

HERRENKNECHT FORMWORK

Warsaw, 27th May 2025



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Head of Division Formwork

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Herrenknecht AG

Schlehenweg 2

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Germany



AGENDA

Division Formwork 01

- Field of activities & product portfolio
- Typical examples for stationary & carousel setup

Highlight Projects 03

- T-283 Gotthard Süd (MARTI)
- T-290 Gotthard Nord (Implenla-Frutiger)

Automatization / Digitalization 02

- Hydraulically operated moulds
- Robot Applications
- AI (KI) Machine Learning
- Automated casting & vibration

Projects with manufacturing in Poland 04

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HERRENKNECHT FORMWORK MARKETS

PRODUCTION EQUIPMENT FOR TUNNELLING

-  Water | Wastewater | Hydropower
-  Cabletunnels, etc.
-  Metro, Railway, Roadtunnels

PRODUCTION EQUIPMENT FOR RAILWAY

-  Slab tracks and turnout moulds for high-speed railway

PRODUCTION EQUIPMENT FOR WINDTOWERS

-  Hybridtowers (~180 m height), steel and concrete segments

PRODUCTION EQUIPMENT FOR WASTEWATER

-  Combisegment-Panels (HD-PE)

ADDITIONAL EQUIPMENT

-  Concrete-Sensors
-  SDS (VMT) / HKconnected
-  LIS (VMT) 3D-measurement
-  EOT-Cranes
-  Gantry-Cranes
-  Batching plants
-  Concrete transport & distribution

SERVICES

-  Assembly
-  Commissioning
-  Training
-  Transports
-  Consultancy

HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

SEGMENT MOULDS



HANDLING EQUIPMENT



STATIONARY & CAROUSEL SYSTEMS



AUTOMATION / ROBOTICS



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

SEGMENT MOULDS

HIGH-PRECISION STEEL MOULDS

- › Ø 2 m to Ø 16 m
- › Left/Right/Straight
- › Universal
- › Stationary or carousel type
- › Fully adjustable **and** re-adjustable
- › **OPTION:** Fully hydraulically operated



