

# **SILO DISCHARGE CENTREX™**



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## 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 LOUISE CTX-I**  
**CENTREX™ with external drive and stationary inner cone type LOUISE CTX-A**  
**CENTREX™ with external drive and rotating inner cone type LOUISE CTX-AD**

**Material examples which can be discharged:**

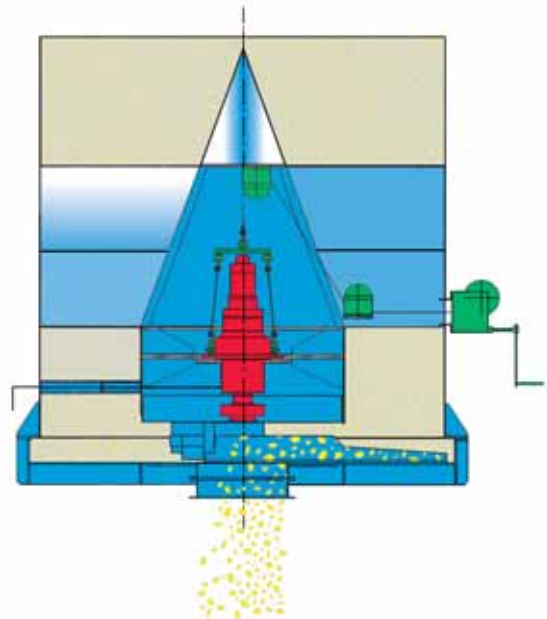
- FGD Gypsum
- Gypsum
- Coal
- Limestone
- Clay
- Marl
- Wet ash



View through the hollow girder onto the drive unit

#### Advantages 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-I

A CENTREX™ 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.**

**Advantages:**

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

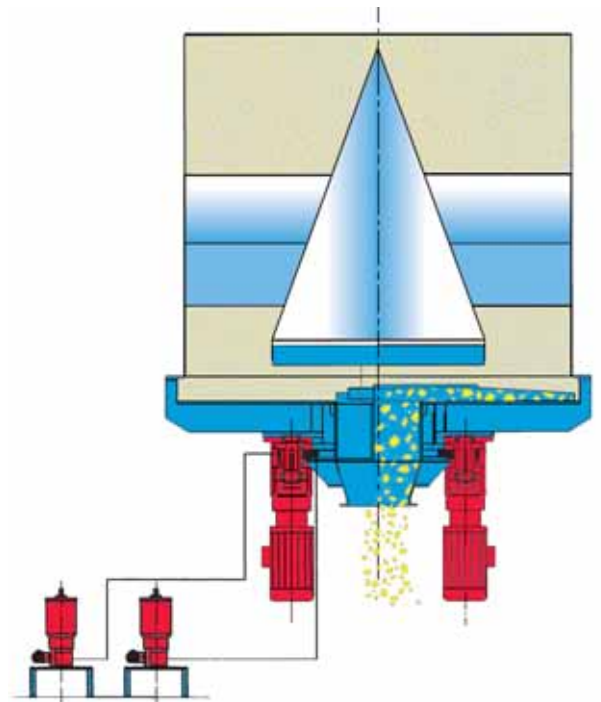


Two separate lubrication lines: one to lubricate the gear of the slewing ring,

## **CENTREX™ WITH EXTERNAL DRIVE AND STATIONARY INNER CONE TYPE CTX-A**

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.

