I BAU HAMBURG

Your efficient partner for modern and effective bulk material handling

PLANT DESIGN - ENGINEERING - EPC-CONTRACTING

CEMENT - THERMAL POWER - MINERALS

Central Cone Silos

Single silos.
Ring silos.
Multicompartment silos.
From 2 to 22 chambers, diameters: 14 to 27 m.

EPC-Contracting

Piling.
Civil works.
Steel structure, supply/erection.
Electrical/ mechanical supply and erection.

Marine Cement Terminals

Floating terminals.
Mini terminals.
Silo systems.
Dome systems.
Flat storage terminals.

Silo Conversions

Economic modifications with advanced cutting-edge technology.

Cement Carriers

Advanced technology for self-discharging Cement Carriers including the Midship tunnel.

Components

The key for a well functioning plant: Components, all made to measure.

Ship Unloaders

Stationary or mobile types: From the 5,000 class up to the 60,000 class.

Spare Parts

High stock availability: Just-in-time supply of spare parts. After-sales Service.

☏ + 49 (0) 40 36 13 090

www.ibauhamburg.de

info@ibauhamburg.de

Z/11/15/Original Components

I BAU HAMBURG

IBAU HAMBURG

Original Components

A HAVER & BOECKER Company

The IBAU HAMBURG Original components

Competence and Innovation

This brochure shows a selection of IBAU key components.

A trouble-free operation of silo plants and of either mechanical or pneumatic transport systems depends significantly on the reliability of its single components. Components engineered by IBAU HAMBURG in connection with the IBAU plant engineering are the key for a well functioning plant.

Our scope of supply includes the planning of complex plants up to the development and construction of single components such as the

IBAU Screw pump,
IBAU Flow control gate,
IBAU Loading devices and
IBAU Roller-type dischargers.

REFERENCES MAKE DIFFERENCES

IBAU HAMBURG has more than 30 years of experience in storage and transport of bulk material and is one of the world's leading companies.

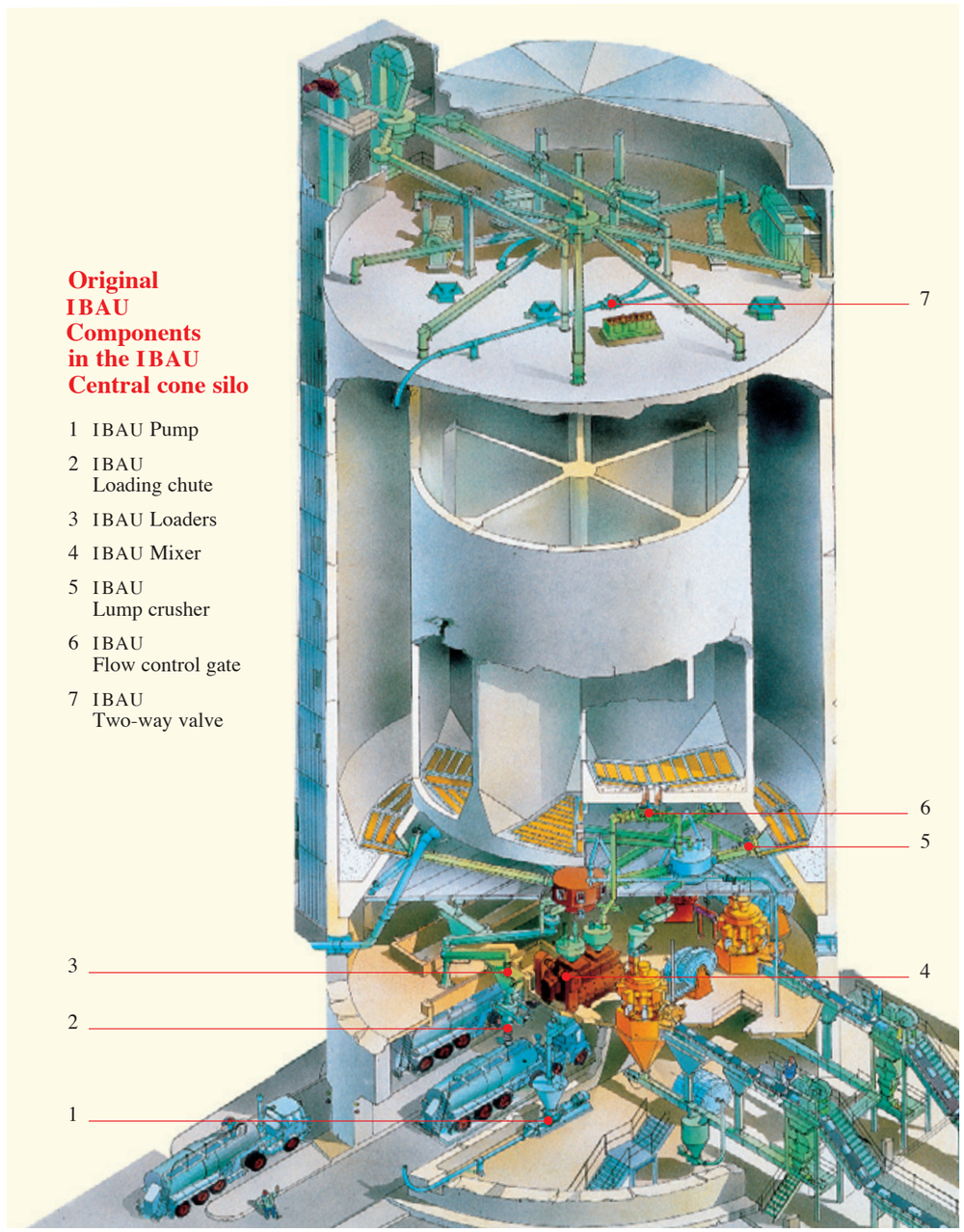
These years of experience help us to support our customers in implementing their projects by developing and applying customised systems and concepts of the highest quality.

As an innovative company, IBAU HAMBURG continually develops its products and components and undergoes continuous quality improvements.

IBAU HAMBURG – The state of the art for modern bulk material handling

Original IBAU Components in the IBAU Central cone silo

1 IBAU Pump
2 IBAU Loading chute
3 IBAU Loaders
4 IBAU Mixer
5 IBAU Lump crusher
6 IBAU Flow control gate
7 IBAU Two-way valve

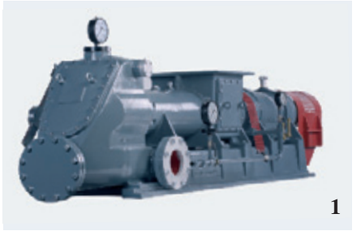


The IBAU HAMBURG Original components

1 *Pump* **2** *Mixer* **3** *Flow control gate* **4** *Cut-off gate* **5** *Simplex loader* **6** *Loading chute*
7 *Lump crusher* **8** *Roller-type discharger* **9** *Jet conveyor* **10** *Two-way valve* **11** *Airlift*

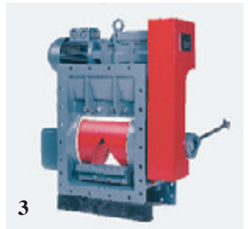
1

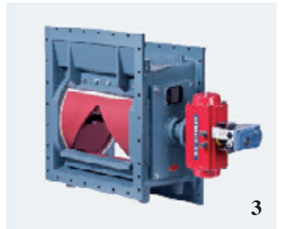
1

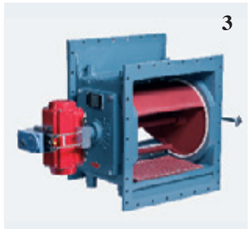

1

2

2

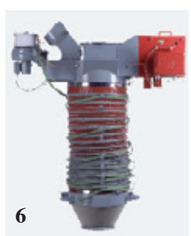

3

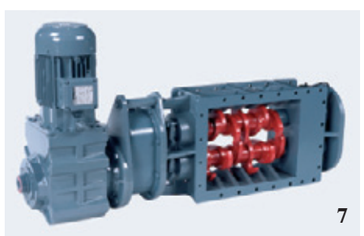

3


3

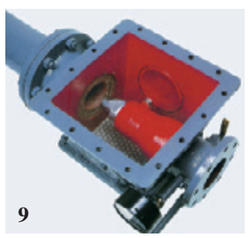
4

5


6


7

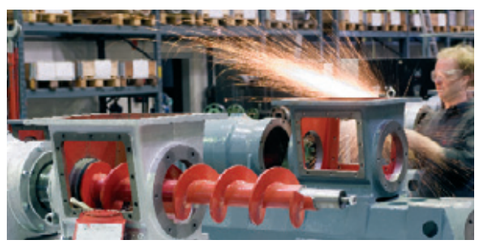
8


9

10

11

Warehouse and assembly shop on more than 5.000 sqm in our giant store Allermöhe near Hamburg



The IBAU HAMBURG Pump

The screw-type pump with decisive advantages

The IBAU Screw pump

Two decisive features distinguish the IBAU Pump from conventional pumps, as follows:

Operation

With IBAU Pumps there is a short cylindrical space between the end of the screw and the non-return flap which is filled with pulverized material during conveying. Even when the feeding is totally shut down and at pressures above 1 bar there is no blowback of air.

