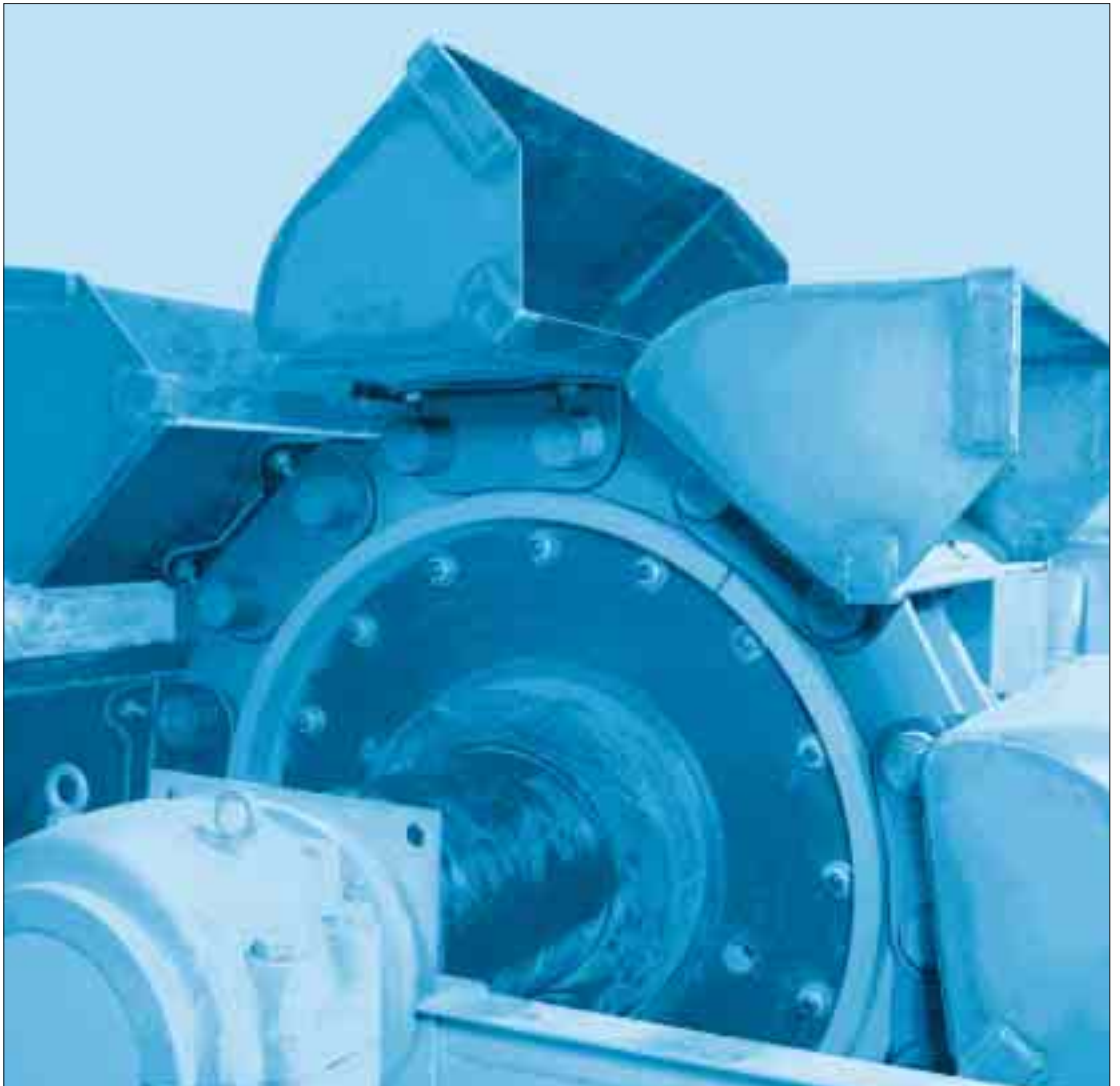




BEUMER
technology in motion

CONVEYING TECHNOLOGY
LOADING TECHNOLOGY
PALLETIZING TECHNOLOGY
PACKAGING TECHNOLOGY
SORTATION AND
DISTRIBUTION SYSTEMS



**High capacity
chain bucket elevators**



BEUMER CONVEYING TECHNOLOGY

Bucket elevators

As a means of vertical mechanical transport, bucket elevators have become indispensable links in the production sequences in many branches of industry.

