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MORE PRODUCTION - LESS RISK!





ZIMMERMANN & JANSEN

Drum Unheading Technology to Enhance Safety and Productivity

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MORE PRODUCTION - LESS RISK!

Calgary, Canada
September 11 – 18, 2009

Agenda



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- **Z&J Company - since 1877**
- **Delayed Coker - Generic**
- **Z&J Product offering**
- **Double Disc – Single Disc.....**
- **Z&J Double Disc – Details and Features**
- **Actuation Options**
- **Final Considerations**



Production Capabilities



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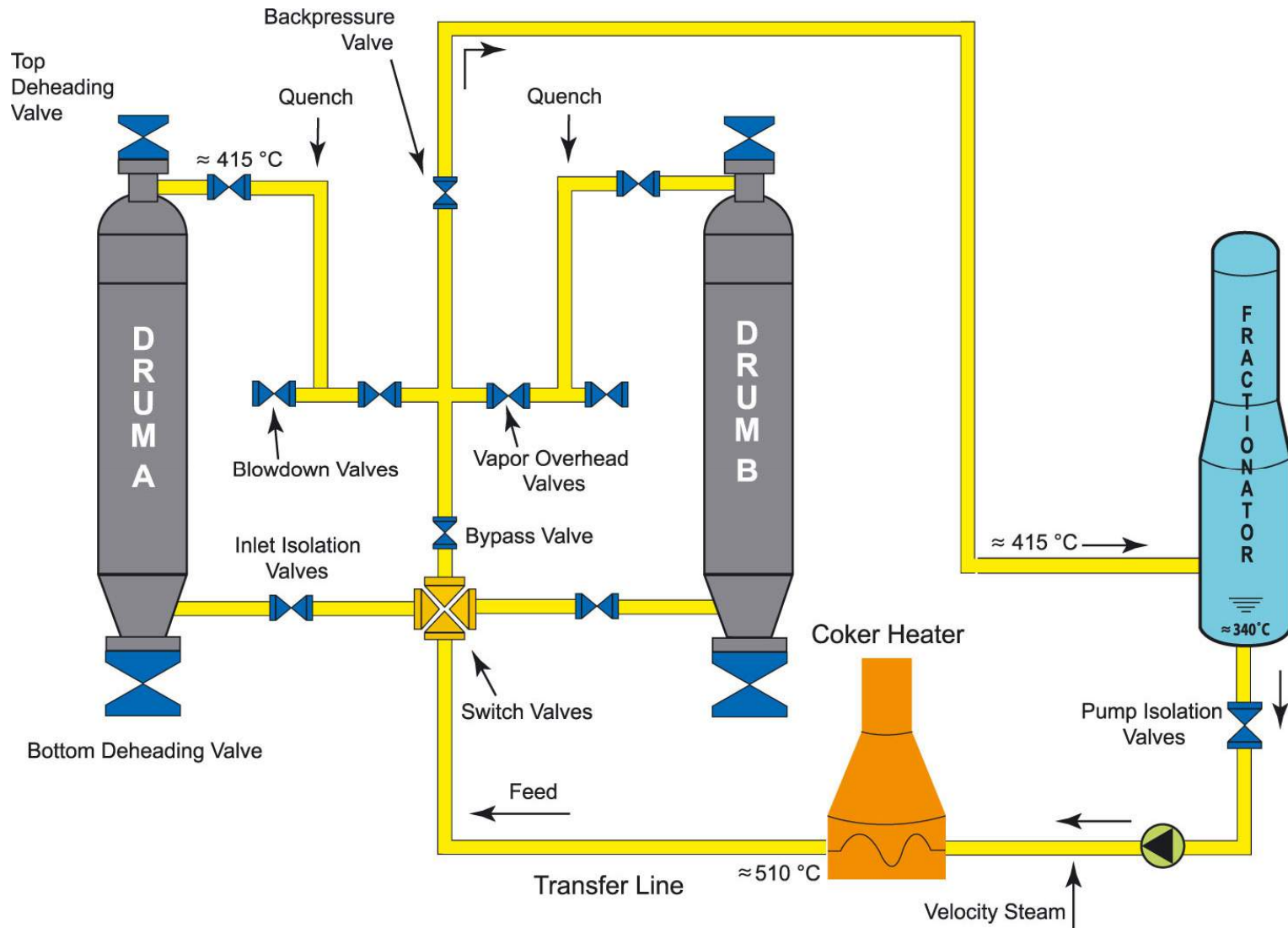
Large Production Area & continued hiring of qualified Personnel



Z&J Technology Applications



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DC Product Offering



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Isolation



Top Unheading



Spring Hangers



HPU



Bottom Unheading

Z&J's Unique Technology



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- **What are the differences to conventional single plate sliding valves ?**
- **What makes Z&J's Unheading Technology so unique ?**

Z&J's Unique Technology⁽¹⁾



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- Double Disc - Triple Seal & Purge - 100% tight
- Circular discs
- Active seating force
- Scraper and guide plates avoid coke fines entering body
- No cooling water
- Manual or automated blocking pin

SAFETY

- Ability to throttle coke & water mixture
- Minimize maintenance downtime
- No need for capital spare parts
- Low steam consumption

ECONOMICS
BOOSTING CAPACITY

Double Disc vs. Single Plate Slide Valve



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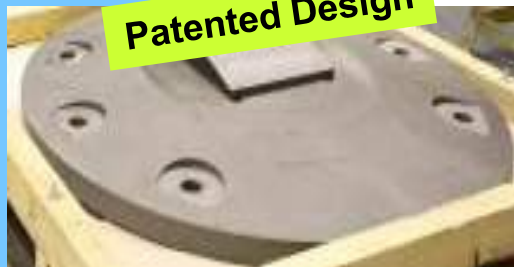
Single Rectangular Plate

- Random temperature distribution
- Sensitive to distortion
- Resulting in leakage & excess steam consumption



