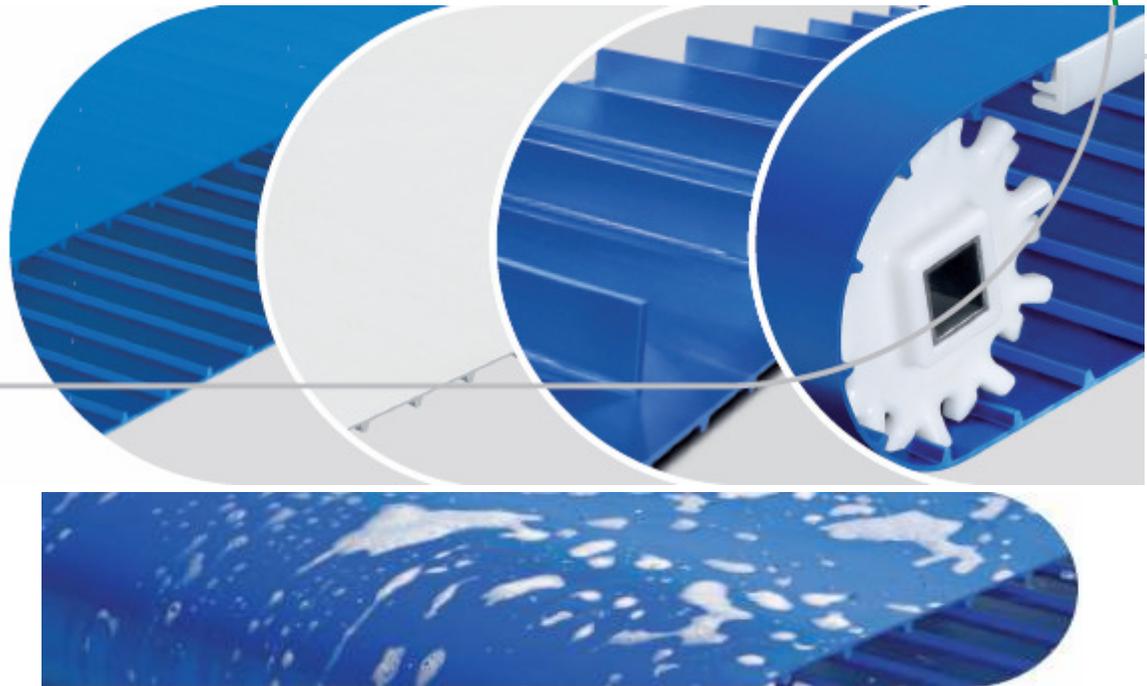


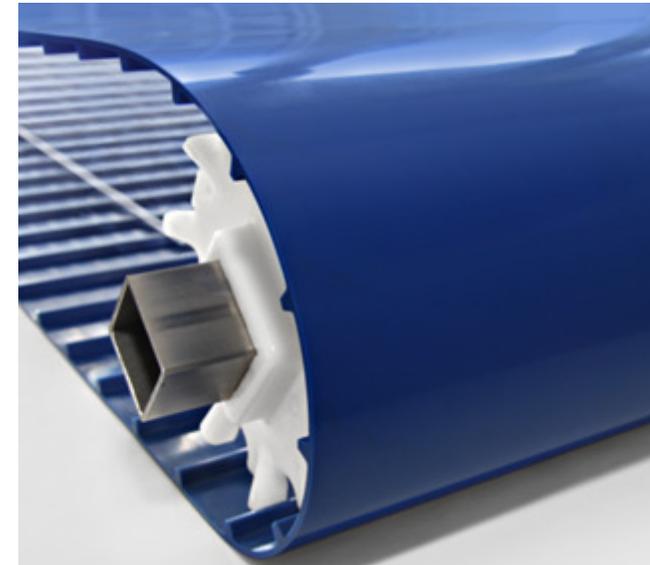
Habasit Cleandrive[®] extruded positive driven conveyor belts



Combine proven features in a new product generation

Content

- **Why did we develop Cleandrive**
 - market background
 - the Habasit approach
 - our value proposition
- **Habasit Cleandrive product range**
 - belt construction
 - belt types and accessories
- **Habasit Cleandrive market launch**
 - industries and applications
 - experiences and successes
 - competitive environment
 - belt selection considerations
- **Documentation and communication tools**
 - technical information
 - promotion material
- **Summary and conclusions**





Why did we develop Cleandrive?

