## Introduction



### ❖ **Bachofen + Meier AG**

- ✓ Coating Line Manufacturer
- ✓ More than 60 years of experience
- ✓ Customers worldwide
- ✓ Turnover 30 Mio US\$ (BMB, 2009)
- ✓ Employees: 75 (BMB)
- ✓ Member of the Kroenert Group
- ✓ Total Employees: 250 (Kroenert Group)

### ❖ **Salvatore Lo Gioco**

- ✓ Grad. Engineer,
- ✓ Since 2000 at BMB as Site Manager
- ✓ Since 2004 at BMB as Project Manager
- ✓ Since 2007 as Key Account Manager for India, South Africa, Italy, France, Spain, Portugal and Switzerland.

## Overview Coating/Converting

### Different products, different requirements

#### ❖ Duplex and Triplex laminates

- ✓ Solventless or solvent based, one or two component adhesives, depending on purpose (dry food, wet goods, thermal treatment required, etc.)
- ✓ Combination of different films/foil with different characteristics
- ✓ Steam barriers, optical aspects, etc.



#### ❖ PVdC Coating

- ✓ Ability of hot sealing (e.g. blister)
- ✓ Ability of thermal forming
- ✓ Steam barrier
- ✓ High coat weight (up to 20 g/m<sup>2</sup>)

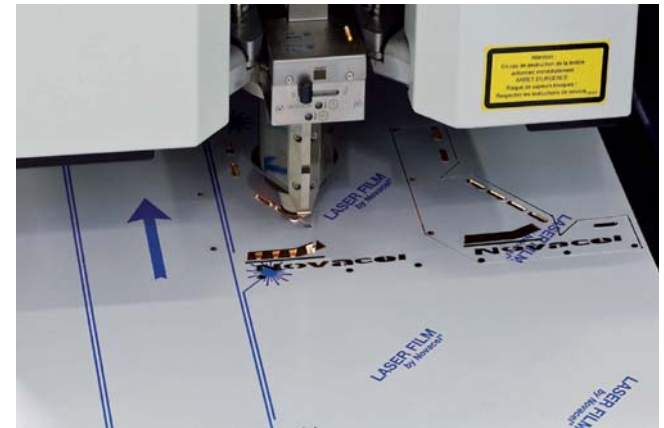


## Overview Coating/Converting

### Products, referring to packaging industry

#### ❖ Protection Films

- ✓ Self wound (linerless)
- ✓ Short rolls but wide web width

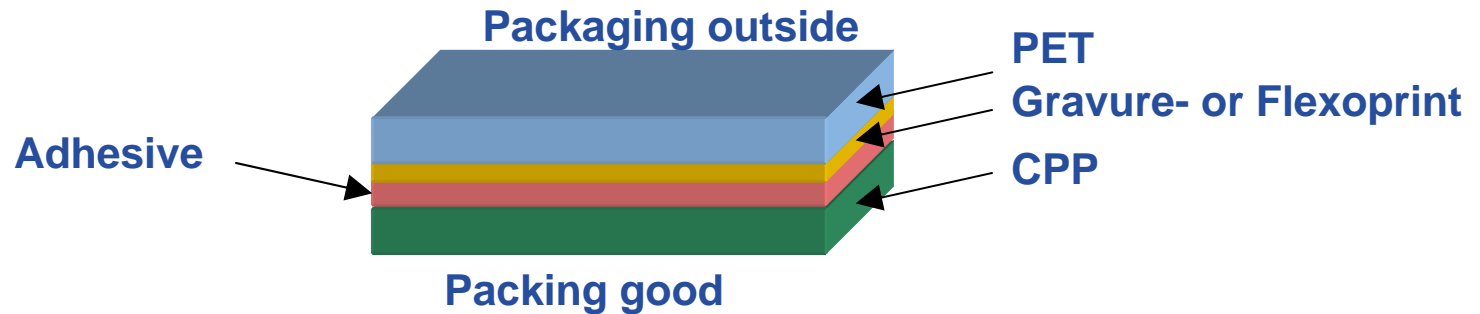


#### ❖ Labelstock (Silicone-Adhesive Laminates)

- ✓ Silicone-Adhesive laminates
- ✓ High speed machinery (exceeding 1000 m/min)
- ✓ Paper, film
- ✓ Clear on clear laminates (exceeding 500 m/min)



