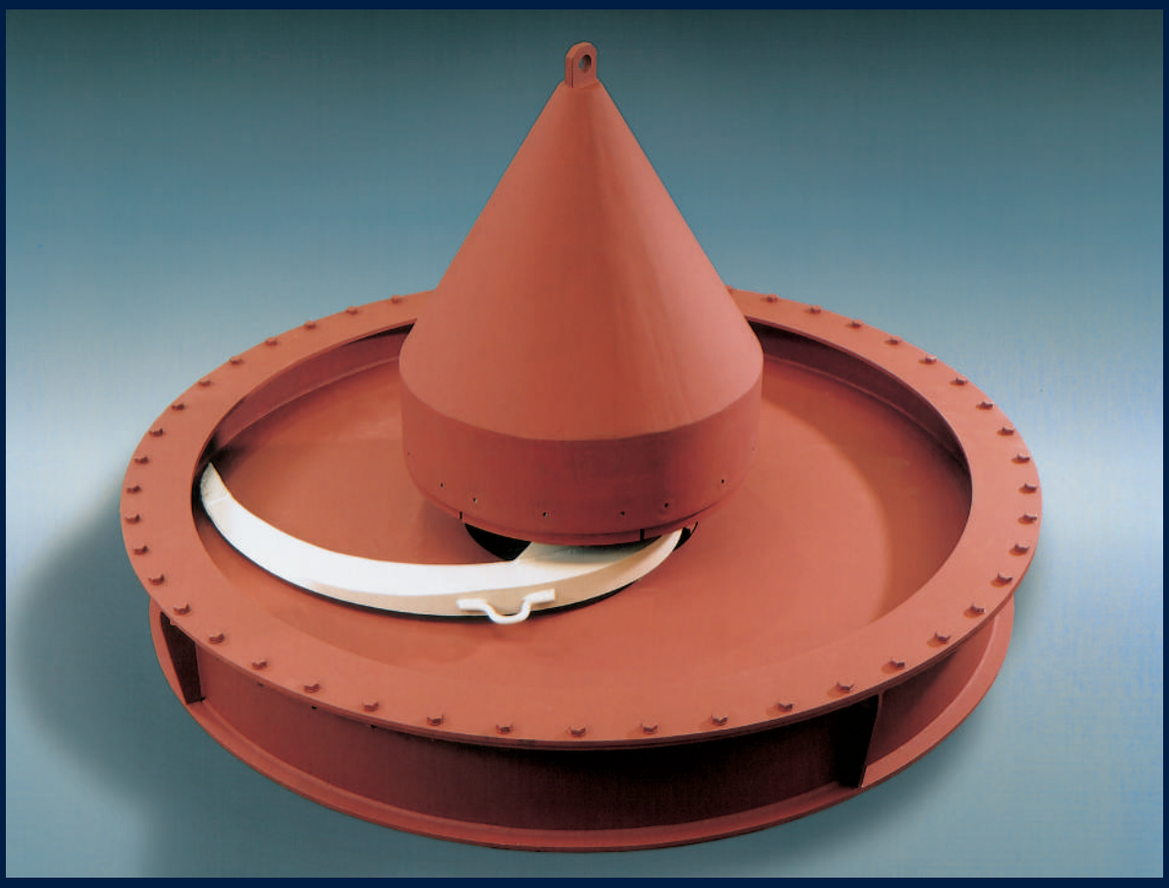
WE CONVEY QUALITY



Silo Discharge
CENTREX®

AUMUND

CONTENT

CENTREX®

Trouble-free silo discharge for sticky and cohesive materials with poor flow properties with First-in and First-out principle.

The logarithmically shaped discharge arm moves the bulk material towards the central outlet underneath the inner cone, where it is discharged into a chute. The discharge arm acts the material from underneath the material column and reaches beyond the outlines of the silo wall, which avoids accumulations and prevents the bulk material from sticking to the silo wall. Consequently, the material column is brought to descend in a regular and uniform manner, which maintains the homogeneity of the stored material, thus avoiding segregation and bridging.

The logarithmic design of the discharge arm prevents the bulk material from being compacted when moved to the central outlet. In addition it minimizes wear and requires less drive power.

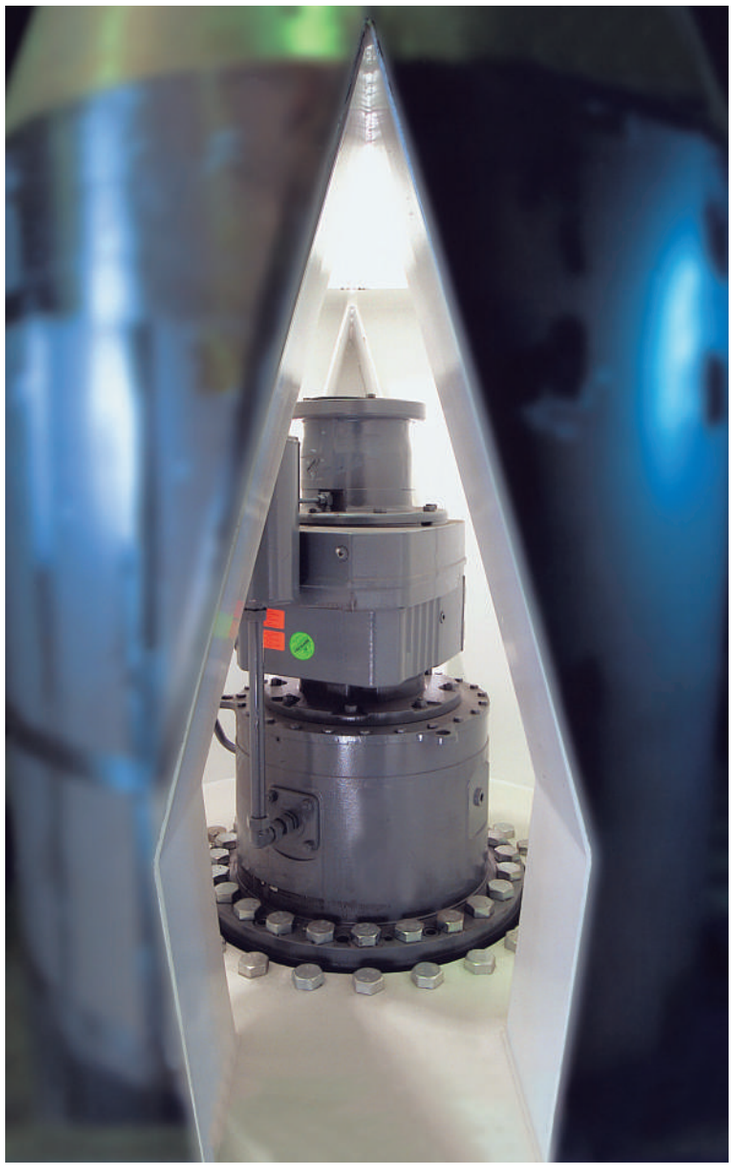
On account of its very compact and rigid design, the CENTREX® is also an ideal solution for installation into or underneath existing bins or silos.

