

Listen to your Heat Exchanger -
IoT-Solution (Internet of Things) for Real Time Monitoring and Predictive Maintenance

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SCHMIDTSCHE SCHACK | ARVOS GmbH is a leading designer and fabricator of process critical heat transfer solutions for the chemical, petrochemical and metallurgical industries. Corporate pride lies in the strength of being able to furnish custom made solutions for process gases at very high temperatures of up to 1,500°C (2,730 °F) and high pressures of up to 400 bar (5,800 psi).

SCHMIDTSCHE SCHACK | ARVOS GmbH has designed and manufactured 7,000 Schmidtsche Transfer Line Exchangers in its own workshops, delivered and commissioned worldwide, and has thus become the world market leader in the production of TLEs. Reasons for the high level of customer satisfaction are unique design platforms such as the "Schmidtsche Oval Headers / Double Tube System", which also made SCHMIDTSCHE SCHACK | ARVOS GmbH a technology leader.

We are convinced that in the next couple of years even complex chemical plants will operate largely autonomous. Process components like heat exchangers will then be able to communicate through sophisticated IoT-PM (Project Management) systems.

Zero.One®, a sensor-based monitoring system, provides real-time data and information about the status of the heat exchangers, to maximize production time while it gives maintenance recommendations for critical events long before they occur.

Normal condition monitoring is already used today in the production plants. The measured data is evaluated on site by plant specialists. Statistical calculations or "long term experience" are then used to determine maintenance intervals.

Zero.One® does more than statistical evaluation. Zero.One® is based on IoT approaches and works in two specific areas:

(1) Analysis: SCHMIDTSCHE SCHACK | ARVOS GmbH with his OEM (Original Equipment Manufacturer) knowledge can provide a rapid, well-founded diagnosis and prognosis. The prognosis is based on knowledge (defined in algorithms), which is only available from SCHMIDTSCHE SCHACK as a well renown heat exchanger designer.

(2) Decisions: Based on diagnosis and prognosis, recommended course of actions are given by SCHMIDTSCHE SCHACK | ARVOS GmbH, which enable the early initiation of logistics processes. Minimizing latency and accelerating business decisions help to reduce downtime, save costs, and improve the OEE (Overall Equipment Effectiveness).

Zero.One® meets two core needs of plant operators:

- The improvement of OEE and
- The reduction of operating costs.

Productivity, availability, durability and reliability are key drivers of the OEE. The downtime costs in the chemical and petrochemical industry, where SCHMIDTSCHE SCHACK | ARVOS GmbH operates predominantly, can easily reach around 300,000 to 500,000 € per day.

In summary Zero.One® maximizes productivity through planning and proactive maintenance for easier scheduling of personnel, reduced downtime and hence increased economics.