IBAU 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.
Multicompart-
ment 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.com

info@ibauhamburg.de

H/05/30/Quality Management System_englisch

QUALITY MANAGEMENT SYSTEM

IBAU HAMBURG

A HAVER & BOECKER Company

How does the IBAU HAMBURG engineering company work?

In 1975, IBAU HAMBURG started working according to its own high quality standards and a quality management

system (QMS), of which many aspects correspond to the subsequently introduced ISO 9001.

Each part to be delivered is designed and manufactured according to the important national and international standards and regulations for safety and quality.

We are able to react quickly and flexibly to problems without high costs.

All IBAU HAMBURG employees work according to an internal QM manual.

Competence and Innovation

IBAU HAMBURG has more than 35 years of experience in the storage, transportation and metering of bulk goods and is one of the world's leading companies in this sector. These years of experience help us in supporting our customers in implementing their projects by developing and applying customised solutions and complete system concepts of the highest quality.

As an innovative company, IBAU HAMBURG can continually develop its products and undergo continual quality improvements, with the goal of putting efficiency and the desires of its customers at the heart of all operations. Our entrepreneurial operations are carried out by a goal-oriented business management on all levels, as well as the strong motivation and methodological competence of our qualified employees. Our project teams work under their own responsibility, independently and performance-oriented, combining professional competence and experience in doing so.

The IBAU HAMBURG mechanics are technically qualified, experienced, flexible, reliable and efficiency-oriented.

Products and global activities in the storage, transport and metering of bulk goods sectors

This quality management brochure, which is based on extensive experience and on our DIN ISO 9001 certification, is designed to show our clients what is being done to serve them with the highest quality - to their full satisfaction.

We offer:

- engineering for turnkey projects
- airslide systems
- individual components such as flow-control and cut-off gates, rotary bottom and rotary side dischargers
- bulk loading technology
- mechanical material transport using screws
- pneumatic tube conveyor technology with screw pumps, two-way valves, jet conveyors, airlifts
- mechanical mixers and mixing plants
- global projects in cooperation with HAVER & BOECKER: Complete plant concepts for silo technology, including packing systems and loading technologies

The IBAU building in the city centre of Hamburg

The company

The IBAU HAMBURG engineering company was founded in 1975 and is active in the Rock Products Industry and there primarily in the cement industry.

Our product portfolio includes silo technology, as well as the outfit of self-unloading ships and the "Marine Business", i.e. mechanical shipunloaders and cement terminals. Other focal points are the coal-fired power plant technology, fly ash handling and the alumina industry.

Since 1997, IBAU HAMBURG is a 100 % part of the Haver & Boecker Group, which is located in Oelde/Westphalia and is also certified in accordance with ISO 9001.

IBAU HAMBURG currently has 150 employees. Besides its own office building at Rödingsmarkt/Hamburg city centre, IBAU HAMBURG also has approximately 6000 m² of warehouse space in Hamburg-Allermöhe. Here, products such as shipunloaders, conveying pumps and components for pneumatic and mechanical transport systems are assembled.

HAVER IBAU SHENZEN LTD., our subsidiary in China, was founded in 2005.

Employee training

Project planning meeting

Documentation preparation

Order processing team – engineer and draughtsman

30 employees are currently working there, offering engineering, sales and services for HAVER & BOECKER, IBAU HAMBURG and FEIGE FILLING.

Quality policy and quality principles

Our long-term success is based on adherence to our quality promise. Whether consulting, planning or turnkey supply – all of our services are performed with the consistent observance of strict regulations.

Our company policy serves as a set of guidelines for all employees in their daily work and is focused on the following areas:

The customers

There is a constant communication to completely identify our customer's requirements. We listen carefully to our customers, understand their expectations and consistently fulfil the agreed requirements for service as well as continually meet the high demands for quality. We react flexibly to requests for modifications during the cooperation.

The customer's satisfaction plays the most important role, every delivery and service must be a recommendation for further projects.

The suppliers

By selecting experienced and qualified suppliers and service providers, we boost the quality of our products and therefore our competitiveness. An early involvement, comprehensive two-way communication and a continual common will to improve are the basis for long-term partnerships with our suppliers.

The employees

Each employee is responsible for the quality of her/his own work. We ensure that our employees follow and pass on instructions properly and that they work according to our certified quality management system and safety standards, support them and help to develop them continuously.

The attitude and conduct of the IBAU HAMBURG employees are marked by:

- objectivity
- consistency and prudence
- open-mindedness and transparency
- know-how transfer
- open, constructive and interdisciplinary communication
- team spirit
- internationality
- commitment and responsibility
- quality awareness and innovative capability

Environmental protection and safety

The most important goal is to prevent danger to humans and the environment, reduce the environmental impacts and preserve resources.

