



ELEKTROTECHNIK | BILDVERARBEITUNG | ANLAGENBAU

bertram

# Orientator





# Why Orientate?

- Improved inspection
  - When placed before inspection
    - Correctly orientated containers allow a high level of accuracy in inspection systems
    - Complex designs can be inspected properly
  - Drop in customer complaints
    - More accurate inspection results in better quality products
    - Customer complaints are expensive in cost and reputation, so correctly orientated containers save money and improve reputation



# Why Orientate?

- Palletising
  - Stable packaging of shaped products
    - Allows shaped products to be packed more closely together
    - Complies with customer's requirements for specific products
- Aesthetically pleasing
  - Display at the end customer looks better
  - Everything facing in the correct direction



# Why Orientate?

- Better transport on conveyors
  - Prevents complex containers from jamming in the transport system
    - If all containers face in the same direction it is more difficult for them to get stuck between the guide rails

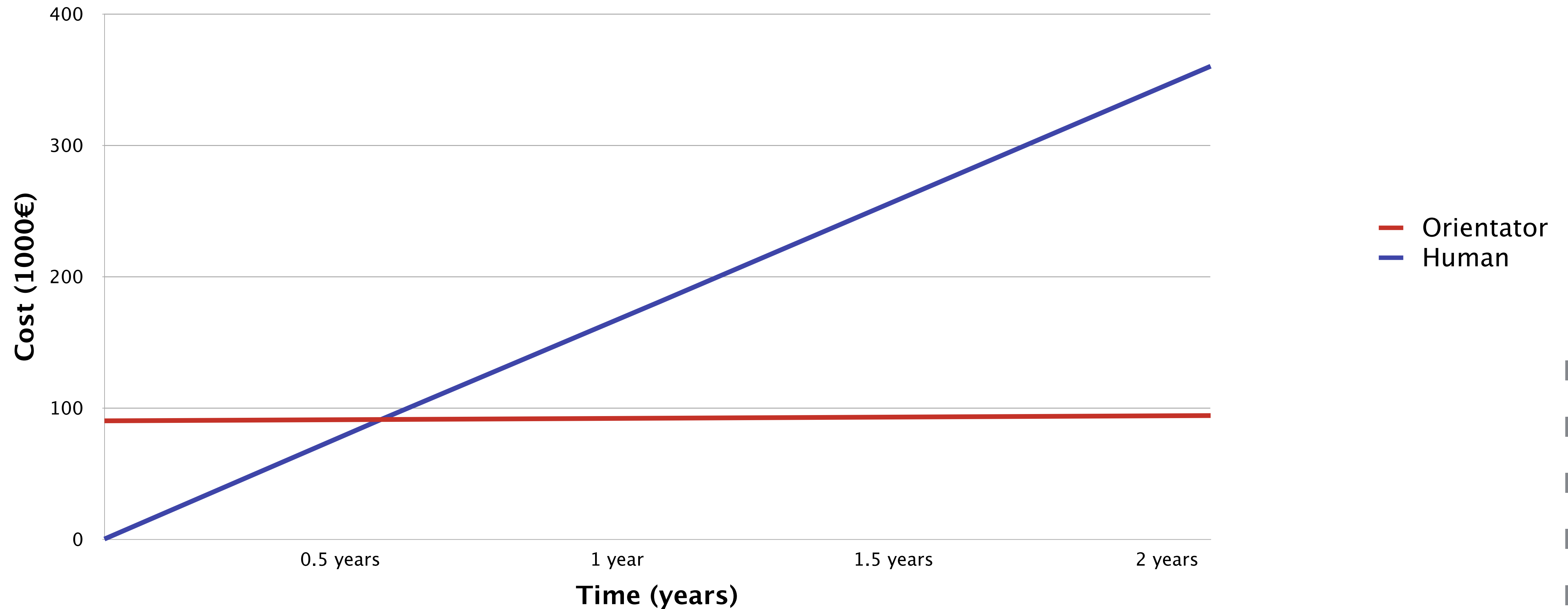


# Cost Saving

	Human	Orientator
<b>Cost</b>	€30,000 – €40,000 person/year	One off payment, approx €95,000
<b>Speed</b>	<50 containers/person/minute	Up to 500 containers/minute
<b>Number</b>	At least 12 people/line/24 hours	1 or 2 per line
<b>Precision</b>	Many variable factors Strenuous, exhausting, monotonous work Distractions possible	Consistent
<b>Performance</b>	Any angle – every container slightly different, low accuracy,	Any angle – with a very high and accurate repeatability at high
<b>Maintenance</b>	Illness, holiday etc – need replacement Numerous shift changes	Few moving parts, therefore low maintenance Remote support available



# Relation of time and cost





# Relation of time and cost

- Quick return of investment
  - The original cost of the system pays itself off within a few months
- Consistently low running costs
- Long term savings



# Bertram Elektrotechnik Orientator

- Quick and Precise Orientation

- Orientate containers to any desired angle
- Orientates stably even at high speeds

Due to the components, containers remain stable even at speeds of up to 500 products/min

- User friendly interface

- Simple operation

- Quick job change

- Few changes between products

Product can be changed easily on the interface

Few adjustments to the hardware between products





# How it works

- 3 main sections
  - Spacer
  - Camera system
  - Turn station



# Spacer

- Ensures minimum gap between products
  - Normal minimum gap is the diameter of one container
- Creates gap by slowing the products minimally
  - The products are held between two toothed belts and slowed to produce the gap
- Reaccelerates products to conveyor belt speed
  - Two more toothed belts hold the products to speed it back up
- Products remain stable
  - Due to the reacceleration, the products remain stable on the conveyor