- market background
- the Habasit approach
- our value proposition

Market background

- a new belting category appeared on the market since 2004 →
 - **monolithic belts with drive bars, common idea vs. PMB:**
provide an alternative to plastic modular belts (PMB) due to better cleanability – direct retrofit on 2 inch PMB sprockets
 - **common idea vs. fabric belts:**
offer easier tracking and no edge fraying, soaking or risk of delamination

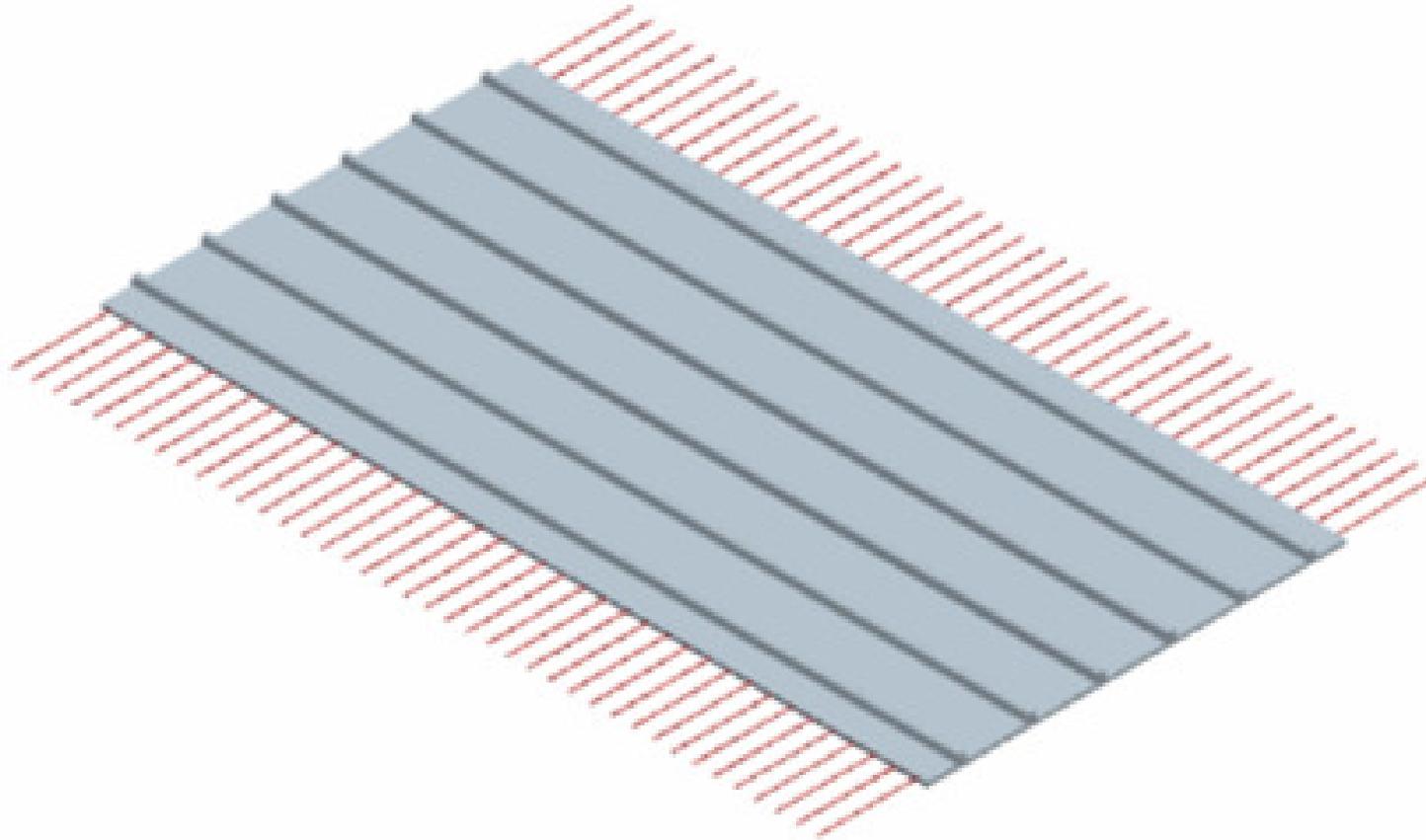




The Habasit approach

- we evaluated products on the market and found the concept is worthwhile to enhance and implement:
 - advantages against plastic modular belts in certain areas are evident
 - builds on PMB concept of no/low tension drive design and maintenance advantages
 - the risks of fabric tensile members are avoided
 - no edge sealing
 - no swelling/delaminating
 - no fraying of fibers
- our aim was to eliminate main problem of monolithic products – creep and elongation under load and introduce a new product generation