Three basic alternatives are available with the CENTREX® system. The choice depends either on the technical features of the bulk material or on the type of application within a given process.

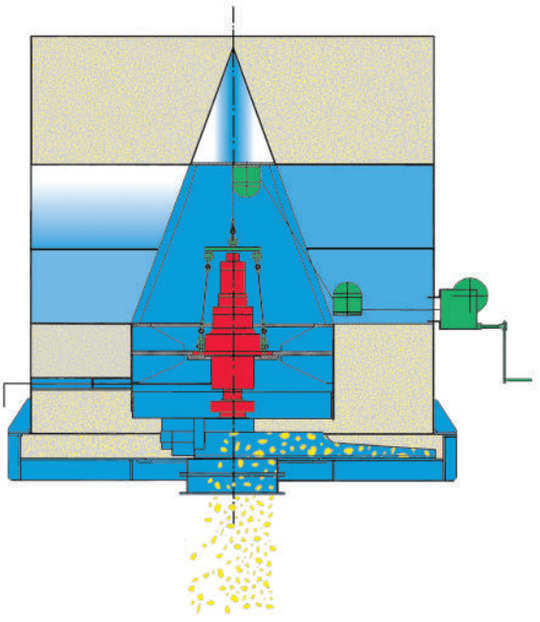
CENTREX® with internal drive type CTX-IV
CENTREX® with external drive and stationary inner cone type CTX-AV
CENTREX® with external drive and rotating inner cone type CTX-AFD

Material examples which can be discharged:

- FGD Gypsum
- Gypsum
- Coal
- Limestone
- Clay
- Marl
- Wet ash



View through the hollow girder onto the drive unit



Advantages of the internal drive:

- Minimum number of components required
- Almost maintenance free operation
- Low construction height
- Maintenance access through support arm

CENTREX® with Internal Drive Type CTX-IV

A CENTREX® CTX-IV with internal drive can be of shock-proof or entirely pressure and water-proof design.

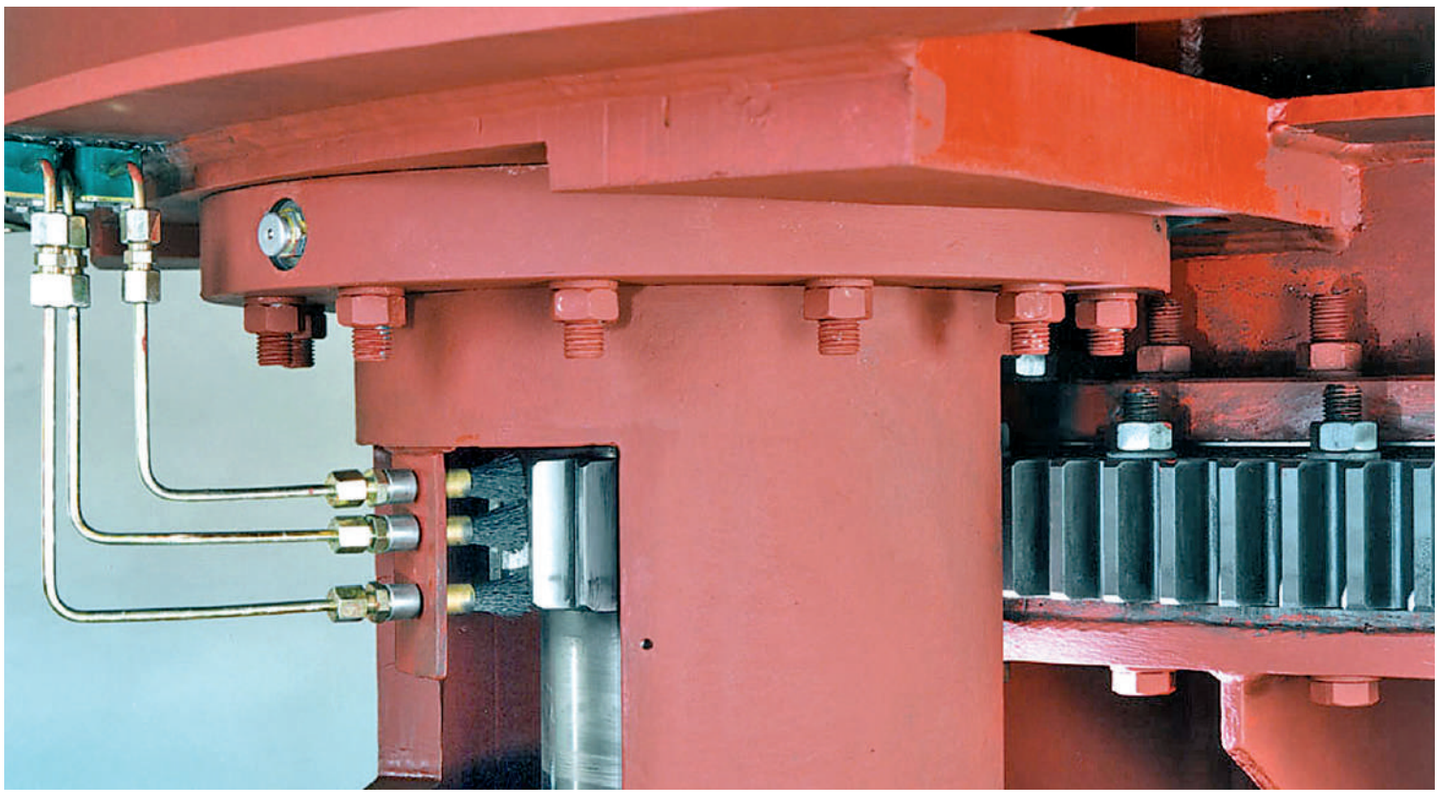
It is therefore particularly suitable for:

- Feeding of mills, dryers and kilns
- Sludge discharge from sediment retention basins
- Discharge from silos operating with inert gas
- Discharge from silos with poisonous materials
- Recommended silo diameter of 2.5 - 8 m

Radially arranged support arms connect the inner cone with the silo wall. With their roof-shaped upper section serving as deflector plate, these support arms are designed to prevent the stored material from sticking to the arms.