This means:

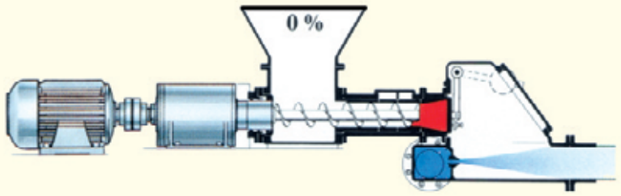
- Material feeding variable 0 – 100%.
- Pulsation-free charging of material into conveying line due to sealing plug.
- Low wear.
- No penetration of the screw shaft into the pressurized discharge box.

Design

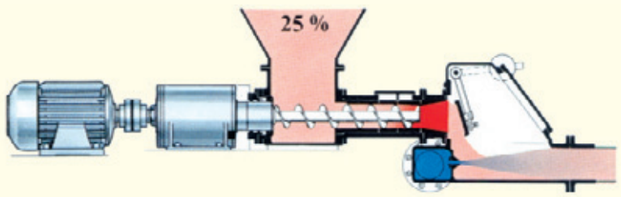
The screw is secured in a sturdy barrel with a cone-shaped inlet connection.

This means:

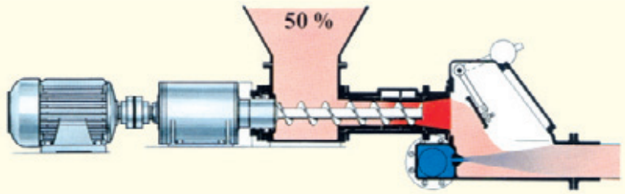
- Incomparably quieter running, even under no-load conditions.
- Easy removal and refitting of the screw without disturbing the bearing seats.



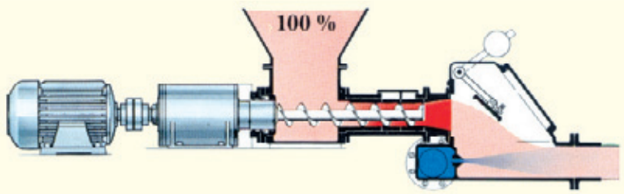
Pump feeding is stopped. The material plug remains unchanged while the screw is rotating.



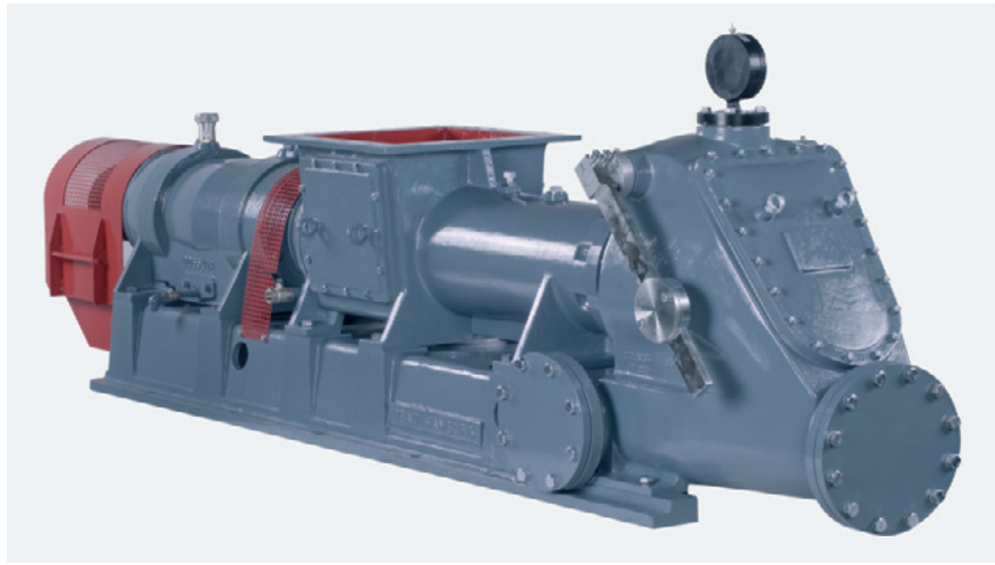
Pump feeding is 25% of the pump capacity. The material plug still remains unchanged.



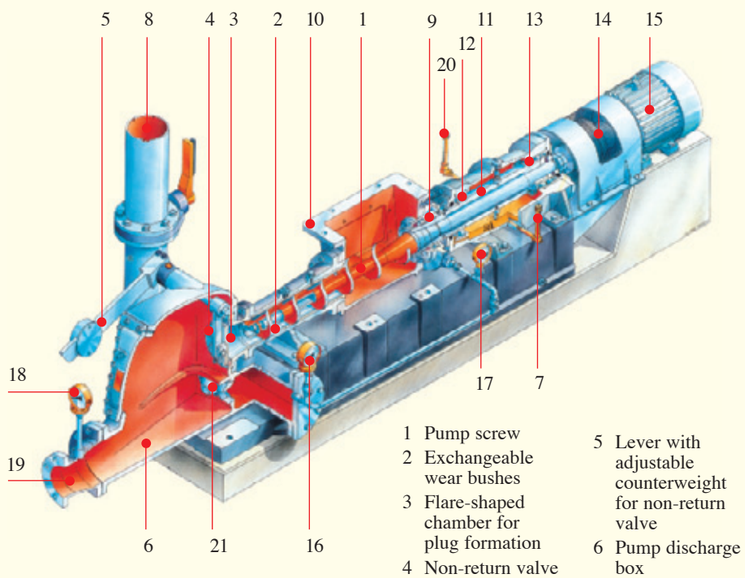
Pump feeding is 50% of the pump capacity. The material plug remains unchanged.



Pump feeding is 100% of the pump capacity. The material plug remains unchanged and the screw does not rotate in the heavily compressed material.



The IBAU Pump



1 Pump screw
2 Exchangeable wear bushes
3 Flare-shaped chamber for plug formation
4 Non-return valve
5 Lever with adjustable counterweight for non-return valve
6 Pump discharge box
7 Oil-level gauge
8 Air supply connection
9 Stuffing box with purge air
10 Pump feeding box
11 Heavy shaft barrel
12 Cylindrical roller bearing
13 Roller bearing
14 Coupling
15 Electric motor
16 Gauge for compressed air
17 Gauge with cock for purge air
18 Gauge for conveying line
19 Conveying line
20 Thermometer
21 Compressed air nozzles

The IBAU HAMBURG Mixer

Continuous or discontinuous mixing plants for the cement industry

The IBAU Mixer

Continuous mixing system with IBAU Flow-through mixers

For the mass cement production with 2-3 main components and with different degrees of grindability it is advisable to perform a separate grinding of the components with the subsequent mixing in flow-through mixers.

So that the grain size distribution of the individual components can be influenced separately.

Often the basic materials such as fly ash are already available in the required fineness, and joint grinding with clinker only consumes unnecessary energy.

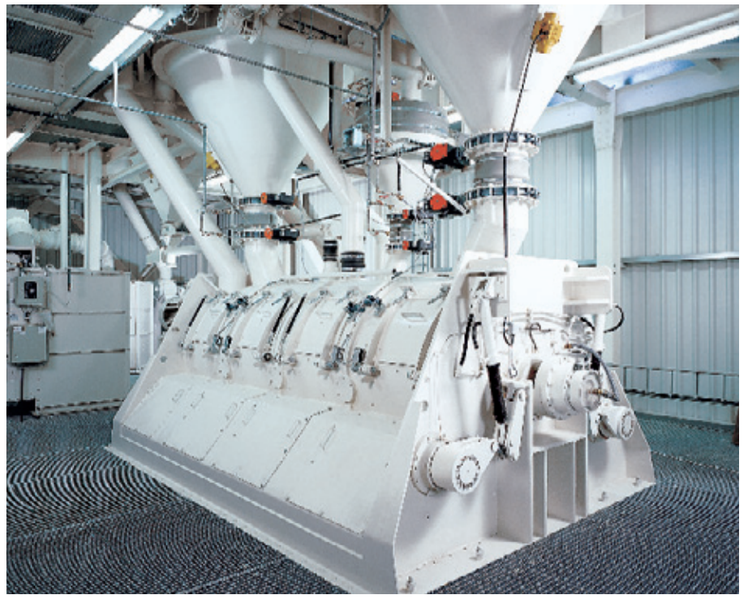
Accordingly, the use of flow-through mixers provides for a swift amortisation, additionally allowing an increase of the grinding output of the cement mills.