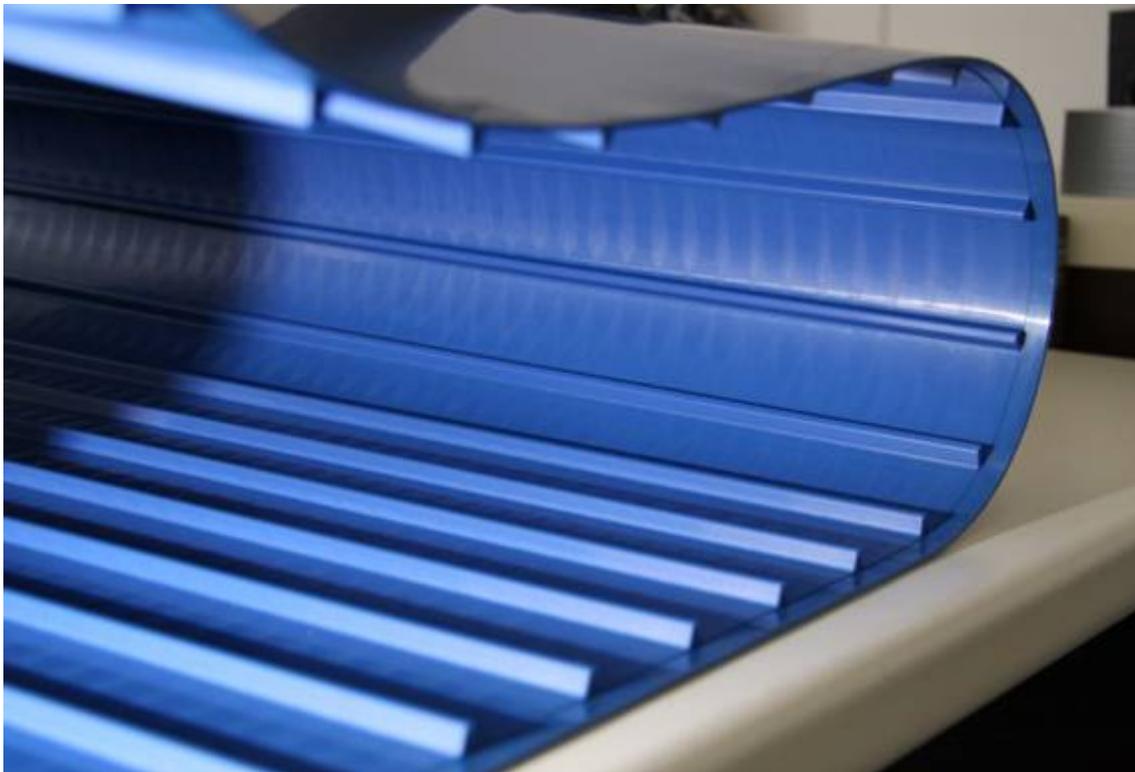
- Concept study of resulting product:



Habasit Cleandrive® product presentation



- the first belt made early 2008:



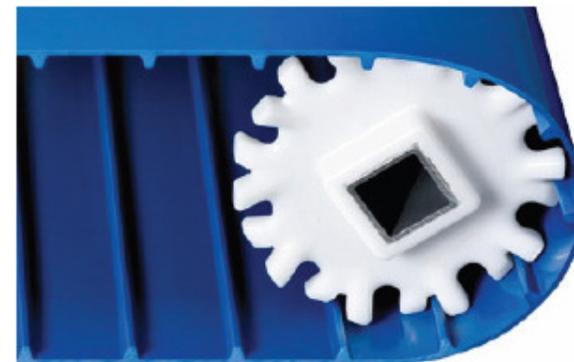
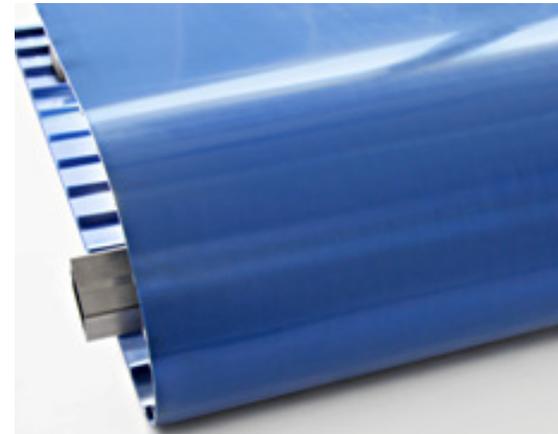
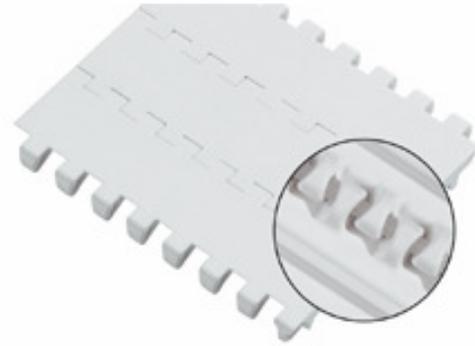