At least one of these arms is enlarged to allow access to the inside of the cone. The internal drive unit is accessible and can be removed with the rope winch also installed inside the cone.

This alternative with its compact design is a most economic solution.

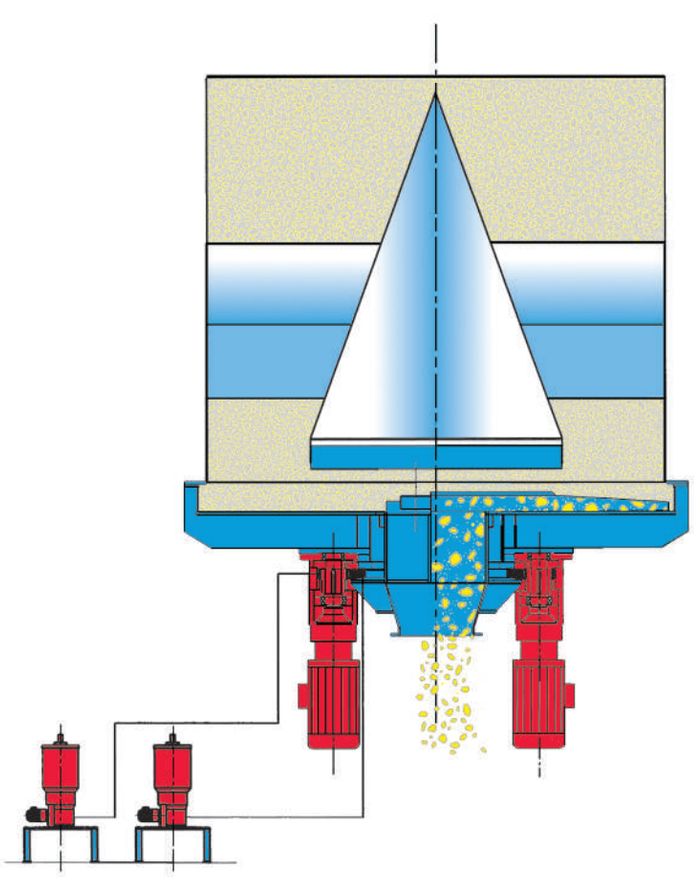


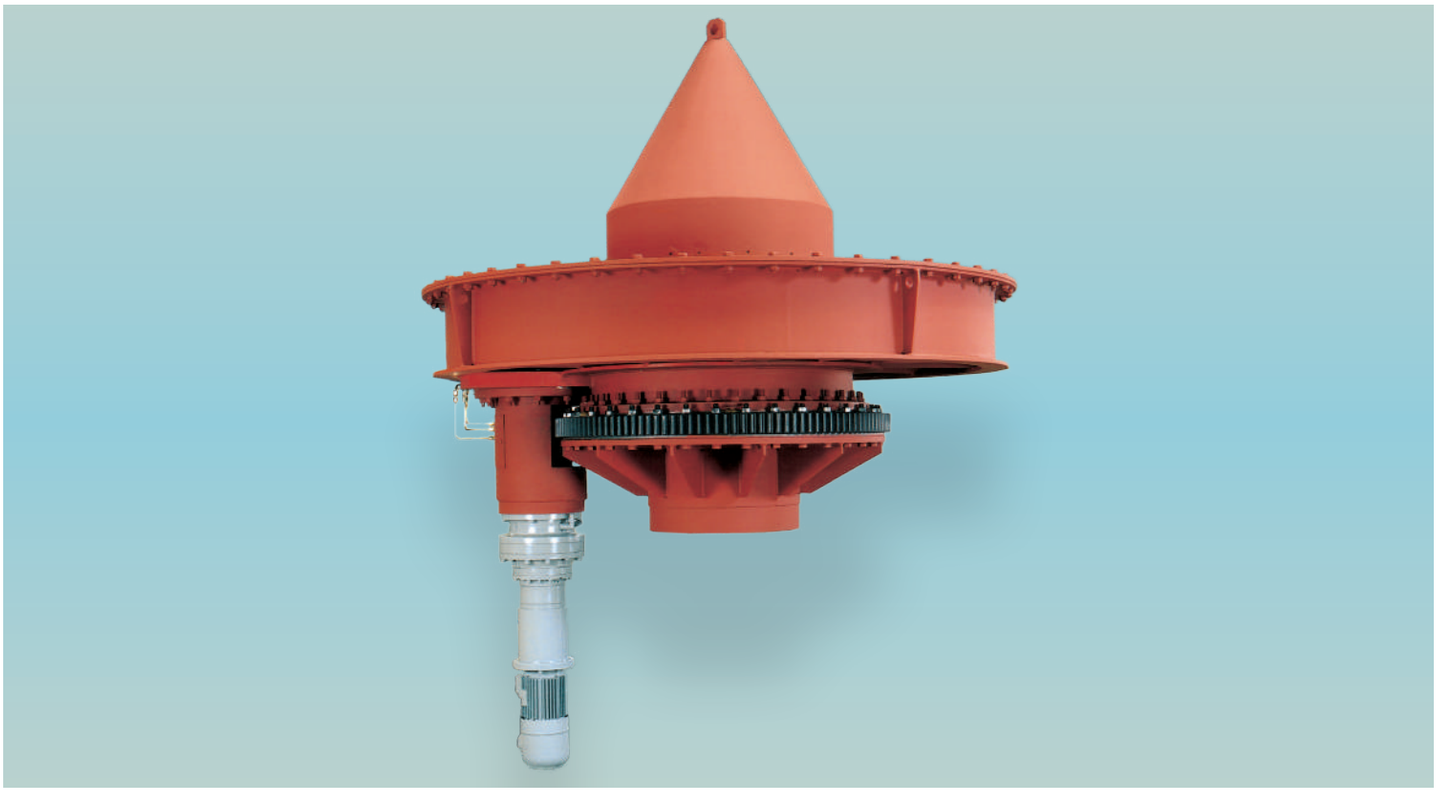
Two separate lubrication lines: One to lubricate the gear of the slewing ring, one to lubricate the bearings of the slewing ring

CENTREX® with External Drive and Stationary Inner Cone Type CTX-AV

The drive unit of the CENTREX® CTX-AV design is fitted to the discharge bottom for easy access. This design also features radially arranged support plates connecting the inner cone with the silo wall.