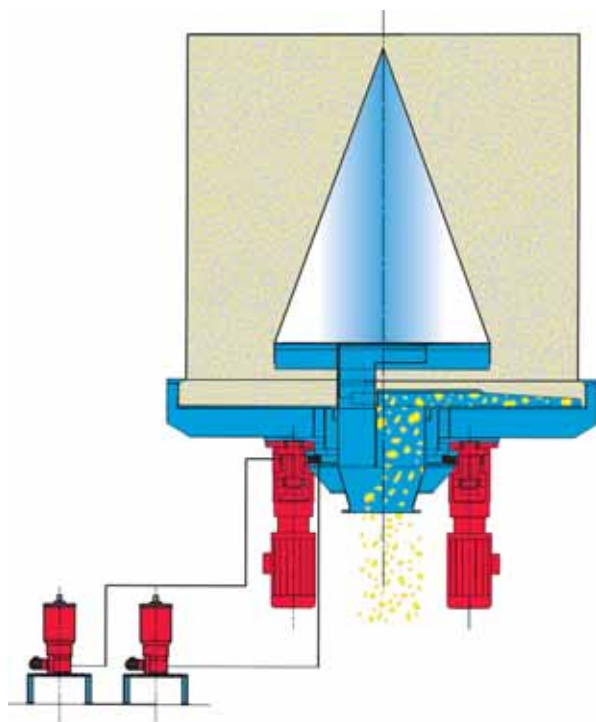




one to lubricate the bearings of the slewing ring



CENTREX™ type CTX-AD



## **CENTREX™ WITH EXTERNAL DRIVE AND ROTATING INNER CONE TYPE CTX-AD**

The drive unit of this CENTREX™ 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.