- Habasit is the leading conveyor and processing belt manufacturer – offering state-of-the-art solutions from
 - plastic modular belting
 - coated fabric belting
 - and now additionally* →
 - **innovative, extruded positive driven belts**
- main focus → **hygiene sensitive food applications**
- position as innovative follower in North America – offering a product with improved features vs. competition
- potential to be leader in this category in most parts of Europe and Asia
- the new range is based upon Habasit's best know-how:
 - consideration of belt cleaning and hygienic design principles
 - joining capabilities of fabric belts
 - ability to design reliable PMB and sprockets

Habasit Cleandrive® – our value proposition



- **product positioning** → Cleandrive is **one** of our options to provide the ideal solution on customer requirements



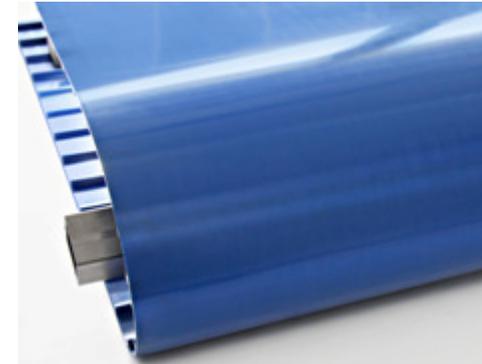


■ Cleandrive is/features:

- an alternative to PMB due to **improved cleanability** through **hygienic design** → no hinges, gaps and a closed homogeneous surface
- as **good** as PMB regarding **tracking and positive engagement**
- better than fabric belts due to **absence of edge fraying risk**
- **good chemical** and **wear resistance** due to selected material
- **better tracking, sprocket engagement and no creep** versus monolithic competition due to reinforcement concept and improved tooth design
- various **joining options**
 - upgraded butt-end joint with welding rod
 - established Flexproof finger splice
 - easy to install Quickmelt method

Habasit Cleandrive product range

- belt construction
- belt types and accessories
- fabrication and slitting



Habasit Cleandrive two inch belt construction

- smooth conveying side surface
- food grade hydrolysis and wear resistant TPU material, 95 Shore A
- available in different colors – white and blue
- homogeneous carcass with reinforcing cords in 15mm side distance
- continuous drive bars over entire belt width with optimized tooth construction for reliable performance under load
- 1.99” drive bar pitch (50.5mm) fits on two inch modular belt sprockets (Habasit and competition) for some diameters



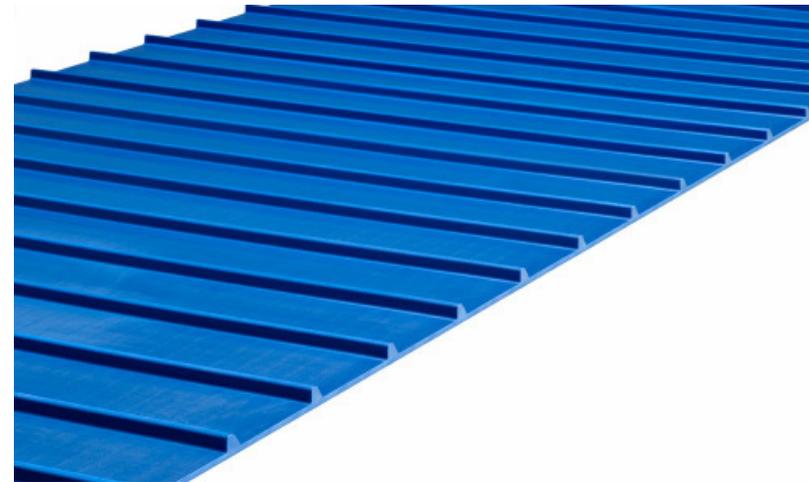
Habasit Cleandrive two inch belt construction

- dedicated milled sprockets available (ideal for smoother engagement/running of belt, less wear and higher transferable force)
- ability to weld various profiles on conveying side (e.g. cleats, side walls and scoops)
- max. production width 609mm (24 inch), coil length 50m
- wider belts possible by means of special fabrication methods



Cleandrive two inch belt types

- CD.M50.S-UA.WB (XVT-2407)
white TPU
- CD.M50.S-UA.CB (XVT-2408)
blue TPU
- CD.M50.S-UA.CB+H15
(XVT-2409)
blue TPU + HabaGUARD (only
for North America and Asia)