## Sample of a Duplex Laminate



### ❖ Duplex Film Laminate:

- ✓ laminate PET / CPP
- ✓ ideal for horizontal flowpack
- ✓ suitable for pasta, noodles, etc.
- ✓ white or metallized sealant
- ✓ in-house metallizing option

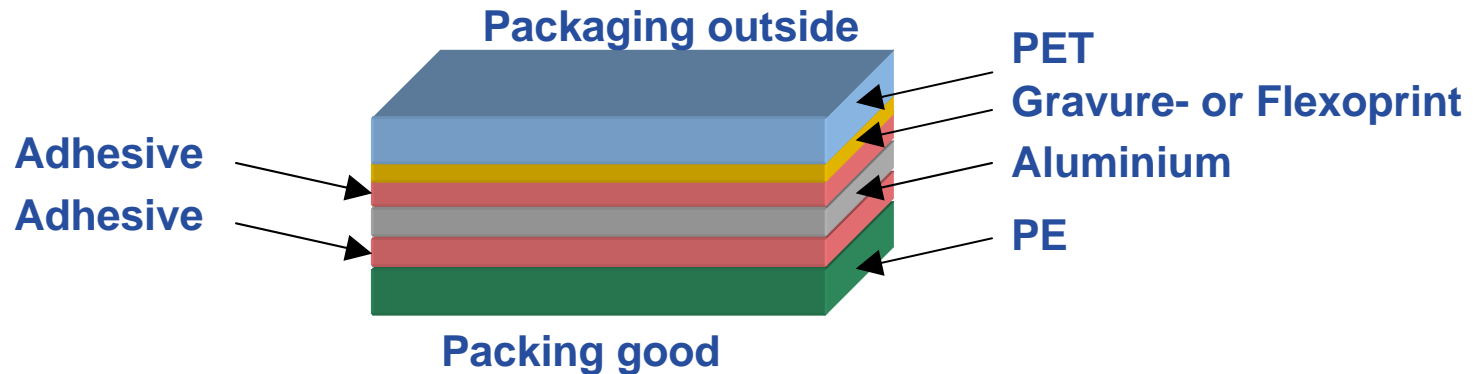
### ❖ Advantages

- ✓ excellent gloss
- ✓ good puncture resistance
- ✓ fast sealing



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## Sample of a Triplex Laminate



### ❖ Film/Foil Laminate

- ✓ Laminate PET / aluminium / PE
- ✓ Gravure- or flexoprint
- ✓ Suitable for coffee, milk powder, etc.
- ✓ Weld- or peelable seal

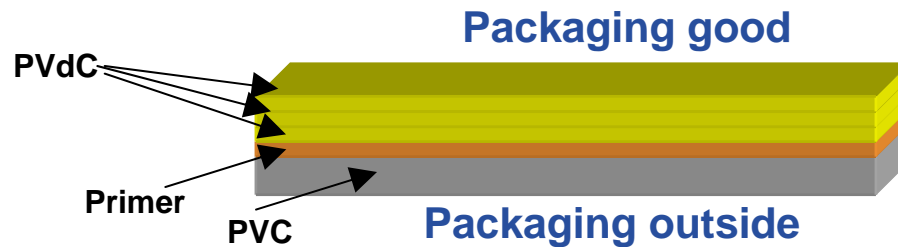
### ❖ Advantages

- ✓ Excellent gloss
- ✓ High resistance against puncture
- ✓ High stiffness
- ✓ Fast hot sealing



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## Sample of PVdC Coating



### ❖ Blisters:

- ✓ Multi layer coating
- ✓ High coat weight (up to 20 g/m<sup>2</sup> per layer)