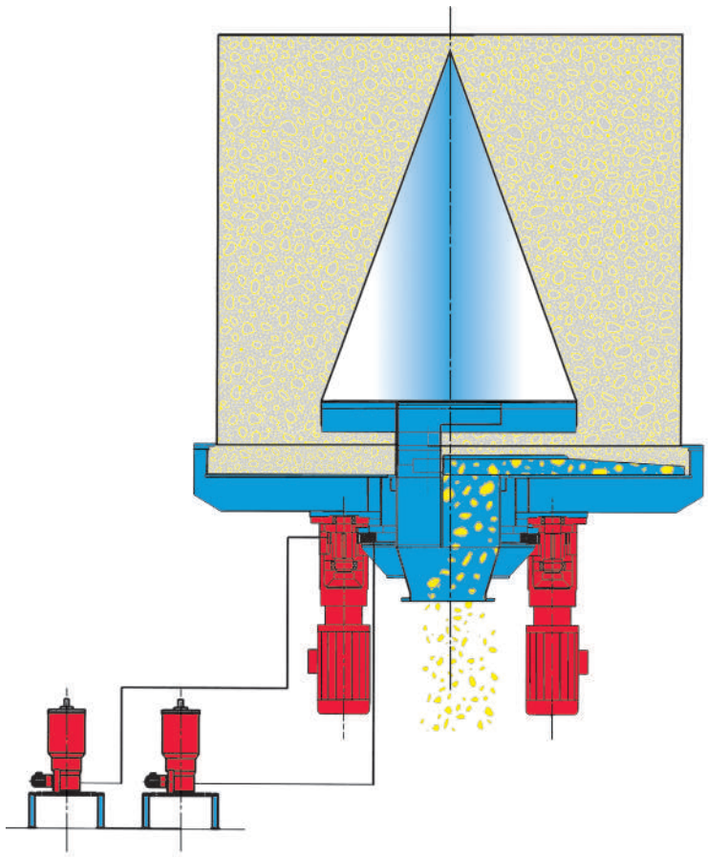
This alternative with external drive and stationary inner cone offers ideal conditions for applications involving a high torque and requiring easy maintenance.





CENTREX® type CTX-AFD

CENTREX® with External Drive and Rotating Inner Cone Type CTX-AFD



With this alternative, the inner cone, discharge arm and rotary chute form one unit designed for easy discharge of even extremely difficult bulk materials. The rotating movement of the cone activates the stored material and significantly improves the mass flow of the bulk material. The entire rotating unit is mounted onto a slewing ring with spherical bearing and gear ring power transmission.

Due to the additional activation of the stored material caused by the rotation of the inner cone as part of the rotating unit, bridging is effectively prevented.

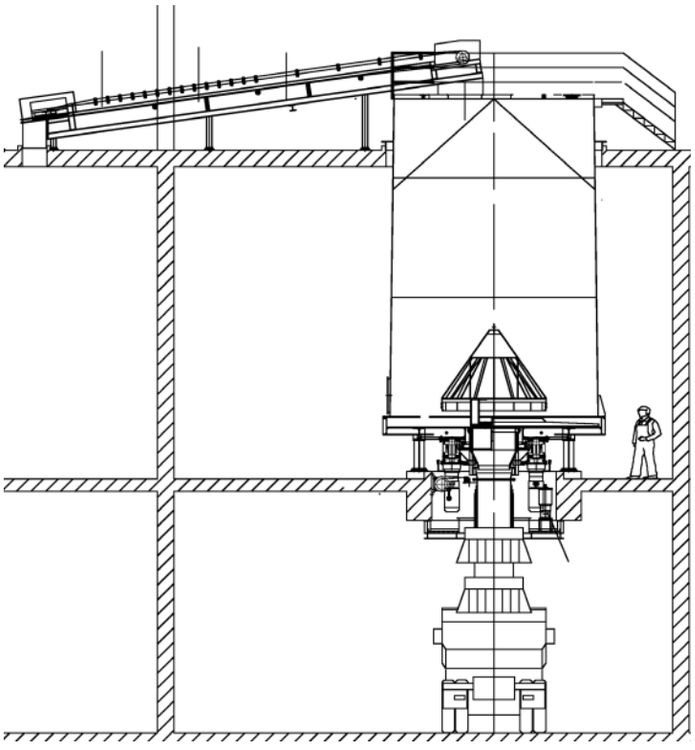
Advantages:

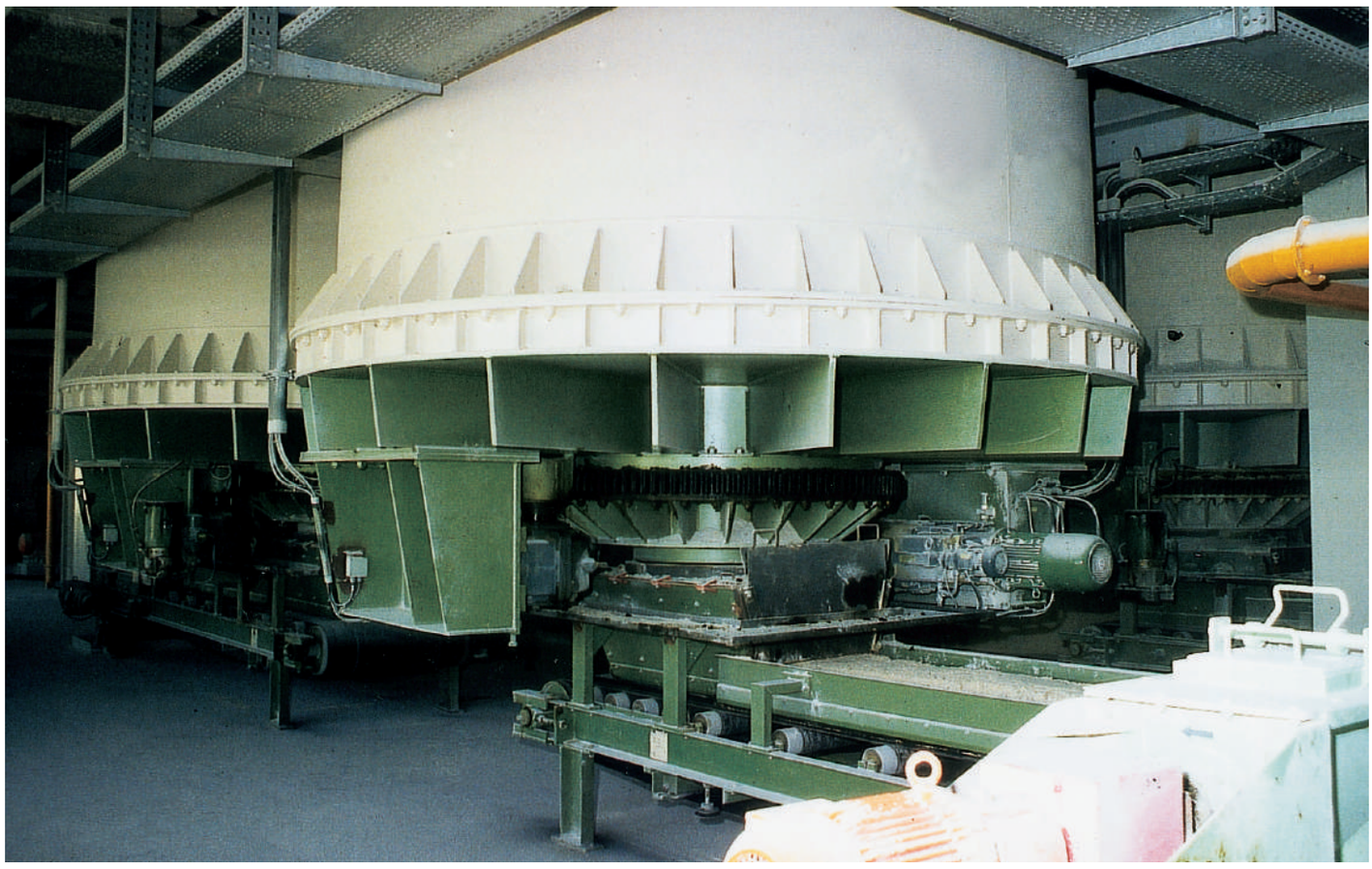
- Easy maintenance of drive unit and slewing ring
- Use also possible for silos down to 1 m diameter
- With rotating cone bridges will be destroyed
- High torques transferable with 2 or more drives