Key to Cleandrive nomenclature

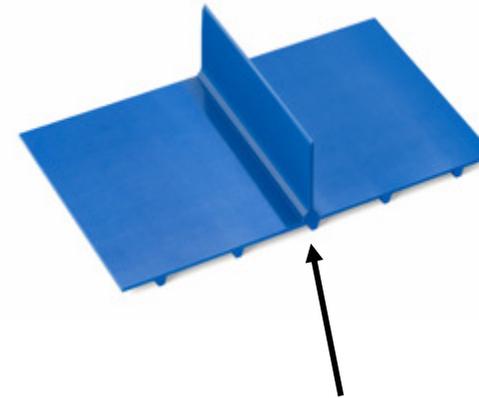
- **CD** → Product group (Cleandrive)
- **M50** → Drive bar pitch (50.5mm / 1.99 inch)
- **S** → Pitch shape (straight)
- **UA** → Belt material and property of conveying side (Urethane / Adhesive)
- **C** → Color (C – Cobalt blue)
- **B** → Surface structure of conveying side (Blank/smooth)
- **+H15** → Additional feature/characteristic (HabaGUARD)



CD.M50.S-UA.CB+H15

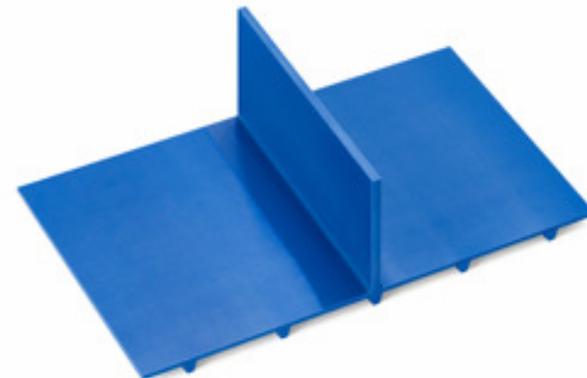
Cleandrive accessories – profiles for HF welding

- PNF cleats – 30 or 60mm high; blue, white or blue +H15



**Attention – weld profiles
always on top of drive bar!**

- PQF flat cleats – 5mm thick (maximum height recommended: 100mm)



Cleandrive accessories – profiles for HF welding

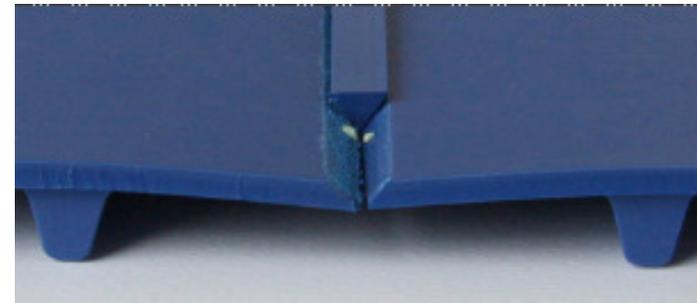
- corrugated sidewalls – coil material or pre-shaped (Habibord)



- Scoop profile – 4” height

Cleandrive accessories – joining, sprockets and guide rails

- **Cleandrive welding rod** – for butt-end joining, in 200m coils
 - available in blue or white TPU



- **Suitable sprockets:**
 - from 2 inch HabasitLINK range
 - M5010 or M5065 HyCLEAN sprocket generation can be used
 - dedicated sprockets for reliable engagement at high load and in specific design configurations – for details see Habasit Cleandrive Engineering Guide
- **HabiPLAST guide rails**
 - ideal support for Cleandrive belts



Habasit Cleandrive market launch

- industries and applications
- experiences and successes
- competitive environment
- belt selection considerations and limitations

Target industries and applications

Cleandrive belts are the ideal solution in hygiene demanding processes like:

- Meat & Poultry processing
 - cooked, fried or frozen products
 - handling of processed meat and poultry
 - sausage production
- Fish and seafood processing
 - washed, steamed, cooked, fried or frozen
- Dairy products
 - handling of cheese
- Potato processing
 - conveying of French fries
 - chips manufacturing



Target industries and applications

Cleandrive features are advantageous in many other food and non-food applications:

- dry food processing (e.g. bakery, cereals, confectionery)
- food packaging lines
- material handling applications
- metal detection lines
- special design like incline or decline conveyors with cleats and sidewalls





Cleandrive belts have been successfully tested in

- meat & poultry processing applications in New Zealand, USA, Netherlands, Germany, Italy and France
- fish and dairy applications in New Zealand
- deep frozen potato processing applications in Holland
- salad/vegetable processing applications in Denmark
- bakery and frozen vegetable applications in Germany
- special design like Z-conveyors, flighted conveyors, combination with various drive configurations (see Habasit Cleandrive Engineering Guide)

With very positive response throughout the whole testing period → learn on the following slide what customers said about Habasit Cleandrive belts...