### ❖ Advantages

- ✓ Excellent gloss
- ✓ High resistance against puncture
- ✓ High stiffness

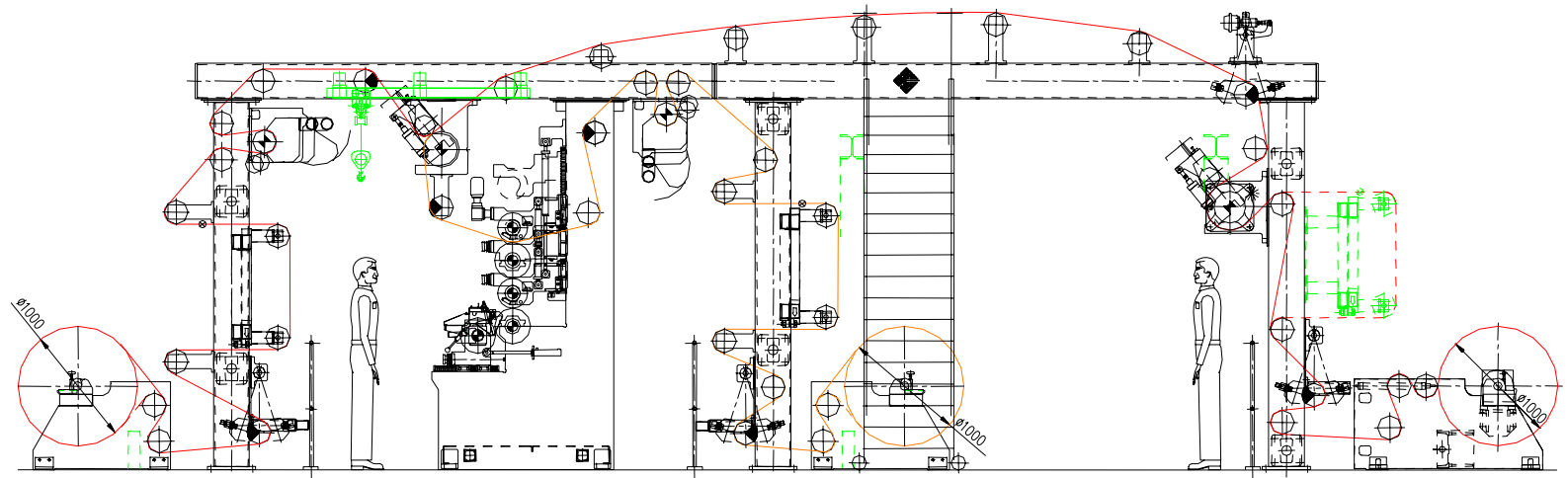
### ❖ Other applications

- ✓ On paper
- ✓ On PET
- ✓ On OPP



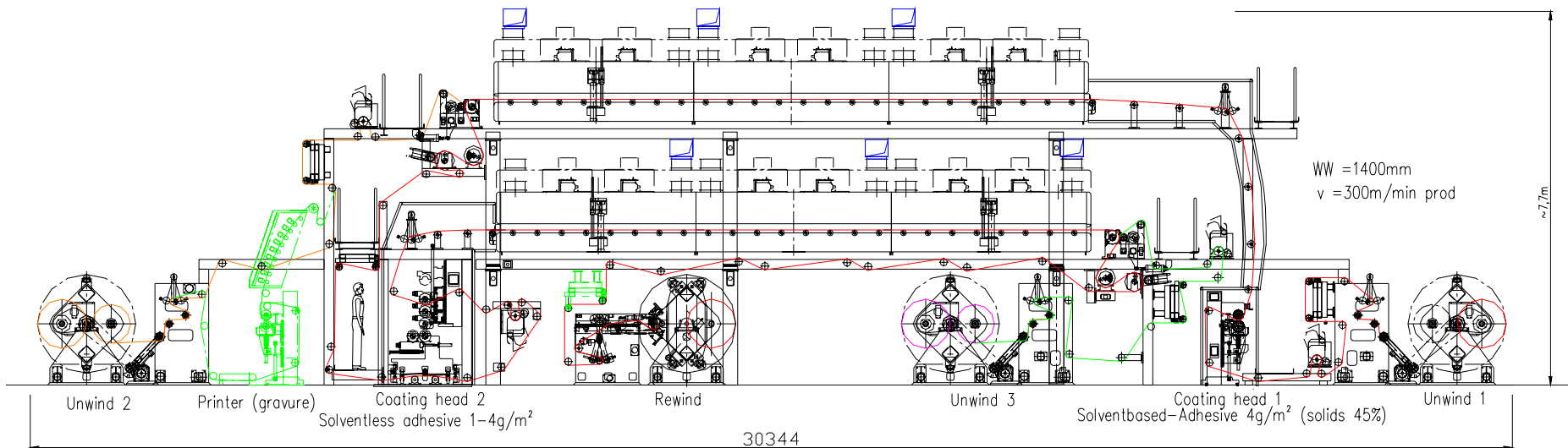


## Machine Layout, Solventless Duplex Lamination



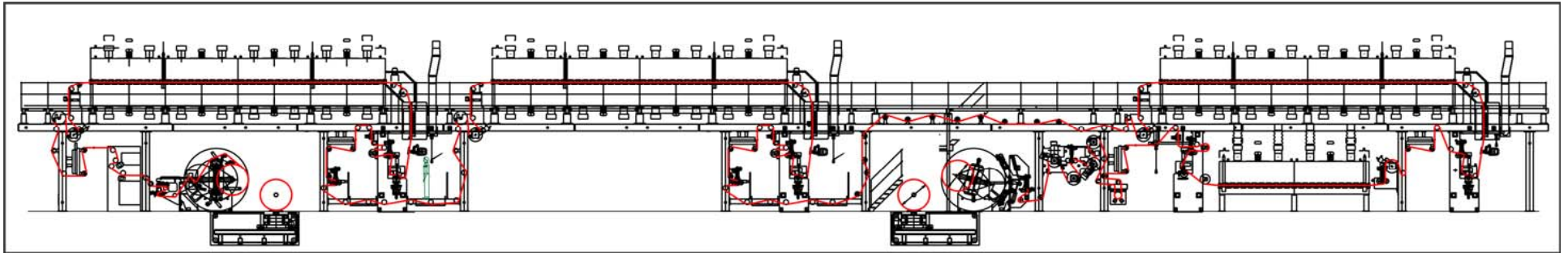
- ✓ Solventless adhesive (5-roll coating head)
