

P4. Sådan bruger vi AutoPLANT hos GEA Process Engineering Skanderborg

Bentley User 14 November 2011

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GEA Process Engineering / GEA Liquid Processing






- Kort intro af GEA Process Engineering Skanderborg
- Site License (CAD)
- Kort intro til CAD hos GEA
- P&ID
- 3D Piping
- 3D symboler / equipment
- Data Manager
- GEA Project Browser
- GEA Project Tool
- 3D Viewer

I er velkommen til at stille spørgsmål undervejs.

- **GEA Group**, headquartered in Düsseldorf, Germany, is a globally successful technology group with a workforce of some **20,000 people** in more than **50 countries**.
- GEA Group is one of the largest providers for **equipment and process technology** particularly for the food and energy industries where it ranks among the market and technology leaders.
- GEA Group focuses on **demanding production processes** and supplies its customers with **efficient solutions** in various end markets.
- In 2010 GEA Group generated **revenue of about EUR 4.4 billion**.
- GEA Group generates around **80 percent of its revenue** outside of Germany.



| GEA Convenience-Food Technologies | GEA Farm Technologies | GEA Heat Exchangers | GEA Mechanical Equipment | GEA Process Engineering | GEA Refrigeration Technologies |
|---|--|---|---|--|---|
| <p>Bowl Choppers</p>  <p>Spiral Cookers</p>  <p>Slicers</p>  <p>Thermoformers</p>  | <p>Milking & Cooling</p>   <p>Farm Services</p>  <p>Farm Equipment</p>  | <p>Finned, Shell & Tube</p>  <p>Cooling Towers</p>  <p>Plate Heat Exchangers</p>  <p>HVAC Systems</p>  | <p>Separators</p>  <p>Decanters</p>  <p>Homogenizers</p>  <p>Valves</p>  | <p>Spray Drying</p>  <p>Aseptic Filling</p>  <p>Brewery & Dairy Systems</p>  <p>Pharma Systems</p>  | <p>Compressors</p>  <p>Packages and Skids</p>  <p>Ice Machines</p>  <p>Freezers</p>  |

The GEA House in Skanderborg, Denmark, is the domicile of a number of Danish-based GEA companies, namely:



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- **GEA Liquid Processing –
GEA Process Engineering A/S**
- **GEA Filtration –
GEA Process Engineering A/S**
- GEA Westfalia Separator DK A/S
- GEA Ecoflex Scandinavia Oy
- GEA Tuchenhausen GmbH
- GEA Niro Soavi S.p.A.
- GEA Grasso GmbH
- GEA Refrigeration Technologies
- GEA Farm Technologies



GEA Process Engineering

- **GEA Niro**
- GEA Avalon
- GEA Barr-Rosin
- GEA Colby
- **GEA Liquid Processing**
- GEA Diessel
- **GEA Filtration**
- GEA Kestner
- GEA Wiegand
- GEA Messo
- GEA TDS
- GEA Huppmann TBS



GEA Mechanical Equipment

- **GEA Westfalia Separator**
- **GEA Tuchenhagen**
- **GEA Niro Soavi**



GEA Refrigeration Technologies

- **GEA Grasso GmbH**



GEA Heat Exchangers

- **GEA Ecoflex**



GEA Farm Technologies

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- 1977 **Kolding Gruppen A/S** is established in Kolding (subsequently acquired by GEA Niro)
- 1987 **Tuchenhagen Skandinavien A/S** is established in Silkeborg (subsequently acquired by GEA together with the rest of the Tuchenhagen group of companies)
- 1999 Tuchenhagen Skandinavien and Kolding Gruppen merge into **GEA Liquid Processing Scandinavia A/S** who moves to a new domicile in Skanderborg along with the Danish branch offices of a number of other GEA companies (**Westfalia Separator, GEA Ecoflex, Tuchenhagen Flow Components and Niro Soavi Nordic**).
- 2006 The Danish subsidiary of **GEA Grasso** joins the other GEA companies in Skanderborg.
- 2008 **GEA Liquid Processing Scandinavia** and **GEA Niro** merge into **GEA Process Engineering A/S**, consisting of three Business Units: **GEA Liquid Processing (GLP)** and **GEA Filtration (GEAF)** in Skanderborg and **GEA Niro (NDK)** in Søborg.
- 2011 The Danish subsidiary of **GEA Farm Technologies** joins the other GEA companies in Skanderborg.
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- We provide specialist process plant engineering and automation solutions
- We supply solutions of the very best quality at overall competitive prices meeting the expectations of our customers
- We tailor our solutions to the needs of each individual customer, yet we standardise where possible
- We deliver on time, to specification and on budget