...Habasit Cleandrive proved to:

- be **easy** and **efficient to clean** due to the smooth surface
- have a **strong** and reliable **joint**, no breakage and much better visual impression than similar brands in the market
- be much **stronger than** comparable **competitor** belts
 - **no creep** at all
 - **stable dimension** and **reliable** sprocket **engagement**
 - **avoided sudden breakdown** even in an emergency case where a heavy chunk of frozen potato severely damaged the belt
- **outperform competition** in a direct comparison, two similar conveyors next to each other, whereas Cleandrive achieved a much longer service-life
- show **less microbial counts** than a plastic modular belt after cleaning in the same process (poultry industry)

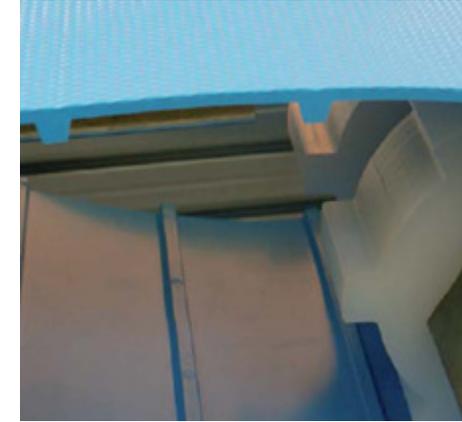
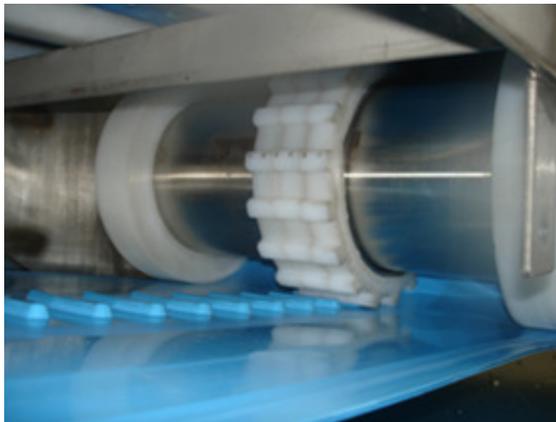
MOL – Thermodrive

- first generation featured machined reverse side – poor hygiene
- meanwhile overcome, but belts are still made by joining multiple sheets (10ft / about 3m) – belt strength limited
- tooth dimension not ideal for a good, continuous sprocket engagement
- strength: range of accessories and fabrication options, wider width (42")
- strong promotion, but limited to America (and UK/NL)
- products available in 50mm and 26mm pitch in blue and white TPU and TPEE – different surface structures



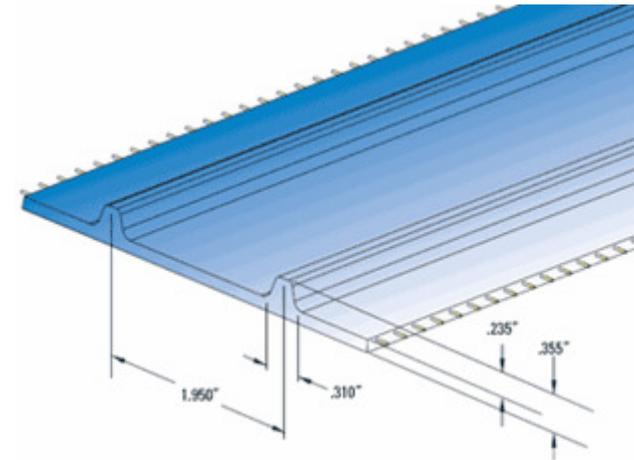
Volta

- **SuperDrive** guiding strip not over full belt width – so precise sprocket position needed
 - post-forming of tracking bars leads to sink marks – hygiene risk
 - good quality monolithic material (TPU and TPEE) – but very stiff – so additional support for sprocket engagement required
- late addition: **DualDrive** with 50mm pitch (tracking bars over full width) and **DualDrive SP** (20mm pitch, tracking bars over full width); maximal belt width 60”
 - DualDrive – similar small drive bars as MOL, extrusion marks on tooth
 - DualDrive SP: small transfers, needs specific rollers/sprockets



■ Gates – Mectrol: PosiClean

- timing belt construction, up to 36 inch wide
- featuring 2 inch pitch of PMB
- TPU with Kevlar reinforcement – reduced creep – but narrow slitting lane limits use
- limits in on site joining – only 50 % of admissible load compared to factory joining
- longitudinal seam of forming wheel visible on tracking bars – sprocket engagement limits