# Camera System

- Intelligent image processing
  - Fixed camera positions
  - Does not need to be adjusted for job changes
- Recognises entry angle
  - 1 or 3 cameras with corresponding mirrors and lighting
  - Makes a full 360° picture when 3 cameras are used
- Calculates turning angle depending on predetermined leaving angle
  - Using the angle detected by the cameras, the exact angle the product must be turned is calculated



# Turn Station

- Ensures the containers remain at a synchronous speed to the conveyor belt
  - The belts move independently of each other
    - Containers are never turned more than  $180^\circ$  in either direction
    - Belts can move at different speeds and directions to each other
    - Ensures stability
- Long turning area
  - The length of the turning area ensures stability
    - The product turns more slowly and accurately with a longer turning area



# Software

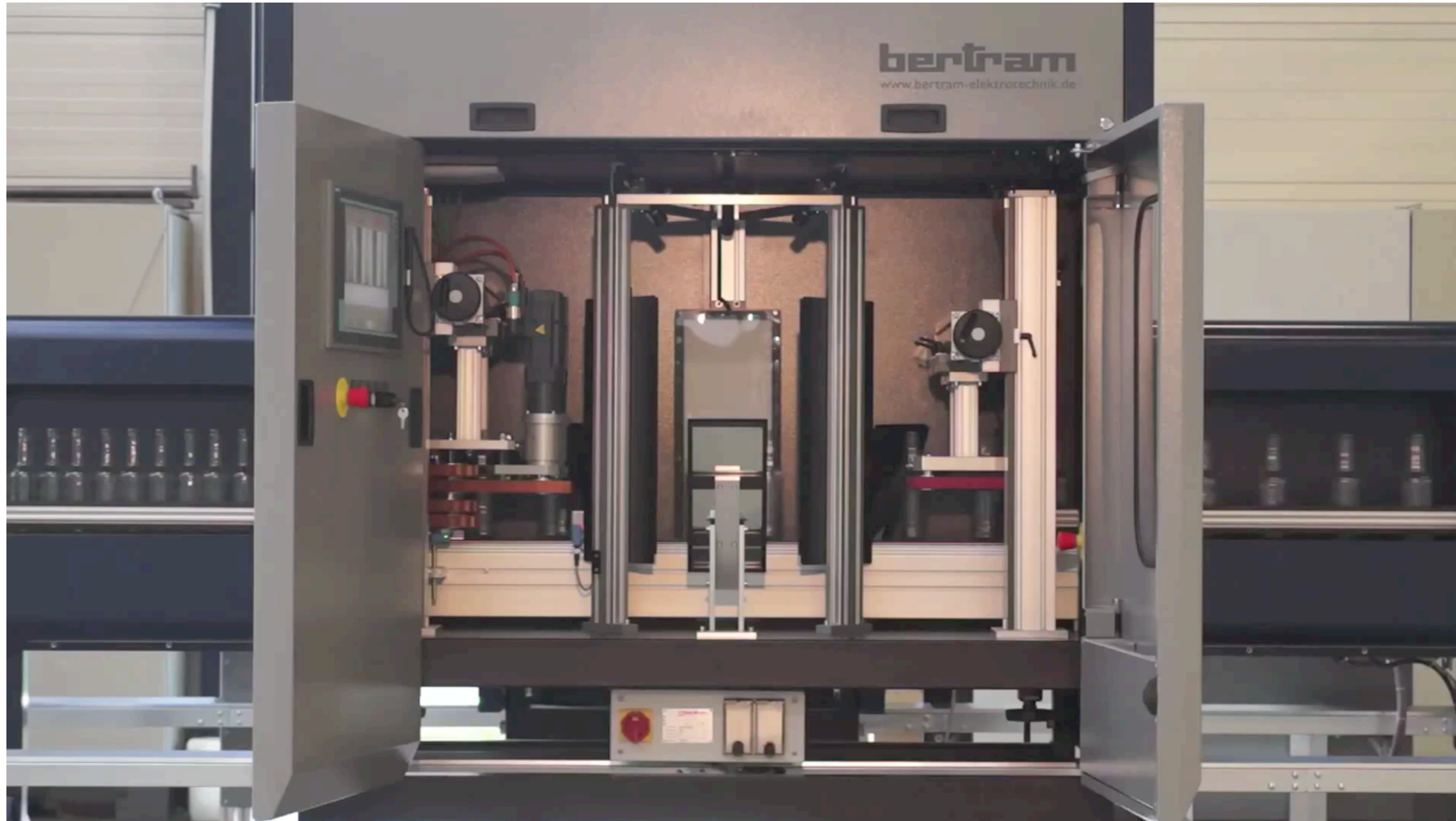
- Developed by Bertram
- Entry angle recognised by:
  - Form
  - Embossing
  - Mouth
- Leaving angle set by operator
  - Simply set using a single container
    - Container must travel through the Orientator in the desired angle
    - Angle is saved by the Orientator and every container following will be orientated into this angle



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# Video





# Technical Data

Width	1740 mm
Height	2215 mm - 2500 mm
Depth	1070 mm
Speed	max. 500 containers/minute
Product Diameter	max. 140 mm
Product height	max. 375 mm