Discontinuous mixing system with IBAU Batch-type mixers

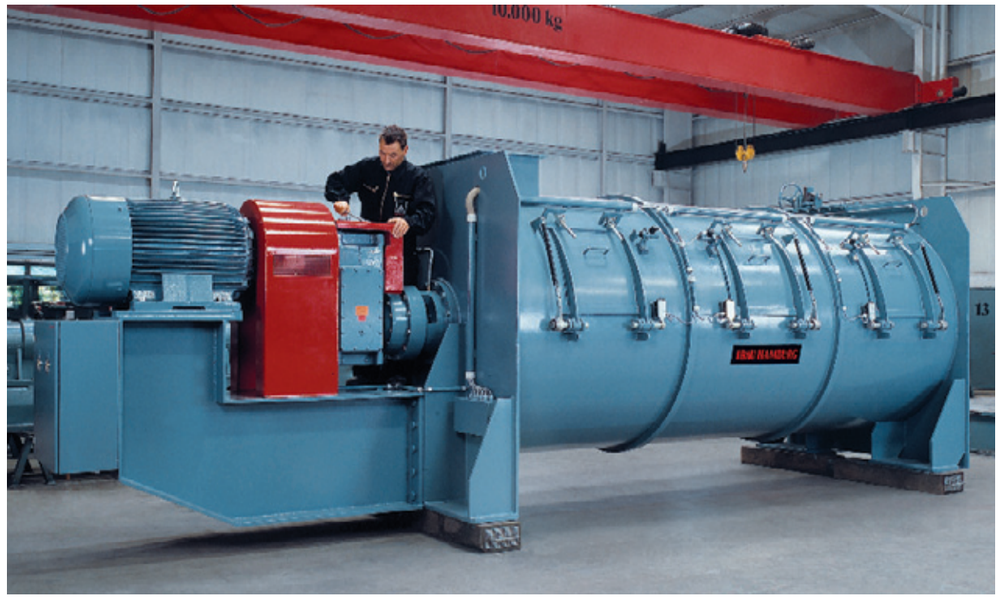
Discontinuous mixing systems are used for the production of special cements with a large number of main and secondary components and/or frequent product changes.

Discontinuous mixing systems provide for the production of specific recipes "just-in-time".

Single-shaft flow-through mixer type IB-DM



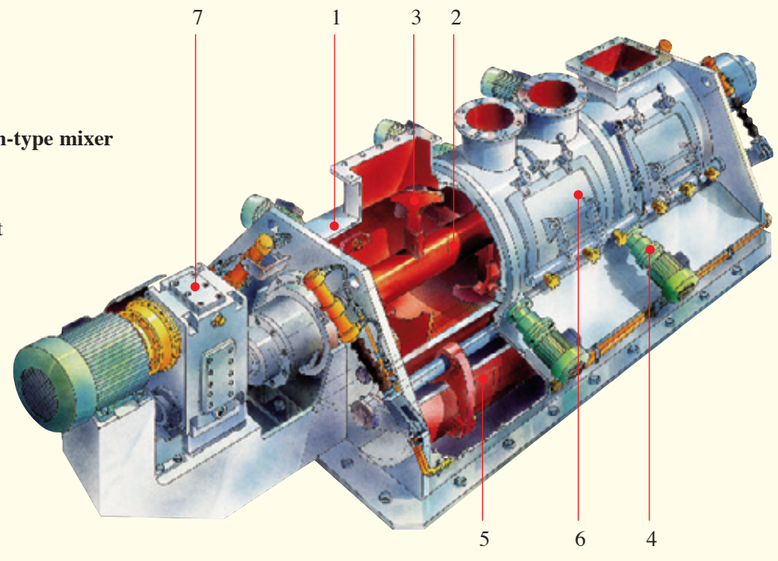
The IBAU Batch-type mixer type IB-M



Functional test of an IBAU Flow-through mixer type IB-DM

The IBAU Single-shaft batch-type mixer type IB-M

1 Mixing housing with inlet socket
2 Mixer shaft
3 Agitator
4 Rotors
5 Drop bottom doors
6 Control flaps
7 Drive unit



The IBAU HAMBURG Flow control gate

Standard type and variations for all applications

The IBAU Flow control gate

The IBAU Flow control gate type IBN shows all advantages and features of the worldwide accepted IBAU Flow control gate.

The variations of the basic type with different actuators have in common the extremely high accuracy of a controlled flow of pulverised bulk goods with reproducible results.

They require practically no maintenance.

However, even good things are subject to wear after many years of good service under severe conditions.

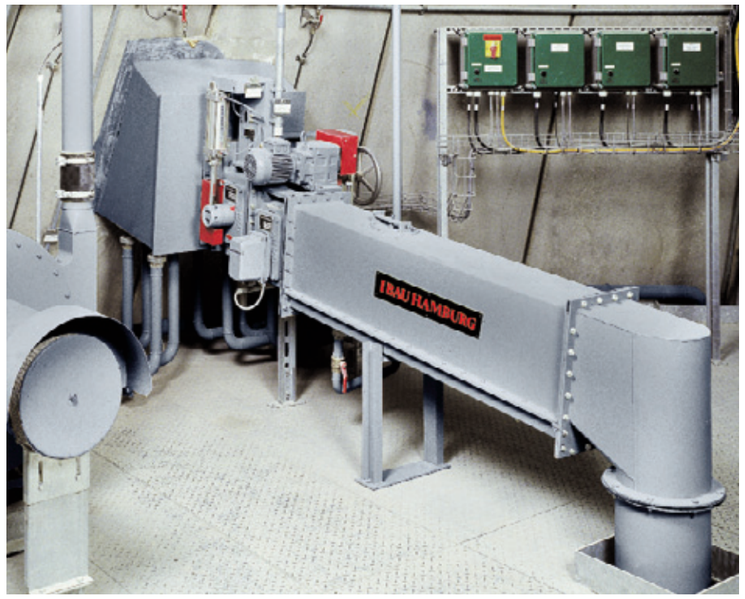
Different designs of other flow control gates may make it necessary to disassemble the complete unit. However, thanks to the design of the IBAU Flow control gate, a complete disassembly becomes unnecessary.

Maintenance can be carried out while the element remains built-in.

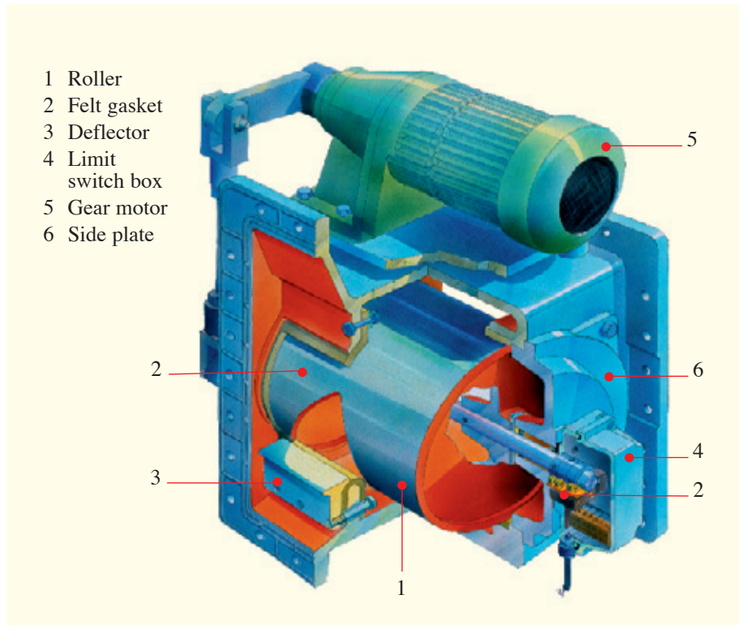
After having taken off one of the side plates the roller can be taken out.