This is achieved by continuous process and product improvement in close cooperation with our customers.

The company's quality goals

By continuous improvements and further development, IBAU HAMBURG is able to constantly improve their products and to adapt them to the latest standards and market requirements.

That means:

- the development of cost-effective solutions
- an optimised price/performance ratio
- the supply of impeccable products and services while keeping to the warranted deadlines and qualities.
- striving for 100 % freedom from faults
- working methods and procedures according to the regulations being the basis
- the development and maintenance of procedures designed to increase product quality, productivity and safety. The promotion of the capabilities of our employees and establishment of a motivating working environment while imparting vivid quality awareness.

Furthermore, all employees are responsible for familiarising themselves with the information and procedures from the certified QM system that concern their own work area in our company and for following and meeting all the demands of these procedures.

The certified QUALITY MANAGEMENT SYSTEM of IBAU HAMBURG according to DIN ISO 9001

IBAU HAMBURG's certified quality management system (QMS) defines the procedures and responsibilities for all company processes that have an influence on the quality of the services and products.

This guarantees a systematic process for planning, controlling, securing and improving quality.

Order processing – discussing details

Preparing drawings and checking details

Management system structure

The certified IBAU HAMBURG quality management system consists of the following three levels:

The first level is the highest and consists of the QM manual, which presents the quality policies of our company and links them to instructions for certain procedures.

The manual is the most important reference document for describing the management system. It contains the principles, responsibilities and the comprehensive methods and procedures for company processes. It is the reference document for the drawing up and maintenance of the QM system and the basis for business processes.

The second level consists of the process instructions, which describe by which processes and responsibilities the required quality is to be achieved.

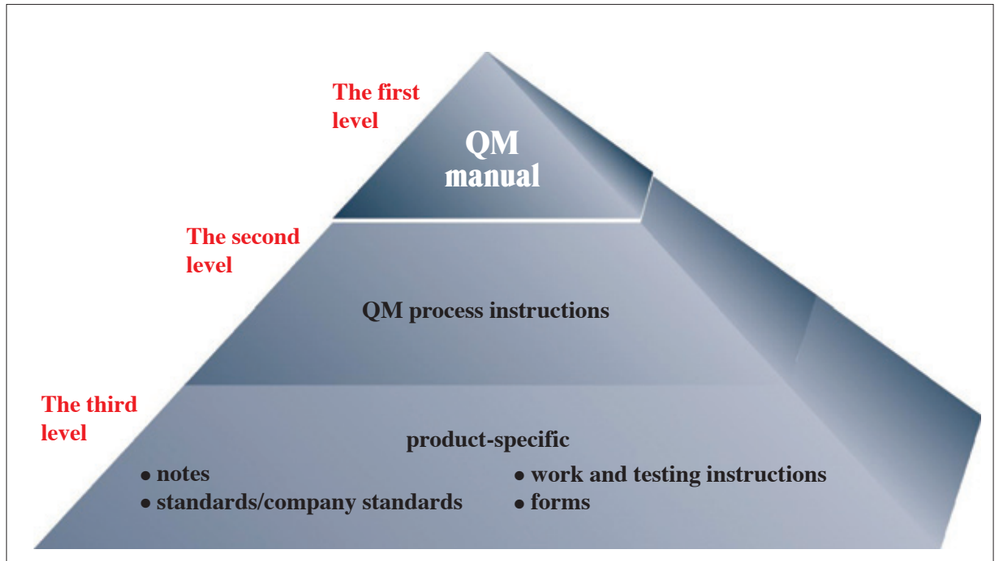
In order to ensure that our products meet the requirements and expectations of our customers, the legal regulations and national and international standards, our company has documented the relevant processes and their reciprocal effects in process and work instructions.

The third level consists of product-specific documents on development and production.