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

HANDLING EQUIPMENT

DEMOULDING



Vacuum Plate EXTRADOS



Vacuum Plate INTRADOS



1-Segment-Clamp



Multi-Segment-Clamp



Transport Trolley

TURNING



2 x 90° Tilting Table



1 x 180° Turning Table



180° Turning Clamp



All-in-one-device

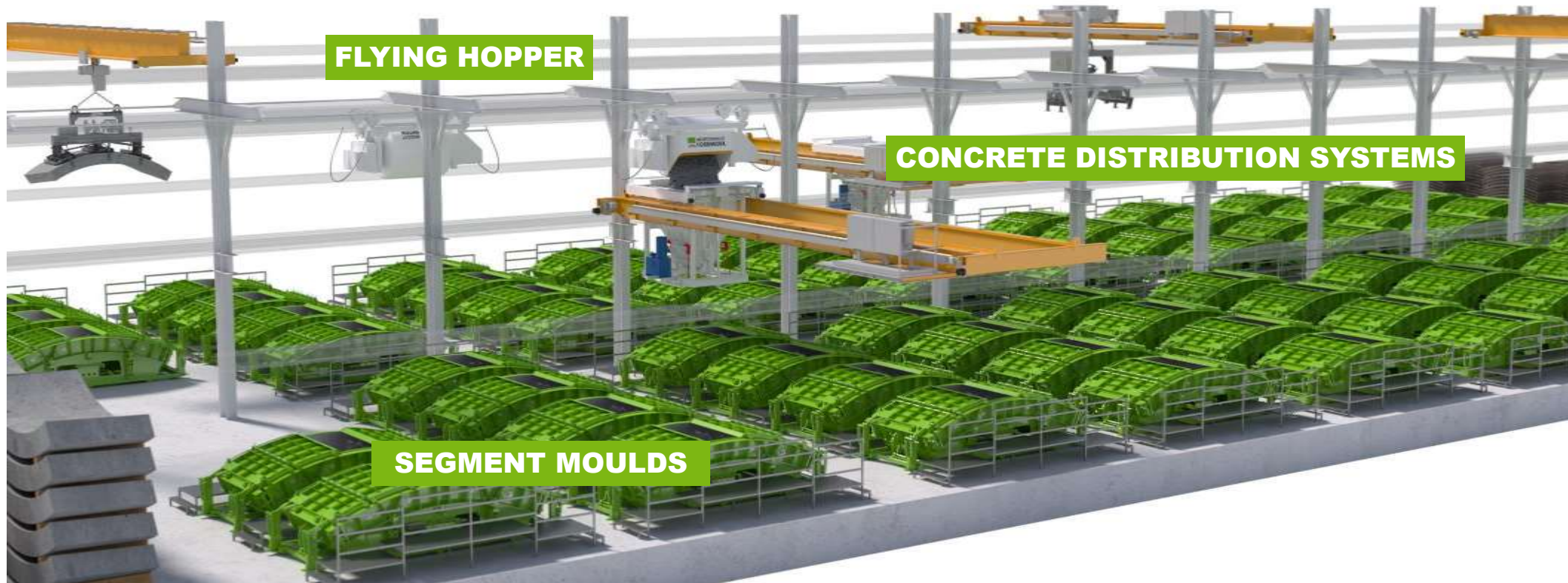
GASKET PRESS



Gasket sealing press

HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

STATIONARY PRODUCTION SYSTEMS



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

STATIONARY PRODUCTION SYSTEMS

TYPICAL EXAMPLES FOR STATIONARY PRODUCTION SETUP

HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

STATIONARY PRODUCTION SYSTEMS



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

STATIONARY PRODUCTION SYSTEMS



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

STATIONARY PRODUCTION SYSTEMS



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

STATIONARY PRODUCTION SYSTEMS



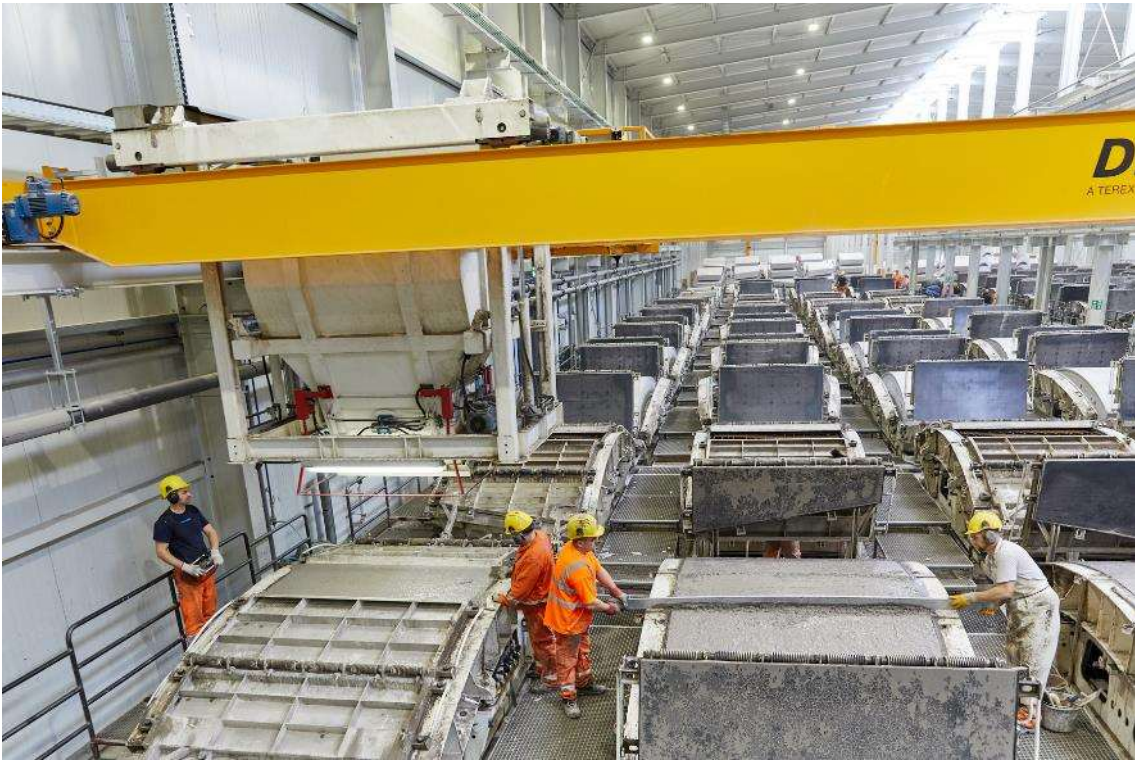
HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