CENTREX® - Feeding of FGD Gypsum to silo

CENTREX® Applications

CENTREX® CTX-AFD silo (detail)



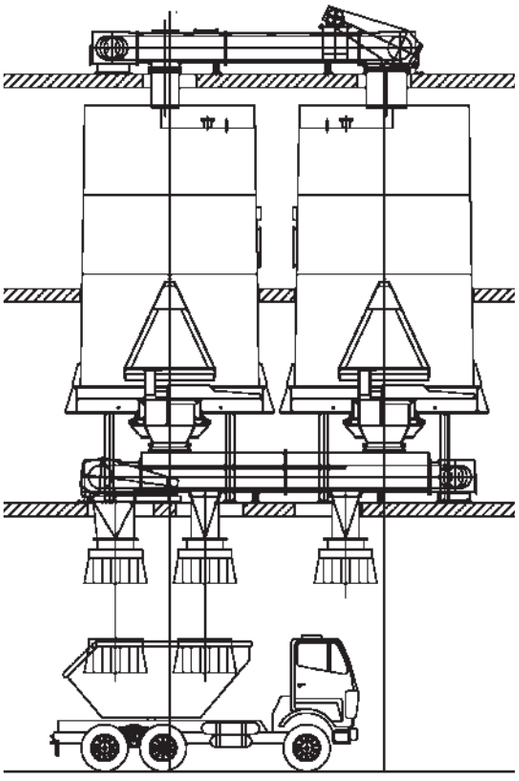


CENTREX® with two external drives for discharge of FGD Gypsum loading onto a weigh feeder

Truck loading underneath CENTREX®

LOUISE Double-Strand Chain Conveyor feeding 2 silos (example)

Transport and Discharge of Various Types of Bulk Material

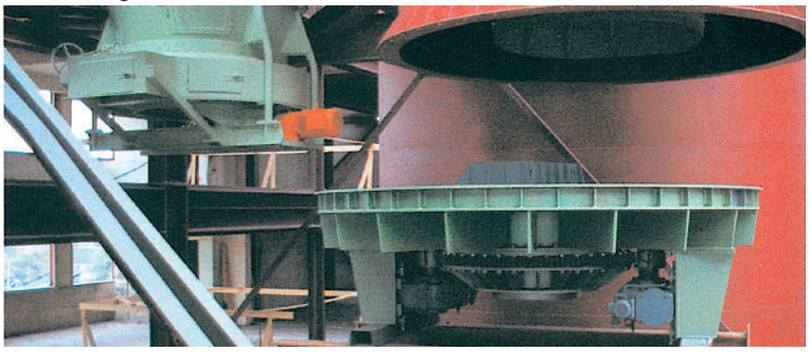


CENTREX® type CTX-AFD with external drive for FGD Gypsum

Assembling of CENTREX® Units

Lifting of the CENTREX® bottom

Assembling of CENTREX® bottom in the field

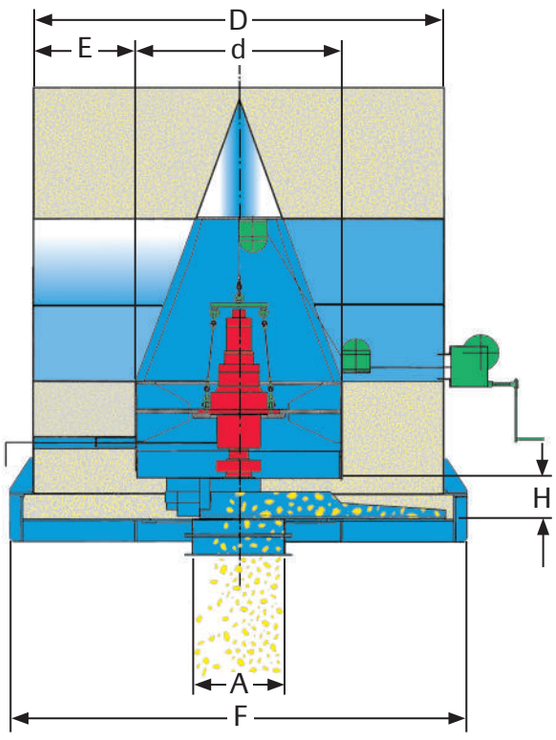


Assembling of a CENTREX® silo

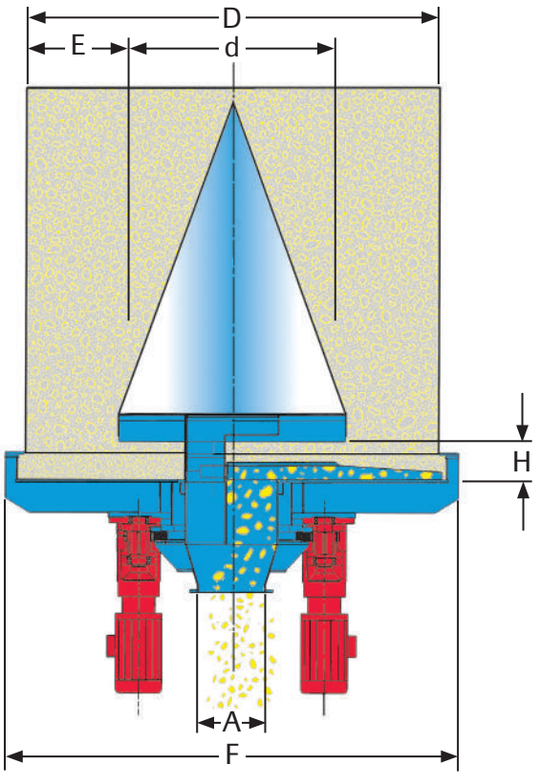
Silo Discharge from CENTREX® with Truck Loading