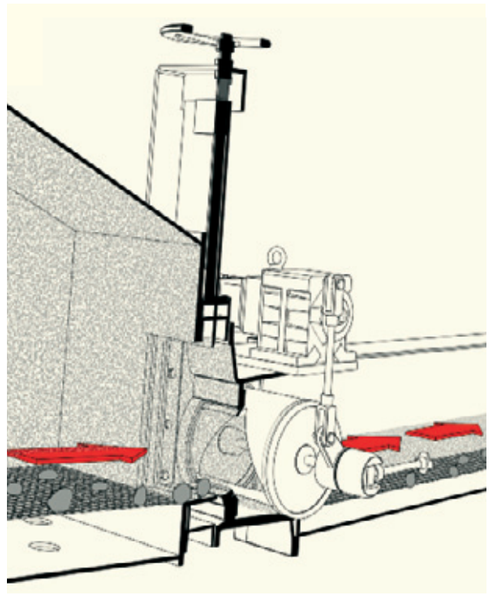
The gasket is then accessible and can be replaced if required.

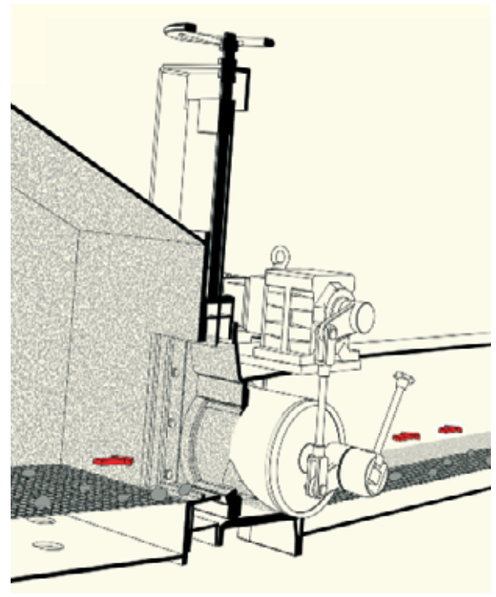
Reassembley is done in reverse order.



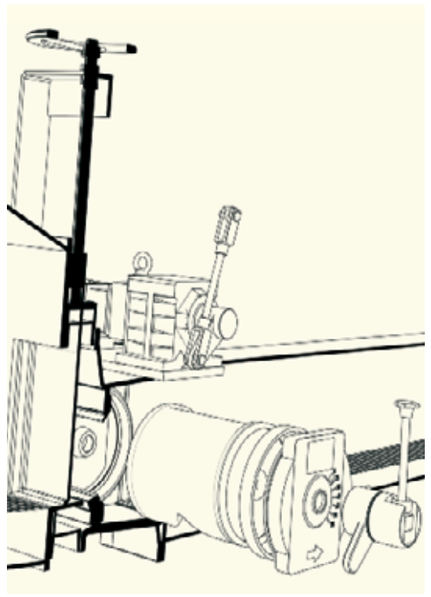
Silo discharge with motor-actuated IBAU Flow control gate



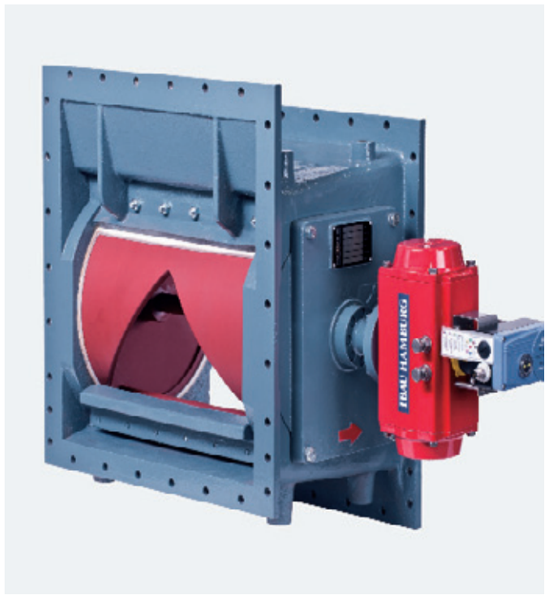




Silo discharge with the IBAU Flow control gate



Gasket exchange



The IBAU Flow control gate in open position

The IBAU HAMBURG Loader

The simple way to quick and dustfree loading

The IBAU Loader

For fine granular bulkgoods like cement and lime as well as fly ash and alumina the IBAU Loader is a proven and well accepted aggregate for quick and dust-free loading of road and rail tankers.

Fluidslides are used to convey the bulkgoods which are to be loaded.

Using the advantages of the fluidslides for this purpose means: high throughput, low energy consumption and practically no noise.

As is suggested by the name they are of a simple design and easy to handle. They do not require much maintenance.

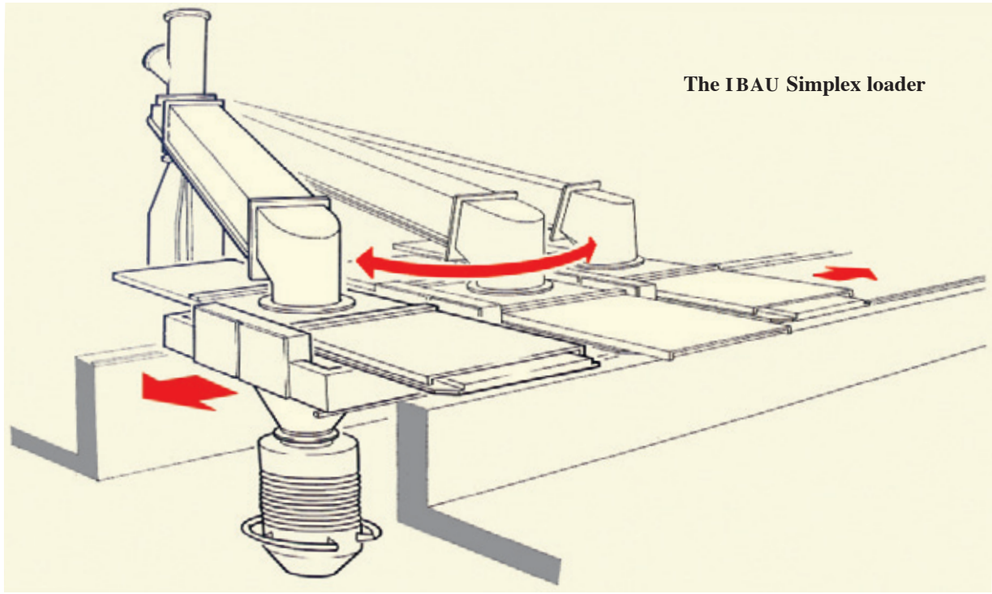
One of the special features is the small space requirement.

This is very advantageous, when using modern drive through dispatch silos.

Long travelling ways are possible without touching or penetrating the silo wall.

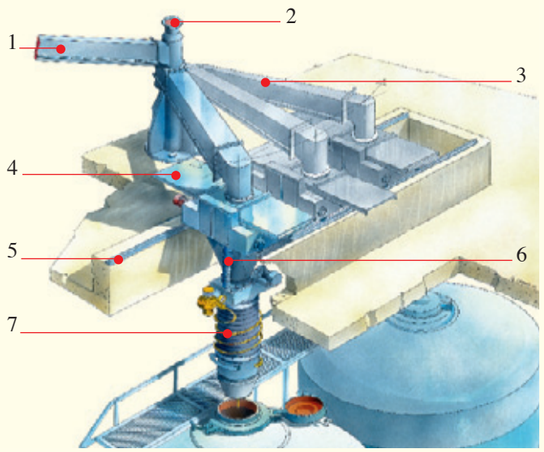
Bulk loading with IBAU Simplex loader

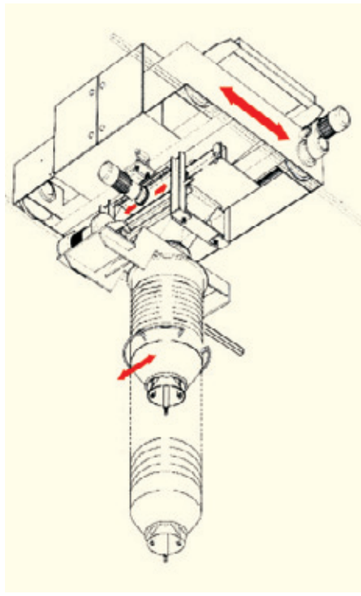
IBAU Mobile loader



This picture demonstrates the principle of the IBAU Simplex loader

1 Fluidslide; 2 Dedusting; 3 Slewing fluidslide;
4 Sealed cover plate; 5 Rail track;
6 Simplex hopper; 7 Loading chute





Loader with cross travel device

The IBAU HAMBURG Loading chute

The element for trouble-free loading of powdered bulk materials

The IBAU Loading chute

On all continents and for many decades the IBAU Loading chutes are in operation for the loading of powdered bulk material such as cement, lime, gypsum, fly ash, alumina, etc.