Management processes

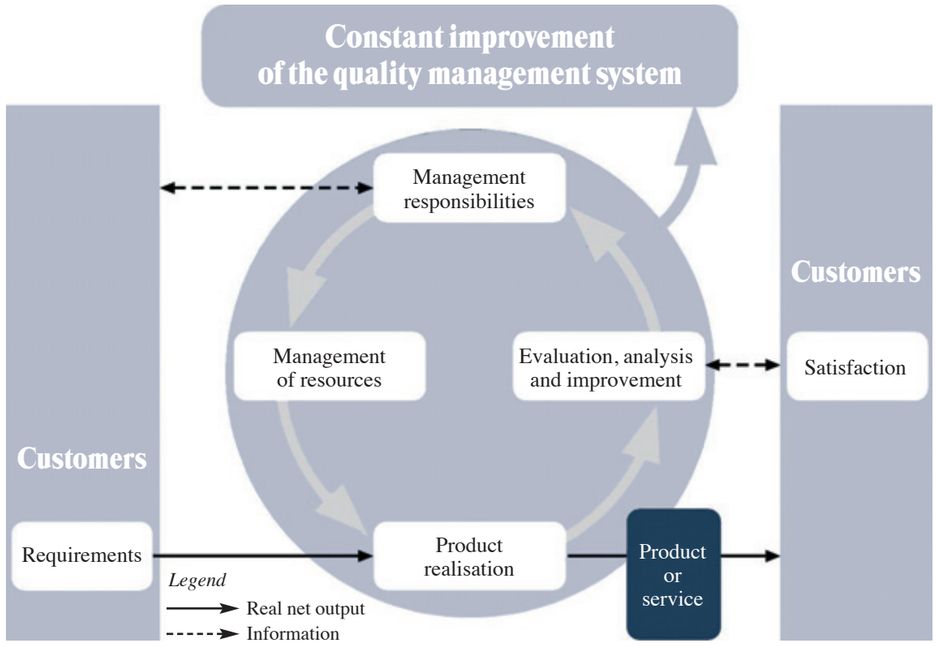
Management responsibilities

The management controls the quality policies, determines the quality goals and regularly inspects the quality management system for effectiveness. It initiates the implementation of quality policies and sees it as a responsibility to maintain and continue to improve the IBAU HAMBURG quality management system described in the manual.



Structure and organisation

The IBAU HAMBURG quality management system is certified in accordance with DIN ISO 9001.



Model of a process-oriented QUALITY MANAGEMENT SYSTEM

The required product realisation processes derive from the company structure, which is described in detail in the corresponding organisational chart.

Customer orientation

Our quality policy is customer-oriented. It complies with the customers' requirements, which are evaluated by constant direct communication. As one of our quality goals, satisfying customer requirements is therefore in the central focus of interest and has top priority for all employees.

Furthermore, meeting all legal requirements concerning product safety and conformity with the relevant standards is ensured and the effects on the environment are also investigated.

Communication, responsibility and authority

Responsibilities and competence are delegated by means of employment contracts, job descriptions and signature regulations.

Communication within our company is characterised by a continuous flow of information from the company management to the employees and back, to generate a uniform information status throughout the company and to incorporate the employees into the decision-making processes. Furthermore, we promote the further education of our employees by continuous advanced training.

Management of resources

The processes relevant to quality and the required improvements are planned in the company, based on the stipulated quality goals.

The department heads are responsible for choosing the required means for ensuring the quality goals and controlling processes. The required resources are determined continuously under consideration of current and future requirements and are made available by the management.

Human resources

The personnel are selected in cooperation with the department heads according to the requirements of the projects and processes, under consideration of the education, training and aptitude of the individual employees.

All works in the company are carried out by qualified personnel.

Adequate qualification is ensured through a review of aptitude in the hiring process.

When hiring new employees qualifications are verified according to the requirements of the job description. In addition, new staff are instructed and trained by experienced and skilled personnel.

During this training, the employees are also taught the quality management regulations, processes and measures to be used in their own specific areas.

Infrastructure and working environment

Each employee is provided with the equipment relevant for their working area and with a connection to the entire internal computer network.

The computer infrastructure and the corresponding licences are supervised and maintained by the administrator.

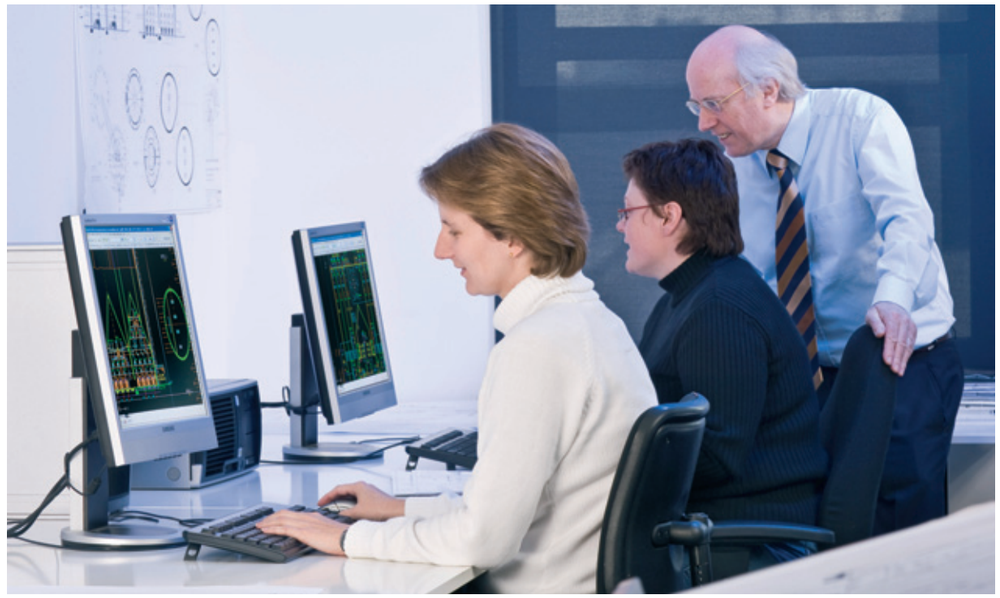
A daily backup protects the availability of the electronic data.

