



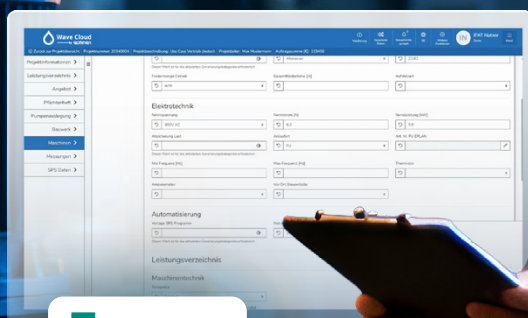
Detail Engineer

by **zähnen**

Automated engineering. Consistent. Record-breaking fast.

The software module for
automated engineering processes.
Support from development all the
way to handover.

— Seamlessly integrated into the
Wave Cloud by zähnen platform.



- ✓ Wiring diagrams
- ✓ CAD models
- ✓ PLC programs

Automated engineering reduces costs, eliminates mistakes, and saves time.



Your Problem

Time Pressure, Mistakes & Skills shortage

Manual Engineering costs time and trust, without standardization & automation, the error rate increases.



Repetitive engineering processes tie up resources and endanger schedules as well as employee satisfaction.



A lack of standards leads to project chaos and mistakes due to manual data entry errors.



Dependence on employee knowledge creates business-critical risks of downtime.



Employees leave the company and take valuable knowledge with them.



Detail Engineer
by **zahn**

Your on-demand digital engineer

Our solution offers the much-needed digital support and eliminates the critical steps of the manual workflow



Customer knowledge mapped as a tailored solution in the Wave Cloud to preserve expert knowledge.



Automated generation of wiring diagrams, PLC programs, 3D models, and documentation on a central platform.



Digital customer knowledge provides the central data foundation for all projects in the Wave Cloud.



Real-time validation of technical correlations.

BENEFITS

Measurable benefits in project realization

Significant reduction in mistakes across all project phases

60 %*

Increase in efficiency

In the planning of electrical and mechanical engineering

70 %*

shorter onboarding time

By securing expert knowledge in one central source.

- ✓ Preserving knowledge through digitization
- ✓ Reducing the workload on expert staff
- ✓ Highest possible quality in all projects

- ✓ Reduction of error rate from the first project on
- ✓ Consistent data instead of having three separate documentation systems

15-Minute
Demo:
Experience
the Detail
Engineer live

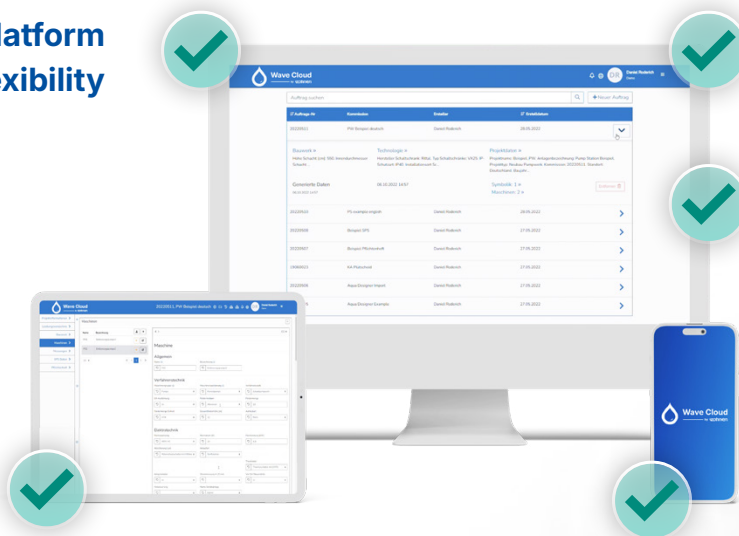


*Project-based projections; results vary depending on scope and data quality

Digital solutions tailored to your needs.

Custom configuration based
on customer requirements

High platform
flexibility



Integration with
existing systems
(interfaces to ERP,
among others)

Flexible adjustment to
customer processes

Single source of truth
as a central database

24/7

Smart planning

Work together and
see changes
instantly.



**Part of the Wave
Cloud platform**

Seamlessly integrated into a
certified system environment.



One cloud, one database

Everyone involved has access to
the most up-to-date version.