CENTREX® CTX-IV with internal drive. Discharge from a steel plate silo with truck loading

CENTREX® with internal drive



CENTREX® with external drive

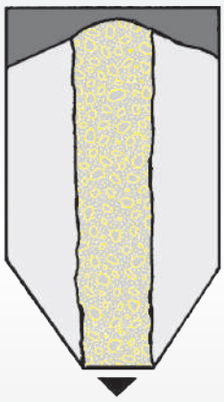


CENTREX® with internal drive: minimum discharge arm diameter 2,500 mm.
CENTREX® with external drive and rotating cone: max. discharge arm diameter: 4,000 mm.

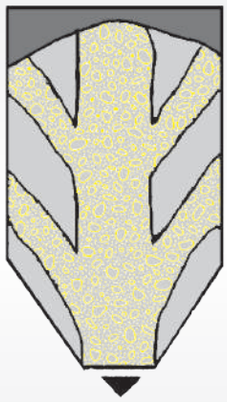
Technical Data*

D	F	E	d	H	A	Q [m³/h]		
Discharge arm ø [mm]	Outer ø [mm]	Penetration depth [mm]	Inner cone ø [mm]	Slot height [mm] (adjustable)	Outlet ø [mm]	Theoretical discharge capacity Circular speed at discharge arm tip		
						1 m/s	0.5 m/s	0.2 m/s
1,000	1,340	250	500	100	220	70	35	14
1,500	1,840	375	750	150	340	100	50	20
2,000	2,380	500	1,000	200	450	140	70	28
2,500	2,880	625	1,250	250	560	180	90	36
3,000	3,380	750	1,500	300	670	220	110	44
3,500	3,880	875	1,750	350	780	290	145	58
4,000	4,380	1,000	2,000	400	900	360	180	72
5,000	5,420	1,000	3,000	500	1,100	520	260	104
6,000	6,420	1,000	4,000	600	1,350	730	365	146
7,000	7,460	1,000	5,000	700	1,550	910	455	182
8,000	8,460	1,000	6,000	800	1,770	1,000	500	200

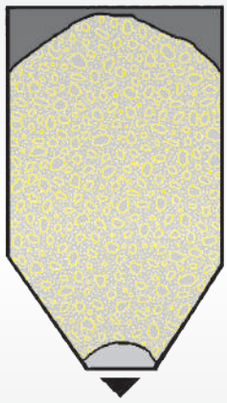
*Subject to change without notice



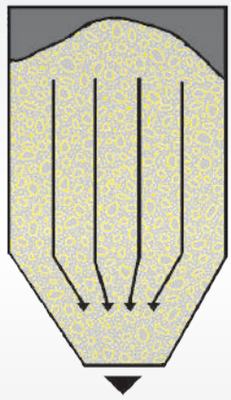
Ratholing



Core flow



Bridging

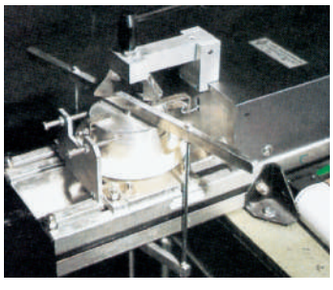


Mass flow

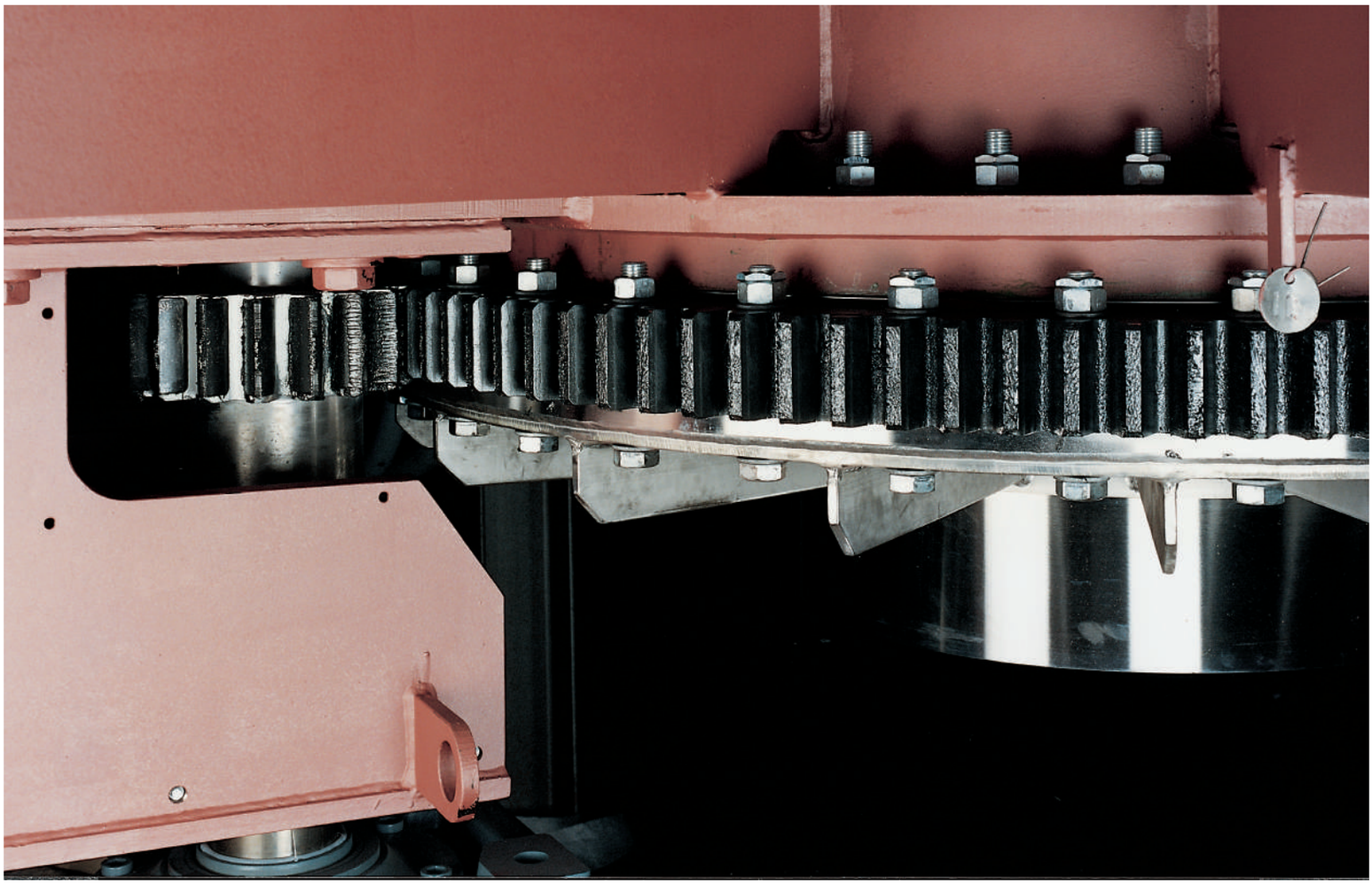
Bulk material testing in the AUMUND laboratory

