




Atlas Copco



SQS3 Scalable Quality Solution 3

The scalable software solution that error-proofs
your product assembly.

Scalable Quality Solution 3

The Scalable Quality Solution 3 is a comprehensive software solution driving quality, process reliability, transparency as well as product safety.

This error proofing software helps to achieve zero defects and to reduce costs of rework, scrap or warranty claims.

The advent of Industry 4.0 brings rapid changes and new challenges. With our Smart Connected Assembly concept, which combines software, hardware and smart accessories, you maintain quality control in complex production systems and increase uptime in production for critical operations.

The four core values of Scalable Quality Solution 3



Human interaction



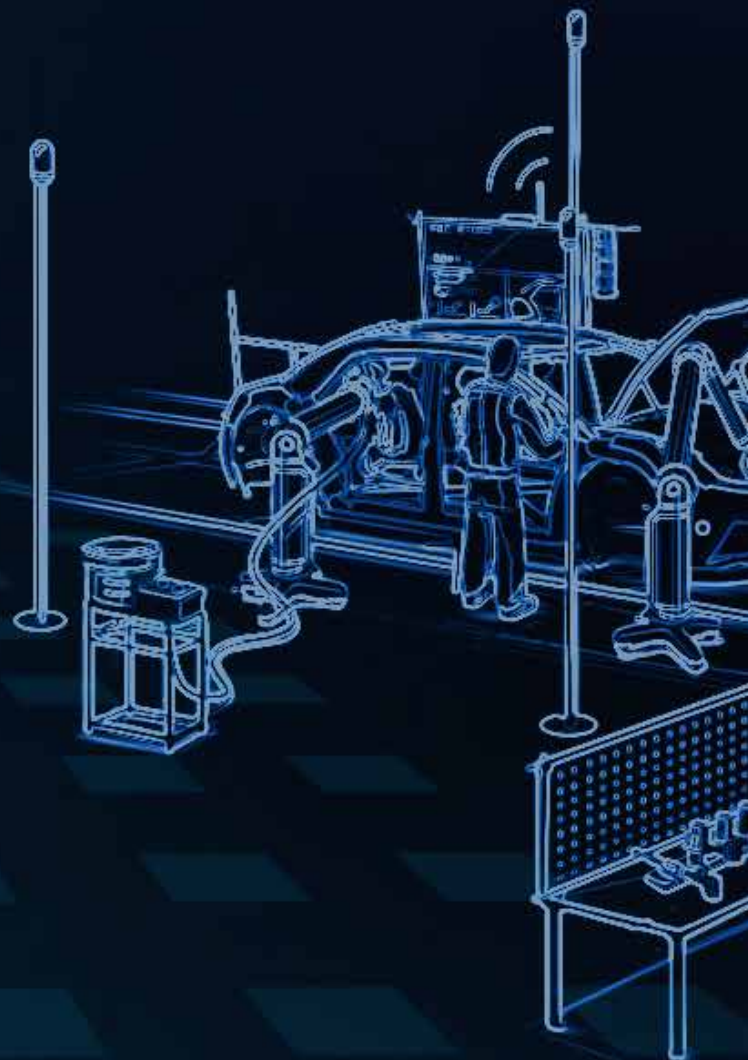
Improved productivity

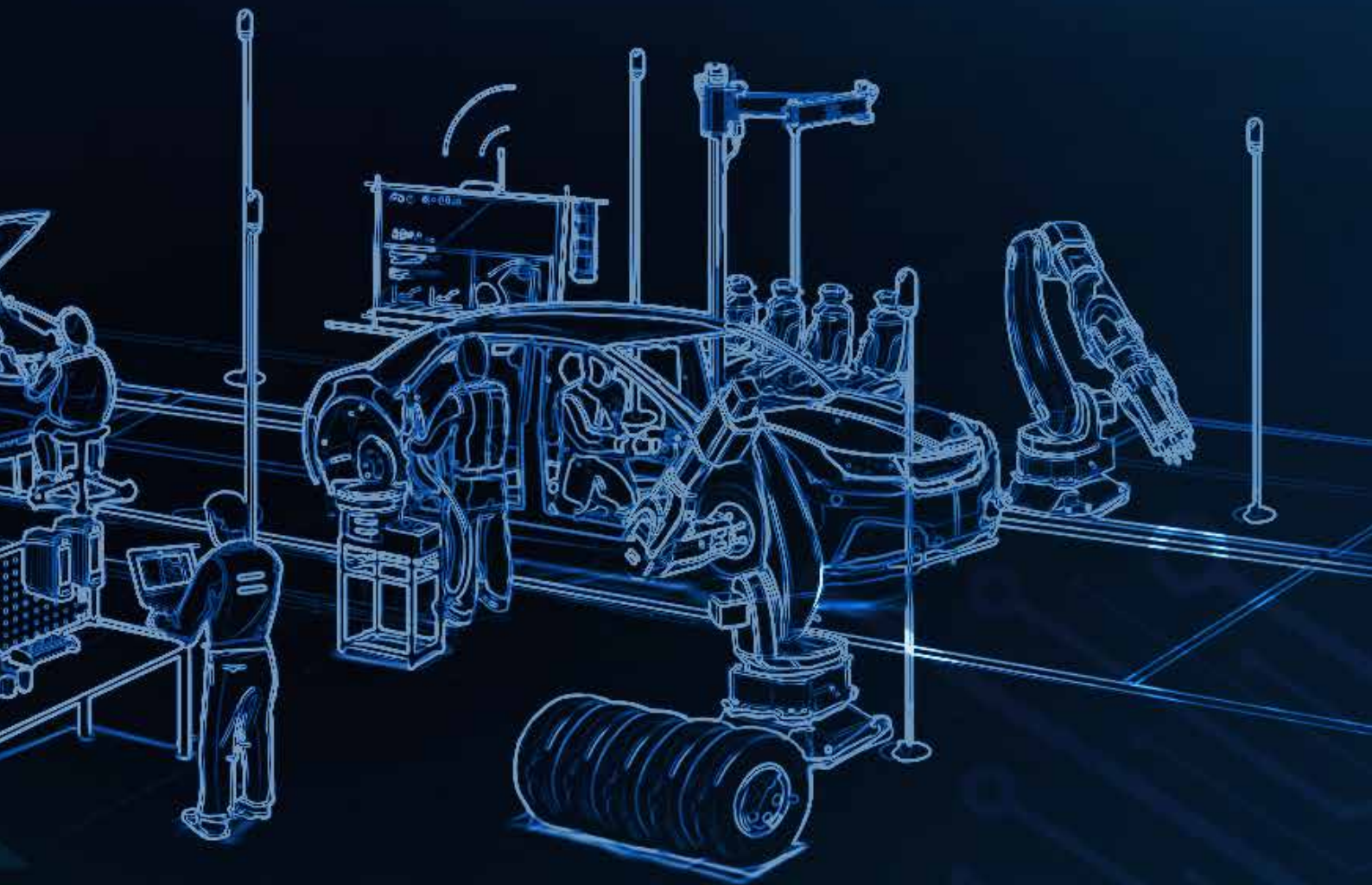
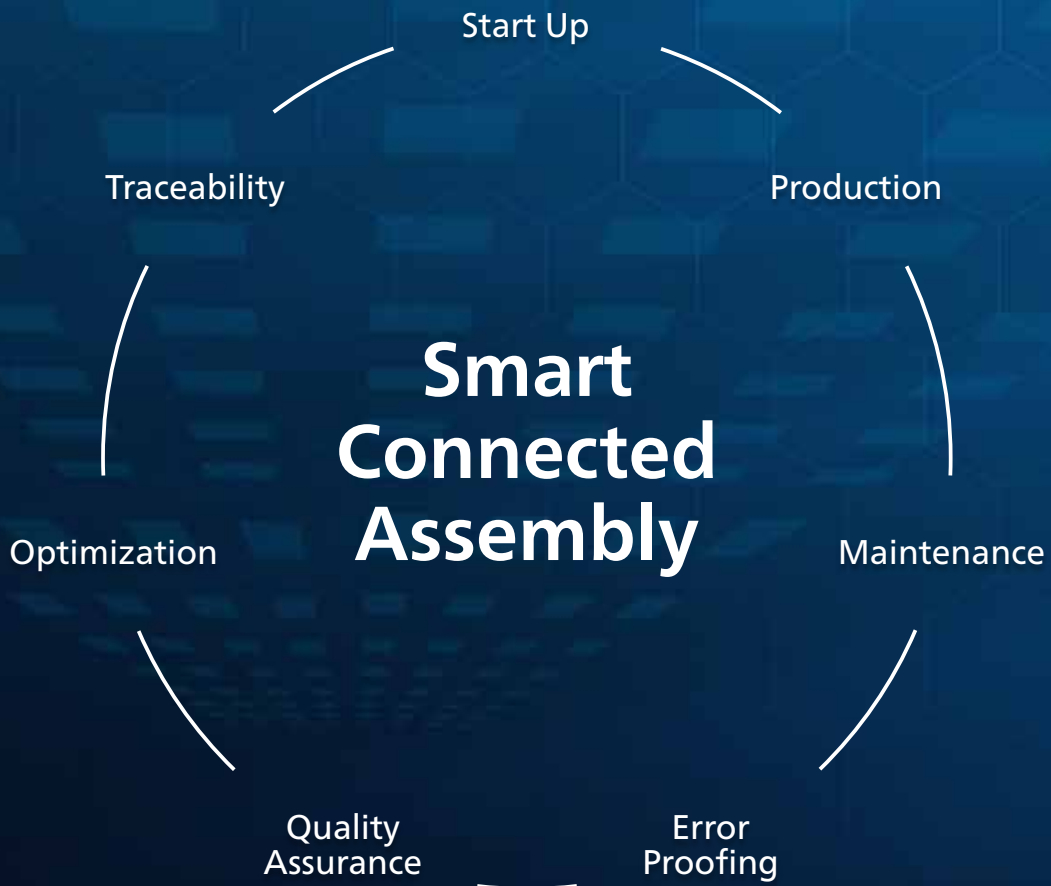