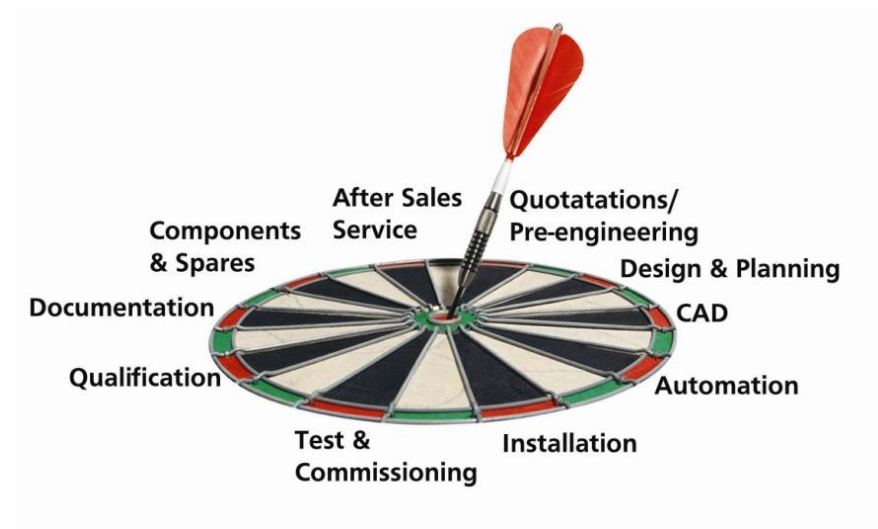
As a **combined engineering and execution partner** we design, supply, install, test and commission **Liquid Processing Plants** to:

- the Dairy, Food & Juice Industry
- the Brewery & Beverage Industry
- the Pharmaceutical Industry
- the Biotech Industry
- the Personal Care Industry



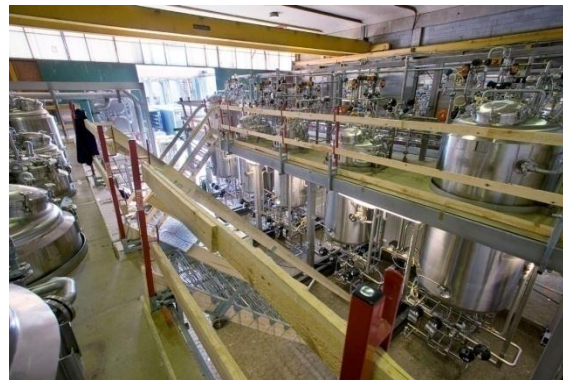
We offer the **full range of services** to our customers, from initial project planning to setting-up of a preventive maintenance programme:

- Conceptual/Basic Design
- Detailed Design and Planning
- Process Integration
- Process Automation
- Installation & Supervision
- Start-up, Commissioning & Qualification
- Documentation
- Components and Spares
- After Sales Service

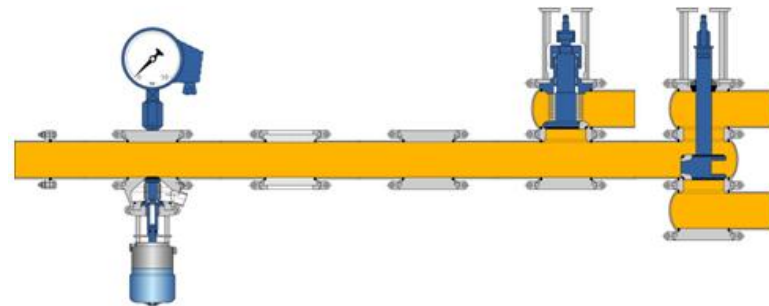


We offer a number of **exceptional core competencies**, differentiating us from the other players in the market:

