Heat-Sealing Technology
Peel-Off Solutions for the Metal Packaging Industry
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1 Introduction

TRADITION

- established in 1861 by engineer, inventor and pioneer Erdmann Kircheis
- today the oldest existing manufacturer for metal packaging machinery worldwide

INNOVATION

- modern facilities
- engineering, parts manufacturing and assembly all on site in Germany
- experience and flexibility
- 100 % family-owned and -managed
1 Introduction

**Product range (metal packaging)**

- complete end lines
- traditional deep-drawn steel can lines
- three-piece can making lines for food and aerosol cans
- twist-off and PT-cap making high-speed equipment
- high-speed embossing equipment for food and aerosol cans
- seaming equipment
- heat-sealing machines for metal ends and cans
1 Introduction

Product range (composite can making)

- membrane sealing machines
- cardboard bottom sealing machines
- composite can making machines

Market Leadership
Technology
Peel-off explained
2.1 Peel-off explained

Peel-off / Easy-Peel
2.1 Peel-off explained

**Peel-off / Easy-Peel**

*key advantages for the customer*

- very low opening forces (7..15 N)
- no risk of injury
- easy access to the product
- tamper evidence
- modern image to the can

**CONVENIENCE**
2.1 Peel-off explained

**Peel-off membrane**

- **environment**: $O_2$, water vapour, dust, light
- **protective / print layer**
- **barrier layer**: Al, SiO$_x$, EVOH, PVDC, xPET
- **sealing layer**: PE, PP, sealing lacquer
- **inside of package**: $N_2$, flavours, water vapour

**Retortable** – heat-sealing to PP-coated or lacquered tinplate

**Non-retortable** – heat-sealing to plain or lacquered tinplate
Technology
Heat-sealing explained
2.2 Heat-Sealing explained

**Heat-Sealing**

is the firm joining of a thermoplastic sealing layer of a packaging material to a suitable partner using

- Energy
- Time
- Pressure
Heat-Sealing Technology
Metal Packaging Peel-Off Solutions

2.2 Heat-Sealing explained

Heat-Sealing

by means of heated contact tooling only

disadvantages:

- heat-dissipation through the metal (excellent heat conductor)
- the heat is supplied from outside and is not created within the sealing layer
  → bad distribution of heat, long sealing times
  → danger of burning the membrane or tinplate lacquer
2.2 Heat-Sealing explained

Heat-Sealing

using *inductive pre-heating*

advantages:
+ usage of stored energy within the metal for the sealing process
+ gentle and controlled temperature distribution
+ very short sealing times of ~ 80 ms

**HIGH PERFORMANCE**
2.2 Heat-Sealing explained

Heat-Sealing

- using *elastomeric heat-sealing stamps*

  advantages:

  + compensation of irregularities of the sealing surface
  + sealing over welding-seam possible

  RELIABILITY
Applications and Equipment
Peel-off end
Heat-Sealing Technology
Metal Packaging Peel-Off Solutions

3.1 Peel-off end (POE)

- classic peel-off solution for metal packaging
- membrane sealed to preformed metal ring

+ retort-applications possible
+ can be seamed by traditional and available equipment
+ proven solution with many applications
- high initial investment
- high material cost
next generation machine **RHO IV** from Blema Kircheis

- indexed machine in rotary design
- performance up to 300 epm
- round and non-round formats up to D127
- fully servo-driven working stations and state-of-the-art process monitoring
+ high flexibility due to quick format change system and modular design
+ high reliability
+ ability to run retort and transparent membranes
+ economical price and small footprint

**AVAILABLE IN WINTER 2014**
Heat-Sealing Technology
Metal Packaging Peel-Off Solutions

3.1 Peel-off end (POE)

turn-key solution by Blema Kircheis

- end line for round or non-round formats
- transfer press for ring forming
- heat-sealing machine
- conveying and bagging
Applications and Equipment
Direct-sealed metal can

See us at EURO CanTech 2013
26-28 June
Birmingham
UK

WE CREATE WHAT YOU IMAGINE
Heat-Sealing Technology
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3.2 Direct-sealed metal can

membrane sealed directly to the top of the can

+ huge material savings (omission of ring)
+ savings in equipment / initial investment
+ no reduction of opening diameter

leak tightness (helium flow rate):

max. $2 \ldots 3 \times 10^{-7}$ (mbar \cdot l) / s

burst pressure up to 1.2 bar
3.2 Direct-sealed metal can

Metal Can Sealing Machine **RHO III**

- continuously running turret design
- performance up to 300 cpm
- optional integrated plastic capping module
- optional membrane embossing
3.2 Direct-sealed metal can
3.2 Direct-sealed metal can

**ledge-sealing** – direct-sealing of a membrane to a ledge created from the can by deep beading and flattening
3.2 Direct-sealed metal can

**GAMMA II Modular Can Maker**

1) deep beading module  
2) bead flattening module  

**RHO V Metal Can Sealer**

direct sealing to recessed ledge
Applications and Equipment
Push’n’Peel
3.3 Push’n’Peel

**Push’n’Peel**

- patented technology by Blema Kircheis
- unique twist to easy-peel

push’n’peel end

push’n’peel direct-sealed can
3.3 Push’n’Peel

- stackability
- inner pressure supports sealing area
  \(\rightarrow\) reliable closure
- plastic cap for protection and reclosability

sealed can with inner roll
sealed can with outer roll
can with outer roll sealed on the roll
RHO III Metal Can Sealer
Video
Thank you very much for your attention!

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