

# iX4.0 – the IoT platform

Ideally equipped for the digitization of your production environment

**INDEX**



**CONNECTING  
YOUR FUTURE**

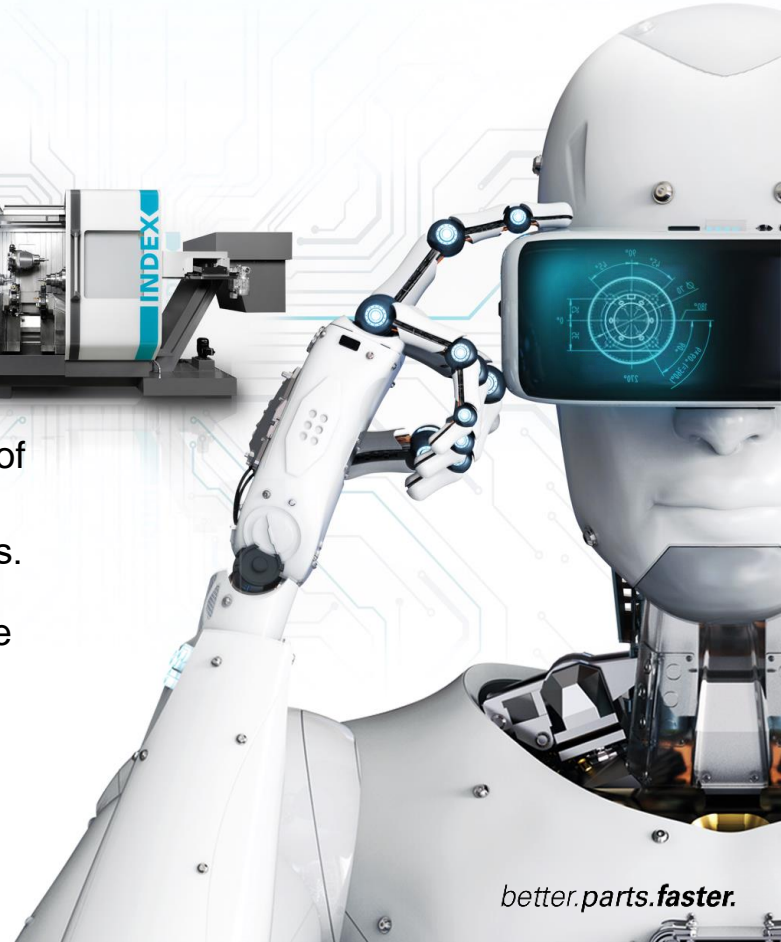
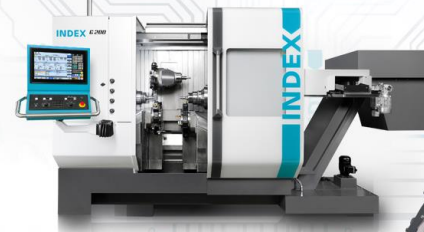
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Embrace the digital world with us

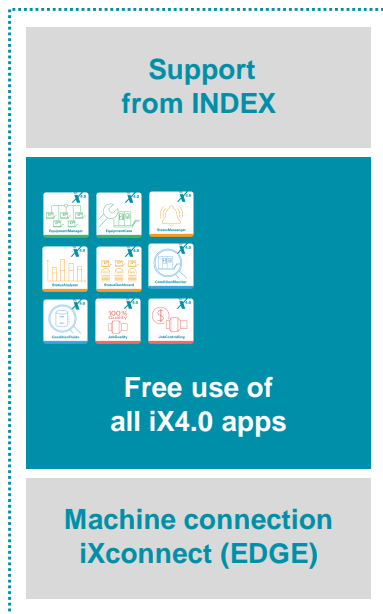
Digitize your entire  
production environment  
with the iX4.0 IoT platform.

Use performance analyses to increase the utilization of your production machines and ensure your machinery's availability with condition monitoring tools.

iX4.0 apps are the ideal tools to help identify available potential and proactively notify you if any problems occur on a machine – thus avoiding downtimes.