- **Customized Process Solutions** – designed in close dialogue with our customers to provide each customer with a tailored process solution fully fit for purpose
- **Fast-Track Project Execution** – based on GEA Liquid Processing's unique Super Skid Concept, minimising time to market and maximising return on investment



- **Hygienic Design** – ensuring that every single design detail will meet the highest standards in line with EHEDG and the European Union’s Regulation (EC) 1935/2004 on the design of food-contacted materials and articles
- **Pro-Active and Reliable Project Management** – based on GEA Liquid Processing’s well-established Project Management Concept with precise procedures covering all project phases, from the first customer contact to final Taking Over.
- **Traceability and Quality Assurance at All Levels** – including check and documentation of all welding activities and of all goods received, at our place and on site, as well as frequent inspection visits at our sub-suppliers, with and without notice



We aim at establishing a **close relationship to our customers** characterized by:

- Early involvement in up-coming projects (brainstorming / pre-engineering)
- Key Account concept with dedicated GLP Project Manager
- Standardisation where possible
- Strategic partnerships



References are important

but to us...

Repeat Business is even more important

More than 60% of our business is Repeat Business



GEA Process Engineering A/S

Site License



| | |
|------------------------------------|-----------|
| AutoCAD 2011 | 20 |
| NavisWorks | 5 |
| E-plan | 2 |
| AutoPLANT Drawing Flattener | 14 |
| AutoPLANT Equipment | 1 |
| AutoPLANT Piping | 12 |
| AutoPLANT Structural Modeler | 1 |
| Bentley AutoPLANT P&ID | 6 |
| Bentley Data Manager | 20 |
| Bentley Datasheets | 2 |
| Bentley Generative Components | Unlimited |
| Bentley Piping | 12 |
| Bentley PLANT P&ID | 6 |
| Bentley PlantSpace Piping | 12 |
| Bentley Redline | Unlimited |
| Bentley View | Unlimited |
| Bentley Vision | 12 |
| i-model plugin for Revit | Unlimited |
| MicroStation Distributed Processor | 25 |
| ProjectWise Passport | 25 |
| ProSteel Modeler | 1 |
| SELECT Server | 1 |
| SELECT Server Gateway | 1 |
| Structural Dashboard | Unlimited |

- GEA har anvendt AutoPLANT siden slutningen af 2004. Opstart med en del ændringer. Efterfølgende har vi nærmet os en "out-of-the-box" med "små" ændringer.
- Opstarten var i PID og senere også Piping.
- Nuværende installation V8i Win7 32bit med efterfølgende kursus for brugere afholdt af Bentley i Skanderborg.