Innovative Double Disc Design

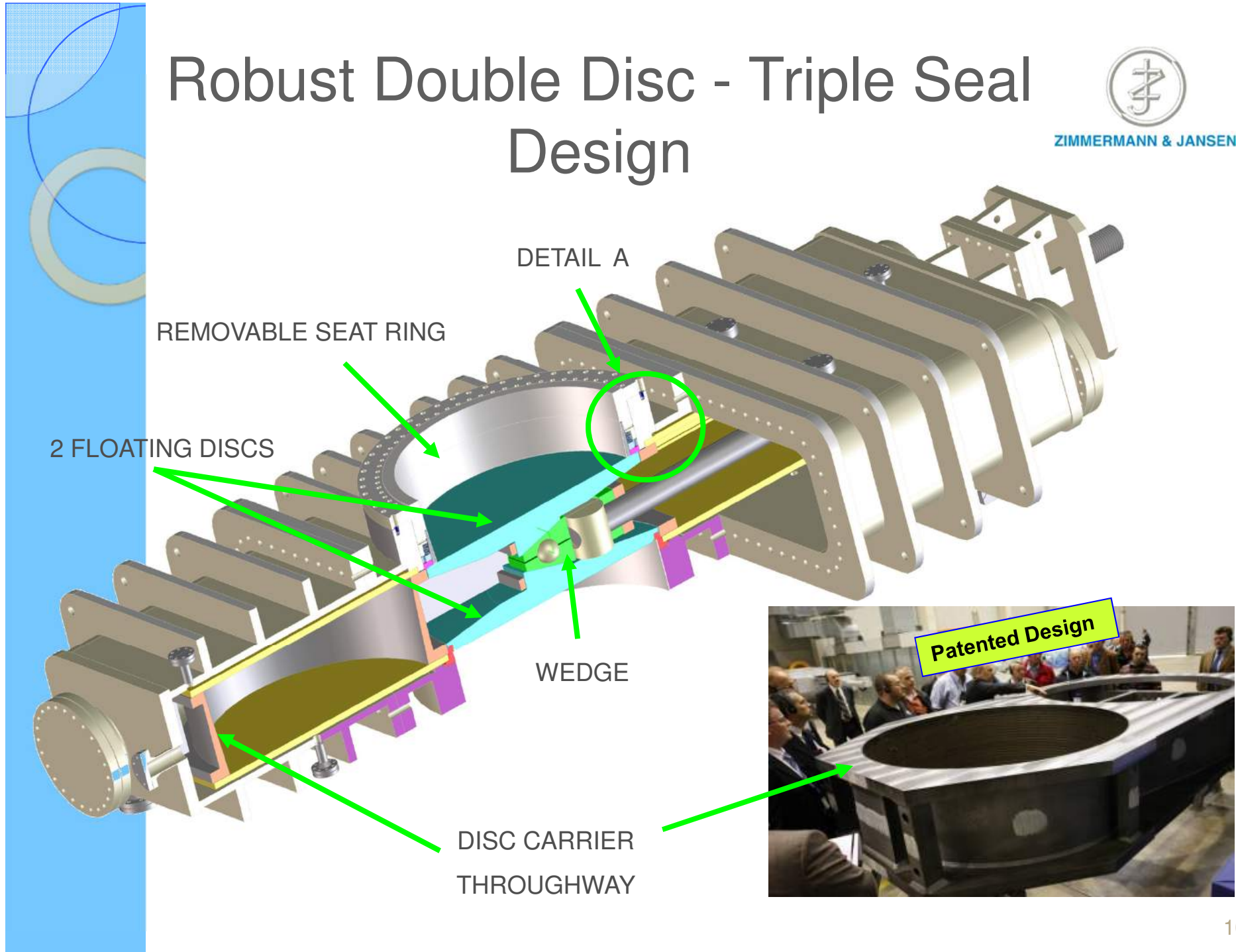
- Round disc, more equal temperature distribution
- Limited distortion, less deformation
- 10 x less risk to leaks
- Best choice for DC applications



Robust Double Disc - Triple Seal Design



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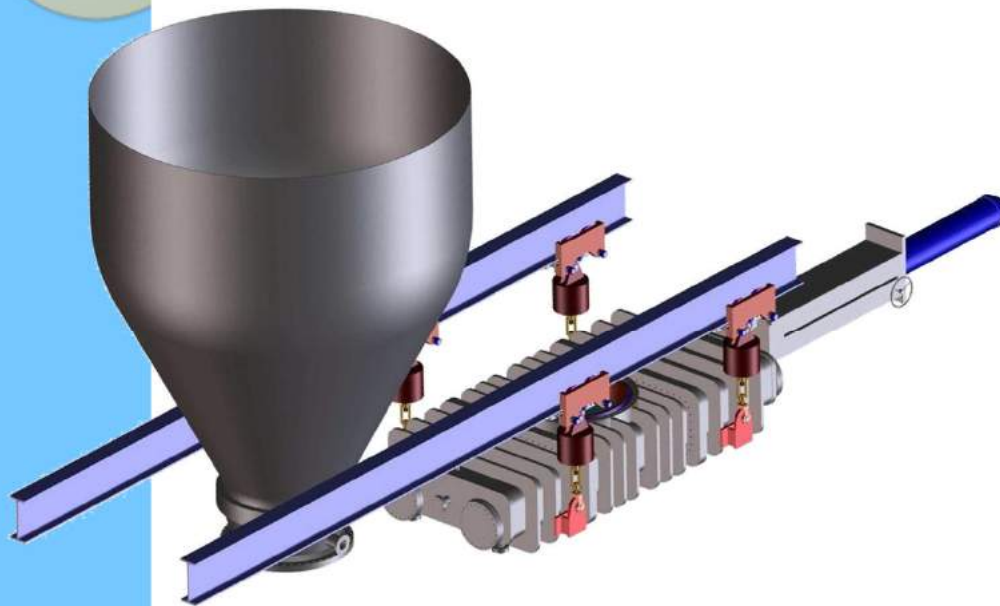


