DIGITALISING YOUR
PRODUCTION PROCESS

OTEC
PRECISION FINISHING SOLUTIONS

DIGITALISED PRODUCTION

OTEC IS THE
PERFECT PARTNER
FOR THE DIGITAL
TRANSFORMATION
OF YOUR PRODUCTION
PROCESS

How to digitalise your company?
One language for all

Machines are already able to provide information about many parameters and send it to devices such as laptops, tablets and smartphones. A global, universal interface, known as OPC UA, enables this data to be collected, analysed and evaluated within a local network.

Experts from around 800 countries are drawing up the OPC UA specifications. The German Mechanical Engineering Industry Association (VDMA) is the driving force behind this process in Germany and aims to make this open interface transparent and universally available to all users. This will allow a standard for data interchange between applications from different manufacturers to be introduced without problems. **The global production language is becoming a reality.**

Predicitive maintenance, IoT, Industry 4.0 ...
OTEC machines are primed for the future

OTEC has developed its digitalisation packages to make all of this possible for our customers. The result is that the specialist knowledge needed to operate our machines and the necessary understanding of the ideal processes and the many parameters are now available on an individual, flexible basis.

OTEC's digital expertise can help you optimise production efficiency and maximise your process reliability. Predictive maintenance is made possible by evaluating machine and process data. Physical objects can even be linked with virtual processes using data interchange over the Internet, which is known as the Internet of Things (IoT).

Machine control, remote maintenance and self-learning and self-testing machines result in maximum process reliability and use of capacity. **We provide reliable support for you en route to the production process of the future.**

Ready for the future –
consistent production quality

Networked production allows you to improve the coordination of processes across a wide variety of machines, components and systems by providing all the relevant data. You can achieve a high level of automation, which results in increased cost-effectiveness.

OTEC DIGITALISATION PACKAGES:
THE CUSTOM SOLUTION FOR YOUR COMPANY

Everything at a glance

OTEC applications pave the way for your company to make professional use of machine data in complex processes and introduce enhanced automation solutions.

According to a VDMA study*, productivity can be optimised by means of process control in the following areas:

- **Order management**
  Capacity use, efficiency and quality
- **Condition monitoring**
  Monitoring the condition of the machine in the context of maintenance, wear and service life
- **Process support**
  Process parameters, loading the machines and managing and starting orders
- **Connection to an ERP system**
  Via the cloud (hosting)

* Source: VDMA website: "Study on Interoperability in Machinery and Plant Engineering: The Global Production Language as a Basis for Industry 4.0"

Control solutions "to go"

Using an industrial PC, you can store machine data in your preferred format in the cloud of your choice and access it externally. This gives you control over:

- **Machine status:**
  Shutdown, process, maintenance
- **Workpiece data:**
  Sensor measurements, workpiece ID and process parameters
- **Production status:**
  List of all orders, quantities, runtimes
- **Media data:**
  Water consumption and flow rate, media usage

Process data evaluation allows you to:

- Determine the productivity of the machine (efficiency)
- Identify the cause of poor efficiency, present the process data in an easily understandable way
- Display all the data in table form or simply as rows of figures on the interface
- Generate data in different file formats (e.g. CSV, XML etc.) for external evaluation

Concentrated power in a mini-format: e.g. Simatic IPC 127e from Siemens

OTEC Industry 4.0 Ready

LEVEL 1

Available for the following machine types:
- EPAG-Smart (installed as standard)
- CF-Series, DF-Series, SF-Series

Scope:
Forms the basis for all OTEC software packages

- **IT network connection**
  - Connecting the machine to the company network via Siemens SINEMA Remote Connect

- **Remote control and remote maintenance**
  - Remote control of the machine's HMI by the customer via "Smart Client"
  - Accessible via the remote maintenance server on the HMI panel
  - Connection via a VPN router
  - Recommended: LAN interface with Internet access
  - Automatic allocation of the machine's IP address via DHCP