STATIONARY PRODUCTION SYSTEMS



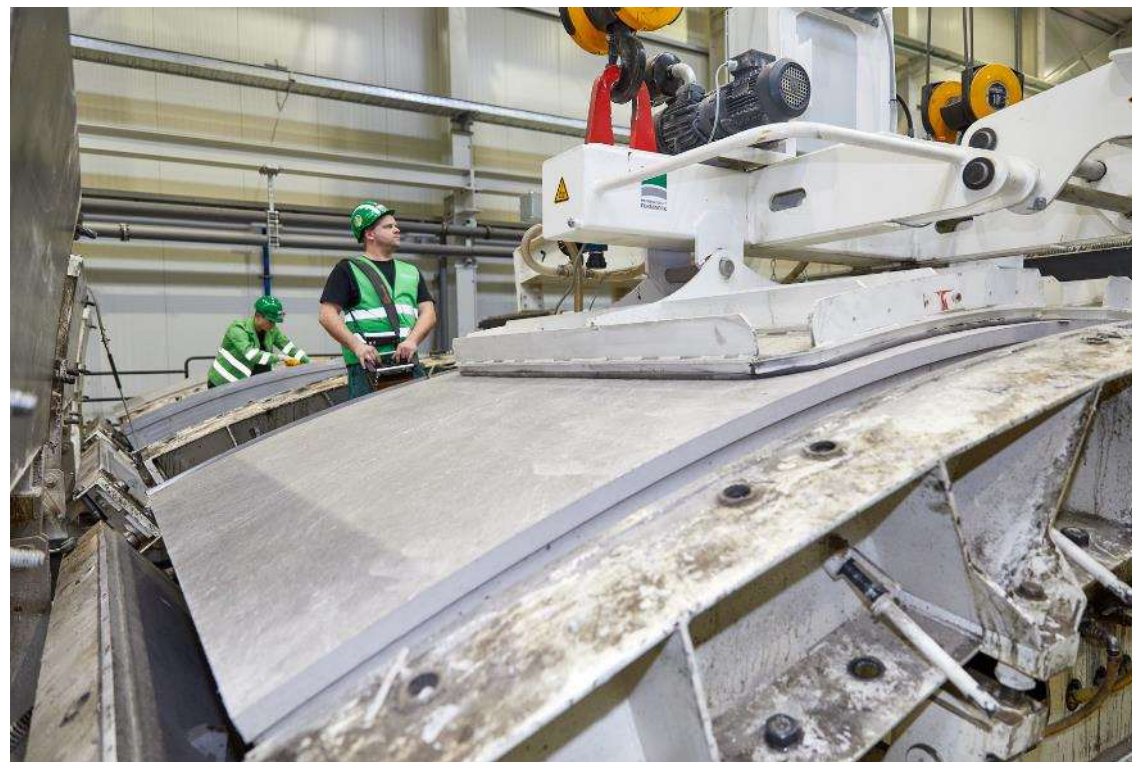
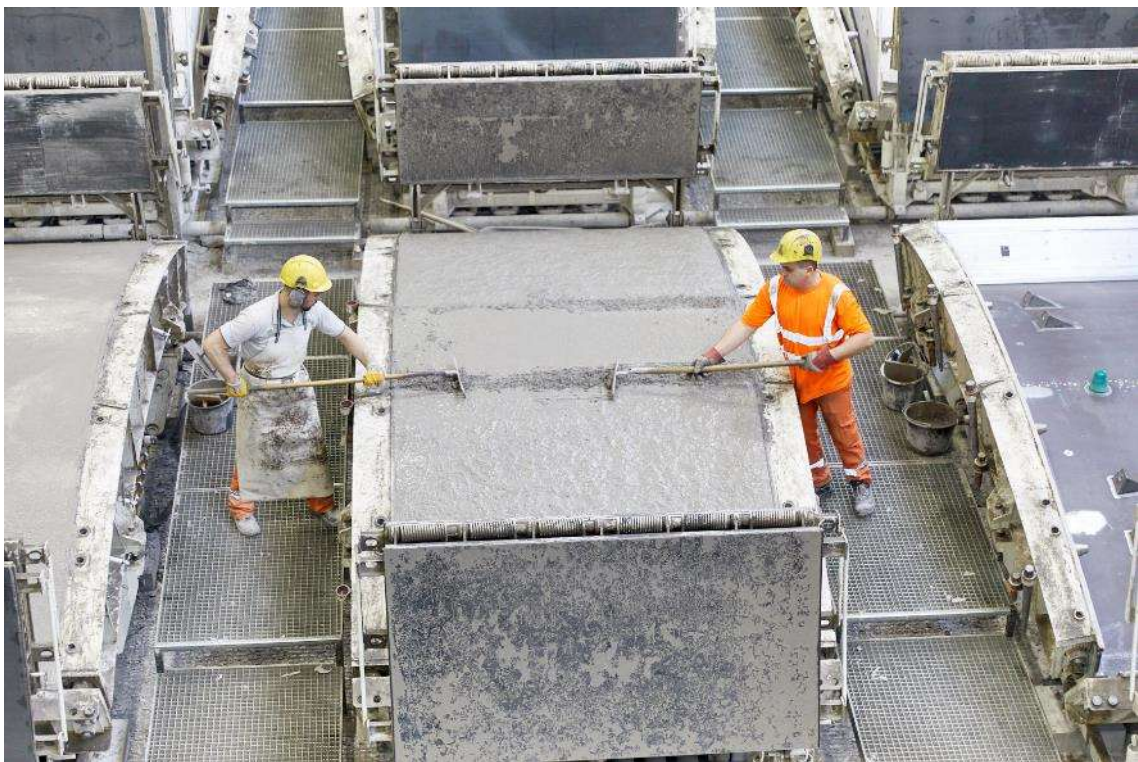
HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

STATIONARY PRODUCTION SYSTEMS



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

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STATIONARY PRODUCTION SYSTEMS



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

STATIONARY PRODUCTION SYSTEMS



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

STATIONARY PRODUCTION SYSTEMS



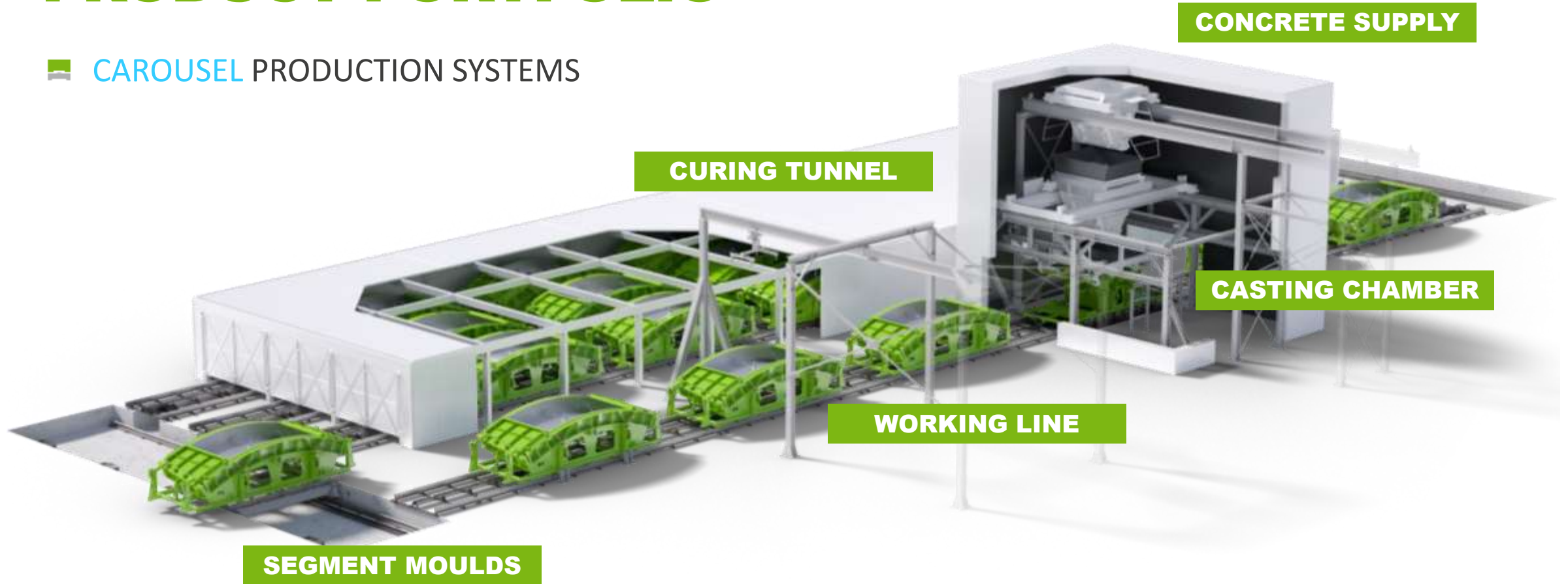
HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

