

NPE 2024
The Plastics Show



Thinking the cycle through

The holistic approach for economical and sustainable PET bottle production

NPE show 2024/05/08

 **KRONES**

Who we are



A technology group and service provider at the heart of the beverage and liquid-food industry

Where we work



18,500

Experts

27

Production sites

52

Engineering sites

66

Further subsidiaries
and representative
offices

15

Center

What we achieve – in concrete figures (2023)



5,376.6

million €

Orders received

4,720.7

million €

Sales

457.3

million €

EBITDA

9.7%

EBITDA
margin

18,500

Employees

7,058

Patents and
utility models

Every fourth beverage container in the world runs through one of our lines.

What drives us

Sustainability goals 2030

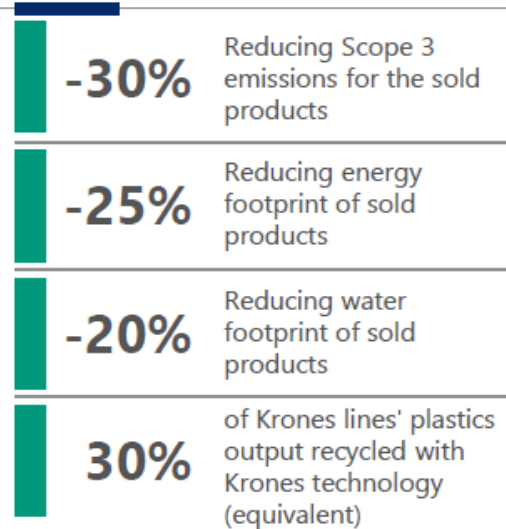
Upstream value chain



Own operations



Downstream value chain



12 KPIs in ESG (Environmental, Social, Governance) for directing sustainability along the value chain until 2030



Until 2040

NET-ZERO

Emissions along the entire value chain



Why should you think about making your own PET-preforms?



It takes almost half of your life before you discover life is a do-it-yourself project.

Oliver Napoleon Hill
Oct. 26, 1883 – Nov. 8, 1970
American self-help author

What are the benefits of PET-preform self manufacturing?



Self manufacturing

- Supply chain control
- Process control
- Quality and hygiene control



Cost savings

- Material savings due to optimized preform design
- Optimization in storage capacity and handling
- Reduction in transportation costs and logistics



Sustainability

- Material savings means energy savings
- Reduction in transportation and logistics means CO₂ savings



How we can empower the industry to use PET efficiently and sustainably?



Filling and packaging technology

- complete filling & packaging line equipment supplier starting from PET preform production

Process technology

- Process equipment for breweries, water factories, soft drink lines and production facilities for juice and dairy products

Intralogistics

- innovative solutions for intralogistics, material flow technology and warehousing

PET Recycling

- Specilized in the production of food grade up to 100% rPET to be used for Preform production (approved by FDA and EFSA)



How we can empower the industry to use PET efficiently and sustainably?



Plant engineering

- plan and develop factories along the entire value chain
- for greenfield and brownfield projects
- Independent consulting and more than 15 years of experience
- with the right tools, processes and methods



| | |
|--------------------------|--|
| Independent advice | |
| Reduced investment costs | |
| Reduced operating costs | |
| Planning security | |

How we can empower the industry to use PET efficiently and sustainably?



Energy and sustainability consulting

- reduce operating costs
- increase sustainability
- lower the CO2 footprint
- guarantees comprehensive and competent support in the achievement of customers sustainability goals

Avoid. Optimise. Recycle.



Strategies for decarbonation

- Climate neutral
- CO₂-neutral
- Self-sufficiency
- Climate balancing



Sustainability analyses

- Sources and sinks
- PINCH
- Sankey



Supply technology audits

- Compressed air
- Refrigeration
- Heating
- General measurements



Energy and media concepts

- Blueprint concepts
- Heat recovery
- Tender documents
- CO₂ bonding

How we can empower the industry to use PET efficiently and sustainably?



Digital solutions

What drives our customers?