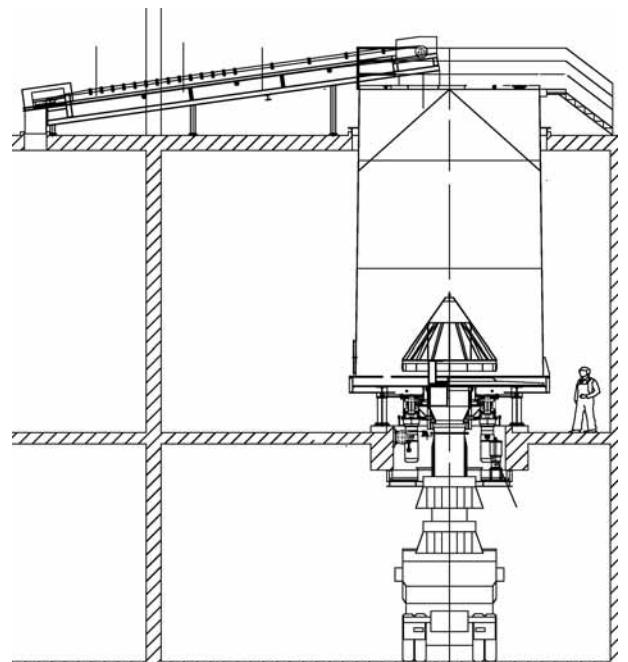
## EXAMPLES FOR CENTREX™ APPLICATIONS

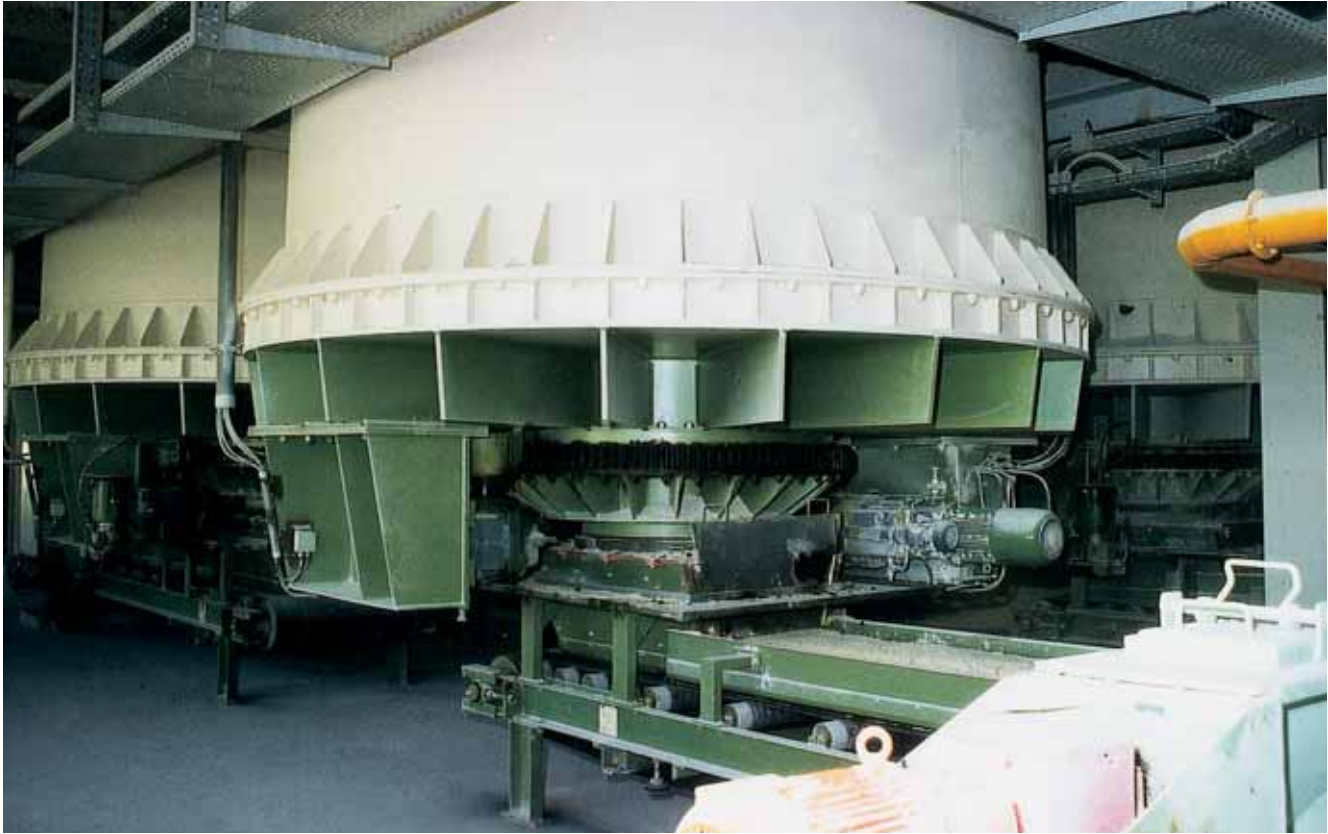


CENTREX™ - Feeding of FGD Gypsum to silo



CENTREX™ silo - Detail





CENTREX™ with two external drives for discharge of FGD Gypsum loading onto a Weigh Feeder



Truck loading underneath CENTREX™



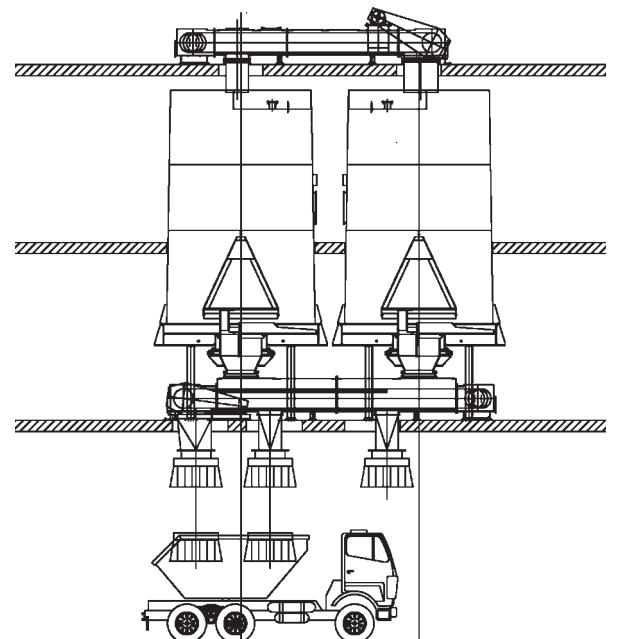
## EXAMPLES FOR CENTREX™ APPLICATIONS - TRANSPORT AND DISCHARGE OF VARIOUS TYPES OF BULK MATERIAL



LOUISE Double-Strand Chain Conveyor, feeding 2 silos



CENTREX™ type CTX-A with external drive for FGD Gypsum





## ASSEMBLY OF CENTREX™ UNITS



Lifting of workshop mounted  
main CENTREX™ components on site



Field assembly of CENTREX™ bottom



Assembly of CENTREX™ silo

## SILO DISCHARGE FROM CENTREX™ WITH TRUCK LOADING



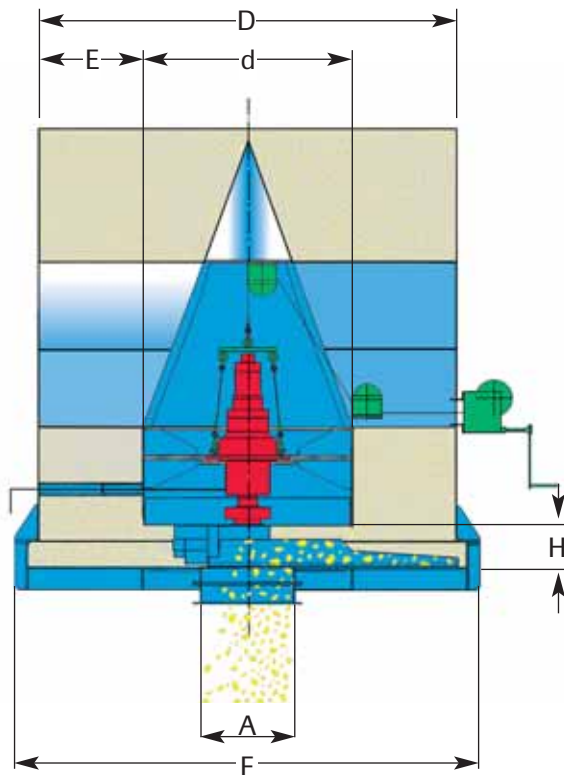
CENTREX™ with internal drive. Discharge from  
a steel plate silo with truck loading

