TECHNOPLAN
ENGINEERING SA

PRESENTATION

Technoplan Oven Energy Optimisation

for PET stretch blow molding machines

TOEO
Technoplan Oven Energy Optimization

TECHNOPLAN ENGINEERING SA

Our partners

KHS Filling and Packaging — Worldwide

SIPA Plastic Packaging Systems

bereddo

Pnöpar Pnömatik Partneriniz

p&S Technology www.pnstech.co.kr

Crossborder Benefit Linkage

CONNELL INDUSTRIES

SYSTEMI SOLUCIONES INTELIGENTES

SAE

Star-Dynamic

PET Packaging Network http://www.pet-pack.net

ATOM-DRIVE The Compressor & Pump Specialist

ENGINEERING & CONSULTING CO. LTD.

KYLIN

PT Multi Cipta Mas

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Our clients

...

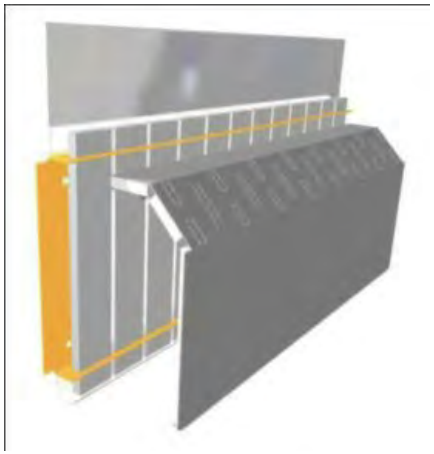
ENERGY SAVINGS

Combined improvements are brought to the :

Ceramic reflectors

Shield design and ventilation

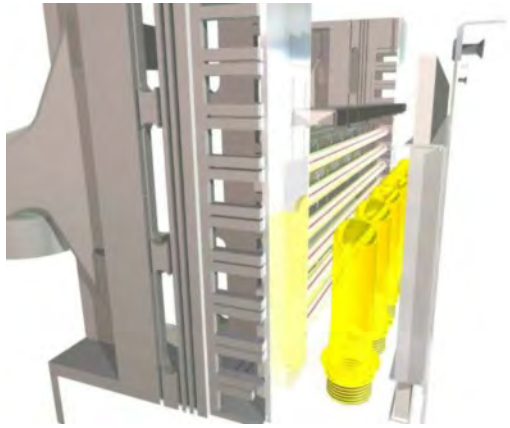
… resulting in a significant decrease of energy consumption



SHIELD DESIGN AND VENTILATION

The shields are designed to improve the preform ventilation

and achieve the right balance of air flow in the oven



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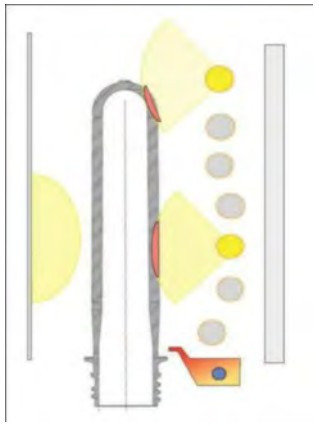
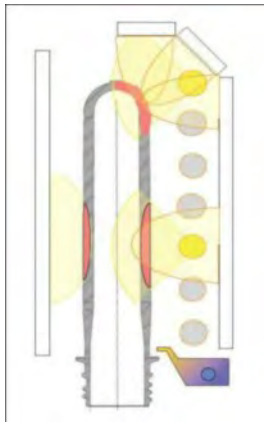
CERAMIC REFLECTORS

Using high performance ceramic material, with treated surfaces, the Infra-Red light reflection is enhanced, allowing the optimisation of the preforms body heating

Before



After



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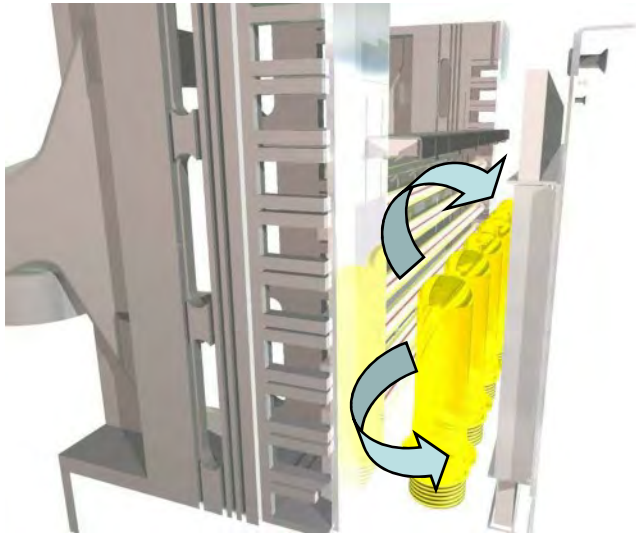

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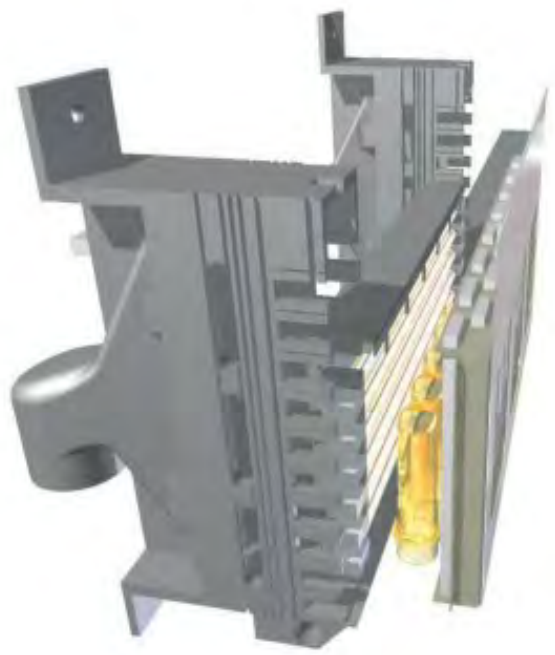
ADVANTAGE