The chute is being lowered onto the opened loading spout.

As soon as the cone of the loading chute is set down on the loading spout of the vessel, the sealing cone of the loading chute lowers itself and opens the material feeding line as well as the annular venting area between the cones and the outer bellow.

At the silo outlet the IBAU Flow control gate is being opened and the loading process starts, at first with a small flow, then with the max. flow.

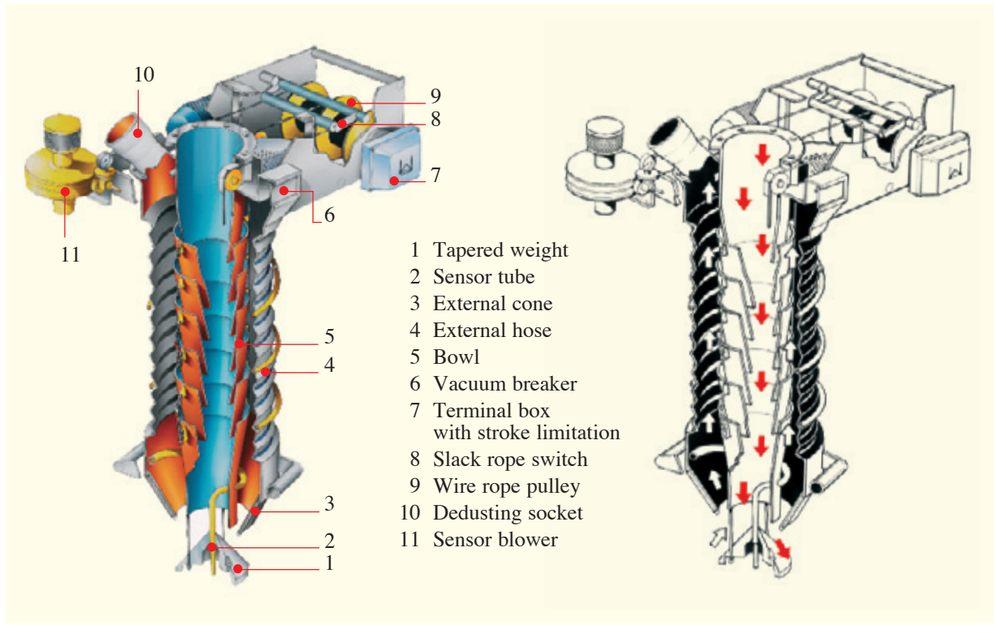
An adjustable sensor gives the signal for the end of the loading process when the vessel is full.

When lifting the loading chute, first the material feeding line and then the annular venting area are being closed.

During the loading process a slack rope switch serves for the automatic lowering of the loading chute.

The IBAU Loading chute

The IBAU Loading chute during positioning and feeding



1 Tapered weight
2 Sensor tube
3 External cone
4 External hose
5 Bowl
6 Vacuum breaker
7 Terminal box with stroke limitation
8 Slack rope switch
9 Wire rope pulley
10 Dedusting socket
11 Sensor blower

Truck loading with IBAU Loading chute

The IBAU HAMBURG Lump crusher

A silo discharge aid for unhindered material flow

The IBAU Lump crusher

Cement which is stored in silos sometimes tends to conglobate especially in silos which have only one central or lateral discharge spout or in silos which are located in humid climates.

Occasionally parts of the agglomerated cement move with fresh cement – which flows easily – towards the discharge spout.

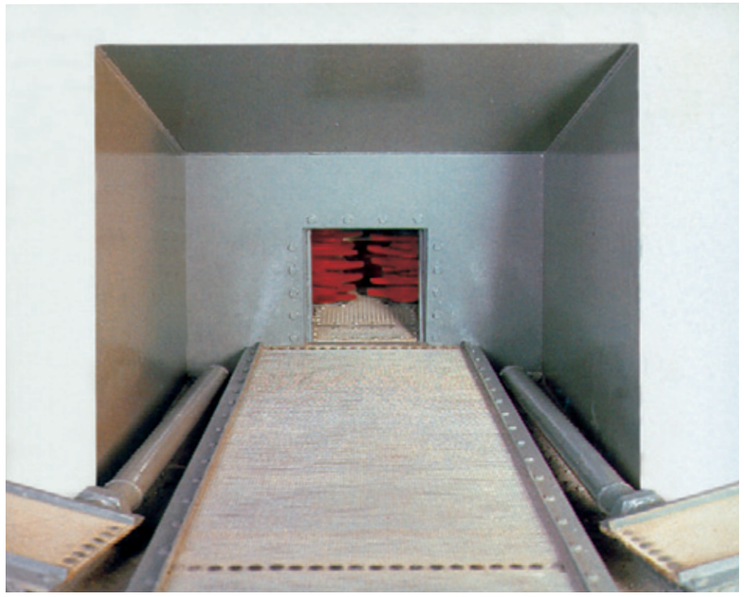
At this bottle neck these lumps plug up the discharge aperture causing discharge trouble.

The cement flow is reduced or comes to a full stop.

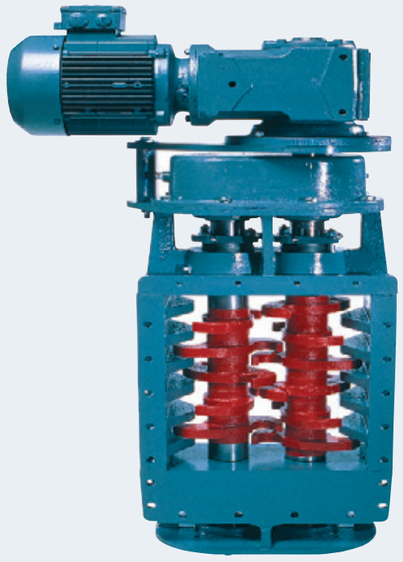
The lump crusher placed at the silo discharge desintegrates the lumps to a size that the cement passes the aperture of the flow control gate trouble-free. The lump crusher has proved his ability since many years of service.

The combination of lump crusher and IBAU Flow control gate has shown no wear when inspected after one year of operation.
It is advantageous that the cracked lumps can flow freely and unhindered through the IBAU Flow control gate as the gasket is not an obstacle in the conveying stream.

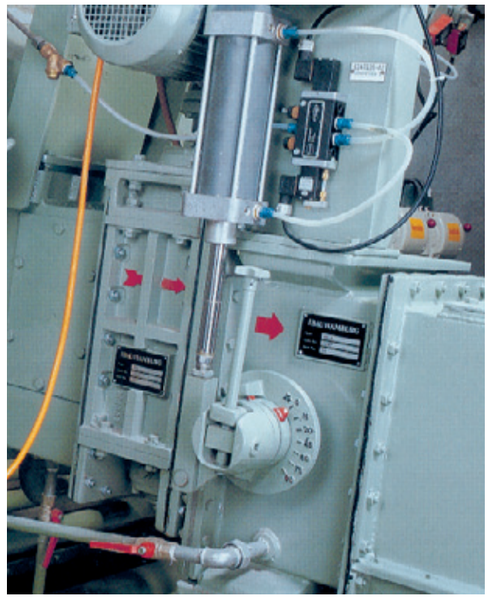
There are no sediments or turbulances in the stream of conveying goods which may affect the flow of cement and which consequently wear down the gasket.



View from inside the silo to the lump crusher



Lump crusher type H for horizontal flow-through



The installation of lump crushers ensures a troublefree discharge

The lumps shown on the silo wall can cause problems at the silo discharge

The IBAU HAMBURG Two-way valve

The proven diverter valve for pneumatic conveying

The IBAU Two-way valve

Pneumatic conveying systems for pulverulent bulk goods such as cement, raw meal, lime, fly ash etc. often have to charge several silos one after the other.

For many year IBAU Two-way valves are being used worldwide for changing the direction of flow in pneumatic conveying lines.

The principle of these valves is simple and well-known.

A cast iron housing has one inlet socket and two discharge spouts.

One of the discharge spouts is always closed by a spring-loaded disc and can be switched either manually or by a pneumatic piston actuator.

A torque motor with gear and brake forms the electric motor actuator.