## TECHNICAL DATA

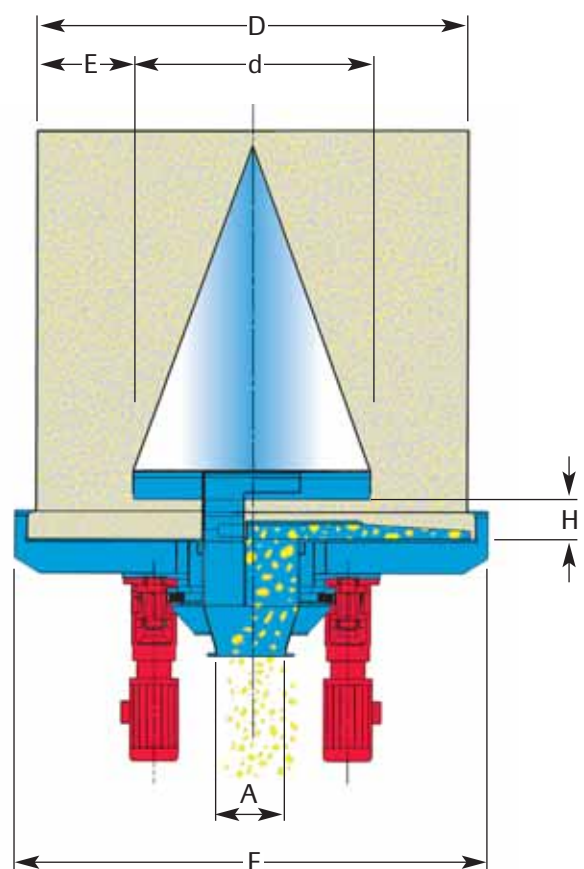
CENTREX™ with internal drive: minimum discharge arm diameter 2500 mm.

CENTREX™ with external drive and rotating cone: max. discharge arm diameter: 4000 mm.

**CENTREX™ with internal drive**



**CENTREX™ with external drive**

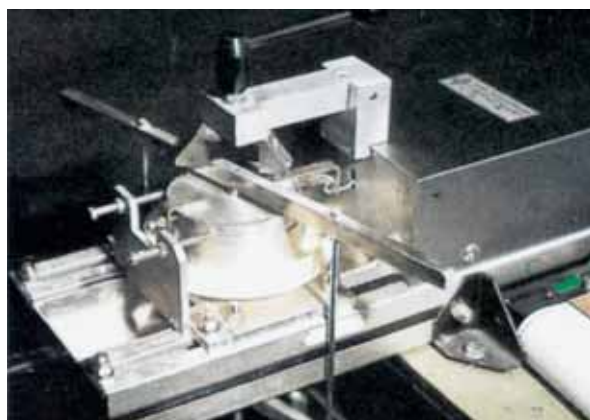


D Discharge arm ø [mm]	F Outer ø [mm]	E Penetra- tion depth [mm]	d Inner cone ø [mm]	H Slot height [mm] (adjustable)	A Outlet ø [mm]	Q [m³/h]		
						Theoretical discharge capacity Circular speed at discharge arm tip		
						1 m/s	0,5 m/s	0,2 m/s
1000	1340	250	500	100	220	70	35	14
1500	1840	375	750	150	340	100	50	20
2000	2380	500	1000	200	450	140	70	28
2500	2880	625	1250	250	560	180	90	36
3000	3380	750	1500	300	670	220	110	44
3500	3880	875	1750	350	780	290	145	58
4000	4380	1000	2000	400	900	360	180	72
5000	5420	1000	3000	500	1100	520	260	104
6000	6420	1000	4000	600	1350	730	365	146
7000	7460	1000	5000	700	1550	910	455	182
8000	8460	1000	6000	800	1770	1000	500	200