New product introduction



Reduced defects





From stand-alone station to complete shop floor solution

The Scalable Quality Solution 3 (SQS3) eliminates errors in product assembly regardless of whether you start with a single station, a production cell or whether you want to manage the process of your assembly line.

Up to 10 stations can be connected, even different products or variations of products.

SQS3 ensures product quality, process reliability and transparency as well as product safety at each assembly station.

It guides your operators through the assembly process leaving no room for error or oversight.



Station



Cell



Global



Plant



Line

Your benefits



Reduced defects

- Step-by-step visual operator guidance as well as part and tool verification minimize defects
- Save money with less need for rework
- Target zero defect through rework ability



Improved productivity

- Improved productivity and lower production costs. Align up to 10 stations including pre-station check and rework without server installation
- Save time by using our remote centralized configuration



New product introduction

- Greatly reduces training time for new operators
- Easy configuration to update process change and new product introduction to the line

Ready for Industry 4.0: The functions of SQS3

Central management of workstations

Organizes SQS3 functions of all workstations across the shopfloor from a single, easy configuration interface.

Tool interlock

Enables and disables DC tools and wrenches via the controller. Use automatic program or job selection.

Visual operator guidance

Step-by-step visual operator guidance guarantees that everything is done right the first time, every single time.

Digital I/O capability

Enables easy connectivity of external I/O devices eliminating the need for a PLC.

Basic pick-to-light/pick-by-light

Visually guides operators in picking parts from bins based on digital I/O capability.

User access control

Prevents unauthorized system access enforcing user roles and privileges.



Central configuration

Station 1



Station 2





Consolidated data collection

Traceability of all assembly actions (torque, parts, digital I/O, manual confirmation) and missed tasks from all stations and all products. Easy and convenient access to collected data via web UI.

Aggregated data

Station 3



Station 4



Rework station



Part verification and documentation

Identifies parts by means of serial numbers or product IDs to ensure the correct parts are being used to build a product.

Product rework

Detection of errors in production process and automatic guidance through the repair process at dedicated rework stations.

SQS3 Product Components

Configurator



The SQS3 Configurator is the graphical user interface used for building and maintaining assembly processes in SQS3.

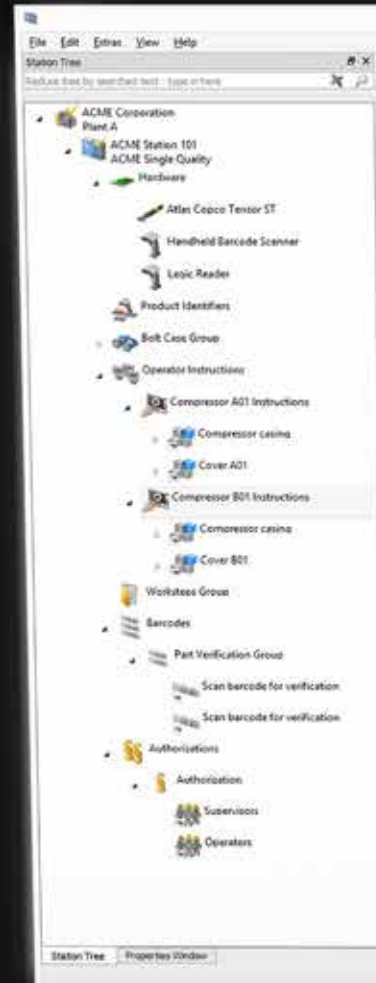
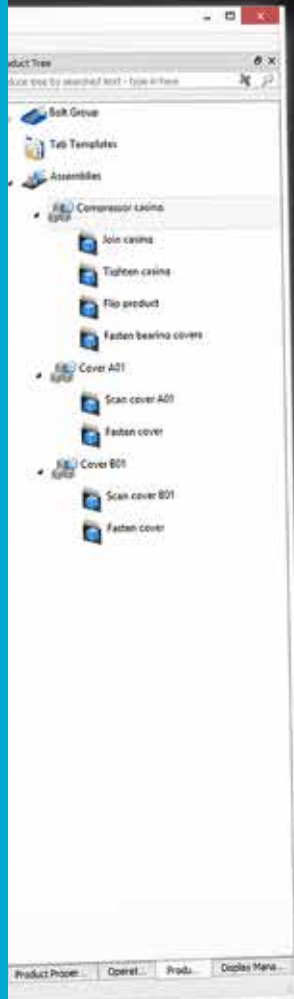
All connected workstations and their devices can be configured through one single interface. The configuration can be done either at the workstation on the shop floor or remotely, for instance from an office desk. Updated configurations can be applied to the workstations immediately or at a scheduled time.