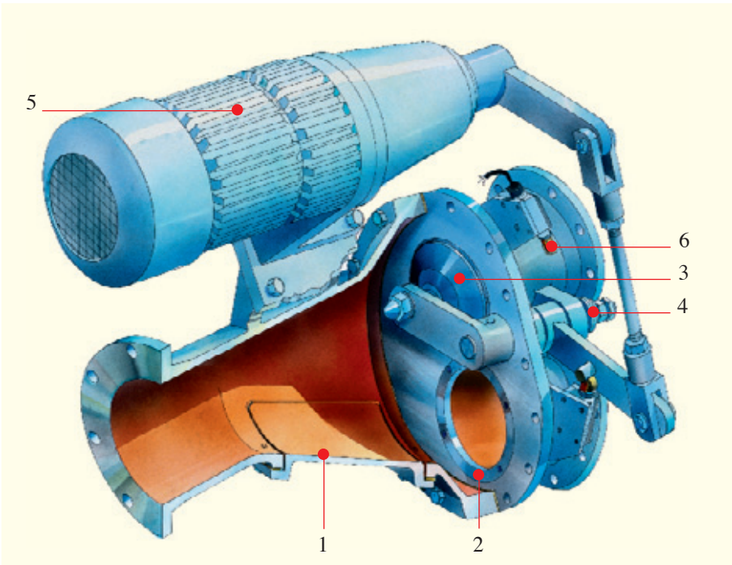
This is to make sure that the final position is correct.

Of course all remote controlled valves are equipped with limit switches.

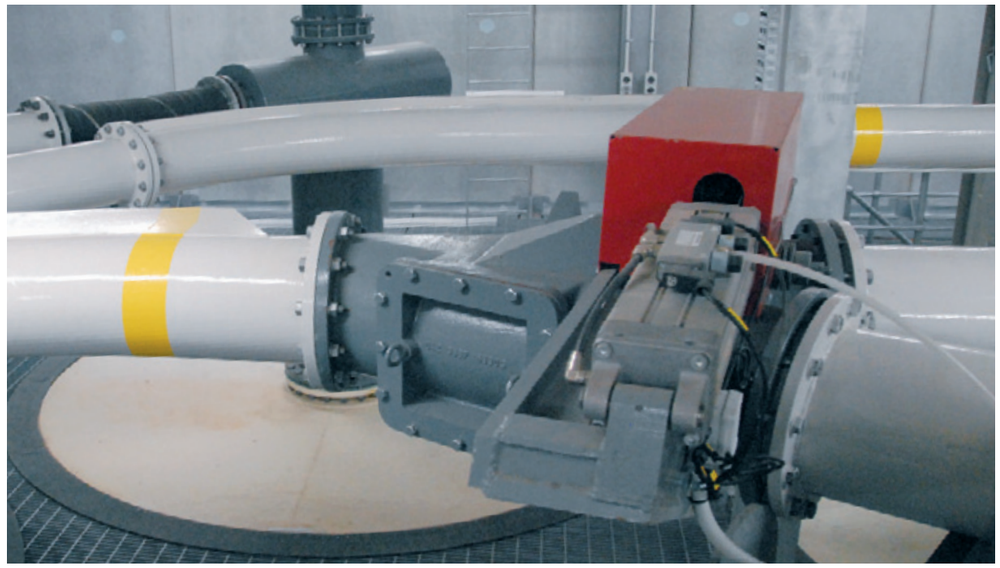
Two-way valves without actuator can have limit switches as an option.

Limit switches can be of the conventional type as well as of the proximity switch type.

The IBAU Two-way valve



1 Inspection cover; 2 Wear ring; 3 Movable disc; 4 Plate spring; 5 Gear motor; 6 Limit switch



Two-way valve in a pneumatic conveying line for cement

Material distribution via two-way valves into different silos

The IBAU HAMBURG Roller-type discharger

Efficient tight-dosing diverter units for fluidslide conveying systems

The IBAU Roller-type discharger

This unit for fluidslide conveying systems is well-accepted by engineers and operators worldwide.

The sectional drawing shows the principle convincing by its ingenuity.

Dischargers and branching chutes are equipment indispensable in fluidslide conveying systems.

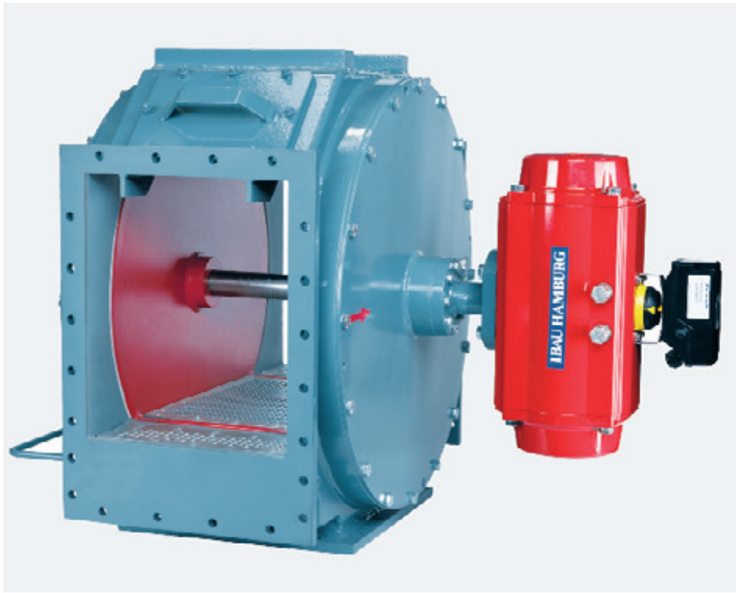
Even the best flap-type dischargers available up to now are often only at the beginning of operation tight.

Incrustations and foreign bodies can cause trouble by causing leaks.

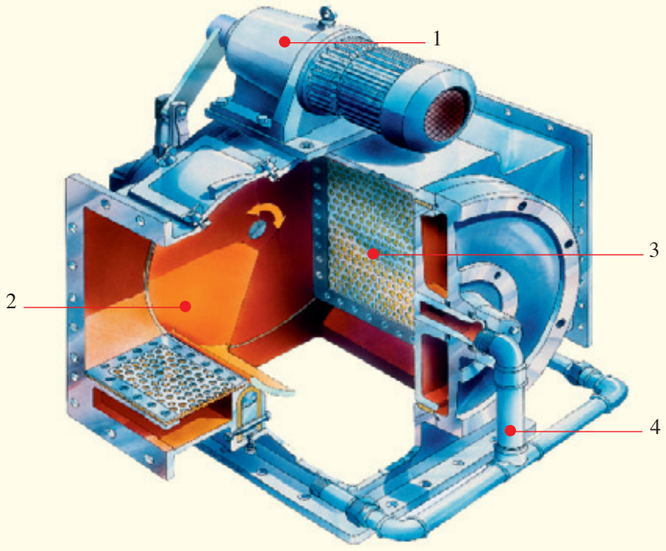
The IBAU Roller-type discharger is different, being as tight as an IBAU Flow control gate.

Many parts are the same as those used in flow control gates.

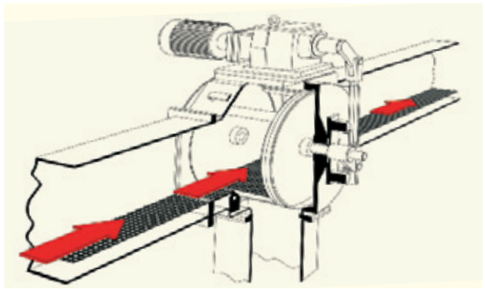
The bottom is permanently aerated. Maintenance is reduced to the very minimum.



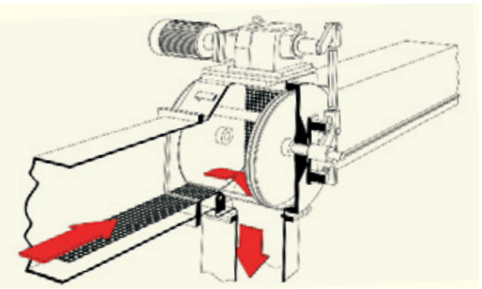
The IBAU Bottom discharger



1 Gear motor; 2 Roller; 3 Aeration pad; 4 Aeration air



Roller-type discharger in „straight“…



… and „discharge“ position

Bottom discharger for feeding different silos in a cement terminal

The IBAU HAMBURG Jet conveyor

A straightforward, sturdy conveying element; dependable and free of maintenance

The IBAU Jet conveyor

They are in operation on all continents in power-stations, aluminium works, cement factories and other works, where small quantities of abrasive, powdery goods have to be conveyed in a straightforward and dependable way over short distances.