- ✓ Wet lamination
- ✓ Triplex lamination possible (2nd run but rewind roll needs relaxing time after first run)
- ✓ Design specific to customer (product) needs

## Tandem Triplex lamination

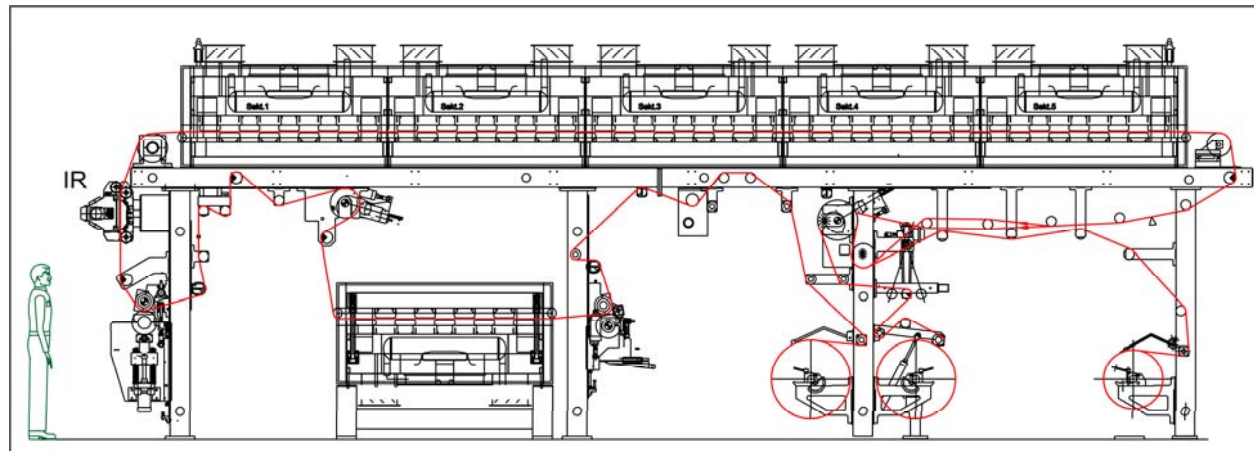


- ✓ 300 m/min, working width 1.4 m
- ✓ Tandem (one run for triplex laminate)
- ✓ Optional Printing
- ✓ Dry lamination
- ✓ Customer (product) specific machine layout