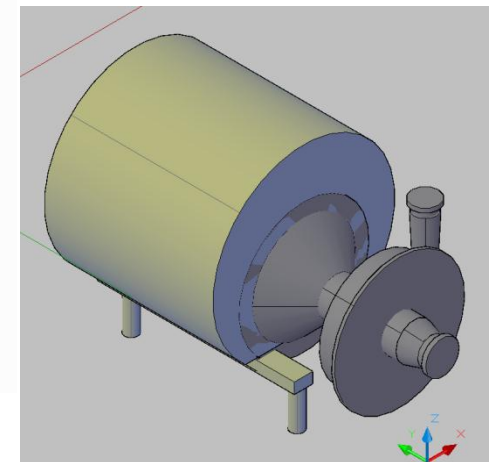
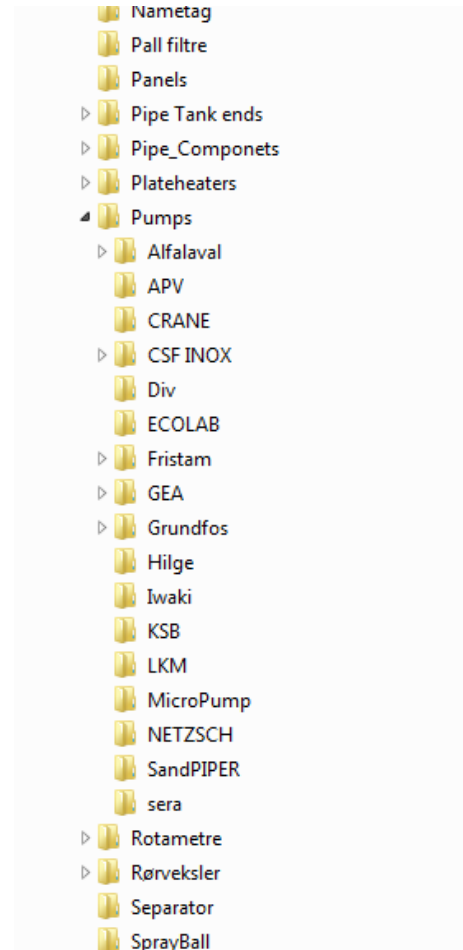
- P&ID
Bentley PID med database. Få ”gamle” store projekter ændres i Acad 2011.
- Tag nr. opdeles i fire niveauer for at imødekomme S88.
- Alle tags kommer fra PID, da det er den sikreste vej for at opnå overensstemmelse mellem PID og Database.
- Symbolfarver er ændret, så der er forskellige farver på symboler fra HVALVE og CVALVE. Der er også tilføjet aktuator på alle ventiler, hvilket gør det muligt at lave en mere præcis beskrivelse af ventilen. Der er tilføjet få nye symboler f.eks. Multiport ventiler.

- Tidligere projekter blev tegnet i Acad 2011, Standard solider, fra GEA symbolbibliotek med tilpasning i brugerfladen.
- AutoPLANT V8i benyttes i nye projekter.
- Der kræves en vis tilvænning til udseendet af udstyr/ventiler til et mere PI-agtigt udtryk.
- Der kræves også lidt tilvænning hos nogle af værkstederne, der har lidt svært ved at læse ISO'er.
- Der er en udfordring med katalog, spec. opbygning og håndtering, da der er mange kundekrav.
- Ny installation V8i Win7 32bit med efterfølgende kursus for brugere afholdt af Bentley i Skanderborg.

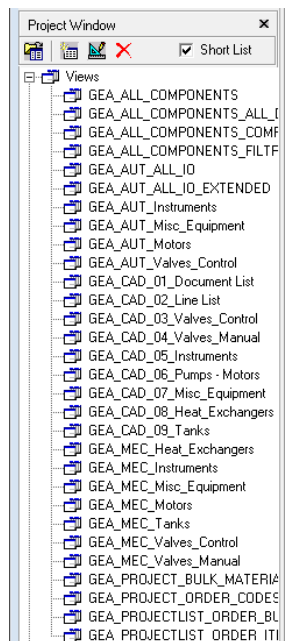
GEA har gennem flere år arbejdet med 3D symboler i Solider i Acad.

Der er symboler af alt mellem himmel og jord - det kan være lige fra rør fittings til ventiler, pumper og tanke.

Pt. er der ca. 6500 forskellige symboler i biblioteket.

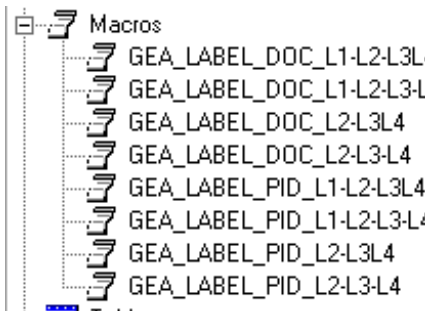


- Tags oprettes i PID med enkelte komponentbeskrivelser - derefter skrives øvrige informationer i Data manageren.
- Databasen er grundlag for revisioner/indkøb, varemottagelse, komponentbeskrivelse, el-dokumentation, status for den enkelte komponent og forsendelse. Derfor lægges der mange kræfter i at vedligeholde Databasen.



