

**J.A. Becker & Söhne**

## Moving Quickly into the Digital Age

The company J.A. Becker & Söhne based in Erlenbach (Germany) near Heilbronn was founded in 1897 and in the course of its company history has developed into an internationally renowned manufacturer of compressors in the medium- and high-pressure range. By using the Proof of Concept Kit (POC Kit) from Endian, they were able to quickly and easily transition their company readiness for the digital transformation.

J.A. Becker & Söhne is a medium-sized German company, that always prioritizes quality and safety. In their old model, a technician travels regularly to the customer's location to service the compressors. For the international customers, trained service partners assume this regular maintenance role. In case of an issue between the service visits, there is a service hotline at the customers disposal, that is able to solve most of the failures. In cases where the hotline cannot solve the problem remotely, a service technician is sent to the customer. With customers all over the world (including China), this support option is quite time-consuming and very expensive.



The Endian PoC platform makes it easy to collect and analyze your IoT data from your field devices in just a few weeks. The best part is we do almost all of the work so you just need to get your IoT connected and we do the rest, what could be better.

## Higher Efficiency thanks to Predictive Maintenance

With the help of the new Industry 4.0 technologies, J.A. Becker & Söhne saw the opportunity to make maintenance even more efficient. The idea was to use predictive maintenance to identify when a service technician needs to take action on the compressor. By providing a more proactive support model, they could increase resource availability, save money and greatly increase customer satisfaction. „No one could tell us whether flexible maintenance intervals, which are based on the actual condition of the compressor, could also be realized for our products”, remembers Alexander Kraus, Business Unit Manager Compressors at J.A. Becker & Söhne.

Therefore, the company was looking for a solution that would allow them to test compressor data for a reasonable investment and within a limited timeframe. J. A. Becker & Söhne found what they were looking for at Endian, a leading cyber security vendor in the field of Industry 4.0. With the Endian POC kit, they were able to quickly see the business and customer value of centrally collecting and analyzing their digital machine data. All they had to do is connect their test machines to the Internet and Endian takes over the rest of the project. „With the POC kit the costly and time intensive startup phase of Industry 4.0 projects is eliminated”, says Raphael Vallazza, CEO at Endian.

## Quick Start in Industry 4.0

The basis of every POC project is the definition of the specific goals and requirements. J.A. Becker & Söhne already knew what they wanted to achieve: The task was to check the feasibility of predictive maintenance. Thus, the project started right at step two, which defines which machines are connected and which data is collected. J.A. Becker & Söhne decided to connect high-pressure compressors, which, for example, are used in industrial applications for filling nitrogen in pressure cylinders.

The high-pressure compressors solidify (compress) the gas in several stages. The ratio of the different pressures to each other and the temperatures allow, among other things, conclusions about possible future disturbances. Accordingly, the delivery quantity, the final pressure, the temperature and the power consumption of the electric motor should be recorded. Depending on the application, the compressors are shipped from the factory either with or without PLC control. The connection of the POC-kit to the preinstalled PLC control of J.A. Becker & Söhne succeeded in using the Endian gateway 4i Edge 313 with 4G modem. It is able to read different machine protocols, in this case, the compressors are using the standard Modbus RTU. After that, it also converts different protocols into a single MQTT protocol for secure transmission over the Internet. As soon as J.A. Becker & Söhne had connected the compressors to the gateway, the data was transferred via 4G to the central PoC platform and Endian's service team set up the first data analysis dashboard. Within two weeks of project start, the test environment was ready for J. A. Becker & Söhne.

Right at the beginning of the project, the first benefit became apparent: „From the start, just using the dashboard we could see that the required automatic discharge of the compressor was not given, the line was not completely depressurized“, says Benjamin Siegl, from the Department of Development and Construction. Each compressor goes into a four-minute rest period after 45 minutes of work to remove accumulated condensate in the separators. If there remains pressure in the line, this leads to a higher power consumption and in the long run also to a more wear on the equipment. The cause could be eliminated immediately, so that the compressor worked smoothly.

### Key Criterion for Success: IT Security

As compressors produce pressures of up to 400 bar and, depending on the application, compress explosive substances such as natural gas, safety is a key quality feature at J.A. Becker & Sons. Once the compressors are connected, they need to be protected against cyberattacks. Also during data transmission, it must be ensured that the data is not stolen or manipulated. Throughout the whole PoC-period all machines, data and connections are protected by Endian's proven IT security technologies. The extensive security functions of the gateways ensure the optimum protection of machines and systems, for example through a built-in firewall, an intrusion prevention system (IPS) and malware prevention software. A VPN connection between the 4i device and Switchboard are encrypted to ensure secure data transmission. In order to retain control of their data at all times, the customer can select the environment in which the IoT platform resides: either in the secure and reliable Endian cloud environment, in the customer's infrastructure or at a system house (reseller/partner) of their choice.

### Project expansion planned

„In the remaining test phase, we want to define even more precisely which data are actually relevant for our goal“, says Benjamin Siegl. „Once we are sure about this, we will expand the project.“

The three-month trial period of the Endian POC kit costs 5,000 euros, which can be credited, if the customer decides to launch a project.

### Endian

Endian is a leading security manufacturer in the field of Industry 4.0. The company's stated goal is to be a leader in the secure data communications market. Headquartered in Eppan, South Tyrol, the company was founded in 2003 by CEO Raphael Vallazza and a team of experienced network specialists and security experts. The product portfolio ranges from security solutions for SMBs to hotspot management and solutions for industrial production facilities. In addition to the Enterprise products, Endian offers a free Community Edition, which is one of the most popular Open Source UTM's with 2.2 million downloads.



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### J.A. Becker & Söhne GmbH & Co. KG

The company J.A. Becker & Söhne GmbH & Co. KG was founded in 1897 by Jakob August Becker as a craft enterprise. They performed locksmith services as a service to the local industry. At the end of the twenties the hydraulics was used as a further development of the mechanical spindle. It made sense, then, to use the power of the hydraulics not only for pressing, but also for lifting. Thus, at the beginning of the thirties, J.A. Becker started the production of the products, that are today still typical for the company today. Parallel to the development of the lifting platforms, the design and manufacturing of compressors took place. The product portfolio includes compressors and recompressors for air, inert gases and natural gas for pressures from 40 bar to 400 bar. For each application customized solutions can be offered. The company is still family owned and is now managed by Sybille Klumb as managing partner in the 4th generation. She is supported by the managing directors Marco Lancuba and Matthias Froberg.