Your connection to the  
digital world  
**iX4.0 go**



Free for 12 months

+ 12 months after machine connection



e.g. iX4.0 app **ConditionApps**



e.g. iX4.0 app **JobApps**



e.g. iX4.0 app **StatusApps**

## iX4.0 basic

At the heart of your iX4.0 strategy

€99/year and machine

### iX4.0 basic

- IoT platform basic package, incl. iX4.0 functionalities
- Messenger to send notifications of critical events
- Central platform for machine management
- Production evaluation functions (ODA\*)
- Optimized spare parts search in electronic spare parts list
- Remote diagnostics with teleservice and iXlens\*\*
- User documentation available online

\* ODA=operating data acquisition

\*\* Video link between INDEX service and your employee at the machine via smartphone or tablet

## iX4.0 – a reliable connection

The stable and secure connection of all machines to the iX4.0 IoT platform lays the foundation for digitizing your production environment. We guarantee this.

- Compliance with standards such as OPC UA, umati, and MQTT.
- Data transmission with 192-bit encryption, complying with the recommendation issued by the German Federal Office for Information Security.
- Data storage in the SAP cloud in Europe.



### EquipmentApps

→ **Transparency:** organize and operate your machines in the digital world



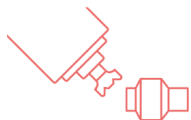
### StatusApps

→ **Efficiency:** analyze operating states and reveal potential



### ConditionApps

→ **Reliability:** ensure machine availability with condition monitoring

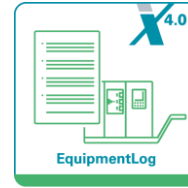
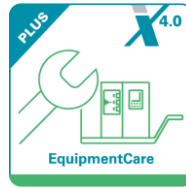
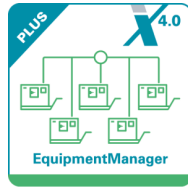


### JobApps

→ **Job tracking:** document machine states during a production job and determine actual costs per job



### EquipmentApps



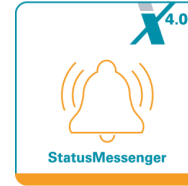
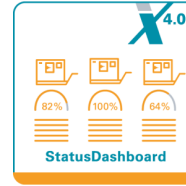
Custom interface  
for connecting  
third-party machines



Custom interface  
for connecting  
third-party software



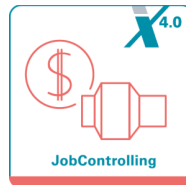
### StatusApps



### ConditionApps



### JobApps



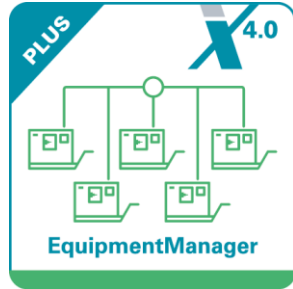


iX4.0 – The IoT platform



## EquipmentApps

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## EquipmentManager

- An overview of all relevant information on your machine fleet



## EquipmentCare (FESTO Smartenance)

- Organize and carry out maintenance and service activities (also for third-party machines)



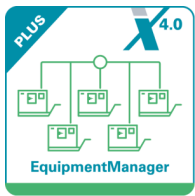
## Interface

- Connect third-party machines to the iX4.0 IoT platform



# EquipmentManager

Overview and organization of your entire machine fleet



- View the operating state and messages of every machine in your production environment in a central machine overview.
- Custom machine overview configuration with extensive information (e.g., current NC program, utilization, target/actual quantity comparison, ...).
- Allocate machines to areas of responsibility.
- Group machines by defined characteristics (e.g., series production/batch size one manufacturing, ...)

## Your benefits

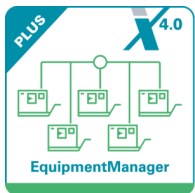
- ✓ Quickly obtain information on one central platform.
- ✓ User-oriented display of information with filters and user-specific layouts.
- ✓ All machines visible, irrespective of their physical location.



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# EquipmentManager

# INDEX



Homepage Machineportal Shop

Machine overview StatusDashboard Messenger Tickets












Max Mustermann  INDEX

NEW: AlarmMonitoring  
ix4.0 informs you about alarm accumulation. Initiate optimization measures with pinpoint accuracy!

Filter and group machines (e.g., by machine type, location...)