## PVdC coating lines



3 layer line + primer



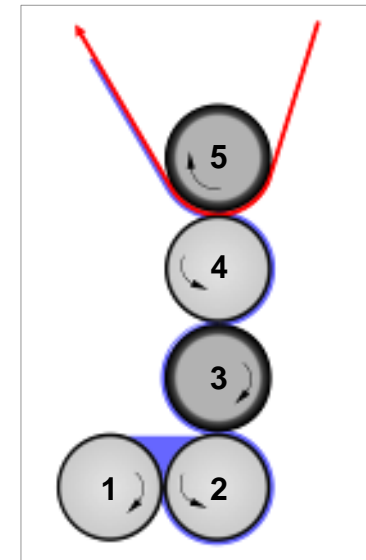
1 layer line + primer

## Coating System

### Smooth roll coating head, out of the nip (5 rolls)

Technical highlights:

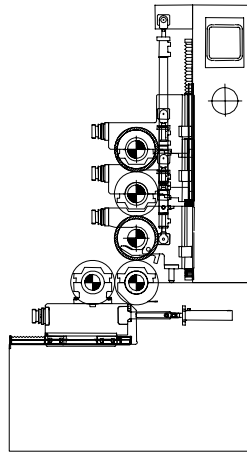
- Metering out of roll nip (roll 1 and roll 2)
- Adjustable side dams on metering rolls, no death end zones, cleaning of rolls only at working width
- Additional transfer roll, less fogg at higher speed (better grinding between the rolls)
- Improved ceramic surface quality of Roll 1 and 2 avoids foam and bubbles
- Roller 3 with sleeve, under-cutted on working width



Roll		Speed [%]	Material	Hardn. [ShA]	Temp. [°C]	Design
1	Metering roll	0	Steel/ceramic	n.a.	45...50	
2	Metering roll	5...10	Steel/ceramic	n.a.	45...50	
3	Transfer roll	20...30	Rubber	85	~ 55	Sleeve
4	Applicator roll	90...95	Steel/ceramic	n.a.	~ 55	
5	Backing roll	100	Rubber	60...80	~ 55	Sleeve

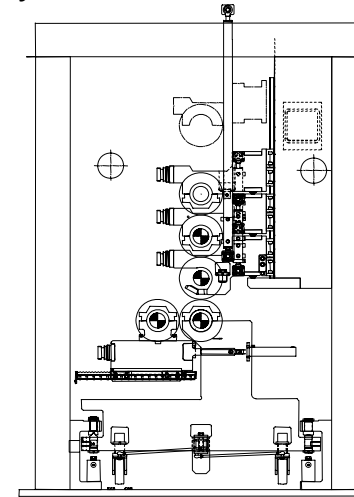
## Coating head configuration

Common smooth-roll Coating head (5-rolls) layout



### ❖ Fixed installation

- ✓ Rigid and solid
- ✓ Precise linear bearings
- ✓ Precise nip adjustment
- ✓ Rolls exchangeable
- ✓ Hydraulic movement of rolls
- ✓ Different coating methods possible (solventless, solventbased, 4- or 5-rolls, etc.)



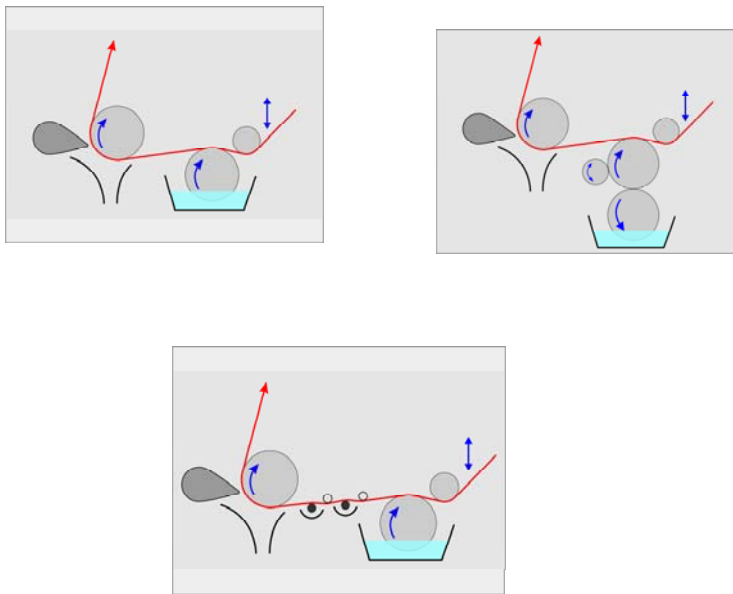
### ❖ Trolley installation

- ✓ Removeable trolley
- ✓ Quick change of product
- ✓ Solid and rigid frame
- ✓ Similar mechanics as fixed installation