Smart Document Output



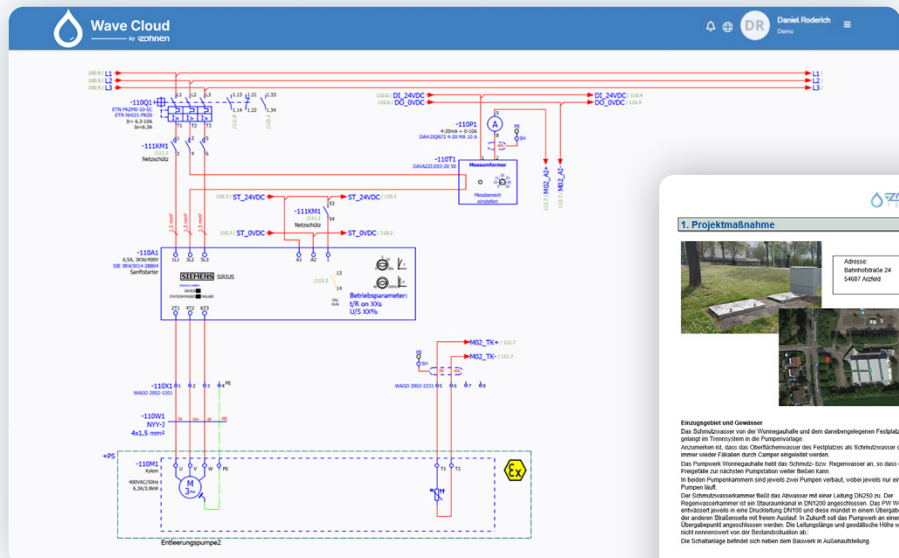
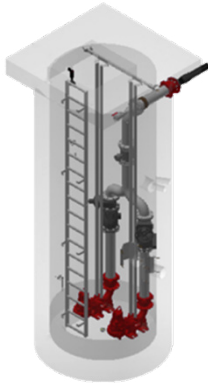
Get Started with the Detail Engineer

Full data consistency at every step



Integrate systems

Seamless interfaces with your existing IT systems (ERP/CRM/ CAD)



POSSIBLE DOCUMENTS

Wiring diagram

PLC program

Process control system

Requirements specification
and many more...

Interfaces for generation



AutoCAD



AUTODESK
Vault



AUTODESK
Inventor Professional



ePLAN



WS
CAD



Microsoft 365



TIA
PORTAL
SIEMENS



G4B

Many more

Interfaces



sage 100

ProCoS 5.0



Additional options available

How to get your very own Detail Engineer

How do you preserve valuable expertise & make it accessible for the entire team?

With Wave Cloud, we transform your unique business processes into an intelligent, digital environment.



Detail Engineer
by **zahn**

1

ANALYSIS

Wave Cloud Workshop

Our experts and your project team define your requirements directly on-site.

- **SCOPE DEFINITION**
Defining your requirements for the platform.
- **FRAMEWORK**
Definition of interfaces and user groups.
- **CONCEPT**
Development of a detailed implementation concept for your custom Wave Cloud application.

2

IMPLEMENTATION

Building your solution

We build your custom configuration and make your knowledge accessible

- **KNOWLEDGE STANDARDS**
Joint definition and digitization of your standards.
- **EARLY PROTOTYPING**
We incorporate user feedback early on to ensure the solution is optimally tailored to your daily workflow.
- **CUSTOM CONFIGURATION**
Development of a custom interface tailored to your specific needs.

3

GO-LIVE

Training on the Job

Once the system is handed over, your Detail Engineer will be there to support you in every project.

- **INDEPENDENT WORK**
Intuitive use of the platform by your team.
- **CONTINUOUS OPTIMIZATION**
Ongoing development of features.
- **SUPPORT**
We guide the rollout and ensure quality.
- **USERS & LICENSES**
Unlimited users and a flexible licensing model.

Example of success: Zahnen Technik



Challenges in Engineering

- ✗ Skills shortages blocks expansion
- ✗ Time-consuming creation of engineering documentation
- ✗ Inconsistent data across documents and within project teams
- ✗ Many different customers with their own specific requirements
- ✗ Recurring manual tasks



Our solution

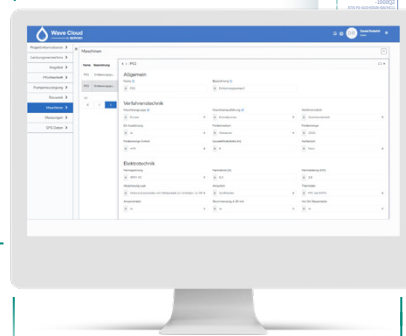
- ✓ Integration of custom-erspecific standards in system components
- ✓ Use of the platform as a central source of information for the entire project team
- ✓ Generation of engineering documents at the touch of a button
- ✓ Mapping of technical dependencies as digitized knowledge within the platform
- ✓ Continuous development of standards

Implementation

- Defining and digitizing standards with the subject matter expert teams
- Rapid validation of concepts
- Prototyping
- Step-by-step integration into processes
- Workshops & Standards
- Rollout

DIGITALIZED KNOWLEDGE

Securing & Distribution of knowledge



SINGLE SOURCE OF TRUTH

HOLISTIC ENGINEERING

A single data source for the entire project team and across projects

STANDARDIZED PROCESSES & DOCUMENTS

Cost & Time savings through automation

QUALITY IMPROVEMENT

Fewer mistakes while maintaining consistently high quality



Benedikt Ney

Chief Technology Officer (CTO)
Zahnen Technik

THE WAVE CLOUD IS OUR DIGITAL ENGINEERING BOOSTER:

We have digitized our expertise and generate high-quality engineering documents and software from a single central data source. This makes our teams more efficient and gives them more time for the truly exciting tasks.