Bulk material tests

To determine the physical and mechanical properties and behaviour of specific bulk materials, the AUMUND laboratory incorporates a large variety of testing equipment. Various test methods allow to determine the correct application of our products, e.g. shear testing.



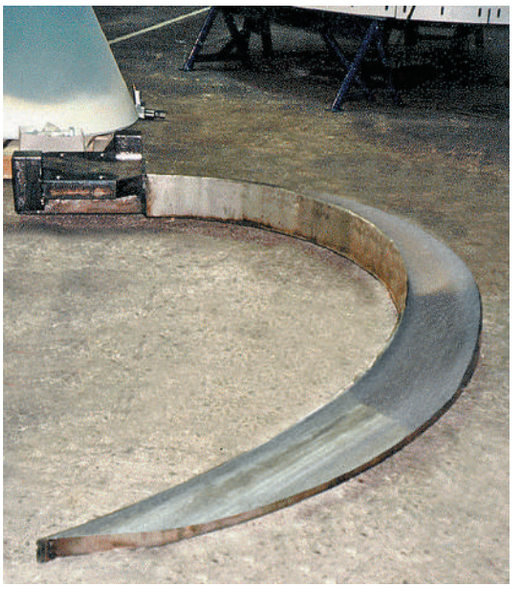
Jennicke shear cell



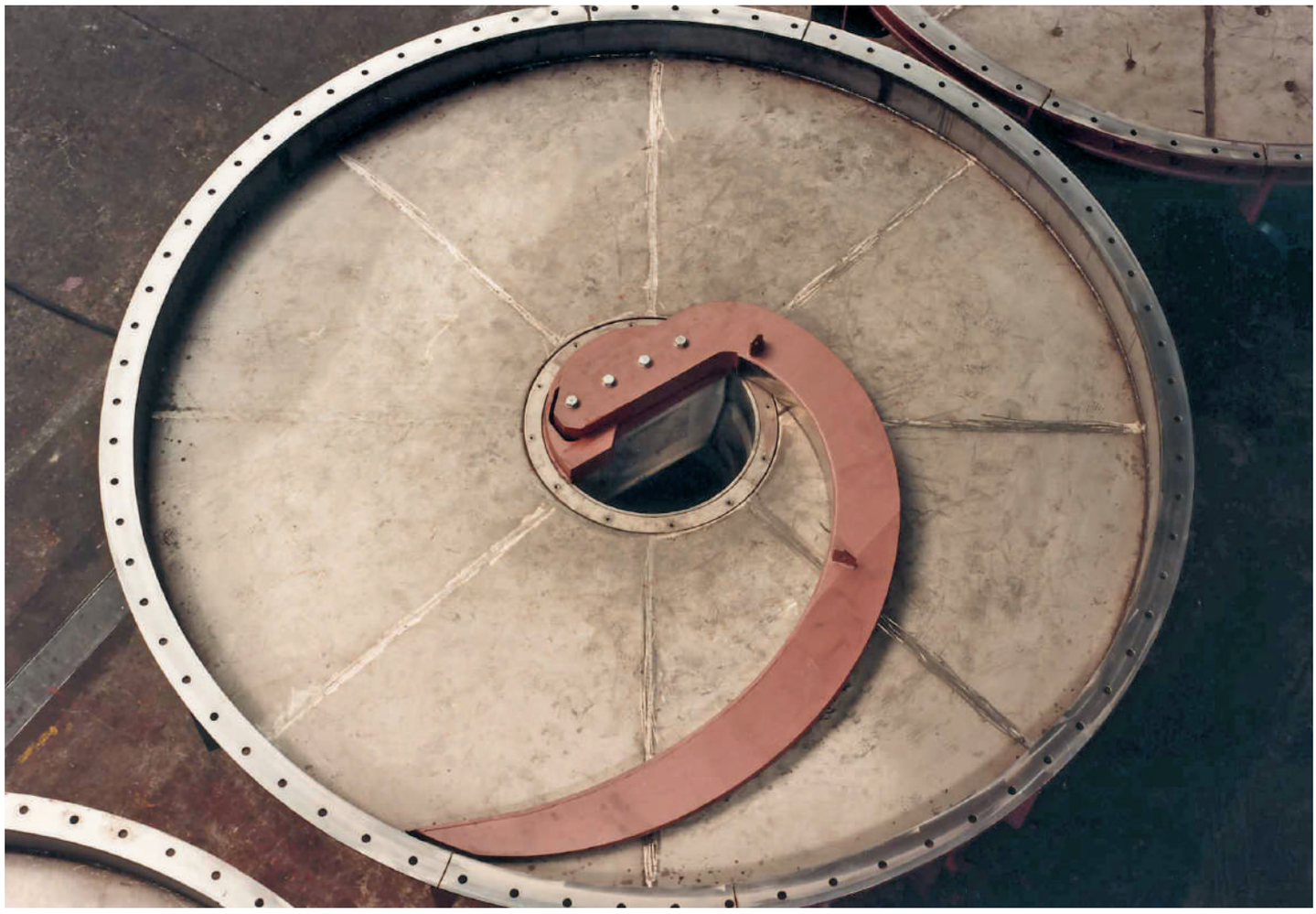
Drive arrangement of CTX-AV, external drive (close up)