STATIONARY PRODUCTION SYSTEMS



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

CAROUSEL PRODUCTION SYSTEMS



HERRENKNECHT FORMWORK **PRODUCT PORTFOLIO**

CAROUSEL PRODUCTION SYSTEMS

TYPICAL EXAMPLES FOR CAROUSEL PRODUCTION SETUP

HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

CAROUSEL PRODUCTION SYSTEMS



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

CAROUSEL PRODUCTION SYSTEMS



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

CAROUSEL PRODUCTION SYSTEMS



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

CAROUSEL PRODUCTION SYSTEMS



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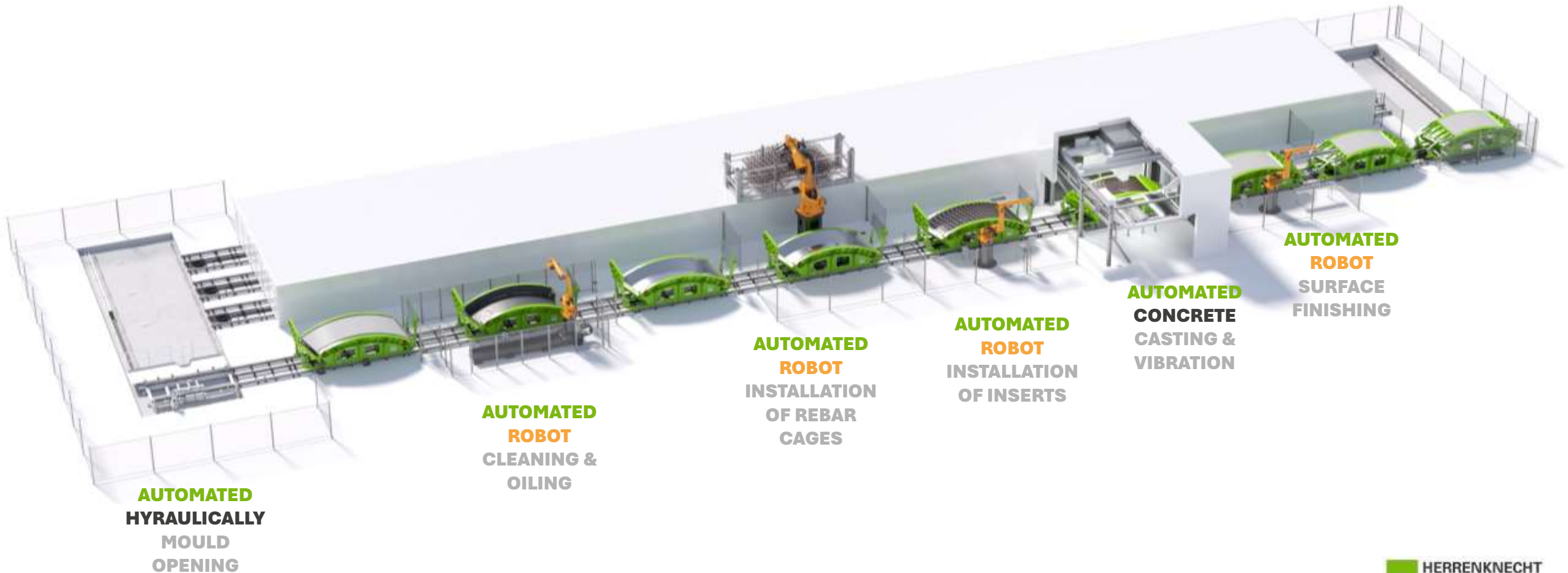
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Projects with manufacturing in Poland 04

Stefan Medel | Herrenknecht AG | Division Formwork

AUTOMATION

OVERVIEW / STATE OF THE ART



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

HYDRAULICALLY OPERATED MOULDS



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

HYDRAULICALLY OPERATED MOULDS



HYDRAULICALLY OPERATED MOULDS - **OPENING**



HYDRAULICALLY OPERATED MOULDS - **CLOSING**

HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

HYDRAULICALLY OPERATED MOULDS



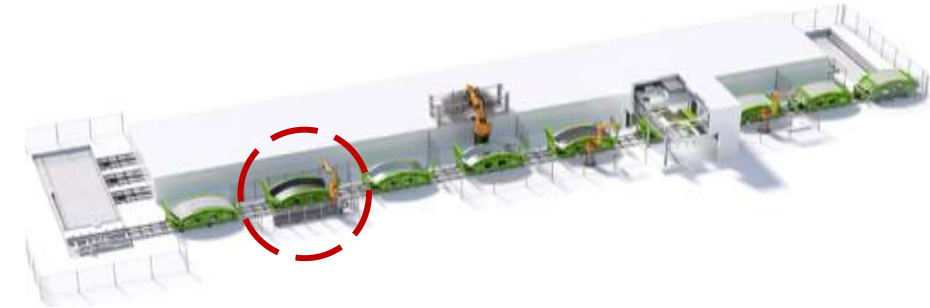
HYDRAULICALLY OPERATED MOULDS - **OPENING**