- Downtimes
- Waste
- Maintenance planing
- Production parameters
- Employee training and knowledge
- Change-overs
- Consumptions
- Material management

Shopfloor Guidance

Mobile phone HMI

Support Notification

Modular Service Agreement Performance

- Benchmarking your inefficiencies
- Digital Service Center
- Faster analyses
- Efficient action plans
- Continuous improvement

Integrated Analytics

- Customised reports also at corporate level
- Historical analysis of the line output/performance
- Contextualisation of the information (e.g. type comparison)
- Integration of external data (e.g. laboratory, warehouse)

Energy and Media Analytics

- Reports on energy and media consumption
- Contextualisation of the information (e.g. type comparison)
- Integration of external data (e.g. processing and operating materials)

Track and Trace Analytics

- Product tracking
- Material tracking
- Integration of external systems (e.g. warehouse)

Contiloop AI

In detail

- 1 The measuring unit measures the light transmission value of the blown PET containers during a Krones run.
- 2 This value is then passed to the Contiloop AI.
- 3 The collected data is passed on to the Krones AI platform.
- 4 A so-called AI pipeline of the Krones AI platform is used to gather the data to generate an AI-based report.
- 5 After completing the training, the AI report is transferred to the Contiloop AI and is available for production mode.

How we can empower the industry to use PET efficiently and sustainably?