By concentrating on the practice-oriented development of high capacity bucket elevators based on belt or chain traction elements, BEUMER has decisively contributed to the various technologies applied in the conveyor designs prevailing in modern industry.

This is documented impressively by a large number of industrial proprietary rights and the realization of extreme requirements in business.

The biggest bucket elevators of the world with center distances of more than 140 m and volume flows of 1800 m³/h have been made possible just by the BEUMER technology.

Belt bucket elevators and chain bucket elevators are both – economical and reliable – conveyors. This is documented by thousands of installations having been supplied and by the satisfaction of our customers.

Chain bucket elevators

The specific basic conditions of the cases of application determine the nature of the traction element used. Chain bucket elevators are primarily used in cases where the material properties and operational conditions impose special requirements on the respective traction element.

Lumpy, abrasive and hot materials – for example as far as the transport of clinker, clinker scabbing or broken limestone is concerned – are transported in a reliable way by

the use of high capacity chain bucket elevators.

High capacity central chain bucket elevators with central chain are particularly suitable for the transport of hot, granular and abrasive bulk materials. The cement industry uses BEUMER central chain bucket elevators for the vertical

transport of hot, abrasive clinker to fill silos and also in clinker grinding plants. Due to the proven reliability and the long service life of the BEUMER systems, customers benefit from the technology of these transport systems.

BEUMER technology, the solution to your transport problems.



BEUMER High capacity central chain bucket elevator



Conveying capacities of more than 1.110 m³/h

The closer bucket spacing and therefore close succession of buckets allows the realization of conveying capacities of more than 1.110 m³/h.

In order to allow individual adaptation of the systems to the required conveying capacity, bucket widths from 400 to 2.000 mm are available as single or double bucket elevator versions.

Conveying heights of more than 70 m

The use of the high-strength BEUMER central chain is a secure basis to achieve even extreme conveying heights for vertical conveying of material.

Depending on the combination of capacity and conveying height, the best chain and usable for every case of application is selected from four types of chains being available with keeping to the determined securities of the chains.

Long service life

The service life is increased essentially by chain bolts with a tough core and defined effective depth of hardening which thus assure an economical use.

Maximum operating safety

The proven machine components of the BEUMER bucket elevator technology form the basis for highly reliable systems and fault-free operations.



High Capacity Central Chain Bucket Elevators

The design and construction of BEUMER bucket elevators is based on the operating experiences of many thousands of bucket elevators being in operation at our customers throughout the world.

Beside the bucket elevator casings, the essential components are the head units and the boot units with their specific conveying components.

Bucket elevator head unit

Beside the housing as an essential part, the bucket elevator head unit comprises the drive wheel with shaft and the material discharge. The transmission of power onto the central chain is effected via friction through a drive wheel with a toothless exchangeable sliding surface. The chain support rollers are partially surface hardened on the basis of CrMo to guarantee an optimum chain guidance and a long service life.



The drive unit is equipped with a hydro-dynamic fluid clutch as a starting aid and overload protection. An adjustable discharge lip in the area of the material discharge minimizes the material residue falling back.



For inspection and maintenance works, the corresponding service flaps are placed at the suitable positions in the bucket elevator casing.

Bucket elevator boot unit

The central chain and the buckets are guided through a return chain wheel and a tension chain wheel during the loading process in the bucket elevator boot.

