Technology that **makes its mark**

> Our technology. Your success.

Pumps • Valves • Service
Supply Multi BIM Datamodells with CADENAS and ARGE,
a user story from a member's point of view

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Providing Multi BIM data models with CADENAS and ARGE, a user story from a member's perspective

• Challenge for manufacturers: In addition to geometric data, structured product master data for common BIM CAD systems must also be provided.

• New possibilities through the cooperation of ARGE Neue Medien with CADENAS

• Presentation and discussion of a successful user story for different business types
KSB Group

About Us

KSB is one of the world's leading manufacturers of pumps and valves, providing a comprehensive range of service offerings.
It All Began with an Idea

Experience since 1871

The global success story of KSB began over 140 years ago when Johannes Klein laid the foundation for the company by inventing his “boiler feed apparatus”.

Production of
- Valves since 1872
- Pumps since 1873
Productplacement

in 20 seconds
on 21 slides...

to enter into the complexity of our business
Process Engineering

MegaCPK

- **Applications**
  For pumping aggressive liquids in the chemical and petrochemical industries as well as in refinery systems

- **Description**
  Horizontal radially split volute casing pump in back pull-out design

**Technical data**
- Flow rate up to 1160 m³/h (50 Hz), up to 1400 m³/h (60 Hz)
- Head up to 162 m (50 Hz), up to 233 m (60 Hz)
- Operating temperature -40 °C to +400 °C
Process Engineering
DANAÏS 150

- **Applications**
  Industry and process engineering, power stations, marine applications, shipbuilding, chemical and petrochemical industries

- **Description**
  Double-offset butterfly valve in standard design

**Technical data**
- Size DN 50 to 1200
- Pressure class 150, 300
- Temperature range -50 to +260 °C
Applications
For pumping clean liquids not chemically or mechanically aggressive to the pump materials; e.g. for use in water supply, cooling water, fire-fighting and heating systems.

Description
Single-stage volute casing pump

Technical data
- Flow rate up to 640 m³/h (50 Hz), up to 740 m³/h (60 Hz)
- Head up to 160 m (50 Hz), up to 160 m (60 Hz)
- Fluid temperature -30 °C to +140 °C
Applications
General industrial facilities, process engineering, plant engineering, cooling circuits

Description
Control and measurement valves for building services applications

Technical data
- Nominal pressure PN 6, 10, 16
- Material EN-GJL 250
- Permissible operating pressure at -10 to +120 °C (C/CS/IMS/CL), at -10 to +80 °C (EKB) 16 bar
Energy Conversion

CHTD

- **Applications**
  For pumping boiler feed water in utility power stations

- **Description**
  Horizontal high-pressure barrel casing pump with single-entry radial impellers, multistage

**Technical data**
- Flow rate up to 3600 m³/h
- Head up to 4500 m
- Temperature up to 210 °C
- Speed up to 6200 min⁻¹
Energy Conversion
ZTS

- **Applications**
  Industrial plants, power stations, process engineering and shipbuilding. For water, steam, gas, oil and other non-aggressive fluids

- **Description**
  Butt weld end gate valve with pressure seal bonnet

**Technical data**
- Nominal size DN 50 – 800
- Pressure up to 600 bar
- Temperature up to 650 °C
Water Transport

Omega

- **Applications**
  For pumping raw, clean and service water in waterworks, irrigation and drainage pumping stations, power stations, industrial water supply, shipbuilding and offshore engineering

- **Description**
  Single-stage axially split volute casing pump for horizontal or vertical installation

**Technical data**
- Pump size DN 80 – 350
- Flow rate up to 2880 m³/h
- Head up to 210 m
- Temperature up to 80 °C
Water Transport
Mammouth

- **Applications**
  Water supply, water treatment, irrigation, drainage

- **Description**
  Centred-disc butterfly valve with elastomer liner. With manual gearbox, electric, hydraulic or counterweight actuator

**Technical data**
- Nominal size DN 1050 to 4000
- Operating pressure 25 bar
- Temperature range -10 °C to +80 °C
Waste Water Treatment
Amarex KRT

- **Applications**
  For pumping all types of abrasive or aggressive waste water in water and waste water management as well as in industry

- **Description**
  Vertical single-stage submersible motor pump in close-coupled design

**Technical data**
- Pump size DN 40 to 700
- Flow rate up to 10,080 m³/h
- Head up to 120 m
Waste Water Treatment
AmaDS³