- A decrease in oven power consumption by minimum **25% Guaranteed**
- Significant financial savings due to the reduced electricity consumption of the oven
- Easier profiling and better process window : **better heated -> easier to blow**
- Better maintenance cost :
  - no maintenance costs on the ceramics
  - the reduction of the lamps' intensity expands significantly their life-time
  - Lamps of the shutted-down ovens can be recovered
- Quick return on investment (< 18 months)



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EXAMPLE - SIDEL 2

Before Optimisation

After Optimisation

Bottles continue to be produced without any drop in production rate and quality

Rapidly installed without any major modification to the oven (only the process is modified)

Based on a proven and reliable technology

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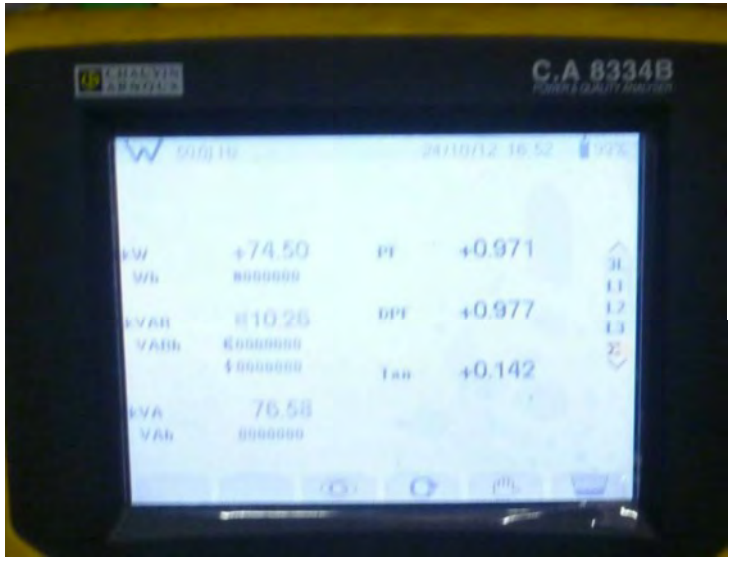
EXAMPLE - SIDEL 2

Evian, France, SBO 16-2
115.3 kW/h -> 74.5 kW/h : 40.8 kW/h spared, or 35%

After Optimisation

Before Optimisation



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Client : Coca-Cola
City : Urbach
Country : Germany

Coca-Cola

TOEO : electricity consumption measurements

Machine (make & model):	SIDEL 14 Serie 2, n°5163

Measurements are recorded with a Voltmeter

- Production rate : 19 600 [b/h]
- Bottle volume : 0,5 [L]
- Preforms temperature : 20,5 [°C]
- Preform weight : 19 [gr]

Oven electricity consumption measurements

A	Consumption (kW), **before** TOEO installation	116,5	kW
B	Consumption (kW), **after** TOEO installation	77	kW
C	Measured motor consumption	4,8	kW

Total spared electricity

F	= A - B	==>	F = 39,5	kW
G	= F / (A - C) x100	==>	G = 35,3	[%]

Remarks:

Would you recommend Technoplan's TOEO ? YES ( ) NO ( )

Date : 10 October 2014

Technicien's name :
Samuel GAUGUIN
gauguin@technoplan.info

Technicien's signature :

Date :

Client's name : Wüst Harry
email :

Client's signature :
Company' stamp : Coca-Cola Erfrischungsgetränke Aktiengesellschaft Verkaufsgebiet Baden-Württemberg Robert-Bosch-Straße 7 · 73660 Urbach Telefon (07181) 98 98 - 0

TOEO

39.5 kW saved per hour

If blower works 6000h / year:

237’000 kW saved per year

Or 23’700 EUR per year

(with 1kW = 0.10 EUR)

Adaptation

TOEO can be installed on :

- SIDEL serie 1, serie 2 and Universal
- KRONES
- SIPA

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Client : Parque La Presa San Benedetto
City : Loja, Granada
Country : Spain

SAN BENEDETTO

TOEO : electricity consumption measurements

Machine (make & model): ID or SN :	SMI H6

Measurements are recorded with a Voltmeter

- Production rate : 6.000 [b/h]
- Bottle volume : 5 [L]
- Preforms temperature : 100 [°C]
- Preform weight : 64 [gr]

Oven electricity consumption measurements

A	Consumption (kW), **before** TOEO installation	130	kW
B	Consumption (kW), **after** TOEO installation	90	kW
C	Measured motor consumption	7	kW

Total spared electricity

F	= A - B	==>	F = 40	kW
G	= F / (A - C) x100	==>	G = 32,5	[%]

Remarks:

Would you recommend Technoplan's TOEO ? YES (X) NO ( )

Date : 10.04.2014	**Date :** 11.04.2014
Technicien's name : Antonino BATTIATO	**Client's name :** Simone Serrano **email :** simone.serrano@sanbenedetto.es
Technicien's signature :	**Client's signature :** Company' stamp

TOEO

40 kW saved per hour

If blower works 6000h / year:

240’000 kW saved per year

Or 24’000 EUR per year

(with 1kW = 0.10 EUR)

Thank you for your attention

TECHNOPLAN ENGINEERING SA

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