- **OPC UA data connection**
  - Interface to connect to the customer's network
  - All the machine data is available for visualisation and evaluation

- **Network data storage**
  - Manual or automatic storage of the process parameters and the notification log on the customer's network

OTEC Industry 4.0 Advanced

LEVEL 2

Available for the following machine types:
- CF-Series, DF-Series, SF-Series

Scope:
Only in combination with the Industry 4.0 Ready package

- **Industrial PC**
  The hardware basis for enhanced digital machine functions (e.g. Simatic IPC 127e from Siemens)

  - Option for applications if the OPC UA interface is not being used directly
  - Data storage in relational databases
  - Transfer of the machine data to the cloud
  - Visualisation of the data using an open source application such as Grafana

EASY-TO-USE CUSTOMER ACCOUNT

myOTECplace

Discover the MyOtec Portal which makes your customer account even easier to use.

Simply scan the machine-specific QR code to get direct access to all the important data.

- Easy login without login details or additional registration
- All the information relating to your machine at a glance: machine history, service reports, operating manuals, safety documents etc.
- The latest news about offers and innovations
- Personal platform with individual hints and tips

Why not try it now? www.otec.de/online-shop/

EVERYTHING AT A GLANCE
OTEC CONTROL TOOLS

ISO50001

SUSTAINABLE PRODUCTION

DIGITALISED PRODUCTION

International Organization for Standardization

The ISO 50001 Energy management systems

Many OTEC machines already come as standard with an integrated energy monitoring function that also works offline. This system supports your company during the ISO 50001 certification process, which allows you to continuously improve your energy performance. The standard describes the requirements for a company to introduce, operate and continuously optimise an energy management system.

If this systematic approach is successful, the company can permanently reduce its energy use and therefore significantly improve its energy efficiency.

Within the framework of the standard, each company is responsible for tailoring the requirements of the standard to its own needs and implementing them accordingly. OTEC can also support you in the process of minimising your energy costs.

Source: TÜV SÜD, article on the company website about auditing and certification of ISO 50001 Energy management systems

OTEC Energy monitoring

Recording electricity, water and compressed air consumption data

Available for the following machine types:
- SF-Series

Scope:
- **Recording the status and providing the data**
  - Certification according to iso 50001
- **Level 0**
  - Offline and live via the HMI
  - Long-term archiving on memory card
- **Level 1** (OTEC Industry 4.0 Ready)
  - Data access via OPC UA
- **Level 2** (OTEC Industry 4.0 Advanced)
  - Data access via industrial PC
  - Option of visualising the data using an open source application such as Grafana (with OTEC Industry 4.0 Advanced)

OTEC Condition monitoring

LEVEL 2

Condition monitoring system for the early detection of a possible machine shutdown

Available for the following machine types:
- SF-Series

Scope:
Only in combination with Industry 4.0 Ready and Industry 4.0 Advanced
- Component status data and data from the self-diagnostic measurement run can be archived and evaluated
- Access from the machine's industrial PC allows for monitoring of the archived data, analysis and alerting

OTEC Usability products

(additional user products)

Available for the following machine types:
- CF-Series, DF-Series, SF-Series
- **Barcode scanner** (Fig. 1)
  - Scans QR codes
  - Program selection for a maximum of 500 scan codes
  - Scan the batch waiting to be processed, choose the ideal process and start it in the machine
- **Additional password level** (Fig. 2)
  - With user administration function for adding new users and changing passwords
- **Electronic key system** (Fig. 3)
  - Simple login to the machine with an RFID chip
  - Stored permissions for use