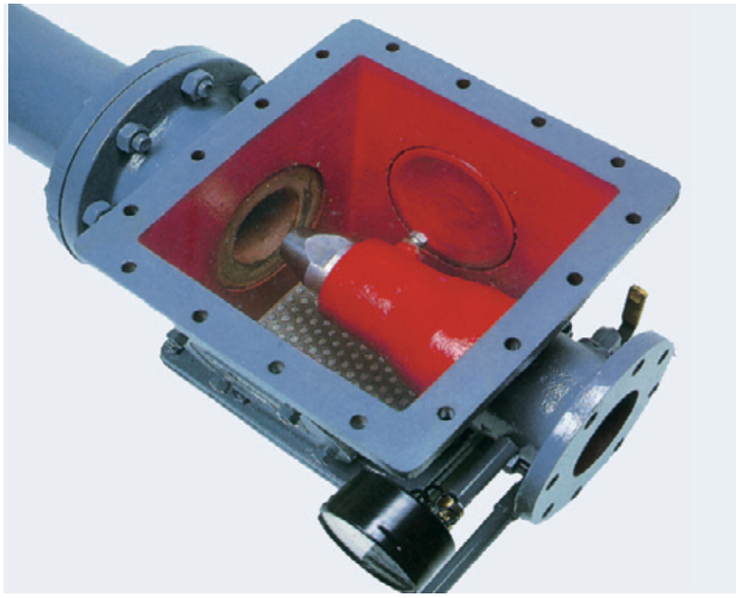
The IBAU Jet conveyor does not contain any moving parts, which are subject to wear and thus is free of maintenance.

The possible wear is reduced to the diffusor, which is made of wear resistant casted basalt.

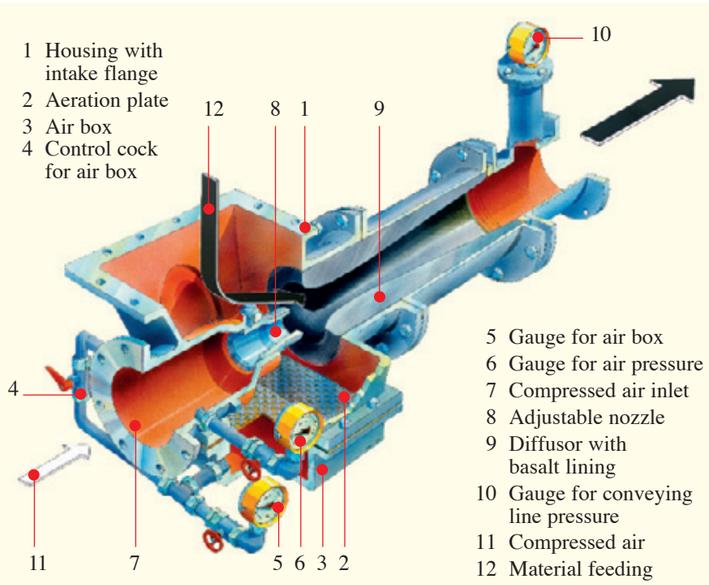
No metered feeding to the jet conveyor is required and plugging of the conveying line due to overfeeding is not possible.

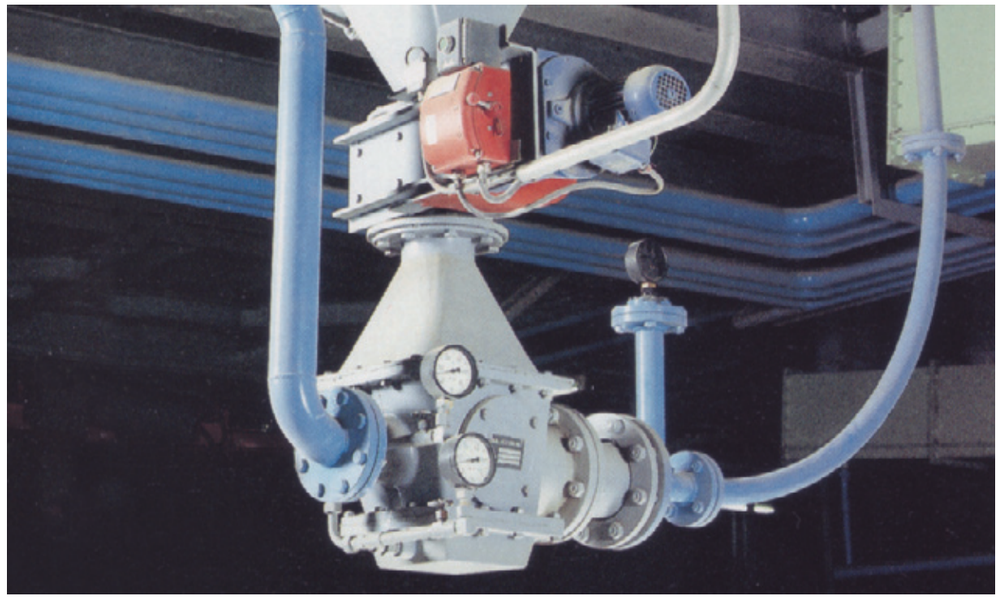
The necessary conveying air generally is compressed by a rotary piston blower.

Possible conveying capacities are shown on the diagram on the right page (metric dimensions).

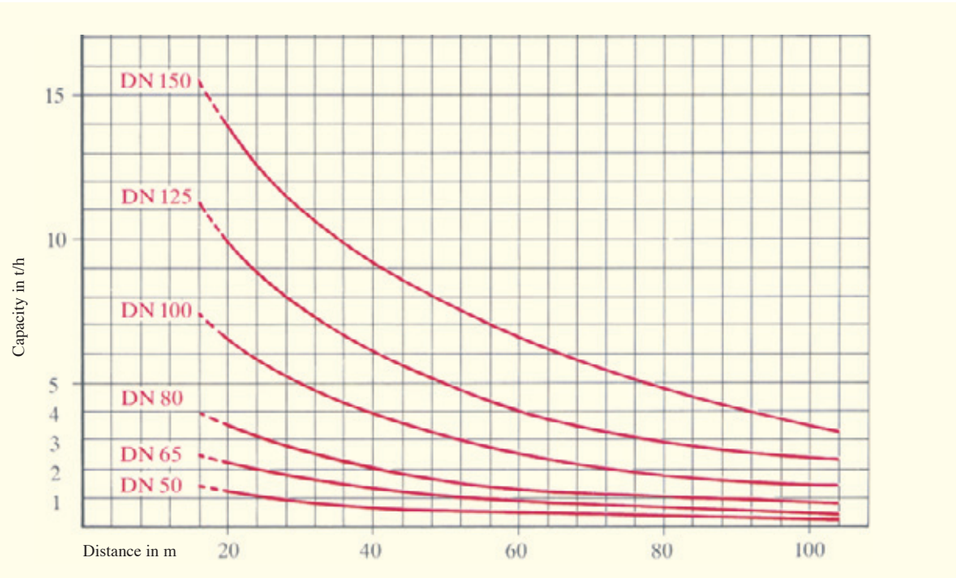


The IBAU Jet conveyor





The IBAU Jet conveyor for spillage return



Capacity diagram for IBAU Jet conveyor

The IBAU HAMBURG Airlift

The continuously working vertical conveyor for minor and major capacities

The IBAU Airlift for silo charging

The IBAU Airlifts facilitates a dust-free vertical transport.

It does not require much maintenance as there are no mechanical parts in the conveying stream which have to be maintained.

A rotary piston blower supplying the conveying air does not require much maintenance either.

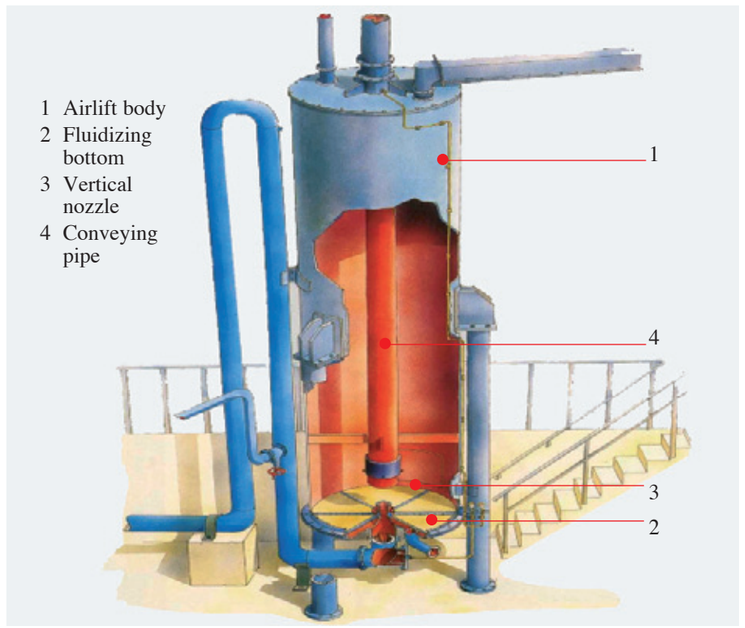
Parts of an airlift system are: The cylindrical air-lift body with fluidizing bottom, the vertical nozzle and conveying pipe, a separator (when not charging directly a heat exchanger or a small silo).

