



# System Design and Custom-Built Machinery

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by Christof Systems GmbH

Revolutionary  
solutions – also  
for your sector



**Automotive**



Chemical



Christof Clean City



Construction and Primary



Conventional Power



**Food**



Intralogistics



Medical Waste



Metallurgy



Oil and Gas



Pulp and Paper



Renewables



Waste to Energy



Waste to Value



Wood and Chipboards

# Pioneering Spirit and Technical Perfection

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It is hard to think of another area of our portfolio where Christof Industries' two key qualities are so closely entwined as in the design and production of specialised plants and facilities. The first of these qualities is our technical know-how, which has grown over time thanks to the successful implementation of more than 4,500 large-scale projects; this technical know-how keeps us at the cutting edge. The second of these qualities is our creativity, which allows us to develop and implement a complete facility on the basis of little more than a simple sketch.

Specialised plants are always bespoke; sometimes they are completely unique facilities, constructed to fulfil very specific functions. More often than not, it is impossible to find other successful models to draw upon in their realisation; they pose challenges for our abilities and our innovative spirit.

This is why we the trust that is placed in us, both at home and abroad, by a diverse range of industries, gives us a particular sense of satisfaction – these industries produce everything from foodstuffs to automobiles, from energy to medical technology. This trust is what motivates us to find the perfect solution for every one of our customers.

# A Passion for Tailor-Made Solutions

Custom-built facilities are the mavericks of industrial plant construction, and Christof Systems is a specialist in the development and realisation of compact facilities, either for, or in cooperation with, our customers. Our teams have the right tools for the job: extensive technical expertise, a spirit of innovation, and a passion for technological challenges. In line with our customers' wishes, we can provide everything from just the implementation of your product through to the complete development of a turn-key system.

## Engineering

Regardless of whether you come to us with a simple sketch, an idea, or a detailed list of product specifications, our engineering specialists can convert your input into a bespoke facility. Our professional teams and efficient processes (simultaneous engineering) ensure that the best results are achieved in the shortest possible time.

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We offer our customers the best services on the market – in the form of innovative, forward-looking solutions – as well as clear competitive advantages in know-how and price thanks to our 360° portfolio of services.

*Johann Christof, CEO*

- **Basic engineering**

At the basic engineering stage, our process engineers use empirical tests and the most modern simulation tools available to develop optimal processes. This early phase also sees the production of 3D designs and the conceptualisation of automation processes and software for the machinery to be employed.

- **Detail engineering**

In line with the guiding principle of employing the best resources from across our company for each process, the basic design is produced by our experienced specialists. Details are then added as appropriate for each particular project, either directly in-house, or by specialists drawn from across the entire Group. This ensures short processing times and the highest degree of quality.

Software is a particular focus of our work at this stage. Using cutting-edge tools on each of the different platforms, we produce software and visualisations that are a perfect match for the needs of the relevant end users.



## Production and assembly

On the basis of an exact construction plan and a process diagram, our specialists in Graz and Wels (Austria) can produce prototypes or short runs. Our modern enterprise resourcing planning (ERP) system and our fully automated approach to storage management are guarantors of efficiency and rapid availability of parts. Our professional assembly teams ensure the speedy and cost-saving installation of your facility, anywhere in the world.

## Commissioning and support

Our experts accompany you every step of the way through the last checks of mechanical, electrical and digital components, commissioning, and the training of your personnel. Our technically proficient support team is there to help you with any questions you may have once your facility is up and running and provides rapid responses to your concerns.

Our active spare part management and preventive maintenance ensure that repairs are carried out on time, guaranteeing longevity and maximum up-time.



## References: Automotive Industry

# Modularized Facility Supply for a Test Field

Based on a facility matrix our customer was looking for a partner which could deliver the facility in a turnkey solution. The challenge was also that the facility should be designed for an easy upgrade. That was the reason why Christof Systems and the customer together chose the modularized system, because it was compact, could mostly be manufactured in Austria and the commissioning could be done before delivery to the construction side.

### Task

Development, manufacturing, assembly, commissioning and erection on site of a solution for adding chilled water, compressed air and electrical supply to the test facility.