Energy monitoring: consumption of electricity, water and air incl. CO_2 emissions
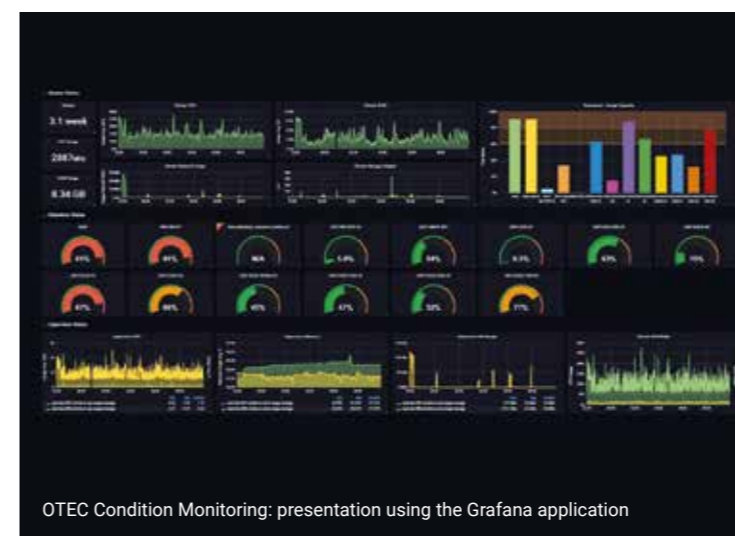
OTEC Condition Monitoring: presentation using the Grafana application

1

1

2

3

CAREFULLY COORDINATED INTERACTION OF ALL THE DIGITAL TOOLS WITH OTEC

DIGITALISED PRODUCTION

The combination of all the tools determines the performance

OTEC digitalisation products can provide your company with all the essential data to guarantee perfectly coordinated processes. This enables you to achieve a reliable and consistently high level of quality. The choice is yours. OTEC machines already come equipped for the different levels of digitalisation. You can decide on the basis of the requirements of your process to what extent you want to use them. We will be happy to help you.

Digitalisation tools – performance overview and structure

Industry 4.0 packages		Usability products
Industry 4.0 Ready ● ● ● ● - IT network connection - Remote control & remote maintenance - Data storage on the network - OPC UA interface	**Industry 4.0 Ready** ● ● ● ● - IT network connection - Remote control & remote maintenance - Data storage on the network - OPC UA interface	**Barcode scanner** ● ● ● ● - Program selection: maximum of 500 scan codes
	Industry 4.0 Advanced ● ● ● - Industrial PC	**Additional password level** ● ● ● - For adding new users and changing passwords

	Condition monitoring ●
	
	- Early detection of potential
	  machine damage
		Electronic key system ● ●
		
		- For managing access permissions
		  using an RFID chip

Machine type:
- ● CF-Standard
- ● DF-Series
- ● SF-Series
- ● EPAG-Smart

Energy monitoring ●
- Display of energy consumption: electricity, water, compressed air

EPAG-Smart   CF-Series   DF-Series   SF-Series

Standing still is moving backwards

Cutting-edge technology, innovation and reliable partnership are what make OTEC stand out from the crowd. We can take you on an exciting journey towards the technology of the future. You can look forward to more digital developments:

- Digital twins
- Status monitoring
- Maintenance service using augmented reality
- Collision check for the SF-Series
- Software for media status reporting
- Fully automated log of processing