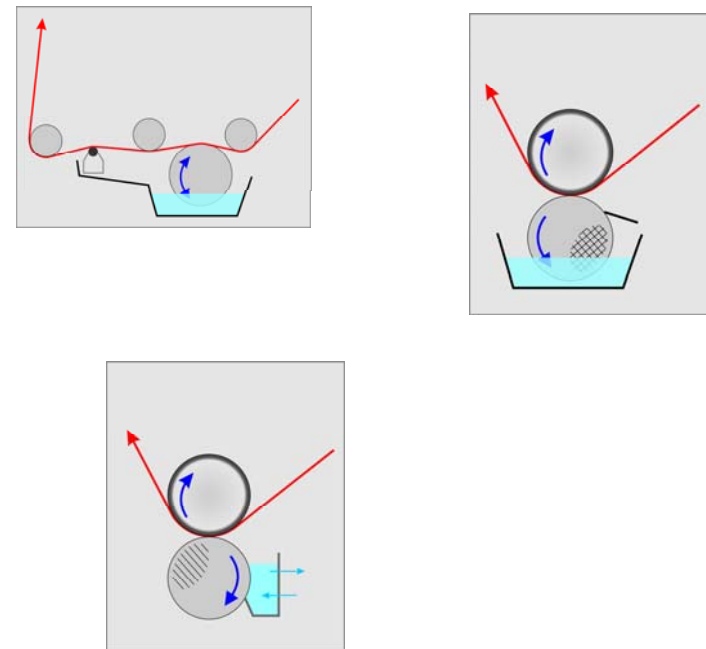
# Coating systems for PVdC-coatings

... yesterday

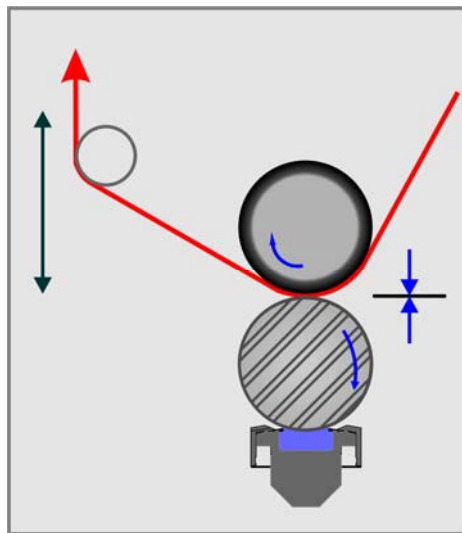
## Air knife system



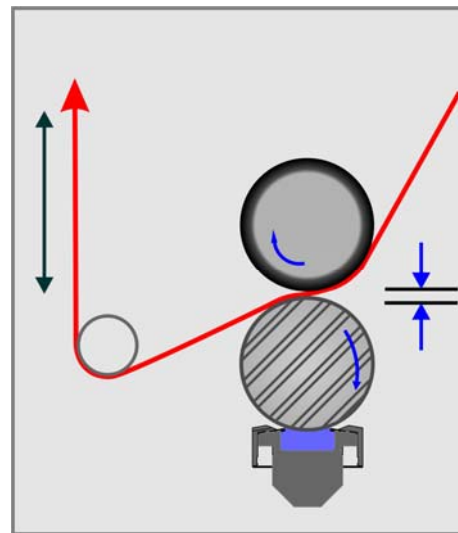
## Reverse Gravure coating with open chamber



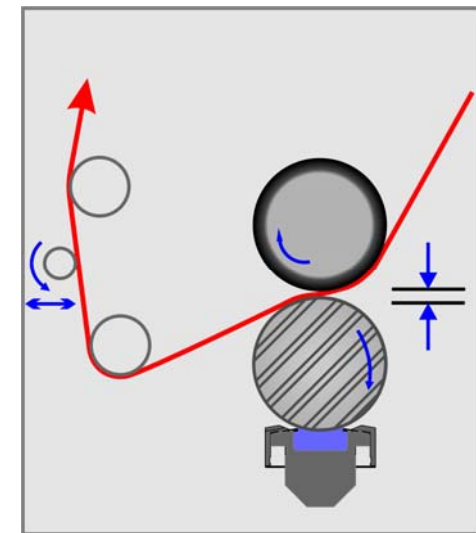
## Coating systems for PVdC-coatings ... today