Search  
INDEX MS

Event news (e.g., crash, leakage)

Machine ↑			State	
 INDEX MS22-6		Deutschland, Live Maschine	276001	 Not running (with error) (05m)
 INDEX MS40-6	 	Schrauben, Radolfzell, Deutschland, Blau, Halle, H. Hs, Live Maschine	200001	 machine in production (51m)
 INDEX MS40-6	 	Schrauben, Radolfzell, Deutschland, Blau, Halle, H. Hs, Live Maschine	200101	 machine in production

High transparency for current operating states

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# EquipmentCare by FESTO smartenance

Plan and document maintenance on your machines

- Display next maintenance on the basis of operating hours
- Pre-stored service and maintenance activities recommended by INDEX.
- Add your own maintenance directly in the app for central maintenance management.
- Assign maintenance activities to specific persons and document completed work.

## Your benefits

- ✓ Avoid carrying out service and maintenance activities until required by the machine's actual operating hours.
- ✓ Notification, scheduling, and documentation of service and maintenance activities on a central platform.
- ✓ Central documentation of maintenance to meet certification requirements.





## Interface for third-party machines

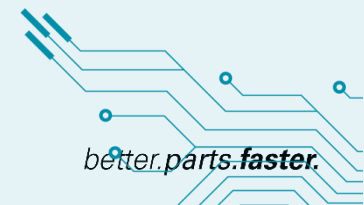
Connect other machine brands to iX4.0

# INDEX

- Display third-party machine data in the familiar iX4.0 layout.
- Use iX4.0 functions for all machines in your production environment (e.g., productivity analyses).

### Your benefits

- ✓ Full overview of your production in iX4.0 and thus a complete information platform.
- ✓ Easy IT maintenance through the use of a single software solution for all machines in your production environment.
- ✓ One working method thanks to the use of the iX4.0 apps familiar from INDEX machines for analysis and optimization on all machines.



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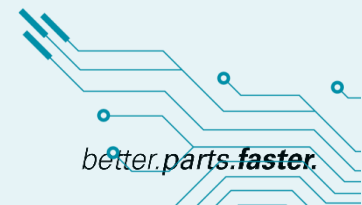
## Interface for third-party software

Integrate iX4.0 data to existing software tools (e.g. ERP-system)

- Get iX4.0-data on a restAPI interface
- Receive preprocessed and reliable data from iX4.0 to use them in your existing software tools
- Standardized interface and detailed documentation of the interface to integrate iX4.0 data quickly

### Your benefits

- ✓ Extend transparency with additional data from iX4.0
- ✓ Enhance the data base of existing software tools
  - ✓ No training to use new software needed
  - ✓ More information and better overview of the efficiency of your machines
- ✓ Data security when reading machine data thanks to a mature, standards-compliant connection.



# INDEX



iX4.0 – The IoT platform

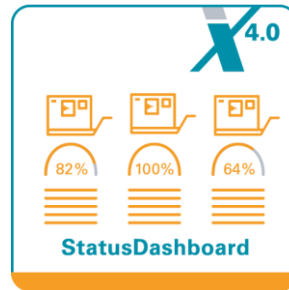


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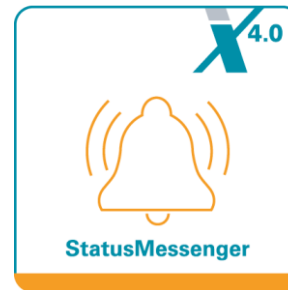
## StatusAnalyzer

- ➔ Transparency for runtimes and downtimes ensures efficient production



## StatusDashboard

- ➔ Key performance data from all machines at a glance



## Messenger

- ➔ Your machine will notify you of any events and nonconformities

# StatusAnalyzer

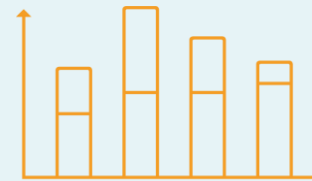
Transparency on the shop floor for efficient production



- Display current machine status (e.g., running, not running (error-free), not running (errors pending), ...).
- Display machine status and signals over a user-defined period of time in the past, including availability and utilization analyses.
- Additional information on the current machine status or history available at any time.
  - Status “running”  
= display of processed production jobs
  - Status “not running (without errors)”  
= display of ODA information
  - Status “not running (errors pending)”  
= display of alarms

## Your benefits

- ✓ High transparency for the utilization of your production machines.
- ✓ Quickly identify potential to boost machine utilization.
- ✓ Machine status qualified with alarms, ODA data, and job data for detailed usage analysis to identify effective optimization measures.





