

Maintenance Business Partnership



A company
of ThyssenKrupp
Technologies

Uhde Services



ThyssenKrupp

Company profile

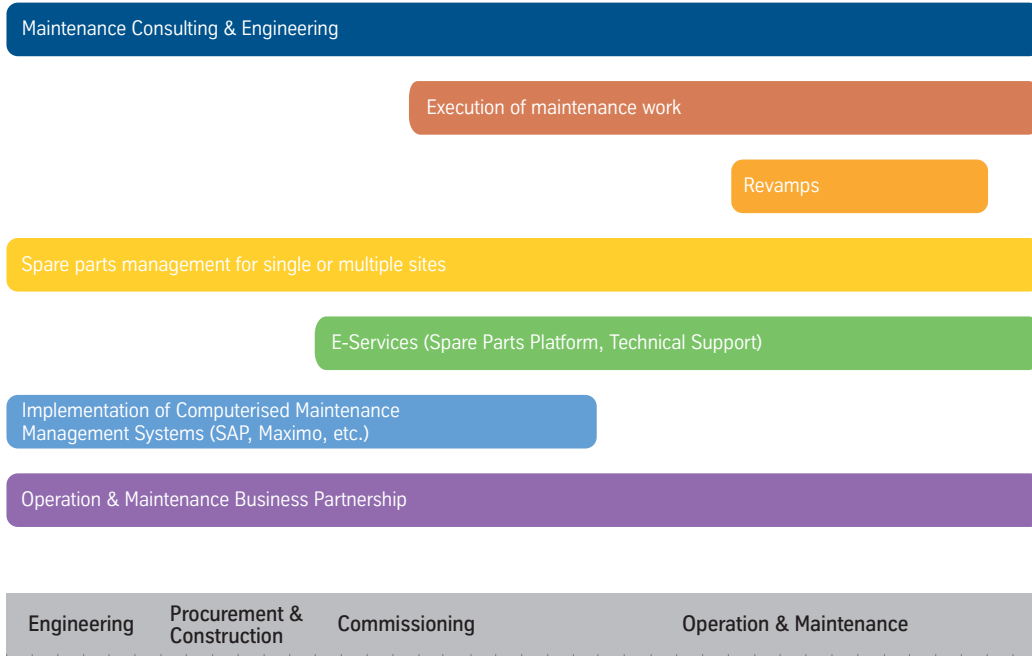
Uhde Services' head office
in Haltern am See, Germany



Uhde Services is an independent subsidiary of the Uhde Operating Group with main service focuses in metallurgy, power plant engineering, petroleum processing and services for the chemical and petrochemical industry.

In these main business areas Uhde Services offers tailored solutions and premium services in terms of revamps, modernisation, expansion, optimisation and parts replacement for plants, compliance with environmental standards and enhancing the cost-effectiveness and productivity of industrial facilities.

As a supplier of state-of-the-art, commercially optimised services, Uhde Services is your ideal partner if you are looking to gain the decisive edge over your competitors. The ever-increasing demands placed upon process and application technology in the field of chemical processing, energy and environmental protection are met through a combination of specialist know-how, all-round service packages, top-quality engineering and impeccable punctuality.



Uhde Operating Group offers a unique combination of technology and maintenance based on solid engineering expertise and the practical experience of our maintenance specialists. We understand your process, having built either your plant or that of a competitor, and are thus able to work with your maintenance organisation on influencing key plant availability factors. Constant operational feedback and the high level of synergy resulting from the interaction between engineering, construction, commissioning and maintenance puts our engineers and maintenance practitioners in a position to influence technology and organisational and corporate culture in order to optimise your maintenance and production efficiency. Additionally, in executing long-term projects we are backed up by the financial strength and security of the ThyssenKrupp Group.

Maintenance Consulting



Bandar Imam Petrochemical Complex, Bandar Imam, Iran

Uhde Services' maintenance consulting services are geared towards increasing the profitability of your plant. We employ innovative tools, such as the Uhde Services' Maintenance Availability Programme and the Uhde Services' Reliability Improvement Programme to improve the efficiency of your maintenance processes. By reviewing your maintenance

- ◆ Review, Benchmarking & Optimisation
- ◆ Maintenance Optimisation Programme
- ◆ Availability Assessment
- ◆ Reliability Improvement Programme
- ◆ KPI Systems
- ◆ Supply Chain Management
- ◆ Training Modules

organisation and comparing it with world-class benchmarks, our maintenance specialists develop optimisation plans tailored specifically to your production and maintenance processes and requirements. The implementation of these optimisation plans in conjunction with your maintenance organisation is one of our strengths.