- **Applications**
  Municipal and industrial waste water transport; drainage applications for hotels, hospitals and camp sites

- **Description**
  AmaDS³ is an innovative waste water pump station, also suited for pumped drainage systems covering long distances

**Technical data** (AmaDS³ - compact)
- Max. inflow rate 25 m³/h
- Flow rate 5.5 to 6 l/s
- Head up to 85 m (standard model)
Solids Transport
LSA

- **Applications**
  Ore and tailings transport, cyclone feed, dredging and industrial processes

- **Description**
  Premium design white cast iron pump for long service life handling severe slurries

**Technical Data**
- Flow rate 20-13,600 m³/h
- Head up to 90 m
- Operating pressure up to 16 bar
Efficient heavy-duty pumps from KSB enable an economical operation at minimum CO₂ emissions of central district cooling systems which air-condition entire residential and business districts in Abu Dhabi.

The cooling plant capacity exceeds 158,000 kW, which is maintained by ten Omega, nine RDLO, three Etanorm and two Movitec pumps.
Process Engineering

Broad Product Range

Extreme temperatures, high pressures, abrasive and corrosive media and solids-laden fluids: KSB products are equipped for almost every requirement.

Applications:
- General process engineering
- Hot water/heat transfer fluids
- Chemicals/petrochemicals
- Oil/gas
- Marine engineering
- Auxiliary processes
Building Services Reference
Project
Koelnmesse

Pumps type Etanorm 150-200 and Etanorm R 200-250 are at work in the refrigeration system (exhibition hall north) of Koelnmesse.
In a system in St. Johannes-Hospital in Varel near Wilhelmshaven, BOA-CVE-SuperCompact control valves with BOA-Systronic control system are used.
Global Operations and Number 1 in Europe

- Technical consultancy
- Installation & commissioning
- Maintenance, repair, retrofit
- Maintenance inspection management
- Total Pump Management
- SES System Efficiency Service
- Services for other rotating equipment
- Broad range of spare parts
Installed in the Netherlands’ biggest drinking water treatment plant, KSB pumps supply several millions of litres of drinking water to over 300,000 people, every day.

The operator has opted for six Omega V 200-320 GB pumps with 37kW motors.
For drinking water supply in Algeria, KSB delivered a pumping station with six RDLO 700-980 pump sets as well as various valves, surge vessels and matching control systems.

The station’s capacity is more than 7000 litres per second.
Europe’s deepest waste water pumping station can count on robust pumps made by KSB.

Twelve submersible motor pumps of the robust and proven Amarex KRT waste water type series are used here. KSB individually tailored their hydraulic systems to the special requirements of the pumping station.
Some 8000 tons of metals such as gold, zinc, lead and silver are extracted from the Mexican mine per day. For its slurry transport the mining company Peñoles chose the wear-resistant GIW Minerals pump series.

KSB supplied a complete package featuring MDX, LSA, LCC-M, LCC-R, HVF and ZW slurry pumps to Peñoles.
KSB Worldwide

Being Global Means Being Closer

With its 33 production and assembly sites in 16 countries and a tightly knit global sales and service network, KSB staff are active in more than 100 countries.
Countless national regulations and approaches make it difficult for a global player to keep all BIM developments in focus and to serve them comprehensively.
In the beginning there was the axis

GT 4  GT3 plus design per contract

GT 3  GT2 with manual BOM intervention

GT 2  Fully configurable, process from quotation to production

GT 1  Ident numbers, Stock goods
Business Type

GT 5
Komplexeität

GT 4
GT 3 plus design per contract

GT 3
GT 2 with manual BOM intervention

GT 2
Fully configurable, process from quotation to production

GT 1
Ident numbers, Stock goods

Markets

formats

classifications

languages

*) Quelle: Cadenas GmbH
BIM in praxis

History

- 1889, Eiffel Tower
- 1931, Empire State Building
- 1861, Alphonse Louis Poitevin (Developed by accident "Blaupause")
- 1936, Alan Turing ("Turingmaschine")
- 1940-1950, age of "Central-computer"
- 1952, IBM introduces the first industrially manufactured "transistor"
- 1962, Dr. Patrick J. Hanratty invented "DAC", design automated by computer
- 1971, micro-prozessors, "ADAM" automatic defining and machinering, basis for 90% of all CAD Software

BIM to be continued

1952, IBM introduces the first industrially manufactured "transistor"

Everyone could now work with a global design

IIM ???
Complexity driver, example: CAD Files Provision for Customers

Risks of unidentified complexity drivers:
- Revision cycles are not adhered to
- Availability of files is not given
- Distribution costs are too high
- Market development is at risk
- Customers migrate to competitors
- ...
Closed BIM:

Closed data exchange

- All participants (planners) work with the same software solution or with a given software package on an object.