### Particular challenges

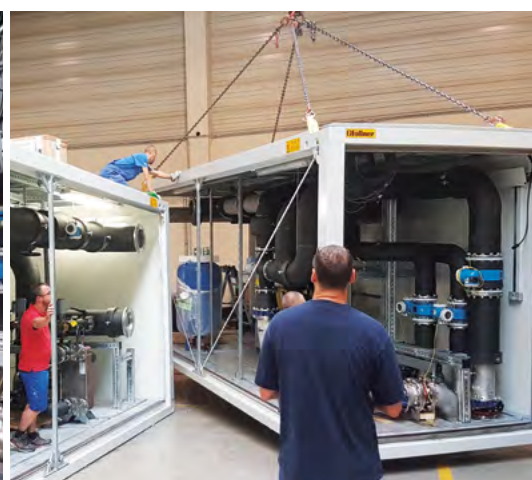
The system had to be able to adduce the exact temperature control of  $\pm 1$  Kelvin, exact pressure control of  $\pm 0,2$  bar. A big challenge was the high dynamic cooling power and electrical power requirements. In addition to these points, there was the enormous time pressure of the completion.

### Scope of work

The container solution was fully developed inhouse (basic and detail engineering as well as software development), manufactured in our workshop area (electrical and mechanical) assembled and commissioned based 100% on the customer requirements. The manufacturing and the erection on site was done on time and the customer was able to operate the system as planned.

### Further projects for modularized systems:

- Solutions for new Test Centers in the Automotive Industry
- Containerized solar power solution for self-power supply
- Containerized environment analyzing and testing equipment







## References: Food Industry

# Production-Line Addition of Haemoglobin Pigment

Christof Industries' successful implementation of numerous projects for the food industry has proven its expertise in this area. Our plants are characterised by great precision and high levels of up-time, in addition to elevated standards of hygiene. Whereas Christof Systems is active in the field of custom-built facilities, our group is also represented in this area by Doubrava's conveying and batching systems and FMT's assembly expertise.

### Task

Development, manufacturing and assembly of a solution for adding haemoglobin pigment at Mars Austria's dog food production lines.

### Particular challenges

Hygiene standards required the use of special production processes, the ability for the facility to be cleaned rapidly and flexibly, that certain components be kept sterile, etc.

### Scope of work

On the basis of a product brief, Christof Systems took care of the entire development (basic and detail engineering as well as software development), manufacturing (electrical and mechanical), assembly and commissioning. A pneumatic conveyor first sucks the haemoglobin pigment (red blood pigment used to colour the dog food) from big bags and deposits it in mixing receptacles, where it is mixed with water by means of a special mixing procedure. The particle-free colouring fluid that is thus produced is kept at a precise temperature until it can be added to four production lines. The fluid is added in precisely measured quantities to the four production lines simultaneously.

### Further projects for the food industry:

- Conveying systems inter alia for table salt (Salinen Austria AG), canola and linseed for the production of cooking oils.

## References: Automotive Industry

# End-of-Line Test Stand for Electrical Engines

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AVL List GmbH is one of the world's leading developers of innovative combustion engines. Christof Systems was tasked with the production of testing facilities for the newest generation of Audi electrical engines for a site in Hungary. Not just the technical aspects, but the requirement that the facility maintain maximum up-time posed a great challenge; any failure of these end-of-line test systems would bring the entire production chain at the factory to a halt.

### Task

Production of conditioning systems for end-of-line test stands for Audi electrical engines.

### Particular challenges

This sort of test system must simulate constant environmental conditions precisely. In this particular case, it was necessary to introduce the coolant to the engine being tested following a dynamic temperature curve, as well as automatically and quickly to fill the engine, to extract air from it, and then to empty it again. Additionally, we developed and delivered a unit for injecting and extracting coolant automatically from the test systems.

### Scope of work

The facility was planned on the basis of a product brief, produced, tested and installed in the relevant area of the customer's factory. Both the technical challenges and the very high up-time requirements were met 100%.

### Further projects for AVL List GmbH:

- Conditioning systems for all manner of media (water, air, charge air, oil) for a variety of testing purposes
- Production of up to 30 air-conditioning systems for engine test stands per year since 2014 as well as the on-going improvement of these systems in close cooperation with the customer







## References: Energy Producers

# Natural Gas Dehydration Facility

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Moisture in natural gas can damage the sensitive equipment at natural gas fuelling stations, reduces efficiency and increases the emissions from combustion engines. In a joint project with RAG Rohöl-Aufsuchungs AG, Christof Systems has developed a natural gas dehydration facility.