Unique Technology



ZIMMERMANN & JANSEN

Inspection - Maintenance Position - TA



*ECONOMICS
BOOSTING CAPACITY*

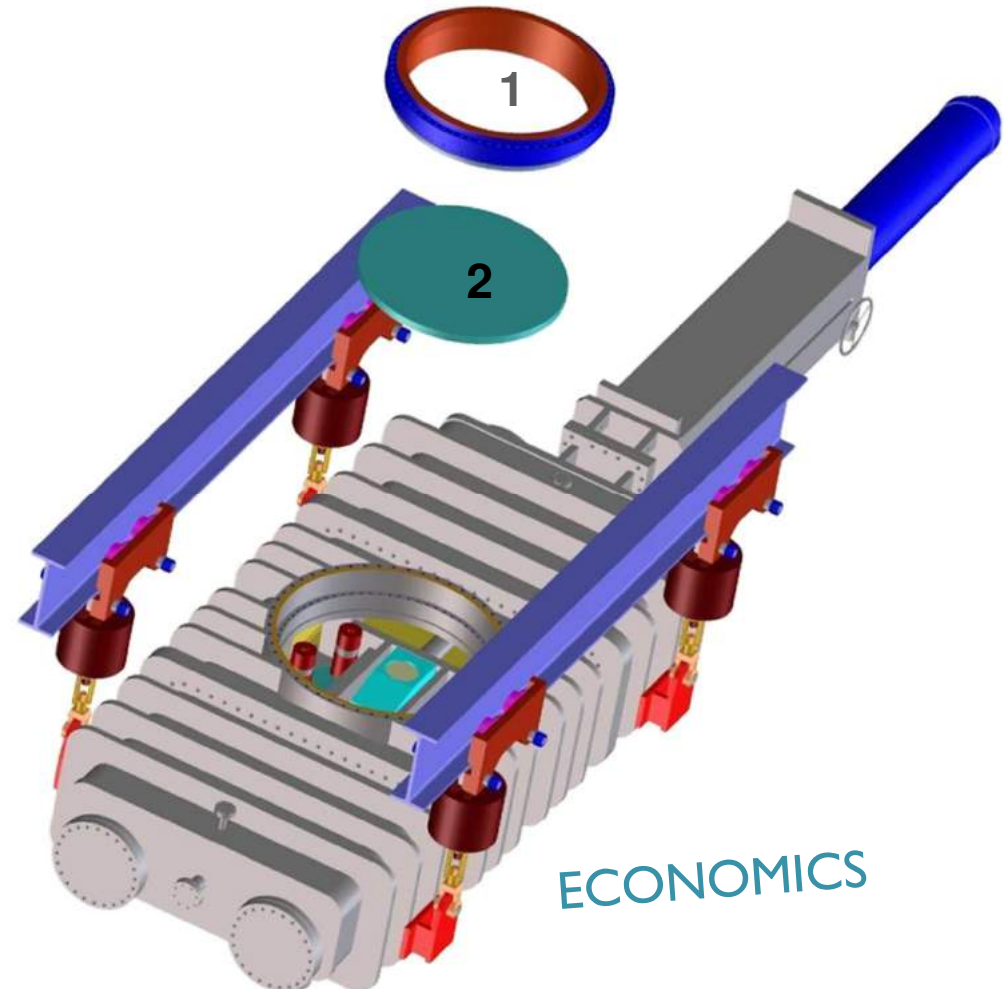
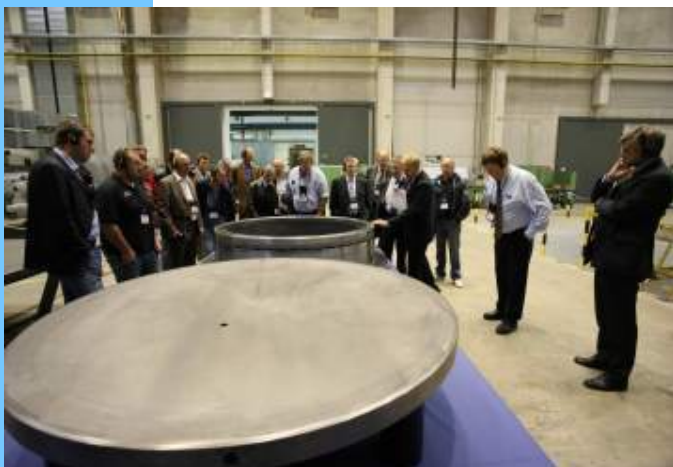
Minimize downtime & maintenance cost
No need to dismantle body for valve inspection
and maintenance on upper seat and upper disc
if needed

Unique Technology



ZIMMERMANN & JANSEN

Inspection - Maintenance Position - TA



Only 2 gaskets to replace

Unique Technology

Inspection - Maintenance Position - TA



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ECONOMICS

No need to dismantle valve body
Easy access for inspection internals
No need for capital spares

Double Disc - Triple Seal



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REMOVABLE UPPER SEAT RING

SCRAPER EDGE

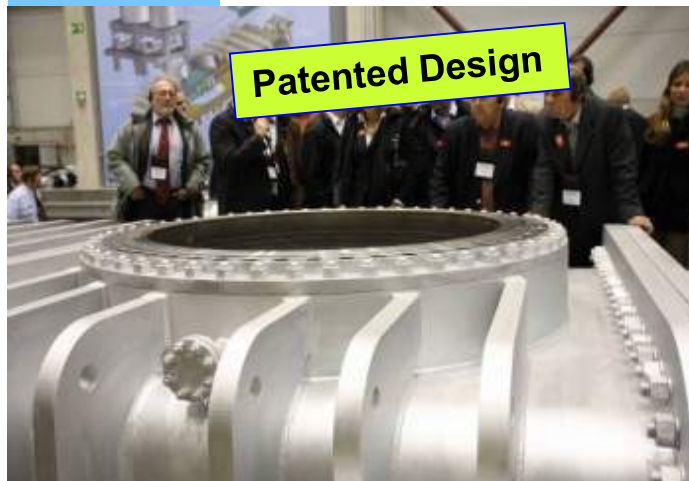
GUIDE PLATE

SPRING LOADED SEAT

SEAL STEAM BETWEEN TWO SEATS

HARD - FACED SEAT

DISC



Double Disc - Triple Seal



ZIMMERMANN & JANSEN

REMOVABLE UPPER SEAT RING & DISC

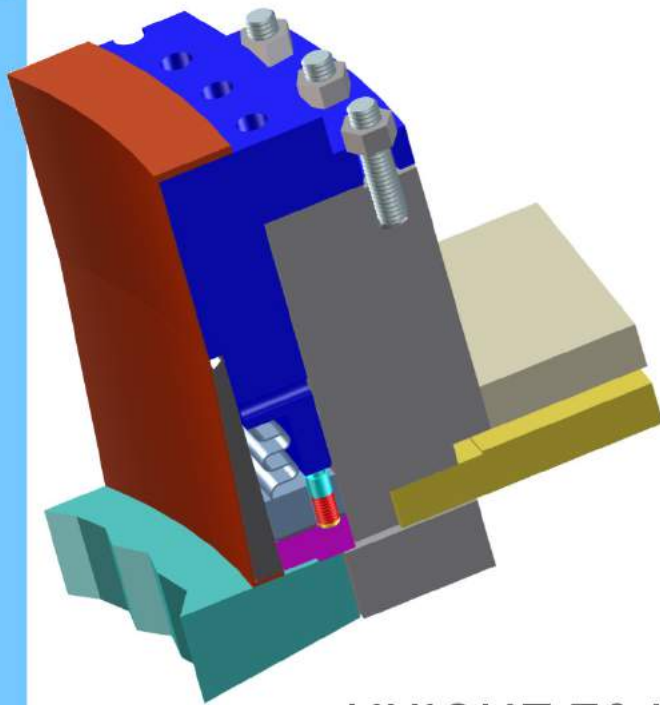


Unique Technology



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The only double block & purge