CASTING WITH FULL COVERS

HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

ROBOT CLEANING & OILING



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

ROBOT APPLICATIONS



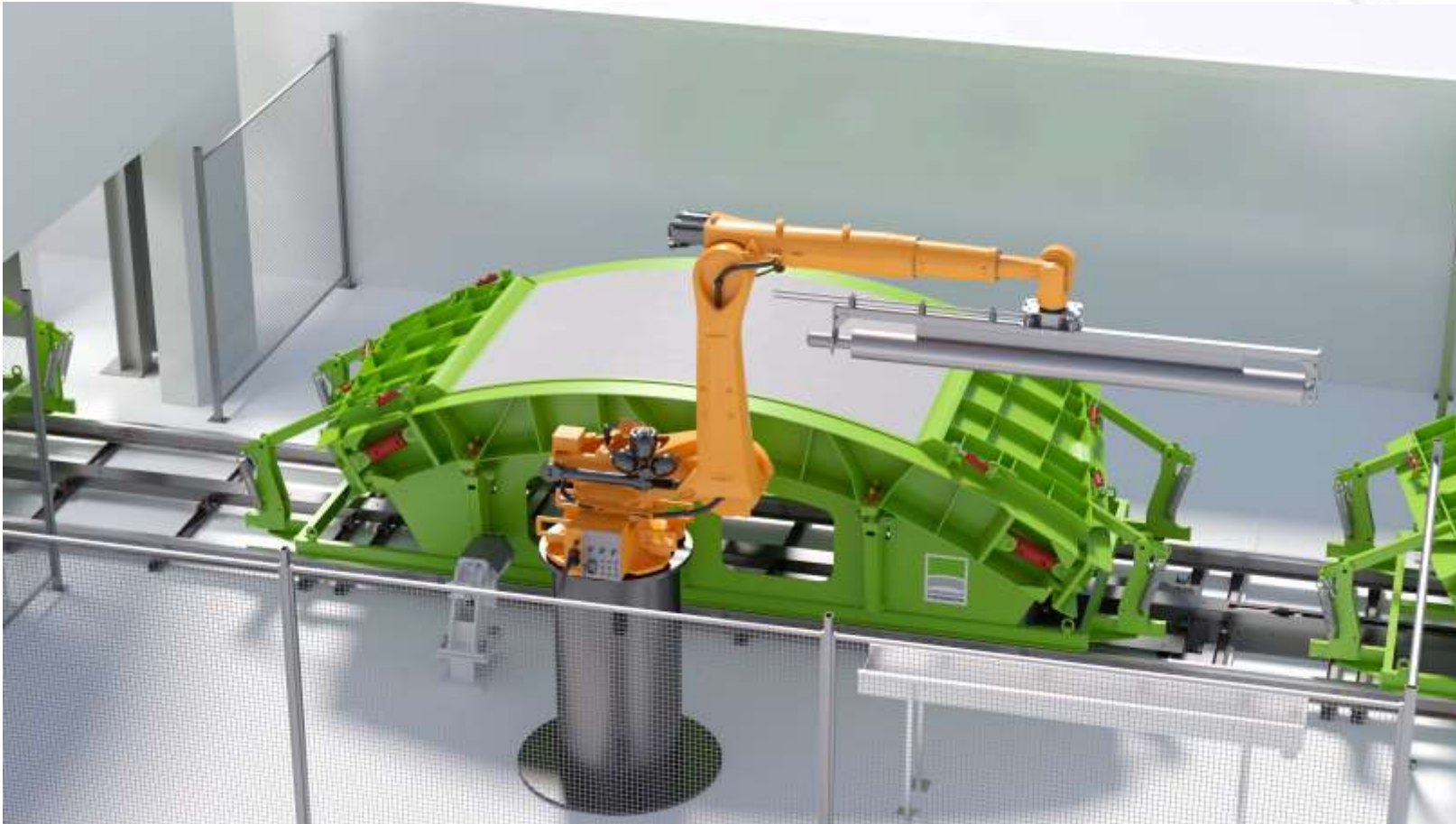
MOULD CLEANING & OILING (with tool change)



MOULD CLEANING & OILING (multi-tool)

HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

ROBOT SURFACE FINISHING



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

ROBOT APPLICATIONS



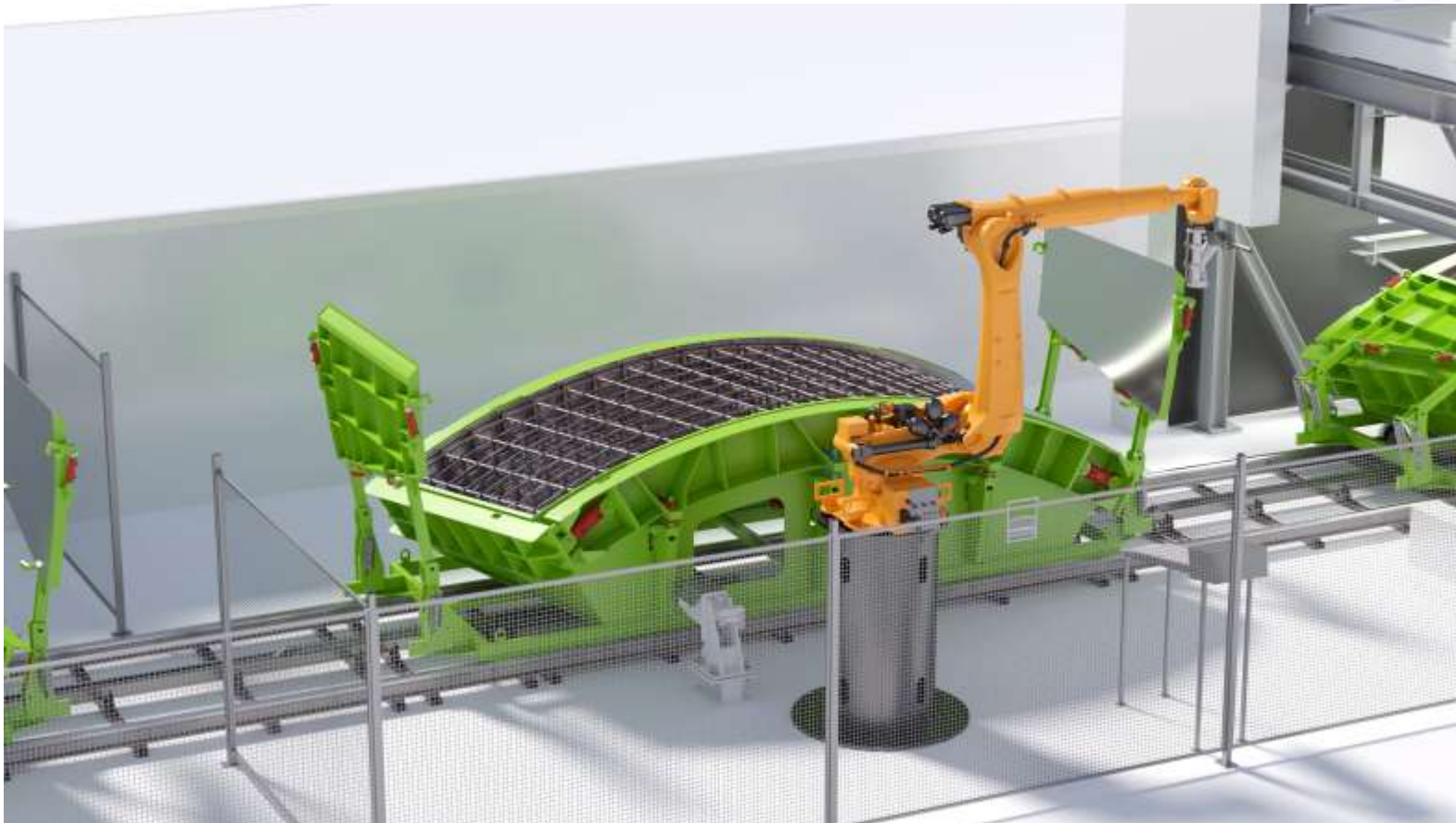
SURFACE FINISHING



**BRENNER
BASE TUNNEL
H41
(Implenia-
Webuild)**

HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

ROBOT FOR INSERTS



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

ROBOT APPLICATIONS



MOUNTING INSERTS



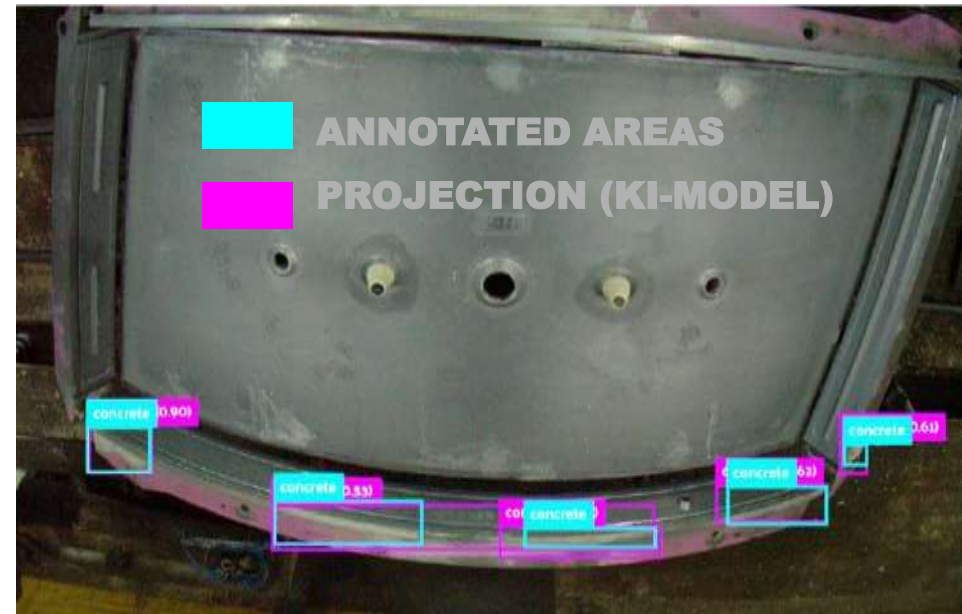
MOUNTING INSERTS

HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

ARTIFICIAL INTELLIGENCE (AI / KI)