**Advantage:**
- All work on the same platform

**Disadvantages:**
- Dependence on the efficiency and quality of third party software
- Proprietary software solutions

Quelle: Projektmanagement im Hochbau; Mit BIM und Lean Management, S. 128
Open BIM:

open data exchange

- The participants (planners) work with different software products (CAD, TGA planning software, etc.).
- Data exchange via defined interfaces (e.g. IFC).

Advantages:
- Use of powerful software solutions that strongly support the planning process in the TGA.

Disadvantages:
- Non-trivial and lossy data transmission via interfaces.
Little BIM:

- Basic functions of high-quality, collision-free and model-based planning using the BIM methodology
- Execution often in only one single planning office, e.g. architect, or only in one planning discipline: 'isolated solution'

Quelle: Projektmanagement im Hochbau; Mit BIM und Lean Management, S. 128 f
BIG BIM:

- As many model requirements of the client as possible are fulfilled
- Interdisciplinary cooperation of all partners involved in the planning, execution and use of a structure
- Model can be used after completion also for cost calculations, model construction, visualizations and energy calculations, etc.
BIG BIM includes the active networking of all parties involved in the construction process.

Clearly defined interfaces are required between the connected processes.

With the buildingSMART data model, Industry Foundation Classes (IFC), data can be exchanged between different proprietary software applications.

The IFC data scheme comprises information from all disciplines involved in the construction project over its entire life cycle.
I Multi BIM Datenmodelle
mit CADENAS
und ARGE I
März 2019 I Frank Udo Kimm I KSB SE & Co. KGaA

IFC Interface in the design phase)*

* Quelle: Anwenderhandbuch Datenaustausch BIM / IFC, Seite 16, Building Smart IAI Industrieallianz für Interoperabilität e.V., Ausgabe 2006
E-business at KSB
Where Links Mean Business

Web-Shop
- 99,256 orders with an order intake of € 183.5 million
- More than 30,000 pumps and valves, as well as 1.6 million spare parts lists available
- Direct integration of the customer order system

KSB EasySelect®
- Software for selecting the right pump and valve for the job
Navigation in the portal: select the desired version via product tiles...

1. Select required execution in yellow drop down fields
2. CAD File via Mail or Download
3. supply

Our customer

BOM, Tender,...

*) Quelle: Anwenderhandbuch Datenaustausch BIM / IFC, Seite 16, Building Smart IAI Industriallianz für Interoperabilität e.V., Ausgabe 2006

KSB-PARTcommunity
www.KSB.com

BIG BIM GT 1-3
The BIMcatalogs.net app for Revit, ARCHICAD, ALLPLAN, SketchUp and Tekla gives planners direct access to original, manufacturer-certified BIM and CAD content.
PARTcommunity als APP

Navigation in APP: select the desired version via product tiles...

1. Select requested execution
2. CAD File via Mail
3. generate

Our customer

BIG BIM
GT 1-3

*) Quelle: Anwenderhandbuch Datenaustausch BIM / IFC, Seite 16, Building Smart IAI Industriallianz für Interoperabilität e.V., Ausgabe 2006
KSB Easy Select Produktnkonfigurator

Current configuration result via KSB EasySelect

1. Link to KSB PARTcommunity in the documentation output, automatic request for CAD files of configured pump

2. Supply

3. BOM, Tender,…

*) Quelle: Anwenderhandbuch Datenaustausch BIM / IFC, Seite 16, Building Smart IAI Industriallianz für Interoperabilität e.V., Ausgabe 2006
BIG BIM requires structured product data in addition to the CAD files.

The client requests structured data in the AIA)*, which are entered by the planners and enriched over the course of the project.

Cadenas implements such requirements, e.g. in Autodesk® Revit®.

*) AIA: Customer information requirements, requirements of the customer as a basis for the creation of the BIM project development plan. Describes the client's requirements, processes and IT infrastructure for digital project management with BIM.
Structured, classified product data
Structured, classified product data
ARGE BIM Portal: CAD Files inclusive Structured, classified product data

In connection with the structured product data of the SHK industry portal in combination with the CAD file provision of Cadenas, MULTI CAD product data can be provided.

view in CAD Software Revit
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