SAFETY



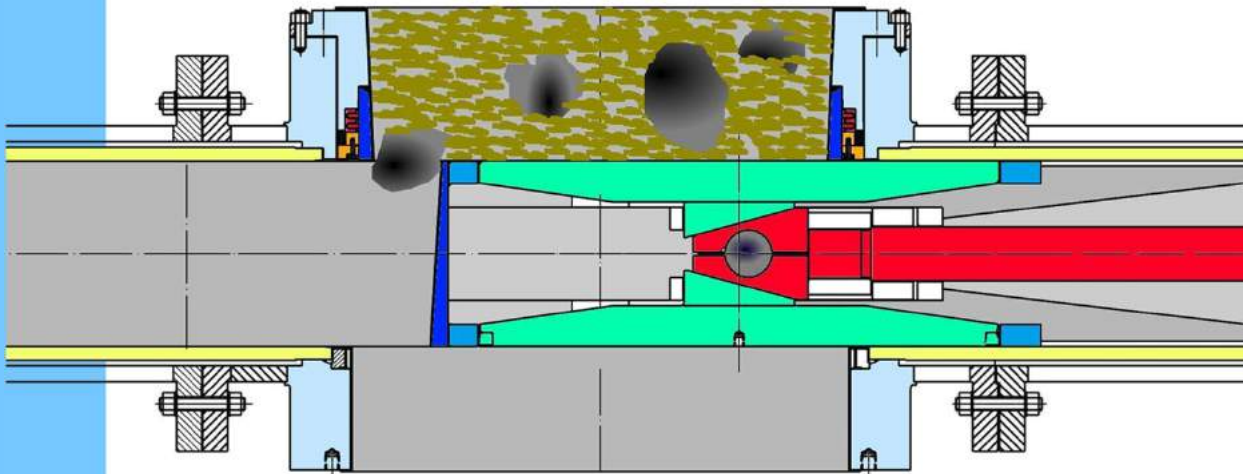
UNIQUE Z&J - DOUBLE DISC TRIPLE SEAL & PURGE
 $2 \times 3 = 6$... MEANING 100 % TIGHT !

Unique Technology



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Active seating force



SAFETY

Helps sealing and avoids possible deformation

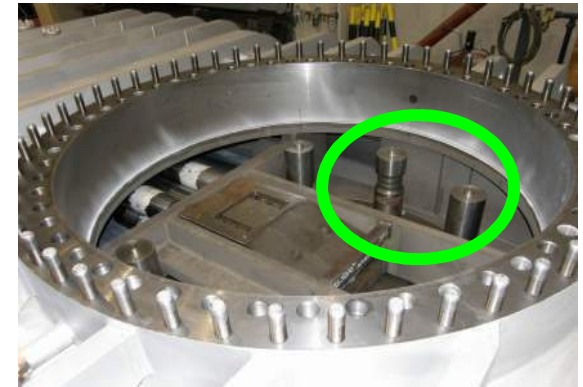
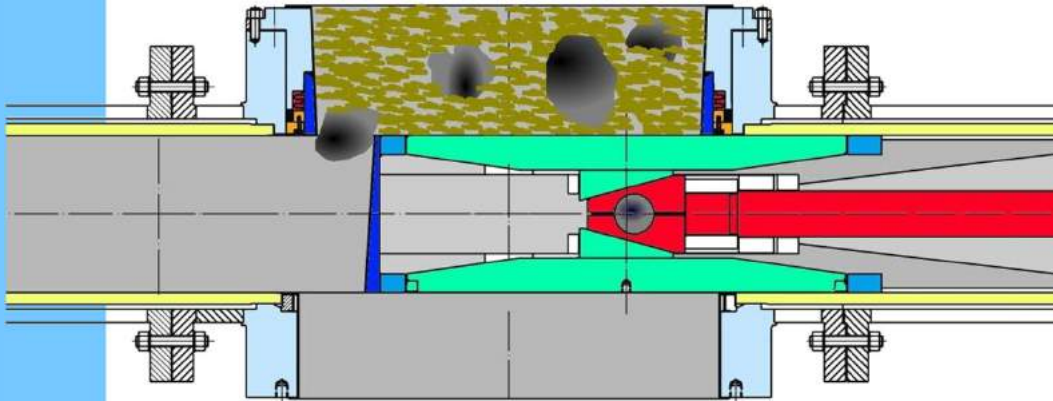
Controlled discharge

Unique Technology



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Scraper & guide plates avoid coke fines to enter valve-body



SAFETY

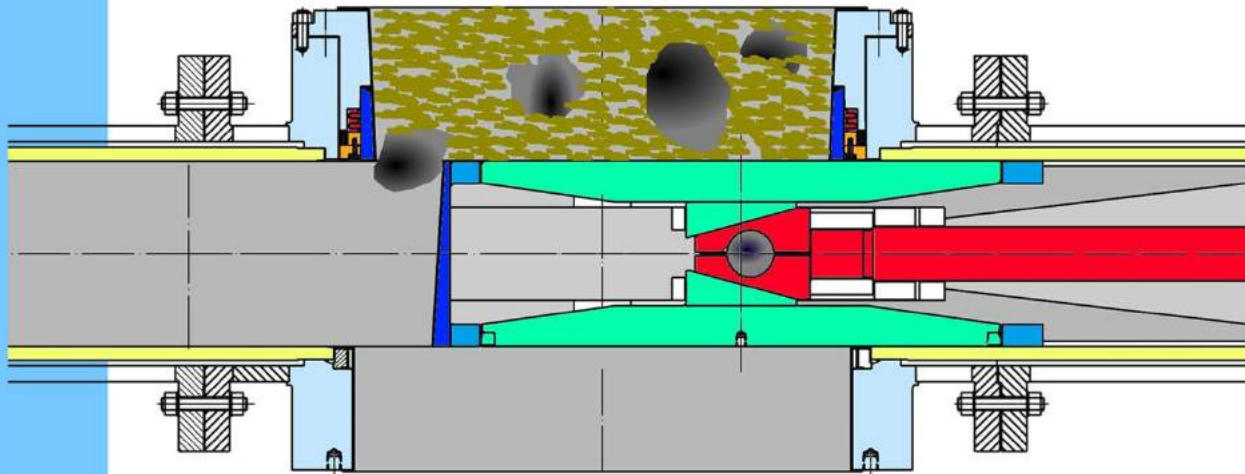
Disc is maintained against seat / scraper at all times by means of pretensioned springs to avoid coke fines to enter valve-body