World wide service network

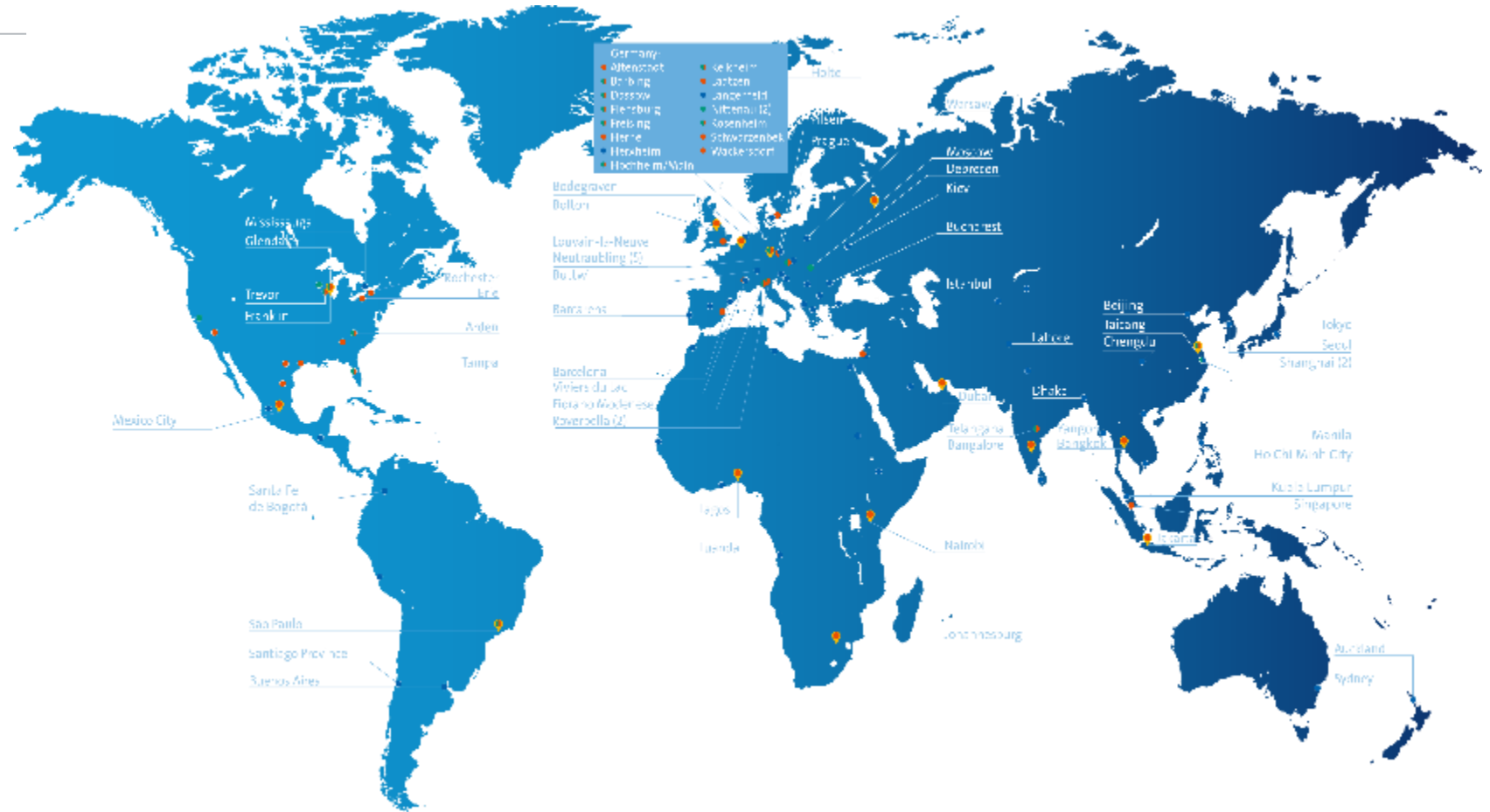
5,600

27 ● Production sites

52 ● Engineering sites

66 ● Kronos subsidiaries and representative offices

15 ● Centre



How we can empower the industry to use PET efficiently and sustainably?



Packaging design and consulting


- **specification** according to the requirements of the use case
- consulting for the right **neckfinish**
- consulting for the right **cap**
- matching **preform** design, best fit for injection and blowing
- **material** is taken into account, design from and for recycling, rPET-ready
- individual **bottle** designs, for your application
- the **package weight** that fits your requirements

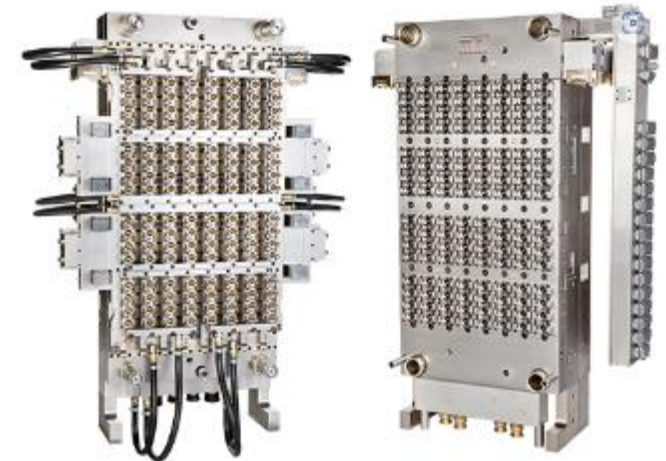
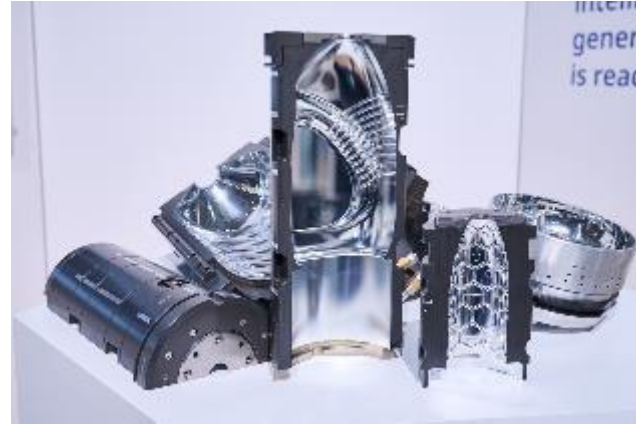


How we can empower the industry to use PET efficiently and sustainably?



Mold engineering and manufacturing

- ~ 20.000 blow molds per year
- > 850 blow mold tests per year
- Pilot plants with blowing machines (single head and rotary machines)
- New pilot plant with injection machines (for up to 144 cavity tools)
- Injection molds by  - the mold defines the quality



How we can empower the industry to use PET efficiently and sustainably?



Krones as a turnkey partner – From pellet to pallet

- One stop shop – single point of contact – clear responsibilities
- Service and third-party coordination for the whole system
- Huge experience in all areas of the PET cycle
- Project coordination for the whole project
- Smart factory planning for optimized footprint
- Packaging development incl. preform design and neck / closure consulting
- Integrated concept for low energy consumption and low packaging weights
- Commercial strong & secured partner



Netstal PET-Line KRONES Prefero





Jochen Forsthoewel
Product Management - Plastics Technology
KRONES Group
for NPE 2024/05/08

**SOLUTIONS
BEYOND
TOMORROW**