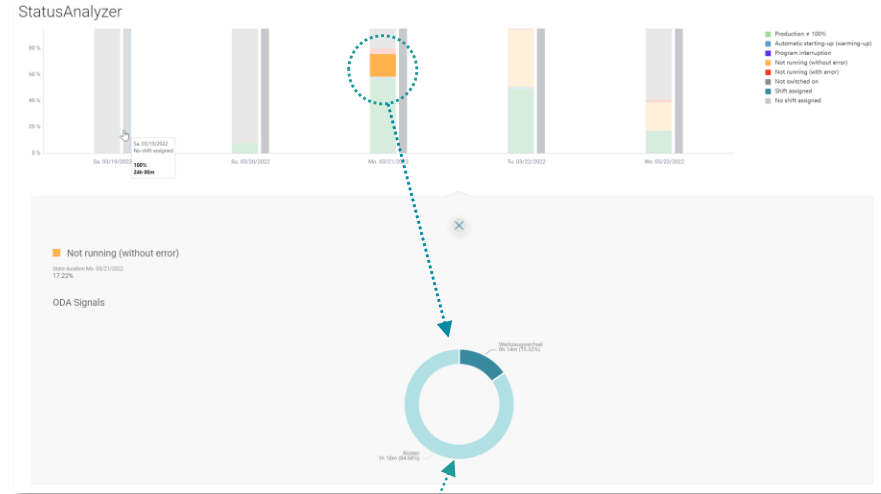


## StatusAnalyzer

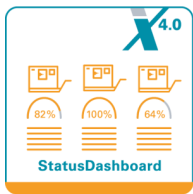
Operating state per day, week, month, or year



Signals (e.g., hydraulics ON) for each time interval



Qualify ODA data or alarm messages per time interval



## StatusDashboard

Key performance data from all machines at a glance

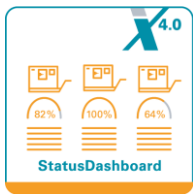
- Ticker view of all connected machines for display on shop floor.
- Display current operating state of each machine (e.g., running, not running (error-free), not running (errors pending), ...).
- Detailed display of today's machine utilization.

### Your benefits

- ✓ Clear, continuous information without the need to run software.
- ✓ Rapid response to downtime thanks to quick identification of stopped machines.
- ✓ Rapid evaluation of today's machine utilization through visualization of operating states.



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# StatusDashboard

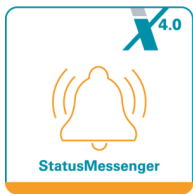
# INDEX

Current operating state

Utilization today

Operating states today





## StatusMessenger

Your machine will notify you of any events and nonconformities

- Define events that trigger a PUSH message.
- Define recipients of PUSH messages for each event.
- Define delay before sending PUSH messages for each recipient.
- PUSH messages sent by email.

### Your benefits

- ✓ Rapid notification of machine events (e.g., material is missing)
- ✓ Reduce downtimes thanks to rapid response to events, triggered by PUSH message.
- ✓ Optimize multi-machine operation by immediately informing operators of defined events by PUSH message.





1 Choose app    2 Configure notifications    3 Recipient    4 Create notification

## StatusAnalyzer

Activate notifications for specific states. Selecting the checkbox sends a notification when changing to the res...