Protection against viruses is guaranteed by continually updated virus scanners.

Our workplaces are organised in accordance with the aspects of health, safety and environmental protection.

A specific training and instructions regarding work safety for new employees and when assigning new working areas is in the responsibility of the superiors.

Sample control



Drawing control

Business processes

Product realisation

The business processes describe the product realisation at IBAU HAMBURG. The introduction of official procedures, including all quality-relevant business processes, ensures that these activities are controlled and carried out with suitable documentation and monitoring to maintain continuous control.

This is presented in the respective procedural descriptions in the QM manual, in which the company processes relevant to the realisation of a product are described and defined as mandatory specifications. Here, suitable measures are defined indicating how the processes are to be performed in controlled circumstances, how the customer requirements will be put into effect with suitable means, how the respective quality testing will be carried out and the responsibilities of the respective employees and organisational interfaces. The determined interfaces between contiguous processes result in an integrated quality planning for the entire company.

Customer-related processes

The business processes of our organisation are adapted to the requirements of our customers, i.e. not only at the beginning of a business relationship do we attempt to achieve a clear understanding of the requirements of our customers, but that these will be continuously examined throughout the entire duration of a project and the services rendered.

Proposal and project management

Proposal processing

The process of "Proposal and project management" is handled within our organisation in the project department. Here, the proposals are created, processed and followed up. After a customer inquiry, the feasibility of an order is examined. The actual preparation of an offer is started with a PROPOSAL EVALUATION.

In this phase:

- terms of payment
- special quality requirements
- special documentation requirements
- contract law
- technical delivery conditions
- after-sales services are clarified and incorporated into the proposal.

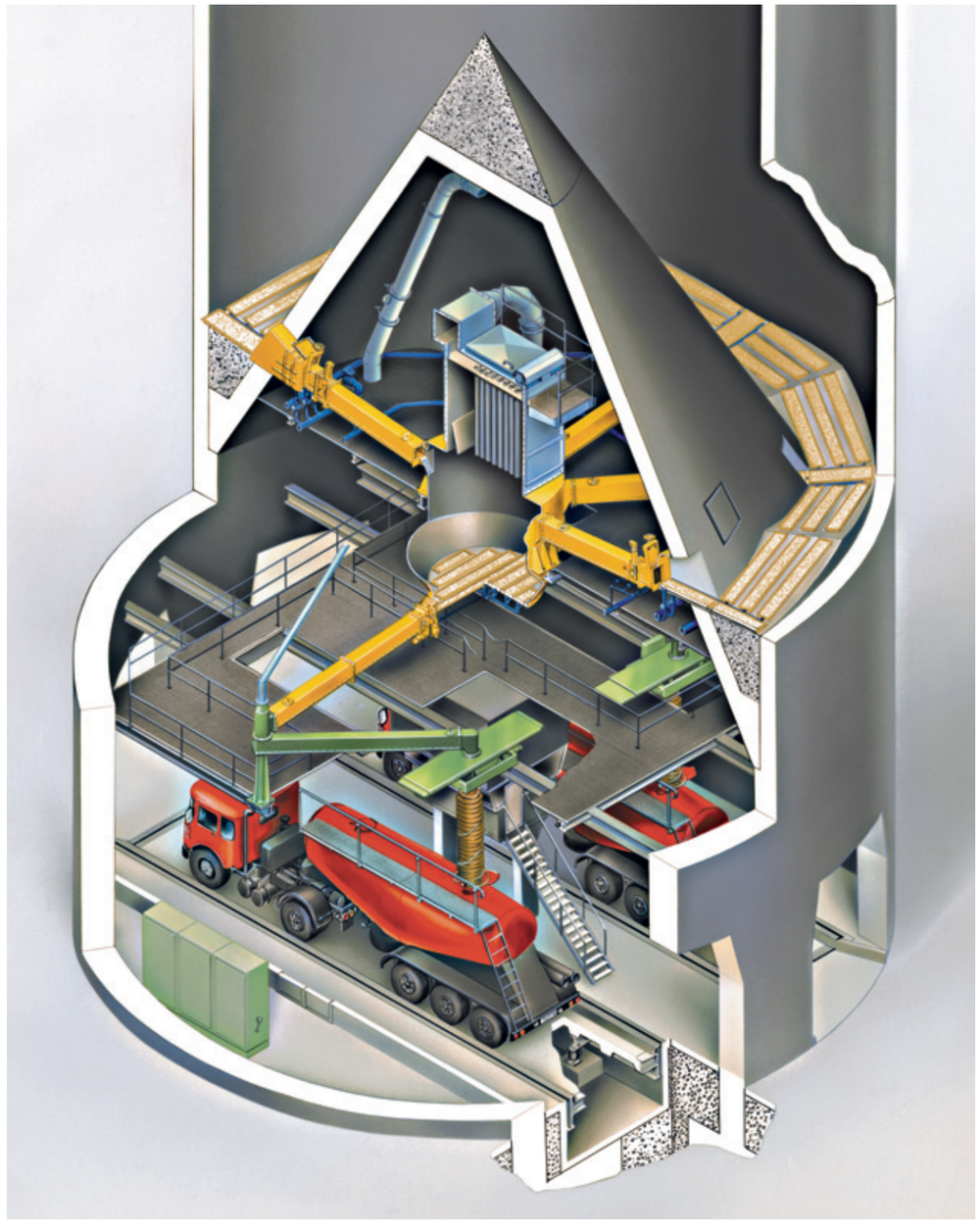
After the project engineer has investigated and clarified all the relevant key points, a preliminary project plan is created for customer-specific modifications and complete system concepts. During this phase, the initially required technical documents and flowsheets are created.