The gravity loaded parallel tensioning device guarantees optimum running and guidance conditions of the chain on the return chain wheel and the tension chain wheel in the bucket



elevator boot.

The chain support roller of the tension chain wheel on the basis of CrMo is split and fitted with partially hardened sliding surfaces.

A filling level detector which is integrated in the bucket elevator boot works as a safety element to protect against overflowing by uncontrolled feed of material into the bucket elevator boot.

Also in this case service flaps facilitate the access for inspection

BEUMER central chain

and maintenance works.

The BEUMER central chain is the innovative new development resulting from one decade of experiences in the central chain bucket elevator technology.

While developing this chain, market demands for a small grading in tensile strength and therefore a low-priced, economical use have been considered.

The arched form of the dust flap being adjusted to the chain wheel makes it possible to form a three-point fixing together with the two chain bolts and therefore guarantees a safe force-fit operation of the bucket elevator.

The massive bolt with its high core strength and its hardened surface

assures a permanent low-wear operation. Furthermore, the external socket forms a labyrinth seal and a grease chamber with its shaping adjusted to the bolt which makes a lifetime lubrication of the bearing areas even in case of high temperatures possible (up to 150 °, on request also higher temperatures).

Secure and simple mounting

When mounting the chains the outer link plates will be secured via snap rings before they are screwed with the buckets.

The BEUMER central chain is offered with the following strength specifications in four gradings:



Designation	„Tensile strength“
BZK 800	800 kN
BZK 1200	1200 kN
BZK 1600	1600 kN
BZK 2000	2000 kN





Basic design data

Criteria for the selection of BEUMER central chain bucket elevators

Center distance	70 m and more are possible
Conveying capacity	depending on the bucket width up to 1.110 m ³ /h (please also refer to the volume flow table)
Material size	0 – 80 mm

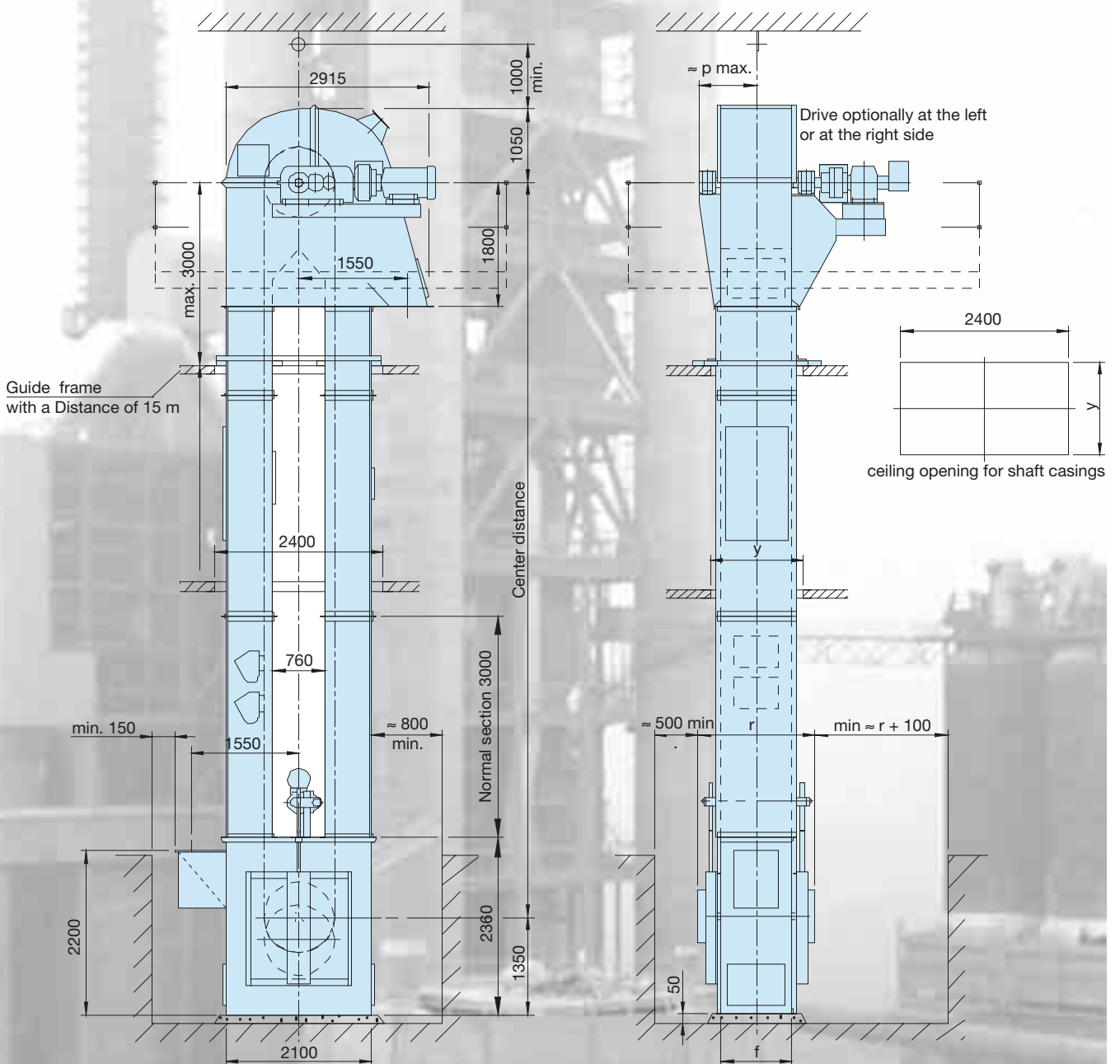
Volume flow table BEUMER central chain bucket elevators