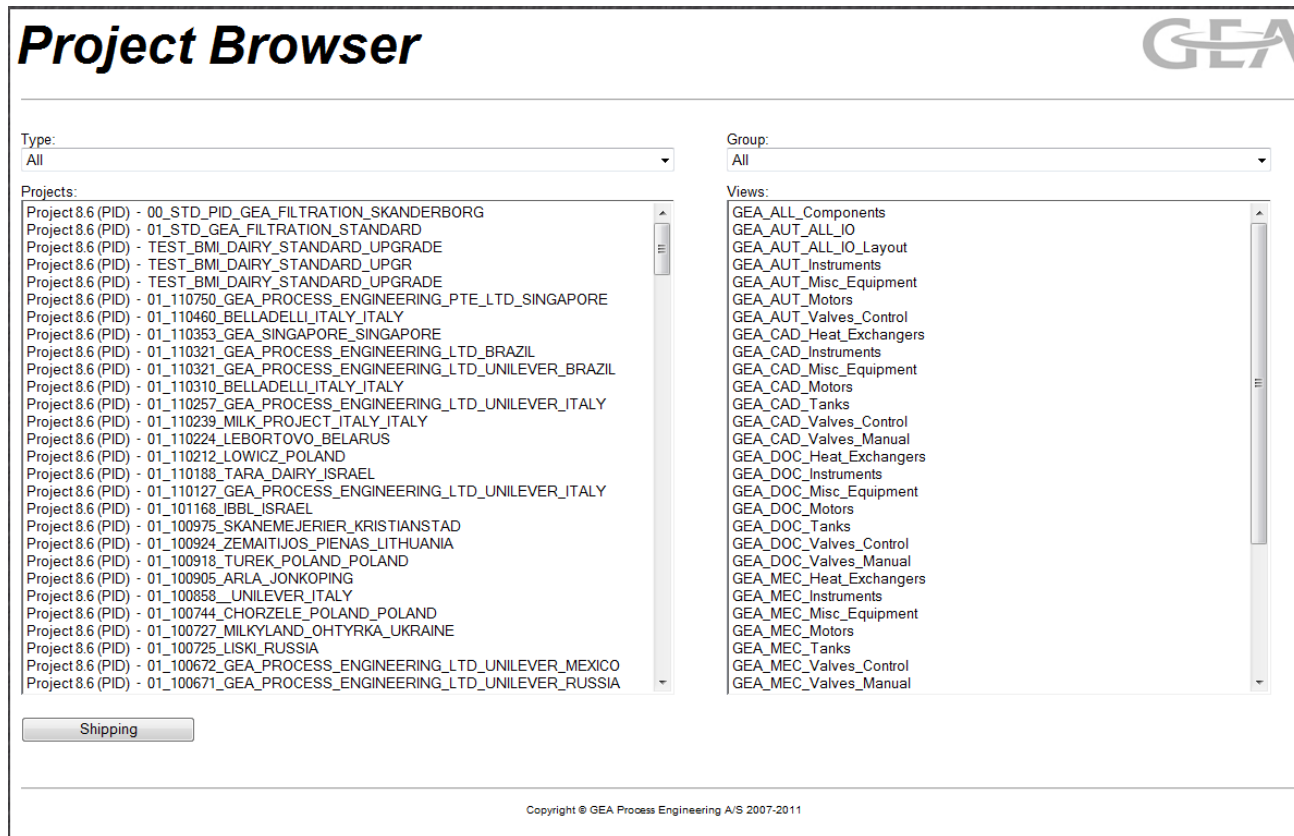
Der er oprettet default views, som henvender sig til faggrupper, så man har de oplysninger, man skal bruge som "read only". De tomme felter skal udfyldes af den aktuelle faggruppe. Dette gøres for at give et bedre overblik. Alle ændringer i projektdatabasen eller i Data Manager sker automatisk, når projektet oprettes.

- GEA har tilføjet nogle kolonner i databasen, som derefter kan bruges i attributter på PID og i rapporter.