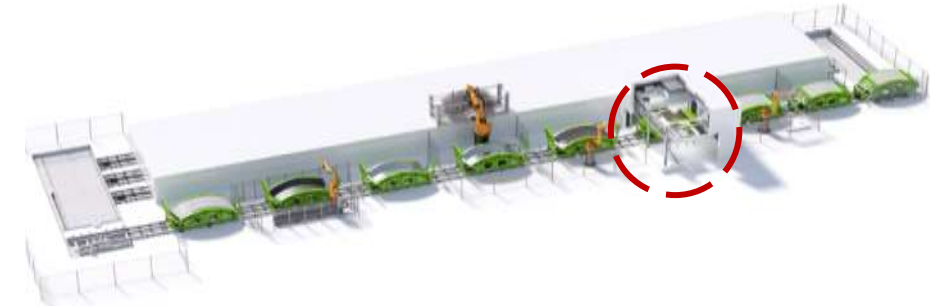
QUALITY CHECK AFTER FINISHING



QUALITY CHECK AFTER CLEANING

HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

AUTOMATED CASTING



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

■ FULLY AUTOMATED CASTING AND VIBRATION



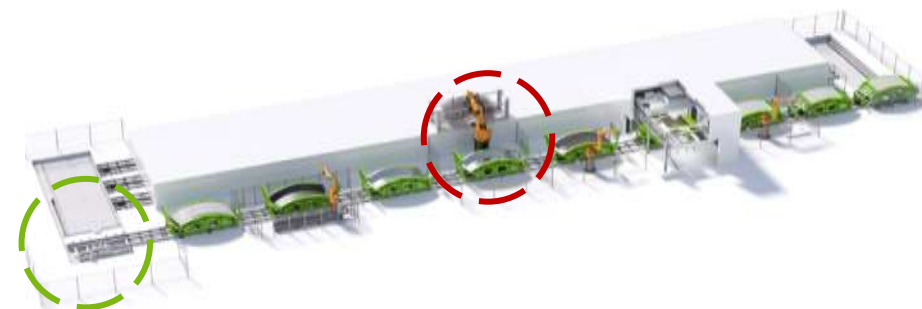
VIBRATION PROCESS FULLY AUTOMATED



CASTING PROCESS 95% AUTOMATED

HERRENKNECHT FORMWORK PRODUCT PORTFOLIO

ROBOT FOR REBAR CAGES



HERRENKNECHT FORMWORK PRODUCT PORTFOLIO



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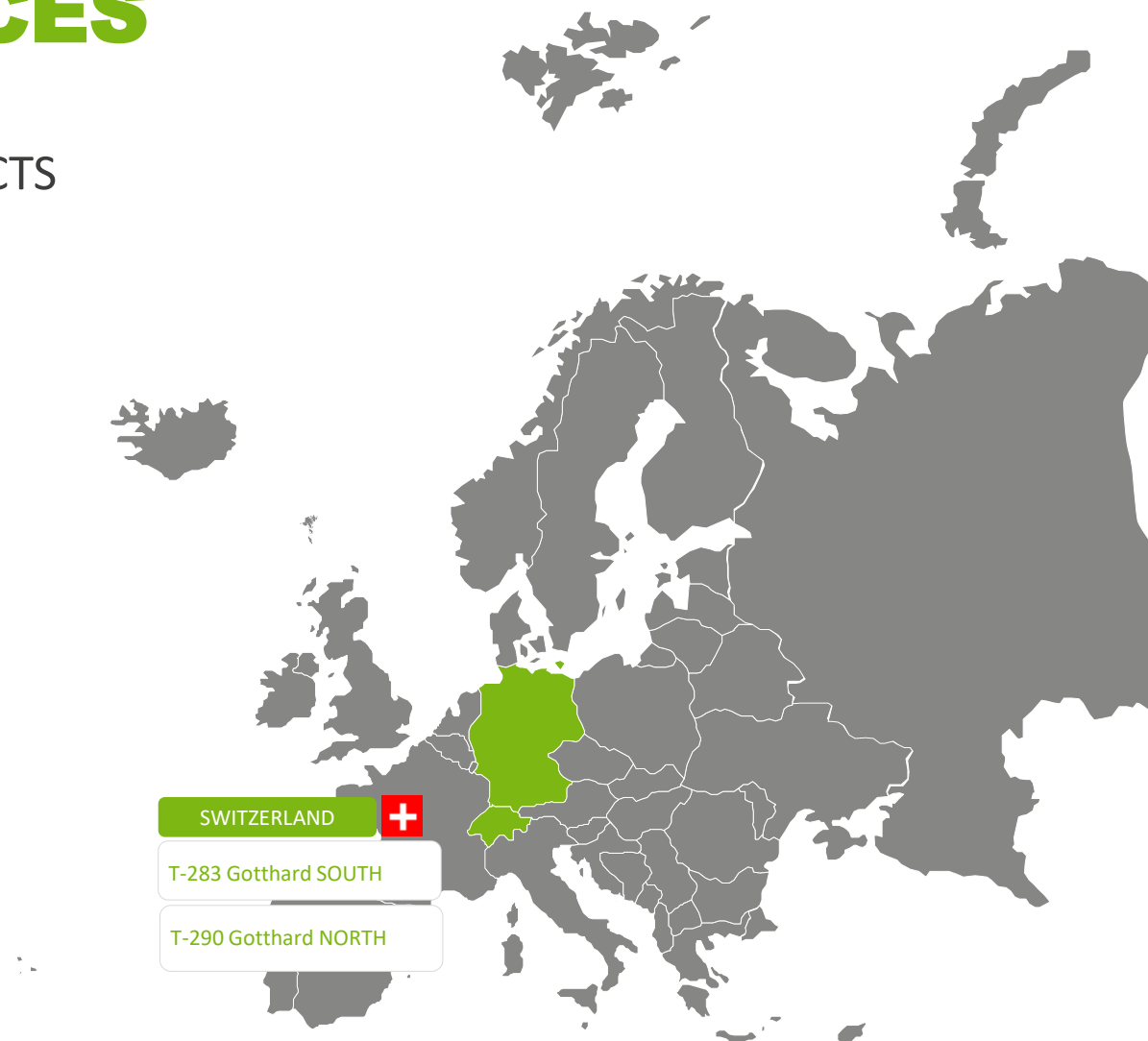
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HERRENKNECHT FORMWORK REFERENCES