OTEC is a trustworthy global partner setting innovative standards with its machines, which offer highly reliable processes. We develop customised pilot applications for our customers and monitor them through all the various stages to achieve a perfect production process.
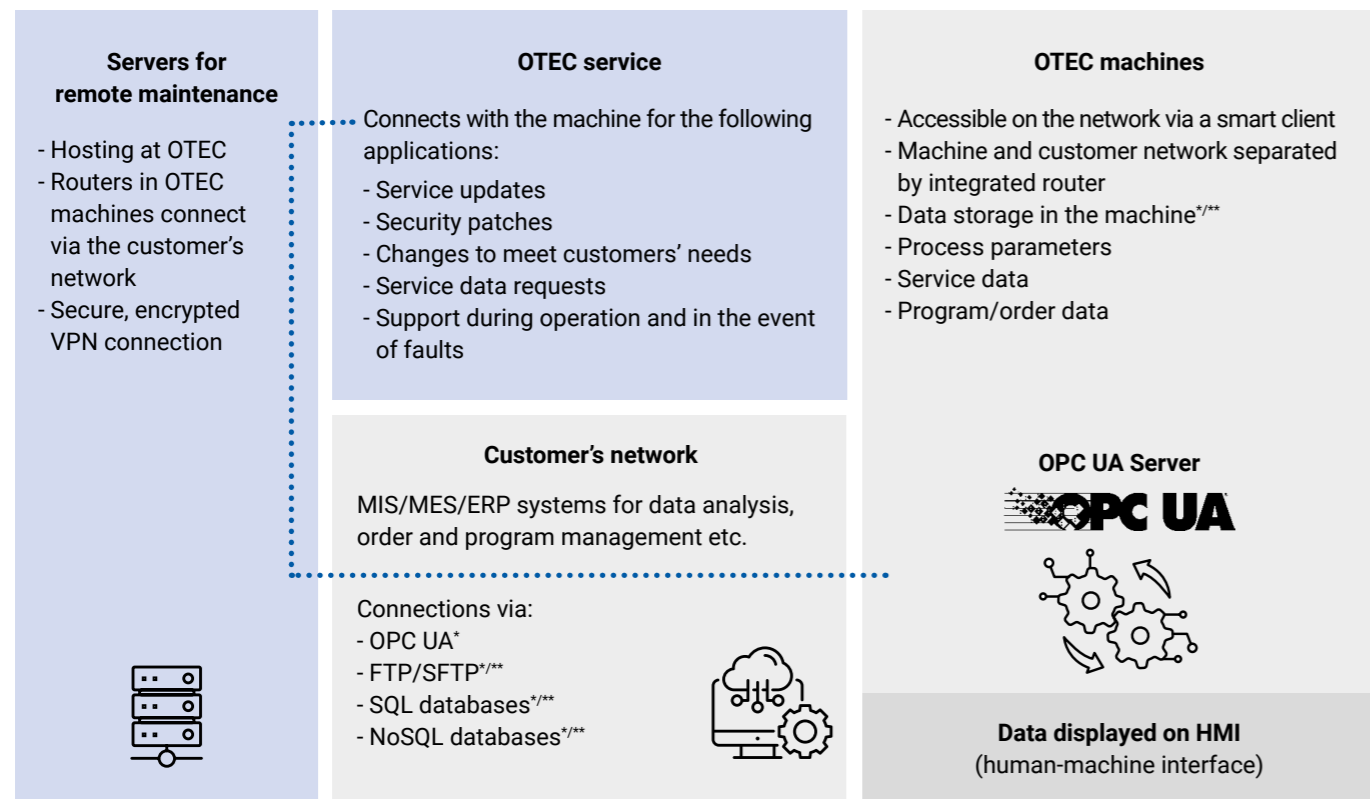

OTEC Finishing Center

Hagen Jota is your contact person for digital products from OTEC

Global communication with OTEC

Modern machine monitoring and process optimisation with remote maintenance

Servers for remote maintenance

- Hosting at OTEC
- Routers in OTEC machines connect via the customer's network
- Secure, encrypted VPN connection

OTEC service

Connects with the machine for the following applications:

- Service updates
- Security patches
- Changes to meet customers' needs
- Service data requests
- Support during operation and in the event of faults

OTEC machines

- Accessible on the network via a smart client
- Machine and customer network separated by integrated router
- Data storage in the machine*/**
- Process parameters
- Service data
- Program/order data

Customer's network

MIS/MES/ERP systems for data analysis, order and program management etc.

Connections via:
- OPC UA*
- FTP/SFTP*/**
- SQL databases*/**
- NoSQL databases*/**

OPC UA Server

OPC UA

Data displayed on HMI
(human-machine interface)

* Requires Industry 4.0 Ready   ** Requires Industry 4.0 Advanced

DIGITAL MISSION
WITH OTEC
EN ROUTE
TO A SUSTAINABLE
FUTURE!

DIGITALISED PRODUCTION