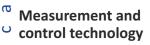
Facility Facility Feasibility study Pre-Basic **Basic-Engineering Detail-Engineering** commissioning optimisation **Facility support**

> 0 a





ERP

MES

PLS

Instrumentation

0

Project execution in all project phases

Cost estimation Pre-Basic-, Basic-, Detail-Engineering

Dimensioning of sensors & actuators

Device specification & other services

Hook-ups & Typicals

Assembly invitation, machine tender

Requests/ Tender

evalutation/ purchase Assembly coordination

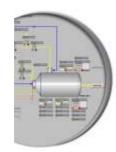
surveillance

Commissioning & start-up

Electrical explosion protection (ATEX Directive 2014/34/EU)

Documentation

Process automation SPS/PLS



Project ITTs & remodelling concepts

Layout network engineering & bus technology

Generating specification documents with PLS DOC & Comos

Configuration of controller & control systems

Process simulation using WinMOD

System commissioning, loop check & facility ramp-up

Profibus measurement

TÜV approvals

Training of operators & support staff

Machinery & plant automation



Process Data Acquisition

Trend identification/ evaluation

Runtime analysis

Reporting

Visualization

Hard- & Softwaredesign (SPC)

Motion Control

Formula management Interfaces to DCS

shipping

Material flow control, production logistics

Automation IT

Process analysis &

process optimization

Vertical & horizontal

integration - from the

production level to ERP,

from goods receiving to

Production management

system iMES CC

Detailed production

planning & control

Quality management

Operational & machine data acquisition

Maintenance management

Inventory management

Simulation, optimization of processes

RFID solutions

Batch Tracing

Building services engineering



Lighting engineering

PC & network engineering

Safety lighting

Earthings- & lightning protection systems

Presentation & media technology

Video surveillance

Access control & security

Telephone & wireless systems

Fire detection systems & preventive fire protection

Conferencing equipment & public adress systems

Building system EIB/KNX Escape & rescue plans

Electrical engineering



Switchgear technology (0,4kV to 110 kV)

Transformer stations

Design & planning of electric distribution networks

Main design analysis for load current, short circuits & multiple faults

Remote systems

Control voltage supplies & backup power sources

Signal & alarm system

Meter readings

Power factor correction

Distribution system remodelling

Electrical trace heating

Health - Safety -Environment



Functional safety, including SIL-certification compliant with EN 61508/ EN 61511

process plants by means of process control engineering (VDI VDE

2180)

Risk analysis compliant with: HAZOP, PAAG, LOPA

Safety of machinery EN ISO 13849-1/EN 62061

Hazard analysis compliant with EN ISO 12100

Preperation of Conformity declaration (CE-mark)

Safety of fuel plants EN 50156/EN 746

Explosions protection (ATEX directive 2014/34/EU), explosions protection document (BetrSichV §§ 2+6)

Workstation assessment

Check biohazard and safety cabinets

Steel mills, foundries & bulk goods technology



Weighing systems engineering (KWA)

Generating studies

Safeguarding of industrial Weighing of production furnaces

> Filling, transfer, packaging, identification, marking

Bulk goods equipment (stirring, grinding) metering systems for

Weighing of high loads in harsh conditions at production furnaces, pans and crucibles

Wireless temperature measurement technology

RFID-identification in harsh & hot surroundings (transport ladles & aluminium crucibles)

Gas mixing & dosing systems: melting pool gas injection (GDS)

PRE-VENT® control valves



Nominal diameters DN15

Rated pressures from

Variety of options for

combining valve bodies

electrical and pneumatic

Also suitable for use with

agressive or hazardous

PN10 to PN420

to DN300

actuators

Continous regulation of Engineering expertise gases, vapours and liquids

Functional safety

fiwa)Training.

Consulting.Coaching.

- ► ATEX, Explosion protection
- ► GMP, Quality management
- ► Energy management & system consulting
- ► Industrial control valves
- with a very wide variety of ▶ Automation engineering Communication & leadership e.g. social skills for executives & employees

HR-Management: e.g. Strategic training & personnel management

Project management: e.g. foundations, conflict resolution & systematic team pools

Health management: e.g. stress & burn-out

Comos training for admins, support & customizing

Measurement & control technology e.g. physic. measurement technology (aperture, control valves)