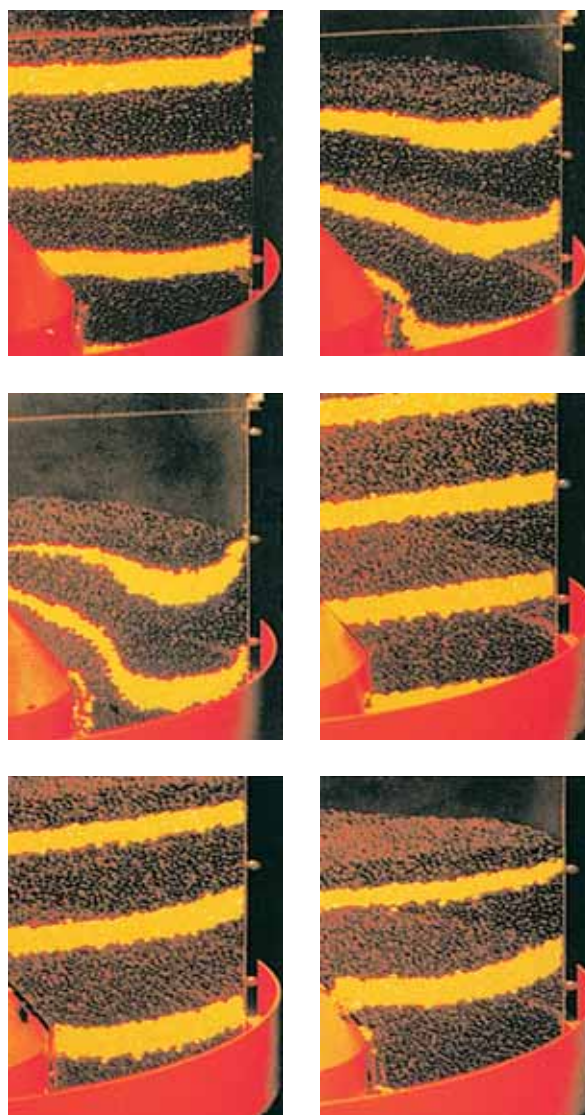


## BULK MATERIAL TESTING IN OUR LABORATORY

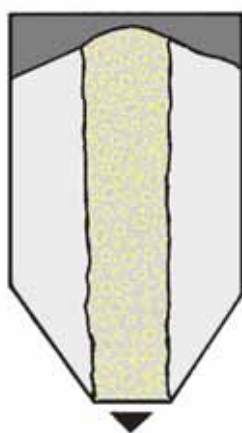
To determine the physical and mechanical properties and behaviour of specific bulk materials, our laboratory incorporates a large variety of testing equipment. Various test methods allow to determine the correct application of our products, e.g. shear testing.