Unique Technology



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Ability to throttle coke & water mixtures



ECONOMICS
BOOSTING CAPACITY

Dewatering to optimize cycle time
Capable of crushing shot coke

Z&J's Unique Technology⁽²⁾



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- Actuator(s) outside of valve body
- 100% actuator redundancy
- Pneumatic driven emergency HPU cart

FEATURES

- Actuator options, customized to fit
- Solution to overcome weight aspect
- Revamp engineering, design and execution of lower drum section

TAILOR-MADE

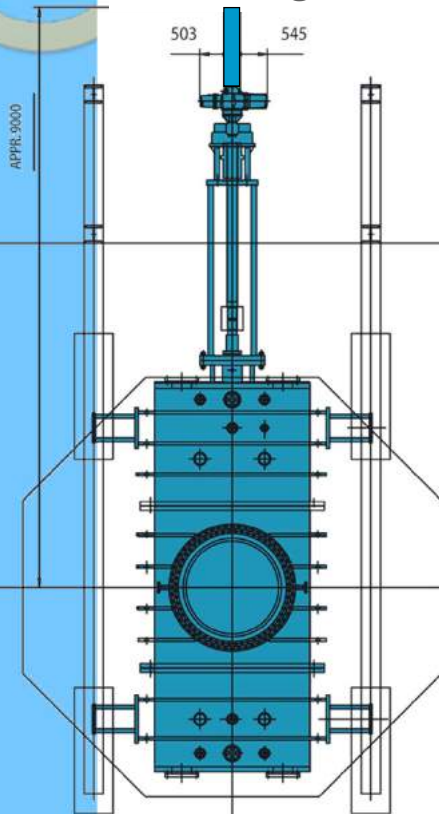
Unique Technology

Actuator Options



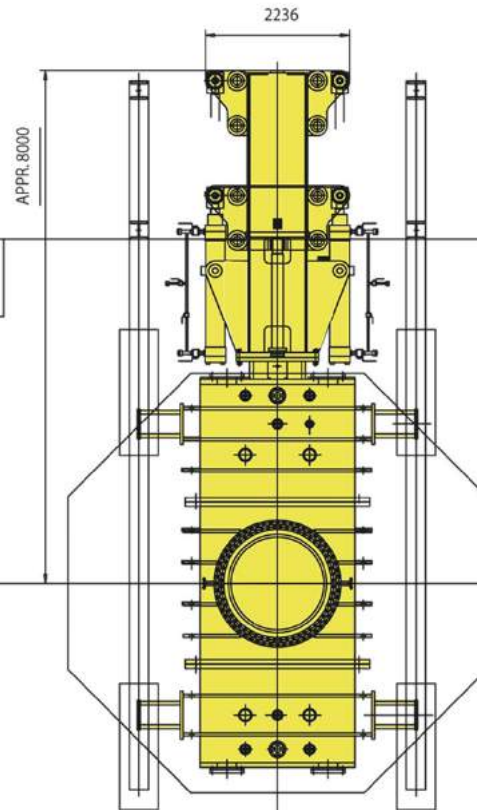
ZIMMERMANN & JANSEN

**ELECTRIC/
HYDRAULIC
Single**



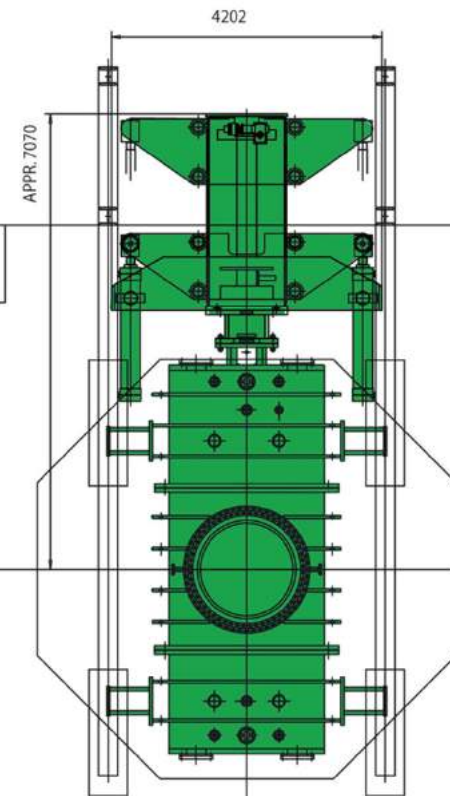
9 m

HYDRAULIC Compact



8 m

HYDRAULIC Wide



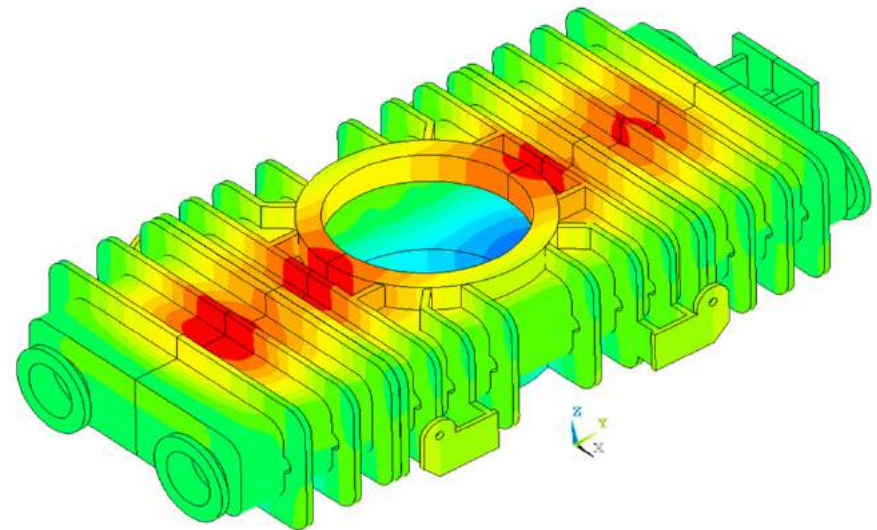
7 m

MINIMIZE CAPEX – ACCOMODATE SPACE

Unique Technology



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SAFETY

Comfort in freezing conditions
No cooling with glycol

Unique Technology



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Actuator(s) outside of valve body