The CALCULATION is based on these first preliminary documents. The results of these three phases, proposal evaluation, preliminary project planning and calculation are integrated into a written proposal in the form of a supplier specification by the project engineer and are then transmitted to the customer.

These procedures guarantee that any discrepancies are recognised and clarified in the early phases of the process. Those activities that refer to the design of the necessary documents for the proposal/contract evaluation are specified in the internal QM manual.

Order processing

The order processing includes complete coordination of all other processes serving to carry out the product realisation and the rendering of services. The delivery specifications and the preliminary documentation and drawings created in the previous process "Proposal and project management" in the project



Sectional view of a central cone silo

department are the basis.
Order analysis

After receipt of an order, the engineer carefully checks the congruency of the proposal and the incoming order under consideration of the legal regulations.

Open points are clarified with the customer and the project engineer and documented accordingly. Upon a positive result, the customer receives an order confirmation.

Based on the technical proposal and the meetings with the customer after order placement the delivery specification is created.

This delivery specification is the basis for the engineer, being in charge of the realisation of the planned installation, as well as for the planning of details.

The process entails the following procedures:

- supervising and controlling the engineering concept for: logic, function, compliance with all specifications and guidelines
- planning of concept details, which includes:
- creating overview and detail drawings of the installation concept
- calculation and dimensioning of the installation components
- creating functional descriptions
- verification of the need for special constructions/ concept modifications
- verifying production or assembly drawings
- scheduled planning for procurement, provision, fabrication and assembly of the correct components
- coordinating, tracking and monitoring of production, assembly and acceptance deadlines
- coordinating and monitoring of all subsequent processes, such as procurement, construction, fabrication and assembly, shipping, documentation and after-sales service
- invoice release by the purchasing department
- recorded project meetings with the customer at regular intervals:
- ongoing communication with the customer
- continuous investigation, coordination and adaptation of the plant concept during the process under consideration of customer wishes
- initial analysis of customer satisfaction during the course of the project
- flexible reaction to changes requested by the customer
- coordination of the commissioning with subsequent function test of the plant under consideration of the contract-related guarantee specifications.