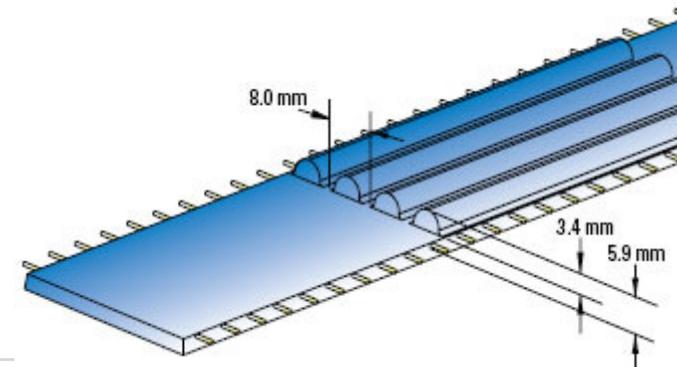
■ Gates – Mectrol – CenterClean

- 8 mm pitch, curvilinear design, allocated in center of belt only
- OEM focus – limited success so far



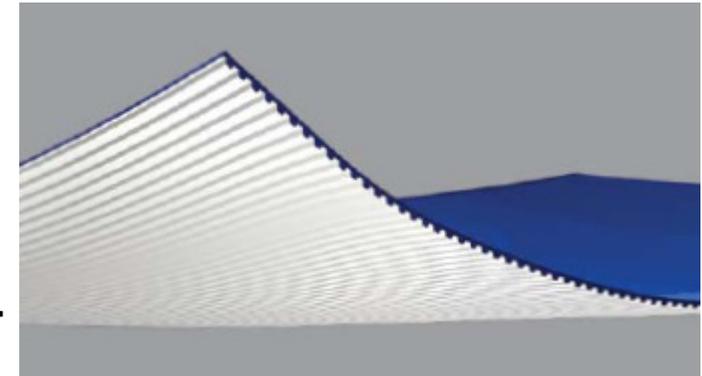
■ both Gates – Mectrol concepts

- presented early 2007
- slow pace in the US – appeared second half of 2008 in other markets
- timing belt approach in promotion



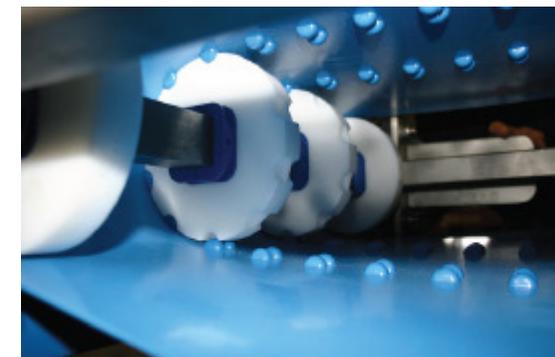
Ammeraal Ultrasync belts

- T10 timing belt pitch
- available with TPU, TPE and Silam top side coating, fabric tensile member
- with glossy, matt and embossed surface finish
- so far only pushed in few markets (UK, CZ)
- according to known documentation currently not targeting wet food processing applications
- max. width 1000mm



Ammeraal Soliflex PRO (2" pitch)

- similar concept like Ontario's Cogveyor
- till now only seen once in an application (Vion meat processing plant in NL)



Soliflex PRO homogenous belts
• the ultimate hygienic solution

Other competitors

■ Ontario Belting – Cogveyor:

- 2.44” pitch, belts 72” wide / 240ft long
- available in TPU and TPE material
- accessories: flights, v-guides, sidewalls
- needs special sprockets, no retrofit on PMB
- cogs = tracking element, added by poor quality welding
- limited network (North America, agents e.g. in UK, IRL, ESP, FRA)