FEATURES



- No need to dismantle valve body
Can be removed while DC unit in operation
- 100% Actuator redundancy
Operates on one single actuator
No need to keep spare actuator
For single actuator, pneumatic back-up / HPU cart

ECONOMICS

Unique Technology



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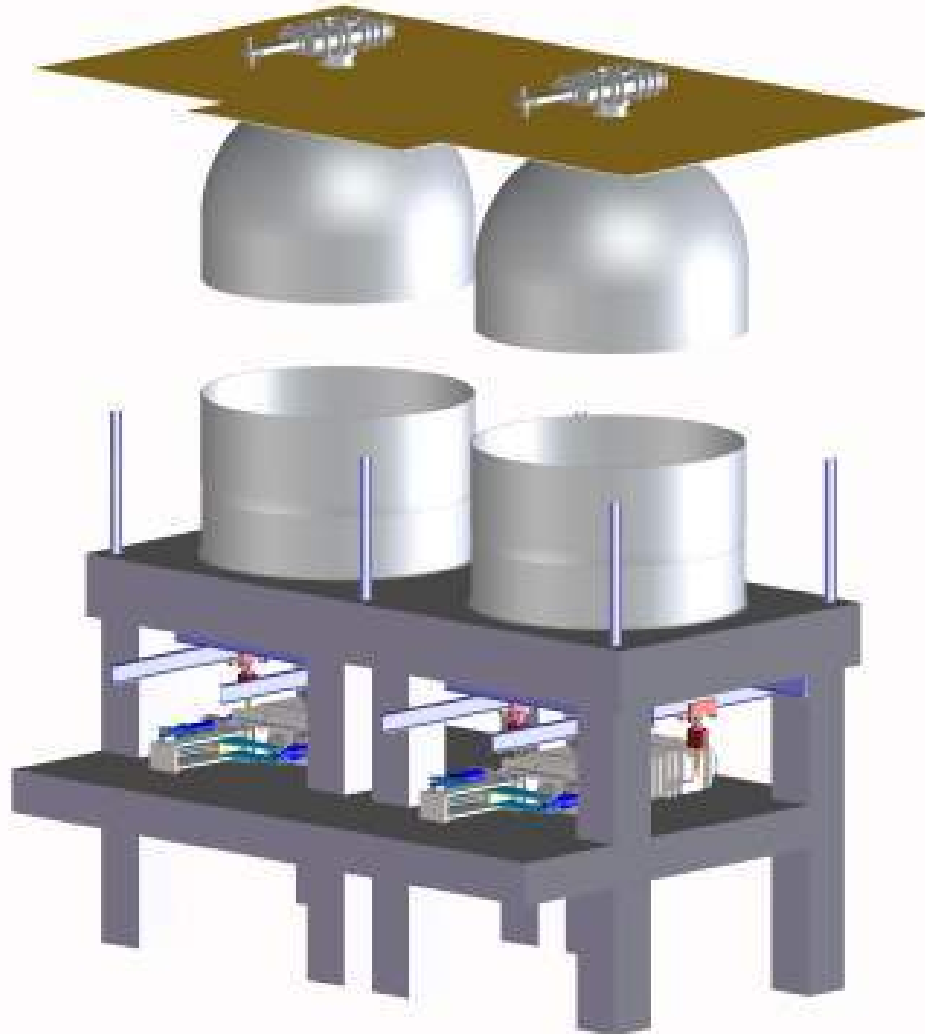
Manual or automated blocking pin