Expertise throughout the entire engineering process

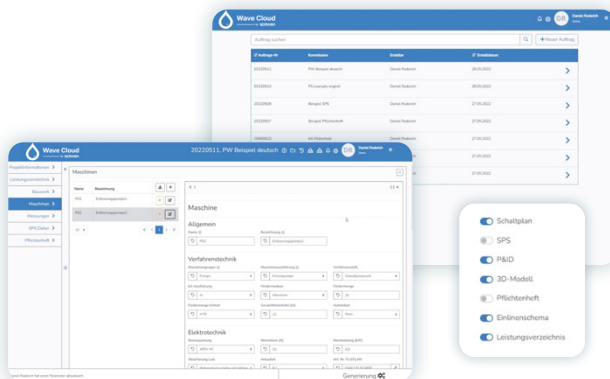
We support your water treatment system throughout its entire lifecycle.



Wave Cloud
by **zahn**



Seamless flow of information from the initial sketch to the digital twin.



Control Cloud
by **zahn**



Takes over intelligent monitoring during operation.

Your Benefits IN FOCUS

- **PRESERVING KNOWLEDGE, FIGHTING THE SKILLS SHORTAGE**
Practical knowledge is stored in a structured digital format and remains within the company, independent of individual employees. At the same time, structured processes boost the efficiency of existing teams.
- **SAVE TIME & REDUCE COSTS**
Routine tasks are automated. This reduces manual effort, minimizes errors by providing a single source of truth, and frees up time for strategic tasks.
- **MAKING COMPLEXITY MANAGEABLE**
All work steps are logically linked within a single system: transparent, traceable, and structured.

4 Wave Cloud Modules



Pre Planner by zahn

Planning

Preliminary process engineering and technical specifications form the digital starting point.



Detail Engineer by zahn

Engineering

Takes the Pre Planner data and automatically generates CAD Drawings and lists for electrical, mechanical, and automation engineering. Precise and compliant with standards.



Sales Manager by zahn

Sales

Utilizes technological tools to quickly configure and price products and systems during the sales process.



Asset Manager by zahn

Operation

The central, intuitive documentation system. This is where all data from planning and construction comes together to ensure the efficient management of the plant over decades.

Wave Cloud is much more than just software



Specifically developed for water and waste water technology, based on over 500 completed projects.



Tailored precisely to your company, your processes, and your technical standards.



Stored in the cloud (Germany), accessible from anywhere, and secure.



Daniel Roderich

Product Manager
Wave Cloud
by zahn

Platform effect

One-time data entry, lifelong benefits.

We eliminate data loss at interfaces and integrate planning, engineering, and operations into a highly efficient, future-proof system.

Water treatment with decades of experience

We are passionate plant engineers

Driven by our vision that everyone has the right to have clean water, Zahnen Technik develops holistic solutions for water and wastewater technology. Founded in 1958, we combine technical expertise, innovative strength, and experience from over 500 projects to ensure water quality and design plants that are both efficient and sustainable.

Our practical experience in the water sector forms the foundation of our Wave Cloud platform.



Zahnen core values

- Effective innovation
- Sustainable value
- Real reliability



CORE COMPETENCIES

Innovative solutions for a safe & sustainable water supply



Digitalization

Efficient planning & reliable expert knowledge with Wave Cloud & Control Cloud



Process Engineering

Reliable process solutions for water & wastewater treatment plants



Standardization

Consistent standards for quality, efficiency, and reusability



Mechanical Engineering

Construction & manufacturing of mechanical system components



Electrical Engineering

Planning & implementation of smart control and automation systems

For over 68 years, we have been combining process engineering with innovative project management.

With a nationwide presence

As part of Deutsche Wasser Holding, we combine local expertise with nationwide reach, drawing on over 1,000 completed projects

100 %

specialized in

water & waste-water systems



Deutsche Wasser Holding

Arzfeld

zähnen
TECHNIK

Rödermark

KURT FREUDENBERG
Technik für Wasser & Abwasser

Bayreuth

KWT ZWT

Eisleben

AWT

Jüterbog

AUGUST FREBE
Wasser- & Abwassertechnik seit 1889

Rahden

HIK
HOCHWASSER- & KROBENTEN- & KRAFTTECHNIK



**Because everyone has a
right to have clean water.**

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