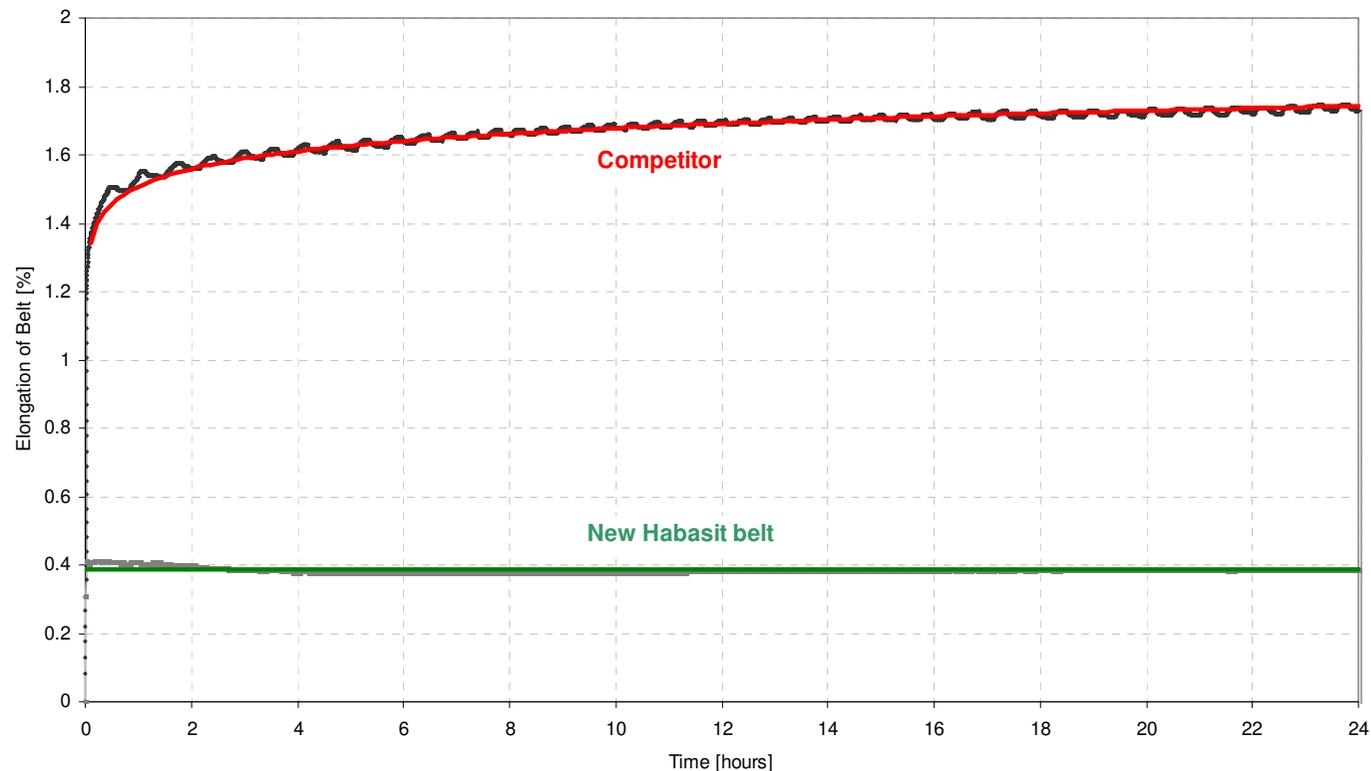
■ Forbo Movement Systems – started to promote similar product to Cleandrive in 2009 but so far only seen in Holland and UK

■ MAFDEL France – DEL DRIVE 50A, 920mm wide, recently appeared in the market – need to monitor further moves

Comparison of important parameters

- Cleandrive versus competition – elongation:

The new Habasit concept shows a by far lower elongation



- Cleandrive further proved to be as good or better in terms of chemical resistance against common cleaning agents and disinfectants



Cleandrive belt selection considerations

- Evaluate existing processes and belts – try to identify:
 - confirmed or latent customer pains
 - possibilities for savings or process improvements
 - what could be different/better vs. today's situation
 - aim to quantify and confirm improvements/savings
- Possible reasons to select a Cleandrive belt:
 - hygiene requirements or problems
 - failure of a competitor positive drive belt (e.g. joint breakage or elongation)
 - customer has issues with edge fraying
 - etc.



Cleandrive limitations

- When is Cleandrive not the optimal choice?
 - load exceeding admissible values → plastic modular belts
 - high impact and cutting → plastic modular belts
 - tight transfers → fabric belts or one inch Cleandrive
 - special chemicals or process conditions → plastic modular belts (e.g. +ST or +UVC materials)

Never forget: Habasit is able to select the most ideal product for an application!



Cleandrive documentation and communication tools

- technical information
- promotion material

Technical information

- Cleandrive Engineering Guide (6033BRO)
- Product Data Sheets (PDS)
- Slitting / Cutting Instructions
- Joining Data Sheets (JDS)
- Joining Instruction for Butt-End welding with PQ-601, incl. video demonstration
- Sprocket drawings



Promotion material

- Cleandrive Product Brochure (4238BRO)
- Cleandrive Application Flyer (4260FLY)
- HabaTOOL PQ-601 Joining Device Flyer (4274FLY)
- Cleandrive Web pages (see: www.habasit.com)
- Cleandrive press material and editorial article
- Cleandrive PowerPoint presentation
- *documented success stories and testimonials to come*





Summary and conclusions

- Cleandrive is an additional option by Habasit to provide the ideal belt solution for hygiene sensitive food applications
- Cleandrive is an advanced range of extruded positive driven belts with the best, proven performance in its class
- Cleandrive stands for:
 - improved cleanability and hygienic design
 - reliable tracking and sprocket engagement
 - chemical and wear resistant food grade material
 - ability to achieve improvements in various food processes

**Habasit's new food belting solutions fulfill
tomorrows sanitation standards today!**