Filling φ	Bucket width									
	l _v	single strand					two-strand			
		400	500	630	800	1000	1000	1250	1600	2000
100%	m ³ /h	293	369	466	592	741	738	932	1185	1483
75%	m ³ /h	220	277	350	444	556	554	699	889	1112

Bucket width	mm	400	500	630	800	1000	1000	1250	1600	2000
							2 x 500	2 x 630	2 x 800	2 x 1000
f	mm	700	800	930	1.100	1.350	1.750	2.000	2.400	2.800
p	mm	1.045	1.095	1.160	1.245	1.370	1.350	1.450	1.750	1.850
r	mm	1.325	1.425	1.625	1.800	2.100	1.950	2.200	2.650	3.050
y	mm	950	1.050	1.200	1.400	1.650	2.100	2.350	2.750	3.150



Dimensions



PROGRAM OF SUPPLY

CONVEYING TECHNOLOGY

- Conventional and closed belt conveyor systems
- Overland conveyors also in curved design
- High capacity belt and chain bucket elevators
- Apron conveyor systems with chains or steel cable reinforced belts as traction element
- Bag handling systems for packing plants
- Screw conveyors in various designs

LOADING TECHNOLOGY

- Plants for loading of bulk or bagged material onto trucks, into railroad vehicles and ships
- Semiautomatic railcar unloading machines
- Automatic bag loading systems for trucks and containers

PALLETIZING TECHNOLOGY

- Palletizing robots
- Automatic high capacity palletizers
- Automatic depalletizers
- Pallet conveying systems

PACKAGING TECHNOLOGY

- Stretch wrapping
- Shrink wrapping
- Stretch hood wrapping
- Palletless shrink wrapping

SORTATION AND DISTRIBUTION SYSTEMS

- Computer-controlled handling, sorting and distributing systems for piece goods
- Routing controlled conveying of pallets and collected loads



BEUMER Maschinenfabrik GmbH & Co. KG

Postfach 12 54 · D - 59267 Beckum · Tel. +49 - (0) 25 21 - 24 0 · Fax +49 - (0) 25 21 - 24 280
E-Mail: BEUMER@BEUMER.com · Internet: www.BEUMER.com