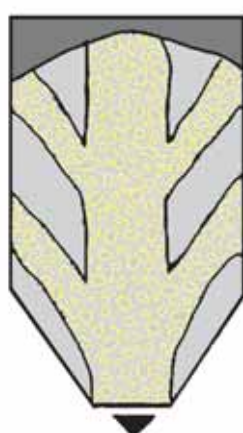
Jennicke shear cell



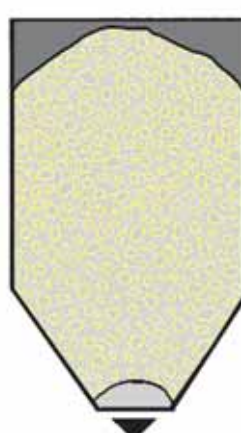
Bulk material tests



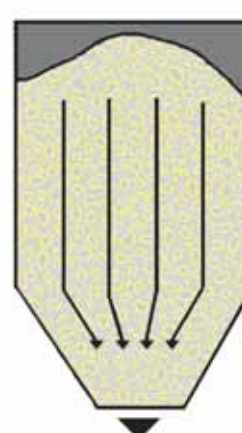
Ratholing



Core flow

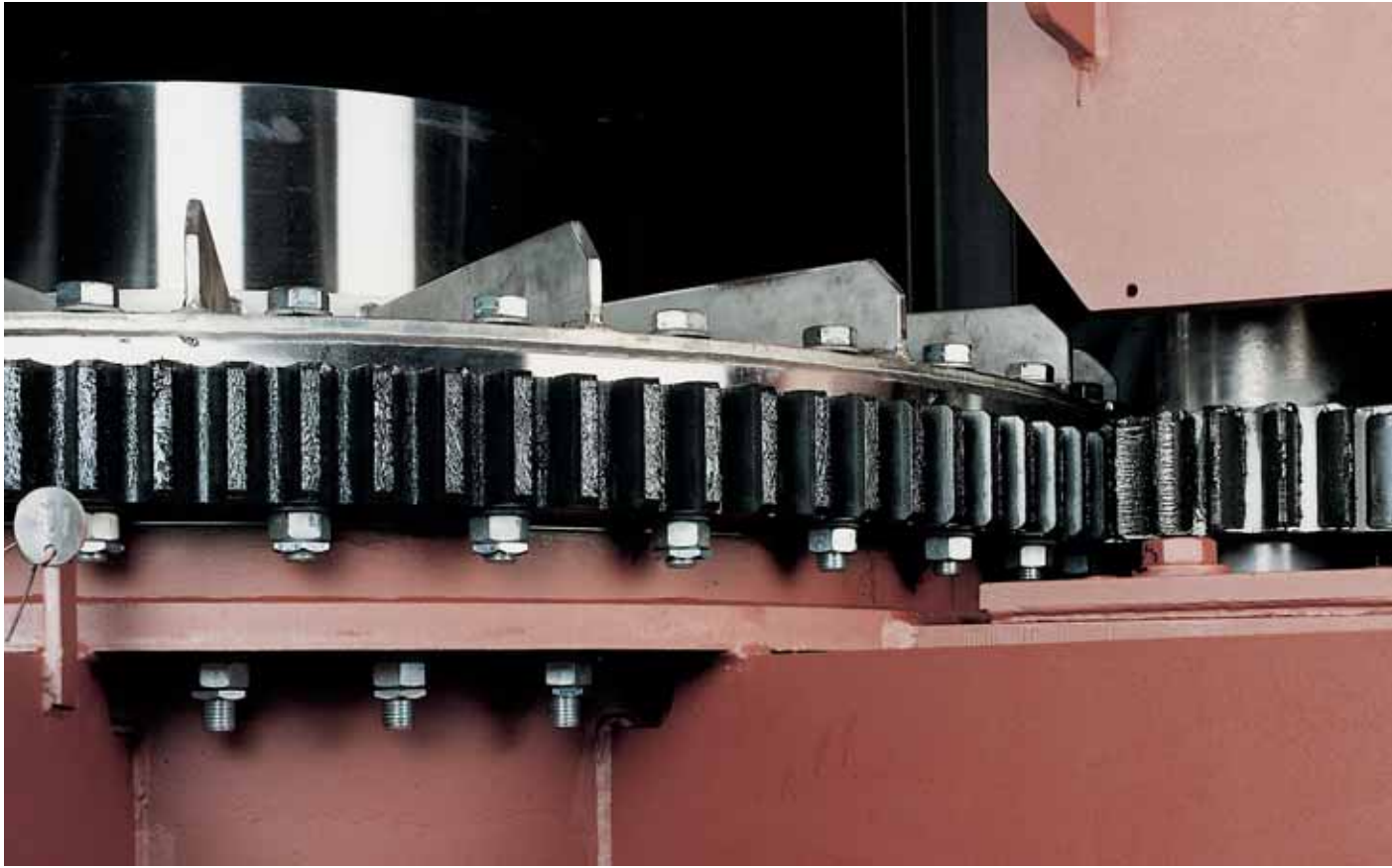


Bridging



Mass flow





Drive arrangement of CTX-A, external drive - Detail



Ready assembled CTX-I 5000, view into the support/maintenance arm, onto the planetary drive unit



CENTREX™ discharge arm for internal drive



## COMPONENTS



CENTREX™ discharge arm - Detail



CENTREX™ Assembly in Rheinberg's workshop





Installation of new bucket strand

## 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 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 upgrades. The benefits for you: Maximum equipment efficiency at lower operating costs.

### • 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.

### • Spare and Wear Parts

A comprehensive range of genuine spare parts is available for our entire product range from stocks in Germany, Great Britain and the USA. Our product specialists provide assistance and respond instantly.

### • Retrofits

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.

### • 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.



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Reputation and competence proven by more than 10.000 installations in over 100 countries.

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