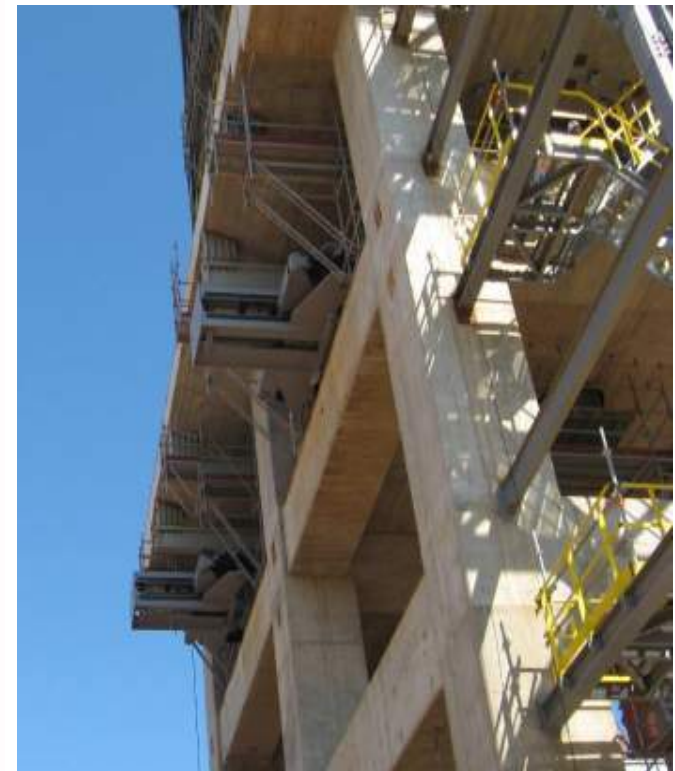
SAFETY - PERMISSIBLE

Unique Technology

Customized to fit



ZIMMERMANN & JANSEN



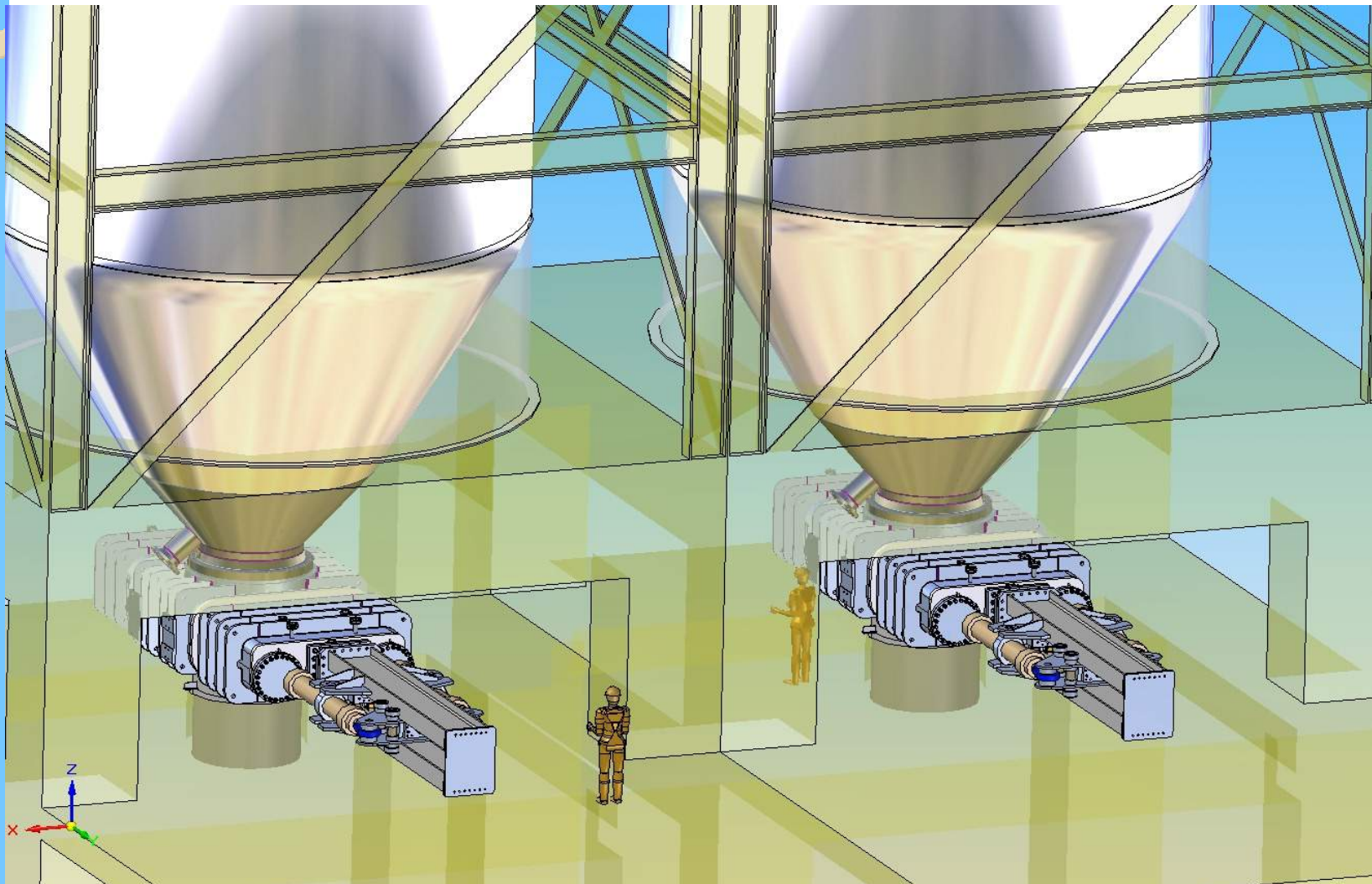
Extended unheading deck

Unique Technology



ZIMMERMANN & JANSEN

Customized to fit



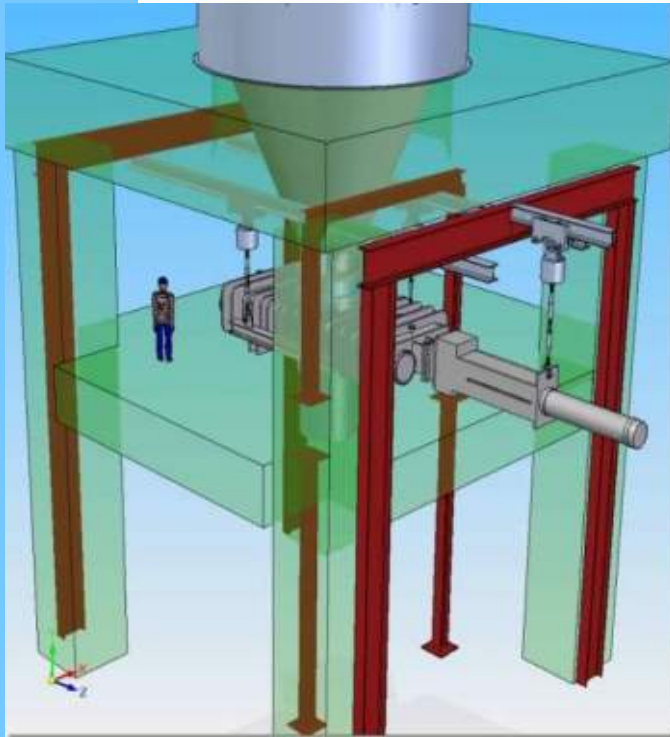
Technology Solution



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Solution to overcome weight aspect