Customer: NPC, Iran

Location: Bandar Imam, Iran

Completion: 2004

Scope of services:

Analysis and optimisation study of the maintenance organisation of a complex with 6,500 employees and about 5,000 contractors. Areas covered:

- NGL fractionation plant (NF)
- olefin plant (OL)
- aromatics plant (AR)
- paraxylene plant (PX)
- high and low-density polyethylene plant (HDPE/LDPE)
- polypropylene plant (PP)
- styrene-butadiene rubber plant (BD/ SR)
- polyvinyl chloride plant (PVC)
- solar salt plant
- chlor-alkali plant (CA)
- ethylene dichloride plant (DC)
- vinyl chloride monomer plant (VC)
- methyl tertiary-butyl ether plant (MTBE)
- utilities: steam, water, electricity, instrument and plant air, nitrogen wastewater & effluent treatment facilities



Customer: EFC, Egypt

Location: Ain Sukhna, Egypt

Completion: 2005

Scope of services:

Review of maintenance engineering, planning and execution for an ammonia and urea plant built by Uhde. Comprehensive report including detailed plans for implementation of optimisation.

Once we have established your business needs, we will develop an Asset Care Policy for your plant which takes into account all of your strategic targets. This will provide a basis for an optimised mix of corrective, preventive and predictive maintenance as well as the implementation and optimisation of your maintenance software (SAP, Maximo, etc.) and the planning of daily mainten-

ance routines. Our maintenance engineering and planning services will provide your organisation with detailed plans and procedures for practical implementation. Make or buy? From an individual item of equipment to a plant or a complete complex, a life-cycle cost analysis carried out by our engineers will provide you with the answer to this critical question.

EFC, Ain Sukhna, Egypt
Fertiliser complex

- ◆ Condition Monitoring Plans
- ◆ CMMS Implementation & Optimisation
- ◆ Inventory Systems
- ◆ Life-Cycle Cost Studies
- ◆ Development of Plant Structures
- ◆ Planning of Routine Maintenance
- ◆ Planning of Turnarounds
- ◆ Maintenance Tender

Execution of Maintenance



Mellitah Oil & Gas B.V., Wafa Field, Libya,
Gas and oil treatment plant

**"We are not only
consultants, we take on
work and responsibility!"**

Most of our specialists for consulting, maintenance planning and engineering are from the daily maintenance business. If you wish to introduce special inspection and maintenance methods and implement them on a daily basis, you will find we are a partner who speaks your language. Condition monitoring, thermography and oil analyses - let us assist you in condition-based maintenance.

- ◆ Condition Monitoring
- ◆ Purchasing, Spare Part & Warehouse Management
- ◆ Supervision of Maintenance Work
- ◆ Turnaround Execution

Combined with the Uhde Services' Reliability Improvement Programme, savings of up to 20% can be made in routine maintenance. In supervising your current maintenance organisation, Uhde Services will direct its efforts towards finding the right mix between increasing plant availability and decreasing maintenance costs - we know the bottom line counts. Planning, performance and turnaround analyses - challenge us to ensure the shortest possible "product-out to product-in" period.

Customer: Mellitah Oil & Gas B.V.,
Libya

Location: Wafa Field, 500 km
south of Tripoli, Libya

Completion: on-going

Scope of services:

Maintenance contract with 25 engineers and about 80 technicians covering maintenance engineering and planning as well as execution of work for all plants, and definition of stock level with optional spare part purchasing. Development of maintenance engineering, reliability-centered maintenance and risk-based inspection. Planning of preventive, predictive and corrective maintenance with MAXIMO. Training of customer's personnel.

Maintenance Business Partnership



Uhde Services' Maintenance Business Partnership model supplements the specific core competences of our various customers. We develop and implement organisations, processes and software for maintenance as well as all essential support functions for plants under construction. During start-up and subsequent routine production we ensure that all areas of maintenance run smoothly. In the case of plants

already in operation, Uhde Services provides maintenance, spare parts management and offsite operation. The transfer of personnel, assessment of the existing spare parts inventory and local legislation make every project unique - challenge us! One thing you can count on with our services no matter what: your profit, the safety of your employees and the reliability of your plants are sure to increase - and that for the long term.

- ◆ Establishment of Maintenance Organisations for Grass-Roots Plants
- ◆ Full-Service Maintenance Contracts for Operating Plants

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