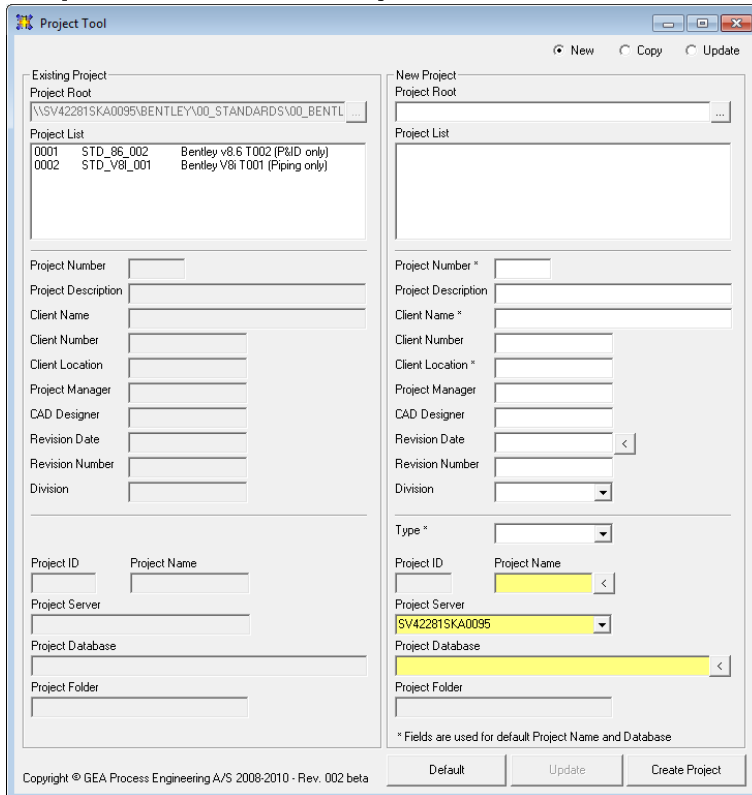
Der er også lavet nogle "macros" som gør det muligt at ændre i en attributtekst på PID af f.eks. tag nr. uden at ændre det originale (standard) tag nr.

- GEA har sit eget værktøj for at få et hurtigt overblik over de enkelte projekter. Project Browser ser direkte på serveren i projekterne og der skal ikke bruges Bentley licens.



Project Browser kan åbnes direkte via nettet, så man er sikker på, at data er opdaterede. Der er mulighed for at udskrive lister fra Browseren.

- GEA Project Tool bruges til at oprette nye, opdatere eller kopiere fra eksisterende projekter. Oplysningerne opdaterer databaserne og menufiler samt sikrer, at projekterne placeres korrekt. Projektet bliver opdateret i Project Browser.



The screenshot shows the GEA Project Tool interface with two main sections: 'Existing Project' and 'New Project'.

Existing Project:

- Project Root: \SV42281SKA0095\BENTLEY\00_STANDARDS\00_BENTL...
- Project List:

| | | |
|------|-------------|--------------------------------|
| 0001 | STD_86_002 | Bentley v8.6 T002 (P&ID only) |
| 0002 | STD_V8L_001 | Bentley V8i T001 (Piping only) |
- Fields: Project Number, Project Description, Client Name, Client Number, Client Location, Project Manager, CAD Designer, Revision Date, Revision Number, Division.
- Fields: Project ID, Project Name, Project Server, Project Database, Project Folder.

New Project:

- Project Root: [Empty]
- Project List: [Empty]
- Fields: Project Number *, Project Description, Client Name *, Client Number, Client Location *, Project Manager, CAD Designer, Revision Date, Revision Number, Division.
- Fields: Type *, Project ID, Project Name, Project Server, Project Database, Project Folder.

Buttons: Default, Update, Create Project.

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Dette gør det muligt for alle at oprette et nyt projekt eller tage en kopi af et Bentley projekt uden risiko. Her er det også muligt at vælge forskellige projekt templates.

- 3D Layout Navis Works 2011 NVD filer som ses i Freedom og 3D PDF fra Bentley View til mindre projekter.

3D layout bliver brugt på kontoret, til review i værkstedet og på site til at få et overblik og lave print af små udsnit.

<http://www.geatube.com/fasttrack/#/animation>

<http://www.geatube.com/milk/#/animation>

Thank You for Your Attention!



efficiency in food and energy processes.

www.geagroup.com