### Notification for

Monday     Tuesday     Friday     Saturday     Sunday

Enable/disable PUSH message

### Error

Notification after: 30 min

Set delay before sending message

### No material

Notification after: 30 min

Define PUSH message Recipients and machines

Manage notification rules

### Hydraulics

Notification after: 30 min

### warmup

Notification after: 30 min

### program-interruption



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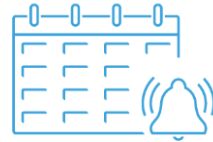
## ConditionApps

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## ConditionMonitoring

Constant condition monitoring for proactive error analysis and maintenance scheduling



## AlarmCheck

- Alarmlog for the last 3 months
- Detection of alarm accumulation



## LevelCheck

- Monitoring of fluid levels and detection of leakage



## TempCheck

- Monitoring of temperatures



## ConditionMonitoring

Constant condition monitoring of all important machine parameters

- Automatic monitoring of your machine's condition data (e.g., fill levels, temperatures, utilization, ...).
- Notification on reaching and exceeding limit values or on identifying nonconformities in the condition data.
- Display exceeded limit values in EquipmentManager for rapid initiation of countermeasures.
- Notification to INDEX hotline in the event of nonconformities in data analysis.

### Your benefits

- ✓ Proactive response to nonconformities to avoid downtimes.
- ✓ Provision of condition data for root cause analysis and initiation of optimization measures for your maintenance engineer.
- ✓ Support for error analysis and elimination by INDEX hotline, using iX4.0 data.



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# ConditionApps

Machine overview StatusDashboard Messenger Tickets

**INDEX C200**  
73730-simulator

Simulator INDEX ES  
Last update: 10:01 (local time of the machine)  
State: Production + 100% (01h-17m)

JobManager

Availability: 95% Utilization: 43% Productivity: Calculation not possible

Apps  
Status - Apps | Condition - Apps | Job - Apps

Condition - Apps

- AlarmCheck
- SpindleCheck
- DriveCheck
- LevelCheck  
Cooling lubricant: 925  
Hydraulic oil: 332
- TempCheck
- Smartenance  
Please maintain your Smartenance ID in the details area

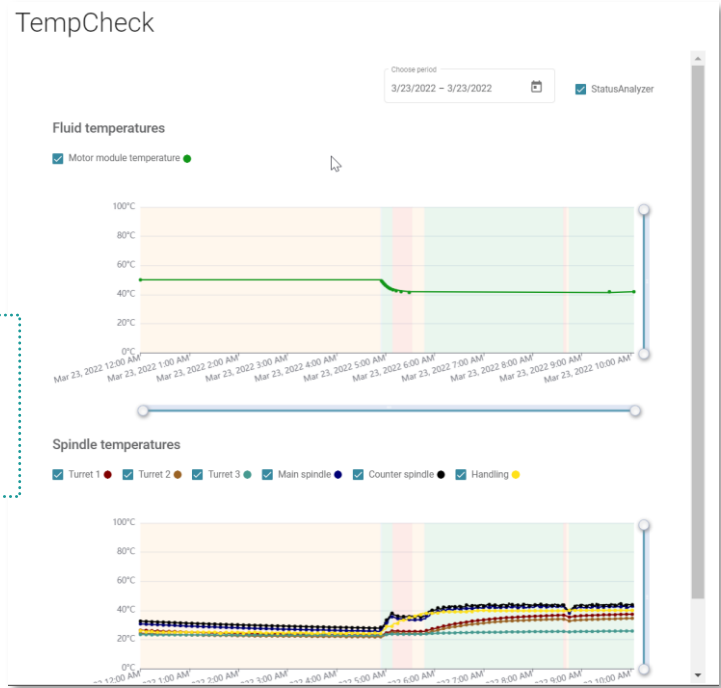
Create service request

Analyse AlarmLog

Analyze spindle torque and speed

Analyze hydraulic fluid and coolant levels

Analyze temperatures of fluids and spindles





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### JobQuality

→ Logging of machine states during a production job



### JobManager

→ Analyze job efficiency and progress

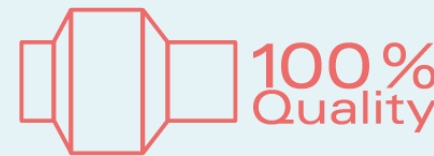
## JobQuality

Logging of machine states and events during a production job

- Automatic creation of a quality report for each production job.
- Documentation of machine condition data (e.g., spindle temperatures) during the production time of a job.
- Documentation of machine events (e.g., crash) during the production time of a job.

### Your benefits

- ✓ Traceability of machine parameters in the event of any quality deviations as a basis for error analysis (e.g., spindle temperature curve).
- ✓ Proof of a stable production process for your customers.
- ✓ Standardized quality documentation without manual work to meet certification requirements.