### Task

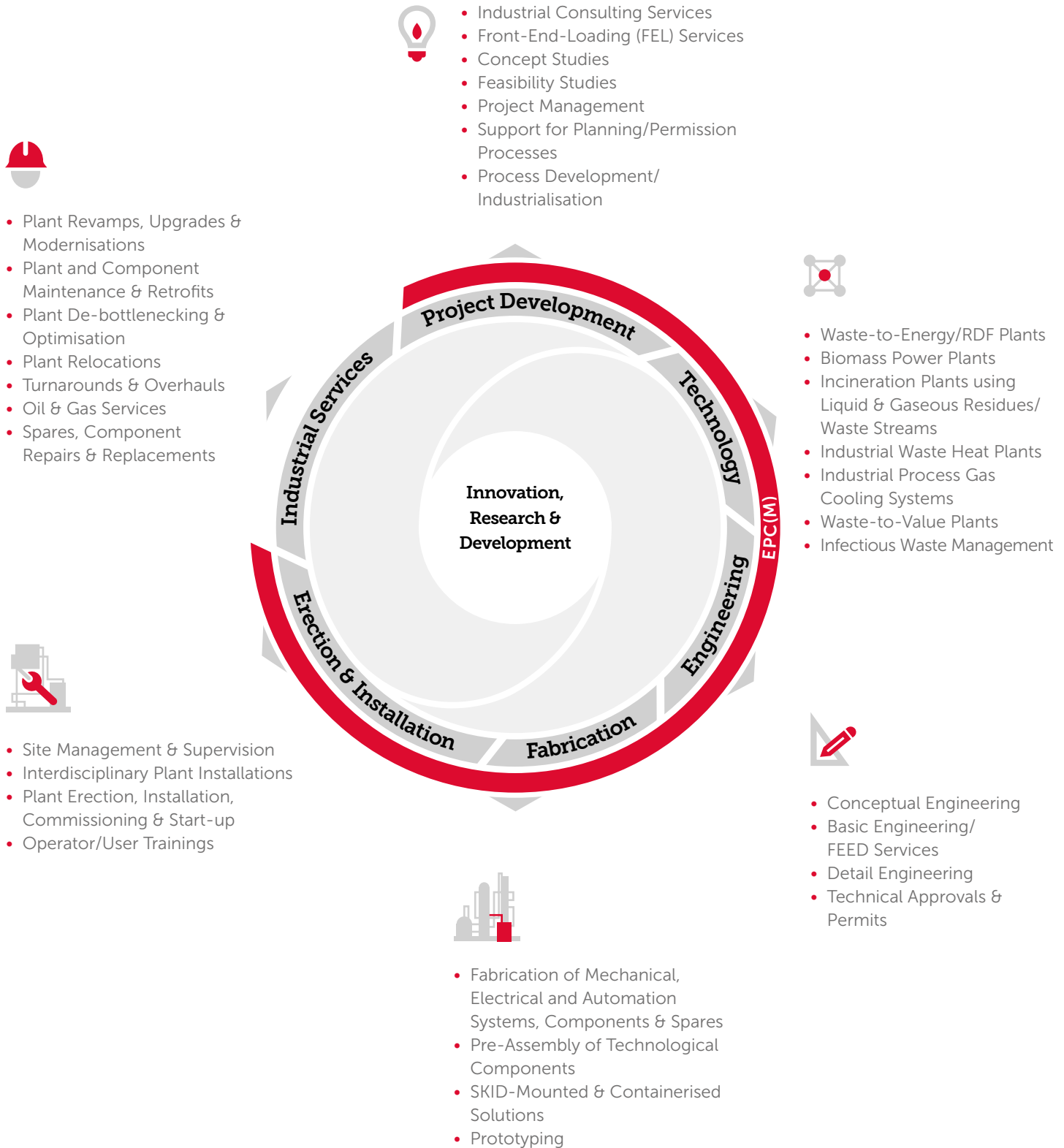
Development of a facility that removes moisture from product gas in a constant process.

### Scope of work

Development, production and assembly of the dehydration facility. The facility is essentially made up of three components: two containers with an adsorbent that dehydrates the gas; and a visual indicator showing the degree of saturation of the adsorbent as well as a system to keep the gas at a constant temperature. The facility can be employed for example at natural gas fuelling stations.



# Christof Industries 360° Lifecycle



# Christof Industries across the Globe



## Industry Sectors

- Automotive
- Chemical
- Christof Clean City
- Construction and Primary
- Conventional Power
- Food
- Intralogistics
- Medical Waste
- Metallurgy
- Oil and Gas
- Pulp and Paper
- Renewables
- Waste to Energy
- Waste to Value
- Wood and Chipboards

- Branch Office
- Distribution Partners
- Countries with Reference Projects
- Workshops