Coker Upgrade: Engineering - Design - Execution Assistance



TAILOR-MADE



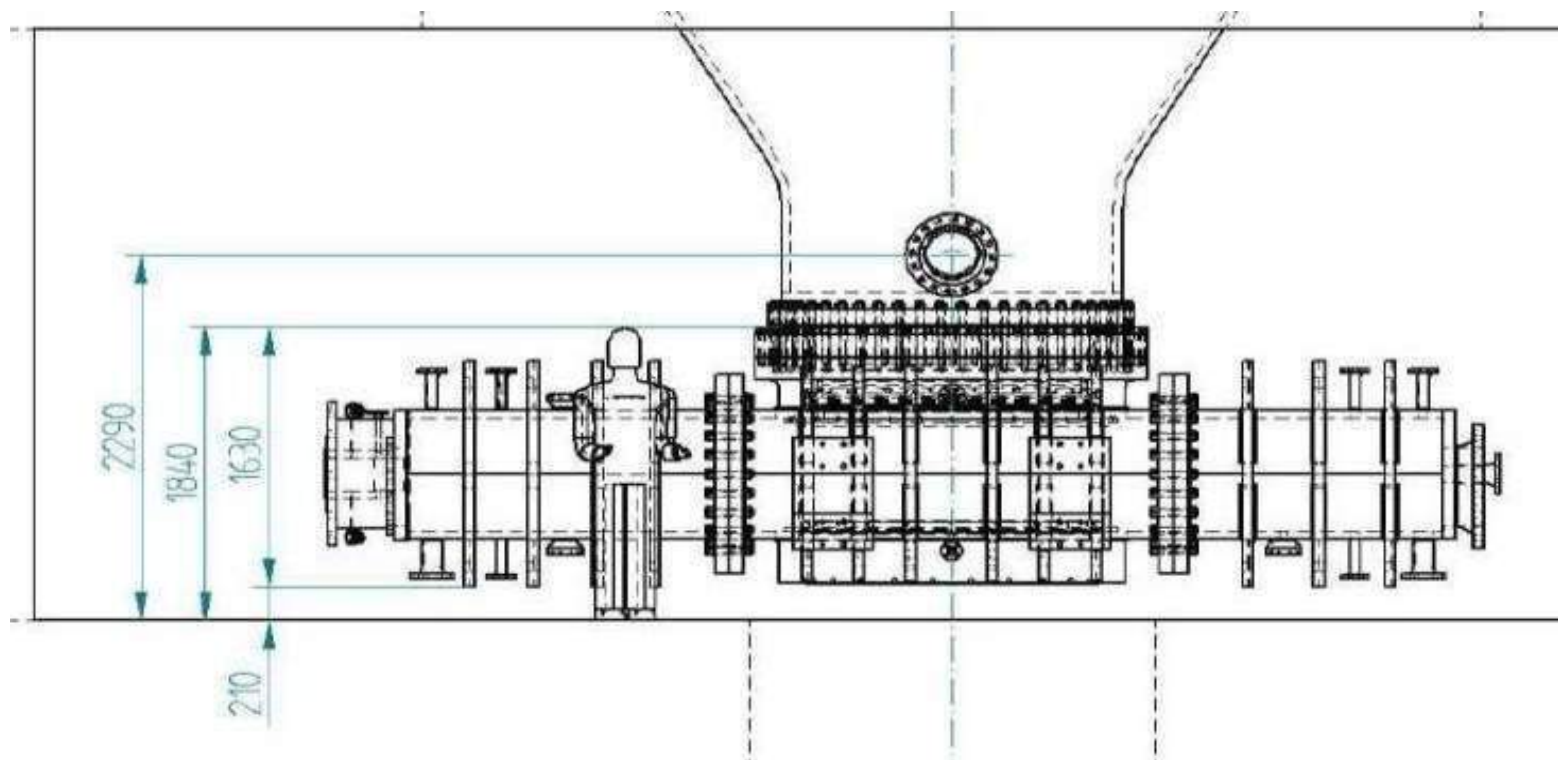
Supporting beams to reinforce structure
Spring hangers to minimize load on drum

Technology Solution



ZIMMERMANN & JANSEN

Coker Upgrade: Engineering - Design - Execution Assistance
Customized to fit



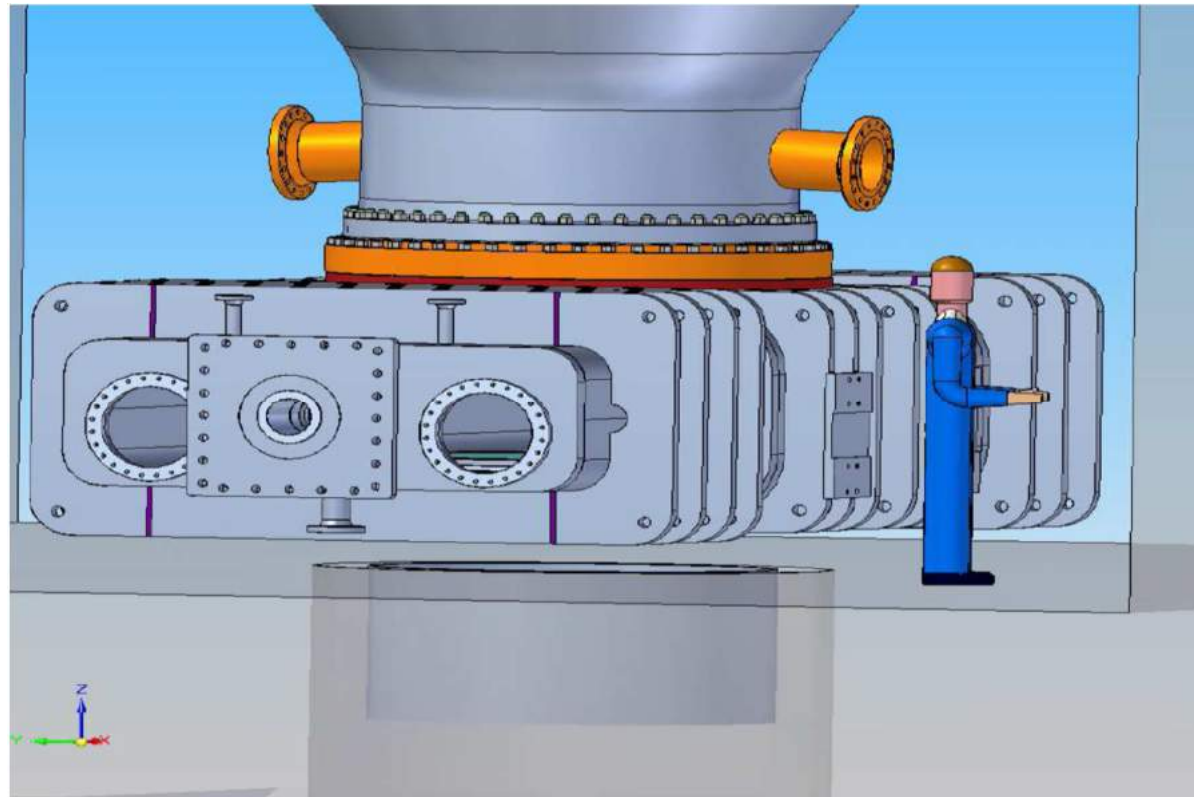
Tailor - made cones for revamps

Technology Solution



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Coker Upgrade: Engineering - Design - Execution Assistance
Customized to fit



Tailor - made cones for revamps

Bottom Unheading - Inspection



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Patented Design

Supervision Installation & Commissioning



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Global Presence & Support



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Delayed Coking Unheading Technology

Thank You !

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