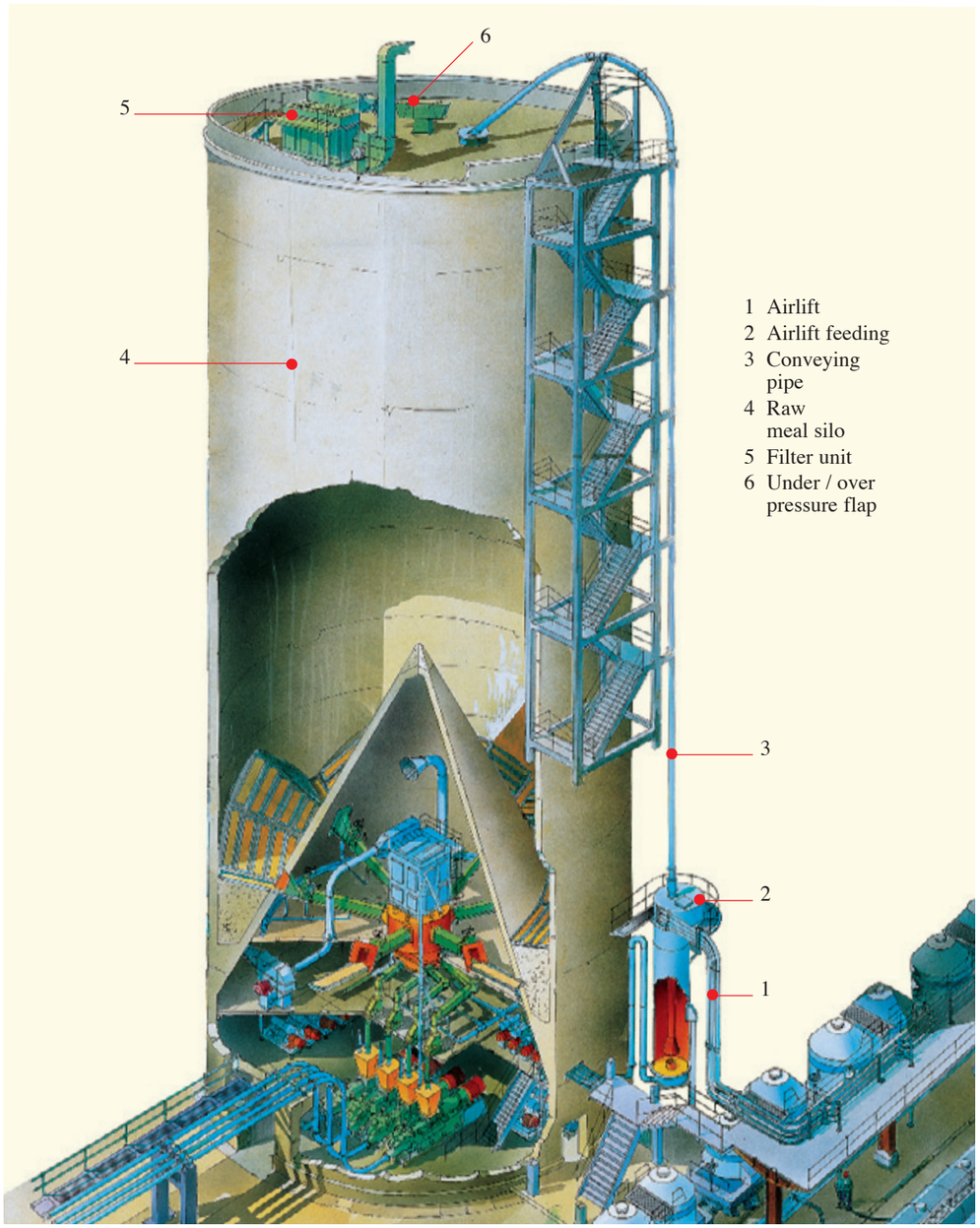
As with all other types of pneumatic transport a dedusting at the end of the conveying line is necessary.

A rotary piston blower or a group of blowers supply the necessary oilfree conveying air.

A head of conveying material forms the air lock against atmospheric pressure; in other words the higher to convey the higher the airlift body.

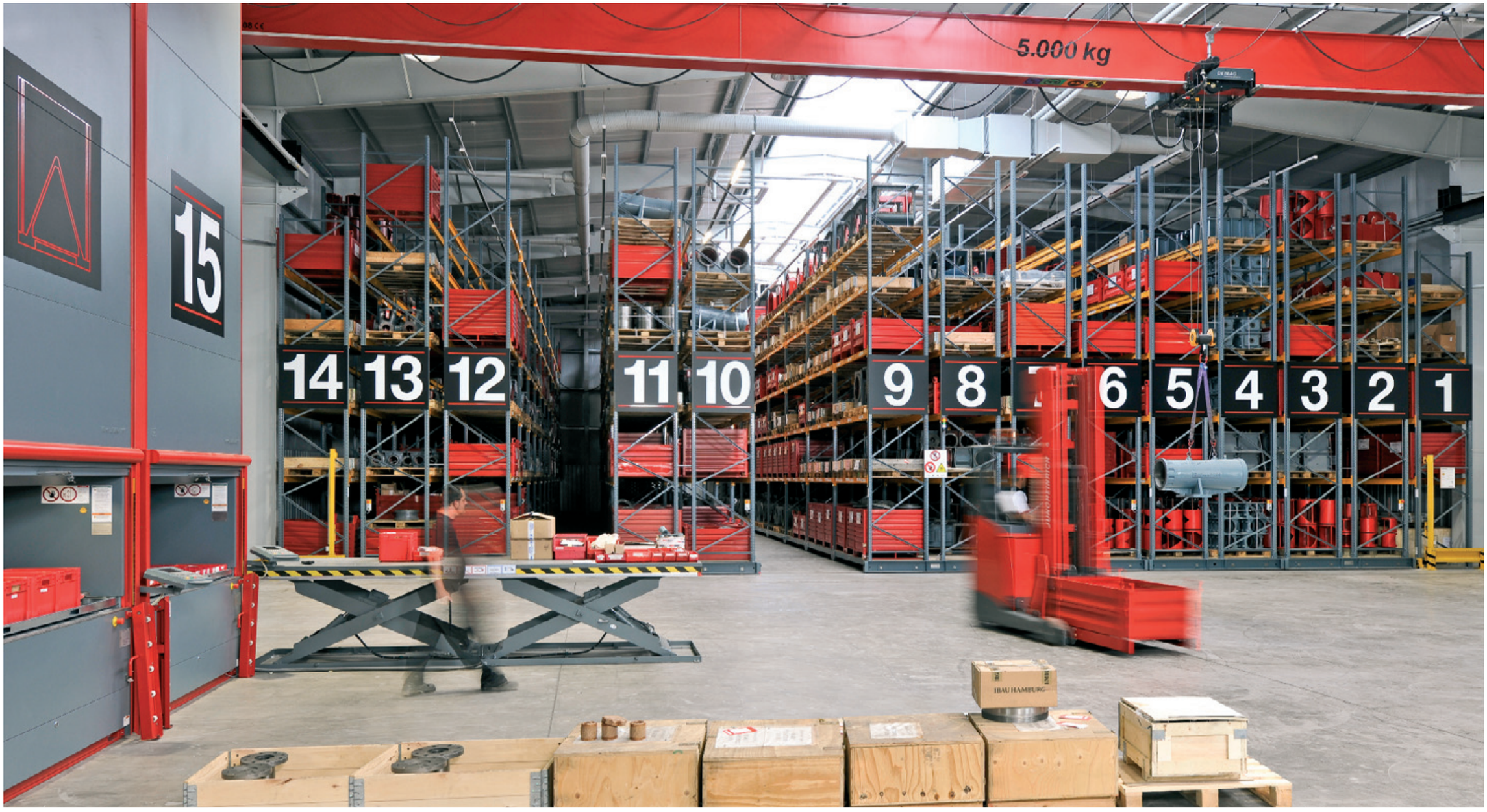
IBAU Airlift station





IBAU Airlift in a cement plant

The IBAU HAMBURG Original components in our giant store Allermöhe near Hamburg



IBAU – Warehouse and assembly shop on more than 5.000 sqm pre-assembled components for fast delivery – **the real just-in-time solution**