Reverse, direct



Kiss Coating

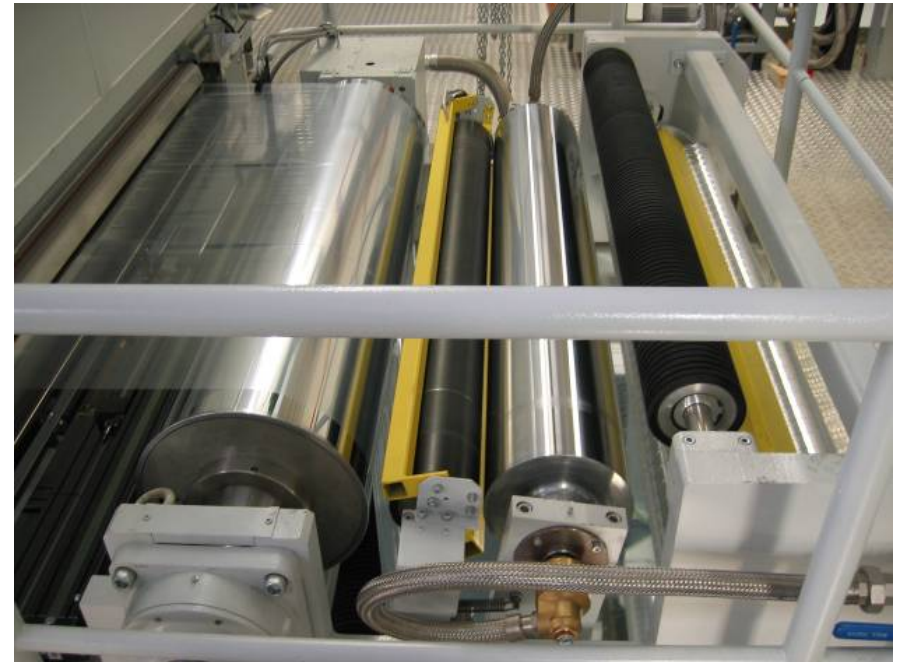
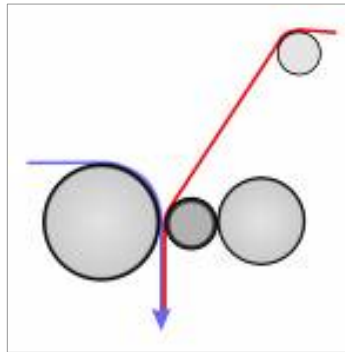


Kiss Coating and structured roller

### Reverse-Gravure-coating with pressurized doctor chamber MPG 600 CI

- Trihelical engraved ceramic coated roller
- Ceramic blade
- Pressurized doctor chamber in stainless steel
- Sleeve technique

## Laminator station



### ❖ Laminator

- ✓ Temperature controlled steel laminator roll
- ✓ Hard rubber covered press roll
- ✓ Small diameter press roll leads to high line force
- ✓ Temperature controlled backing roll