 HIGHLIGHT PROJECTS



HERRENKNECHT FORMWORK REFERENCES



SWITZERLAND - AIROLO T-283 GOTTHARD SOUTH



Customer: MARTI

5 sets of segment moulds

carousel system with 3 curing lines

Robots for cleaning and surface finishing

Robot for rebar cage placing

Robot for removing waste concrete

Hydraulically operated moulds

Automated casting & vibration

SDS / Concretmote / KI for quality check

Heating System (Electric)

HERRENKNECHT FORMWORK REFERENCES

CHALLENGES

- HIGHEST LEVEL OF AUTOMATION
- CUSTOMER WANTS TO RUN THE CAROUSEL
WITH **2 WORKERS** ONLY !



SWITZERLAND - AIROLO
T-283 GOTTHARD SOUTH



HERRENKNECHT FORMWORK REFERENCES



SWITZERLAND - GÖSCHENEN T-290 GOTTHARD NORTH



Customer: Implenia - Frutiger

5 sets of segment moulds

carousel system with 2 curing lines

Evacuation line

Robots for cleaning and surface finishing

Hydraulically operated moulds

Rebar cage transfer

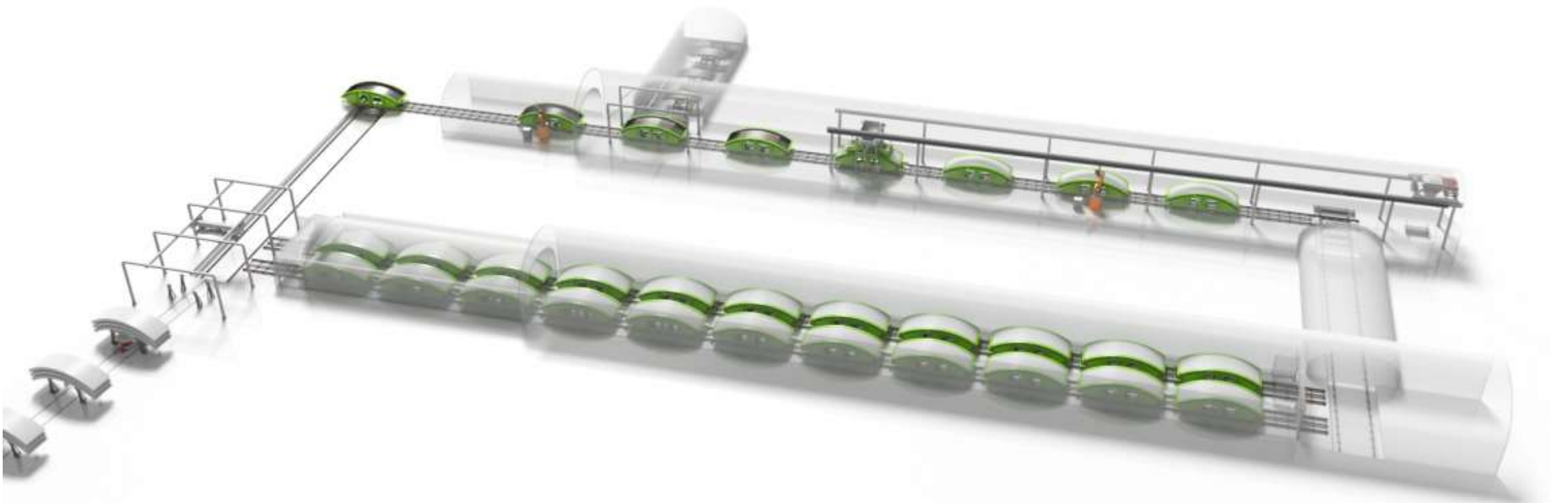
SDS / Concretmote / Cranes

Heating System (Electric)

Installation in former military caverns

HERRENKNECHT FORMWORK REFERENCES

SWITZERLAND - GÖSCHENEN
T-290 GOTTHARD NORTH



HERRENKNECHT FORMWORK REFERENCES

CHALLENGES

- INSTALLATION IN SMALL CAVERN
- NO OVERHEAD CRANES FOR INSTALLATION
- VERY HIGH LEVEL OF AUTOMATION
- INTERFACES TO REBAR CAGE PRODUCTION
- INSIDE CONCRETE TRANSPORT



SWITZERLAND - GÖSCHENEN T-290 GOTTHARD NORTH



HERRENKNECHT FORMWORK REFERENCES

SWITZERLAND - GÖSCHENEN
T-290 GOTTHARD NORTH



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HERRENKNECHT FORMWORK

PROJECTS WITH SEGMENT MANUFACTURING IN POLAND



2011 Vistula River Crossing

HERRENKNECHT FORMWORK

PROJECTS WITH SEGMENT MANUFACTURING IN POLAND



2014 Gdansk

HERRENKNECHT FORMWORK

PROJECTS WITH SEGMENT MANUFACTURING IN POLAND



2020 Swinoujsja

HERRENKNECHT FORMWORK

PROJECTS WITH SEGMENT MANUFACTURING IN POLAND



2020 Lodz

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PROJECTS WITH SEGMENT MANUFACTURING IN POLAND



2022 Rzeszow S19

HERRENKNECHT



Tunnelling Systems