Development/ construction

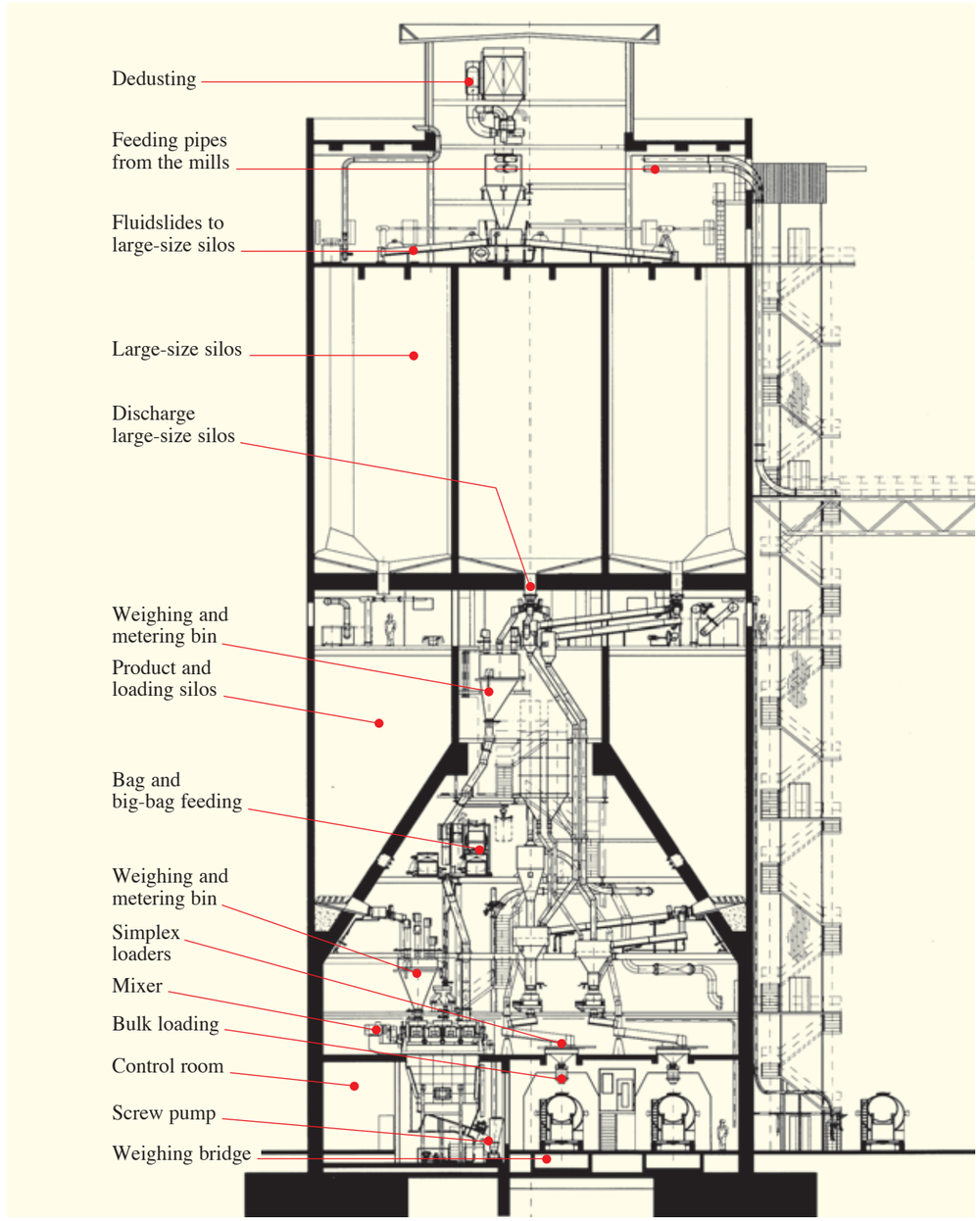
The development of IBAU products as well as the modification of existing products in case of special requirements or special frameworks is carried out in the construction process.

Our products are developed and documented from the initial draft right up to the final documentation by using modern CAD workstations.

Detailed manufacturing drawings with welding and testing instructions are the basis for the order placement.

The construction process includes the following processes:

- creation of manufacturing drawings, parts lists, welding and test plans
- release of test documentation
- verification of development results
- verification of manufacturing documentation
- transfer of verified documents to the manufacturing department in the context of the procurement process
- continuous communication between construction and manufacturing department respectively with the final assembly in order to prevent faults or for improvement



Cross-section of a mixing plant

Procurement

The quality of supplier parts and products as well as services and production services has a major influence on the quality that we offer our customers.

The procurement process is therefore the guarantee for a completion on time of the products and services by approved suppliers while maintaining the required specifications and commercial conditions that are agreed upon.

Most of our suppliers of raw materials, casted parts and purchased parts have been working for us for decades. Companies that do not achieve our quality standards will not be admitted to our supplier pool. The majority of our suppliers are also certified according to DIN ISO 9001, e.g. Aerzener Maschinenfabrik (blowers and screw compressors), Atlas Copco (compressors), Reitz Ventilatoren (fans), Siemens (electrical components), ABB (electrical components), Flender (couplings and gearboxes), etc. Those long-term co-operations with qualified suppliers contribute to the reliability of the procurement process, therefore increasing the quality of service to our customers.