Components

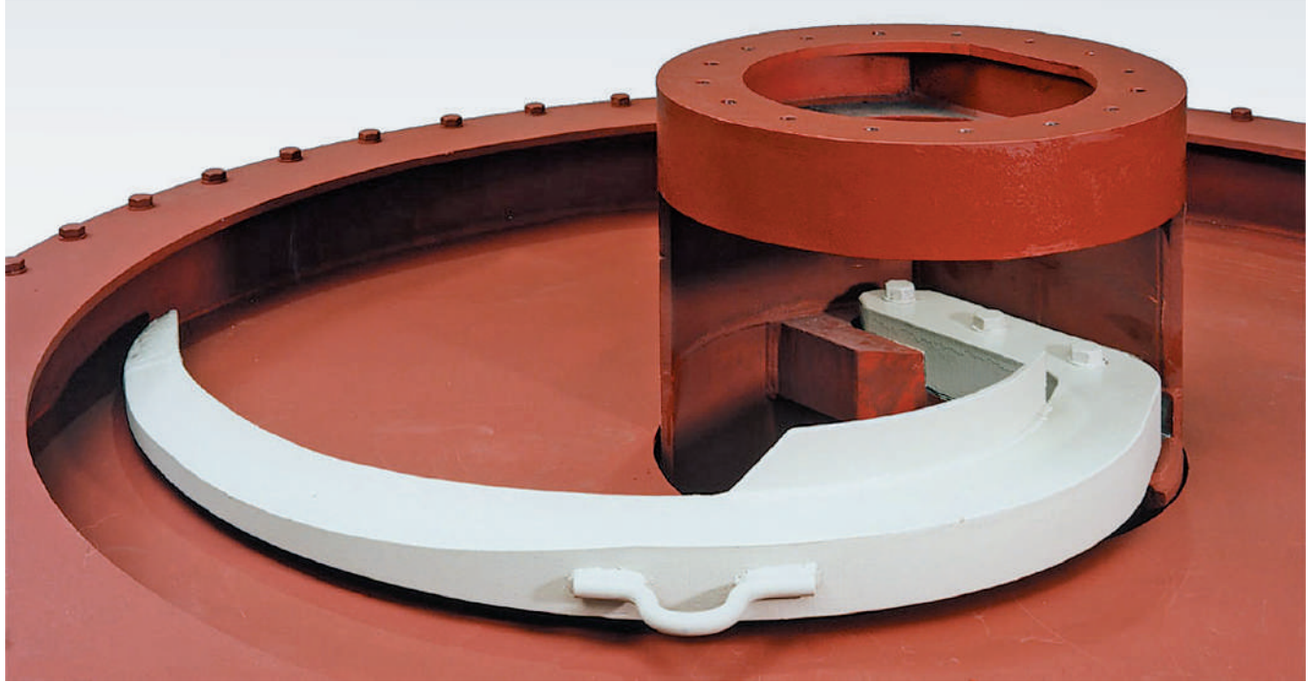
Assembled CTX-IV 5000, view into the support/maintenance arm, onto the planetary drive unit



CENTREX® discharge arm for internal drive



CENTREX® CTX-AV assembly in the workshop at Rheinberg, Germany



CENTREX® CTX-AFD discharge arm (close up)

Installation of new bucket strand (example)

Conversions and Refurbishments

- Upgrading of existing plant components
- Targeting increased efficiency
- Higher output
- Improved availability

With our expert team of engineers planning selective modernisation measures, we pay special attention to the upgrading of existing plant components, targeting increased efficiency, higher output rates and improved availability.

Upgrading of your materials handling and storage equipment to state-of-the-art technology is achieved through a tailor-made refurbishment process under optimum utilisation of time and budget.

Most of the existing components are re-used in the refurbishment process to save cost.

Engineered conversions and refurbishments for increased efficiency and output are performed on AUMUND equipment as well as on the equipment of other manufacturers.

Pre-assembly of chain strands

After Sales & Field Services

Customer Proximity around the World
At AUMUND, service does not end at the sale of the equipment. It's the beginning of a long-term partnership. AUMUND offers you a full range of services – from commissioning to the delivery of quality spare and wear parts to customized preventive maintenance programs and equipment upgrading. The benefits for you: Maximum equipment efficiency at lower operating cost.

Spare and Wear Parts
A comprehensive range of genuine spare parts is available for our entire product range from stocks in Germany, Hong Kong, Brazil, the USA and Saudi Arabia. Our product specialists provide assistance and respond instantly.

Preventive Maintenance
Knowing beforehand that service will be needed allows you to schedule downtime and save money with timely repairs. Repairs or retrofits can be accurately anticipated allowing for the downtime to be at the most convenient times and at the lowest possible cost.

Retrofits & Modernisation
Aged and worn equipment? Capacity increase needed? Too high operating cost? AUMUND "just as new" retrofits are economical and tailor-made solutions for improving your existing equipment at reasonable cost.

Commissioning and Field Service
Today, presence "on the spot" is an absolute "must". Therefore, our commissioning and service engineers operate from support centers on all continents to guarantee immediate and competent support.

AUMUND Group Spanning the Globe

The AUMUND Group offers efficient solutions for conveying and storage of bulk materials. A particular strength is the technologically mature and extremely reliable machinery for handling all kinds of bulk materials, even hot, abrasive or sticky. Nearly 24,000 installations worldwide substantiate the excellent reputation and good market position of the Group. The companies of the AUMUND Group are active in about 150 countries with 20 locations all over the world and a global network of almost 100 representatives.

AUMUND Holding B.V. / The Netherlands

AUMUND Fördererbau GmbH / Germany

AUMUND Fördertechnik GmbH / Germany
Branch Office Dubai / U.A.E
Branch Office Wroclaw / Poland

AUMUND S.A.R.L. / France

AUMUND Corporation / USA

AUMUND Ltda / Brazil

AUMUND Machinery Technology (Beijing) Co. Ltd / China

AUMUND Asia (H.K.) Ltd / Hong Kong / China
Branch Office Jakarta / Indonesia

AUMUND Engineering Private Ltd / India

SCHADE Lagertechnik GmbH / Germany

SAMSON Materials Handling Ltd / GB
Branch Office Bristol / GB

AUMUND Group Field Service GmbH / Germany

TILEMANN GmbH / Germany

AUMUND Logistic GmbH / Germany

The AUMUND Group operates Service Centres and Warehouses for spare parts in Germany, the USA, Brazil, Hong Kong, Saudi Arabia, and in Great Britain. Almost 60 dedicated Supervisors tend to clients' needs across the globe and a specialized PREMAS® Team provides Preventative Maintenance and Service support including inspection and consulting.

WE CONVEY QUALITY

AUMUND headquarters in Rheinberg, Germany

AUMUND Foerdertechnik GmbH
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