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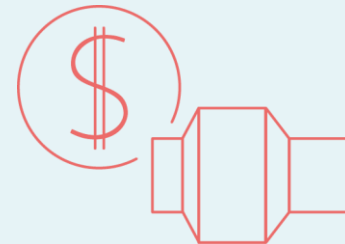
## JobManager

Status of the current job and comparison of job efficiencies

- Monitoring of target quantity attainment by target date and PUSH message in event of deviation from target.
- Visualization of production job progress.
- Calculation of parts per hour to find inefficient jobs and improve them.
- Documentation of number of pieces produced per time interval.

### Your benefits

- ✓ Early information if a job target date is not reached, allowing initiation of immediate measures.
- ✓ Basis for job-specific final costing, accounting for actual work involved.
- ✓ Comparability of production jobs for identical components.

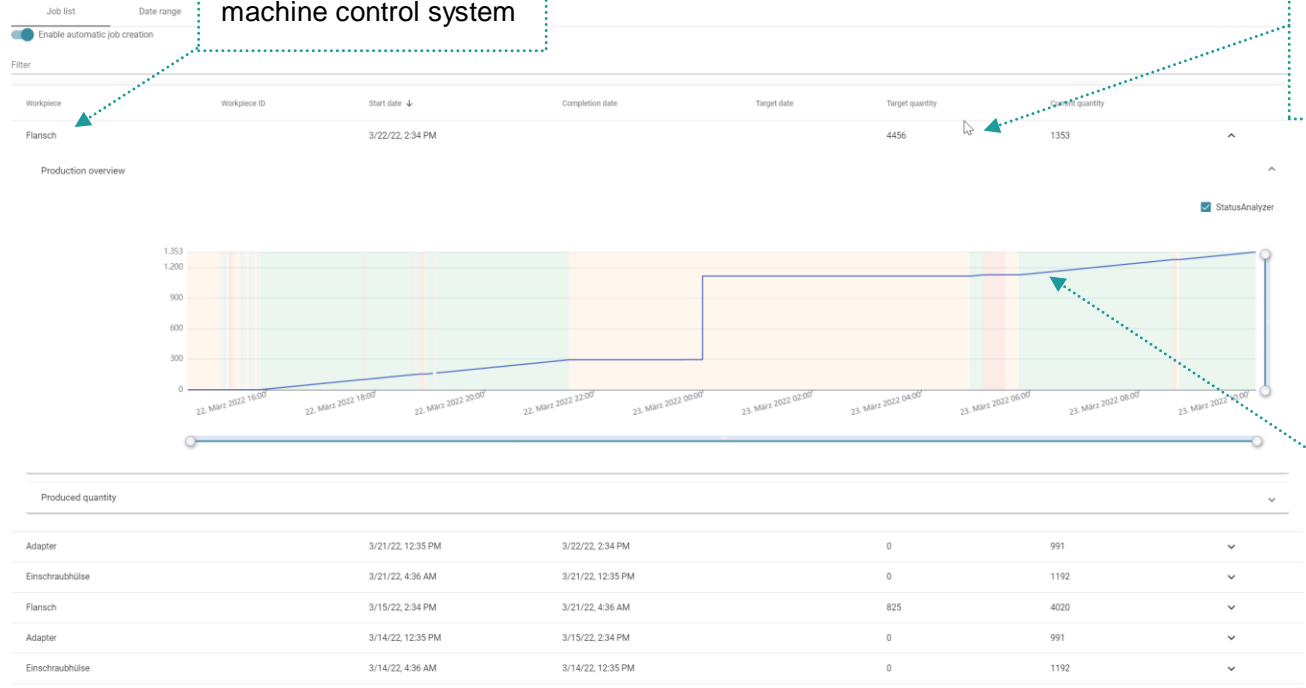




## JobManager

Job information from machine control system

Target/actual quantity comparison, incl. trend to target date



Job progress and machine status

# **X**4.0

Subject to technical changes

**CONNECTING**  
YOUR FUTURE

Your direct contact with  
the INDEX iX4.0 team:

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Tel. +49 (0) 711 3191 – 9181