This includes using the following quality assurance procedures:

- proposal evaluation
- verification of product specifications
- material tests
- tests by independent experts (e.g. Germanischer Lloyd, Bureau Veritas, etc.)
- inspection of documentation/test reports
- regular quality and functional tests on-site in case of external production activities
- regular quality and functional tests at supplier premises, e.g. test stand runs
- supplier audits

Production

The assembly of supplier parts and IBAU products takes place in our workshops in Hamburg-Allermöhe. Here, the incoming parts are tested upon receipt with regard to our internal drawings and standards.

Rejected parts are immediately returned to the suppliers and accepted parts are sent on to the production process.

The straightforward organisational structure is characteristically for our workshops. The short distances, a high degree of transparency and a continuous information flow enable quick reactions of the employees to queries and modification requests by our engineers or customers. Due to the distinctive know-how of our mechanics and a smooth cooperation with the construction and processing departments, production-relevant measures are recognised, improved and put into use at an early stage. Thus, our employees always have an awareness for quality and maintain that quality at all times.

Loading chute in the test stand

Quality control monitors the following processes:

- incoming goods check/acceptance of purchased parts
- production, production monitoring by checklists accompanying the production
- assembly, coating and installation of the components
- monitoring the assembly
- acceptance and function testing/final checks according to our standards
- acceptance according to external standards/certifications
- Preparation of test reports
- Packing by a certified packing company
- shipping of components:
- labelling of components
- inspection of the packing
- examination of shipping documents

During production, our customers are able to check the progress and quality of the ordered parts at any time. The ready-to-ship note is handed out a few days/weeks before the delivery so that the customer is able to perform a final check of their equipment with regard to quality, functionality and packing on site, prior to shipment.

The customer is then presented with the test reports for the equipment. Every part that leaves our facility is checked according to our test reports.

After-sales service/ spare parts

If there are unusual or unexpected problems, which might have been caused by faulty functioning or quality, IBAU HAMBURG guarantees a generous customer service and provides the entire range of spare parts and the replacement thereof when necessary.

The responsible engineers answer all questions from the customer and help him to find the right solutions.

Based on the contractually defined guarantee conditions, IBAU HAMBURG also provides the required personnel resources on-site, e.g. supervisors or technicians.

The following procedures are used:

- analysis of customer problems
- preparation of solutions and presenting them to the customer
- repair of equipment and installations
- obtaining field experiences by the operators
- analysis of customer satisfaction

High capacity shipunloader with pneumatic conveying system

IBAU Pressure vessels in the Litvinov power plant

Single-shaft batch type mixer

Preparations for shipping components to the customer

Compilation of individual components for an order

Quality control of spare parts

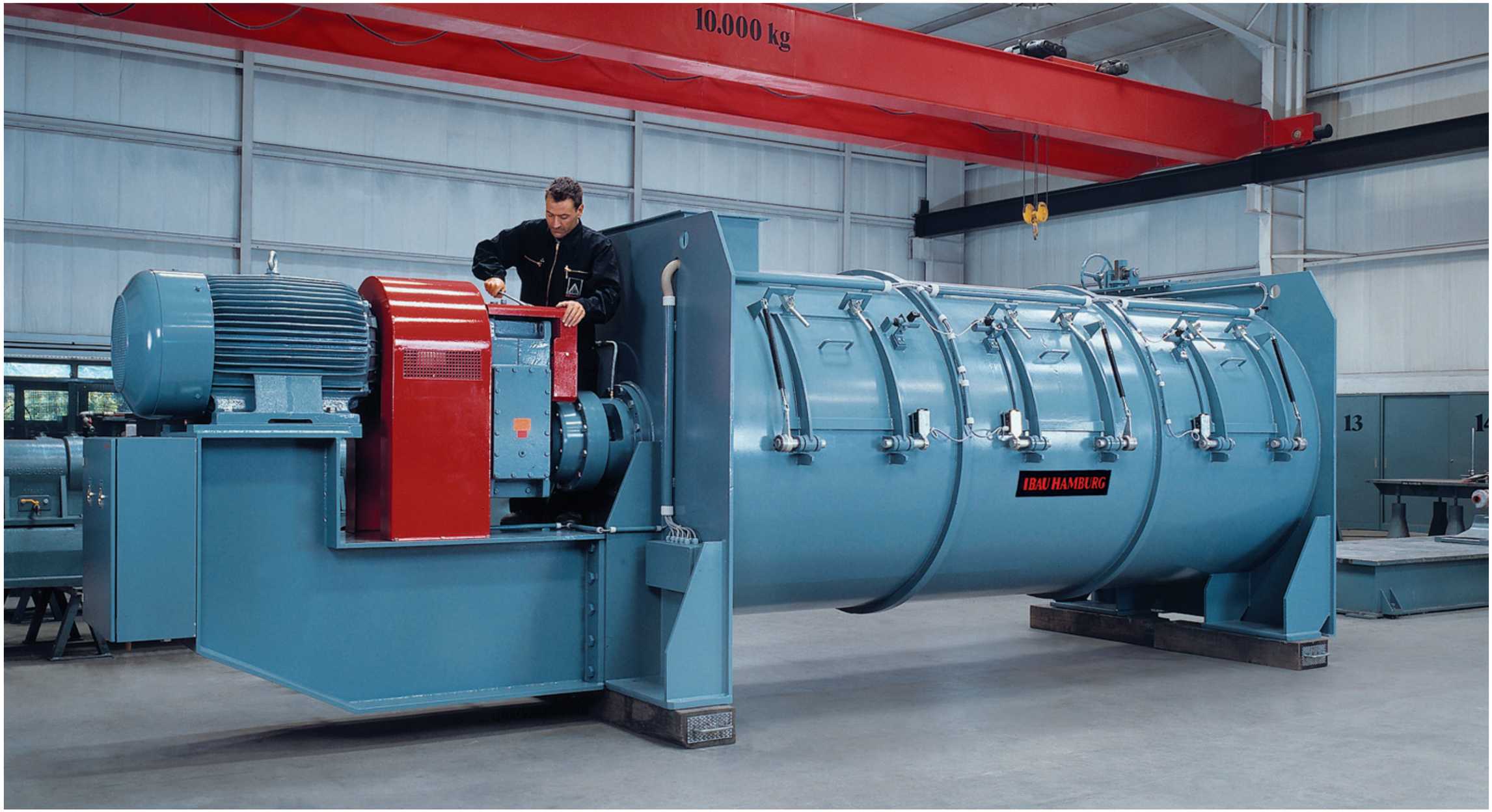
Final assembly at the IBAU manufacturing