## Peripheral Systems

### Metering and mixing system for 1- and 2 component adhesives



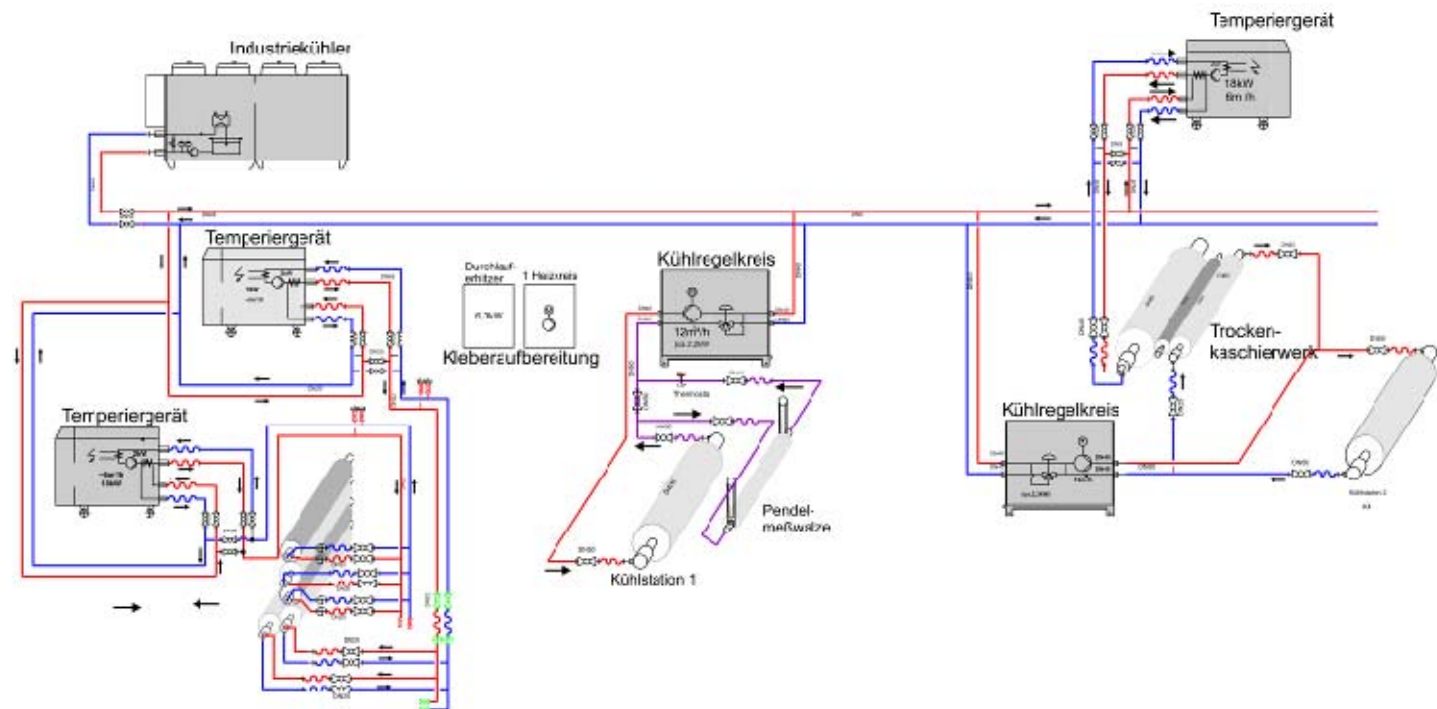
**Possible suppliers:**

- 2KM
- Hilger&Kern
- Dopag
- Bähr
- VEA



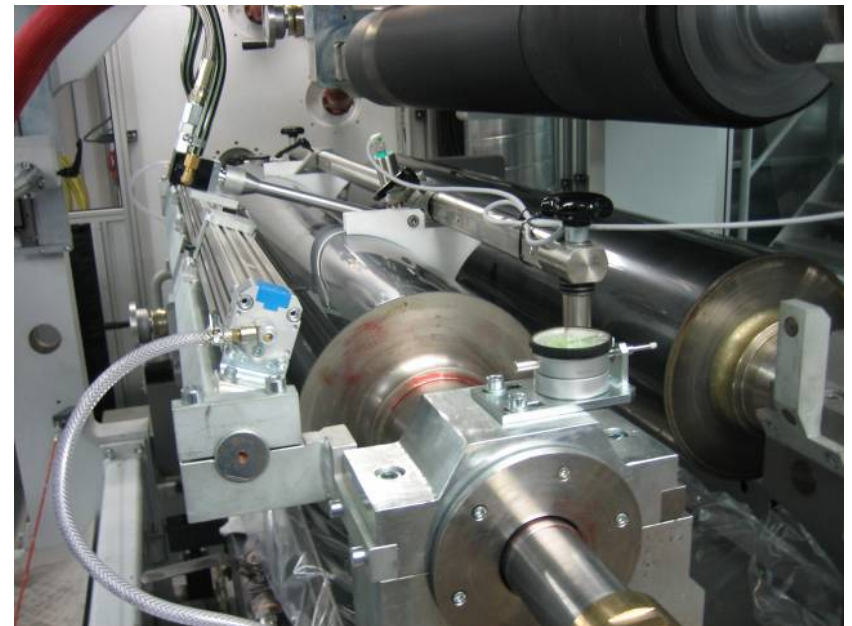
## Peripheral Systems

### Tempering of Coating Station and Laminator



**For further information or answers to your questions please do not hesitate to visit our homepage or to contact us.**

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**Thank you for your audience.**