Drilling of nozzles according to order specifications

Manufacturing control of an airslide

Assembly of a two-way valve

Assembly of IBAU Flow-control gates at the Hamburg-Allermöhe workshops



Functional test of a flow-through mixer

Supporting processes

Evaluation, analysis and improvement

Evaluation of customer satisfaction

The satisfaction of our customers is the most significant factor in evaluating our management system.

This is done through the evaluation of customer-related information:

- direct communication with the customers
- collecting comments from customers upon request
- recorded project meetings with the customers
- communication with the customers in the context of after-sales service.

While an order is being processed with IBAU HAMBURG, the customer is continually supported with continuous communication.

Our engineers in the order processing department support our customers through regular, recorded meetings on-site.

This way, not only is it possible to react quickly and flexibly to customer wishes, but we maintain a permanent feedback from our customers from the first meeting onwards. This system is used in all other processes, from the procurement to production to customer service.

Preparing components for shipping

Testing of products

The monitoring of quality requirements for the product is guaranteed by inspection and comparing with the specifications.

The type of test to be performed is documented and is done e.g. in the form of:

- incoming goods inspection
- intermediate inspection during manufacturing
- final tests in the form of functional tests

The results of these tests are documented based on requirements and are used for further analysis when required.

Use and monitoring of test equipment

Test equipment for incoming goods inspection, final acceptance or control measurements are chosen within the context of realising the product according to the respective product requirements.

All quality-relevant test equipment is maintained and calibrated or adjusted at defined intervals, by external service providers when necessary. In this context, maintaining the defined limit values for maximum error in the test equipment is guaranteed by specifications and maintenance for the entire service life.

This rules out the possibility of using unsuitable, faulty test equipment.

Corrective and preventive measures

The results of customer-specific problem analyses serve as the basis for corrective and preventive measures.

These measures are performed to prevent repeated errors and rectifying possible sources of errors.

The process is triggered by complaints, internal error messages and suggestions for improvement from employees.

The implementation of the measures in the affected processes is monitored and the effectiveness of the measures investigated.

Document and data control

Those involved in the individual departments are responsible for the maintenance and release of contract-related documents and data required while processing an order.

Control of faulty products

Products that do not meet the requirements are identified and marked, to prevent accidental use or delivery to customers.

Depending on the type and location of the fault, the respective measures are taken to discard or rework the respective item.

These measures include:

- identification and marking
- authorisation, release
- fault rectification
- documentation

Documentation

For every order, the documentation department prepares a comprehensive technical documentation and subsequently submits it to the customer. This also includes documents created upon customer request for the quality assurance, such as acceptance test certificates, material test certificates, declarations of conformity, etc.

After acceptance by our customers, our own copies of this documentation are carefully stored for years so that they can be used as security and proof of the correct quality for the company and the customer.