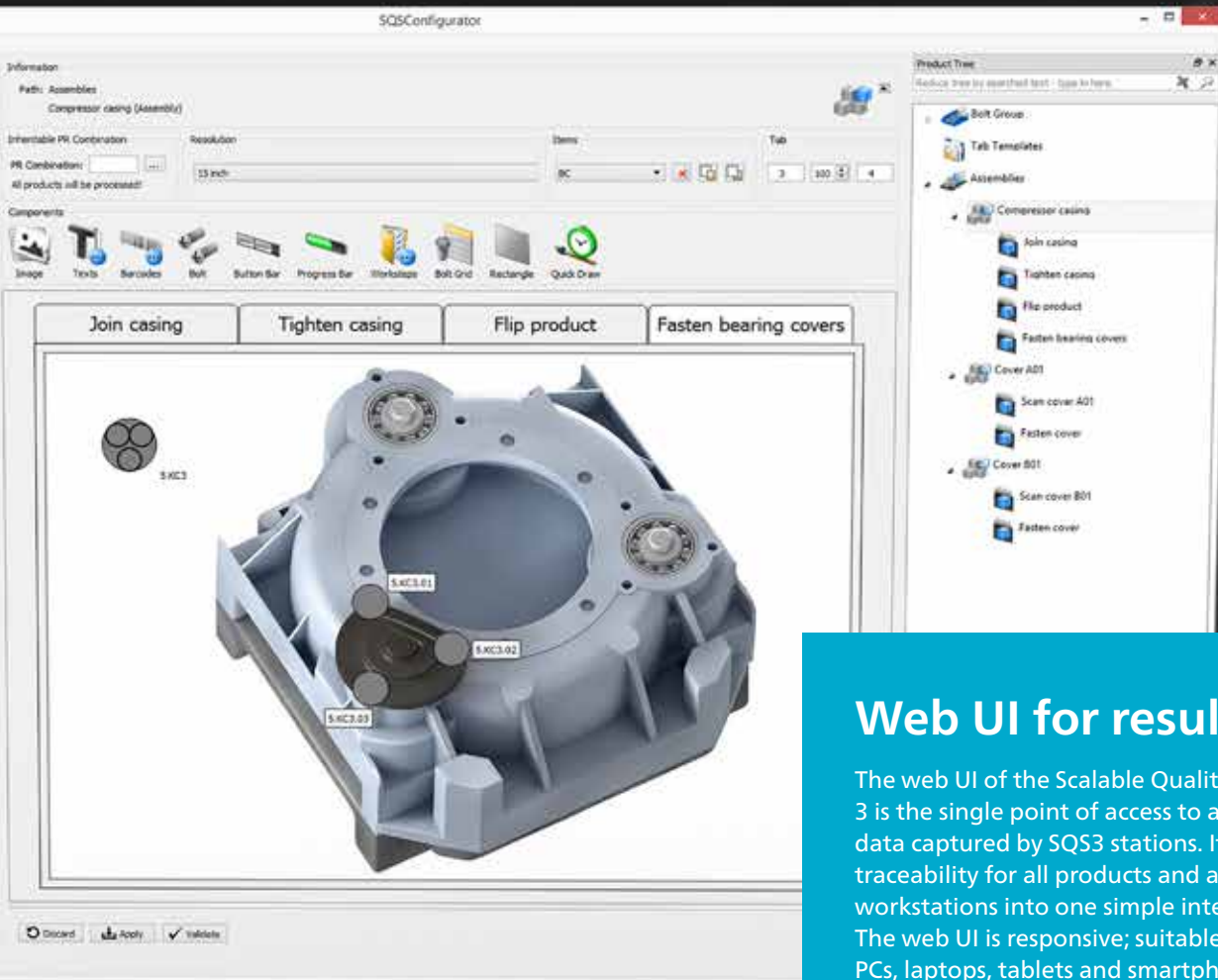
Operator Guidance



The SQS3 Operator Guidance drives the assembly workflow at the workstation.

It interlocks with tools and other devices, guides the operator and processes result data for traceability and product repair purposes.





Web UI for result data

The web UI of the Scalable Quality Solution 3 is the single point of access to all assembly data captured by SQS3 stations. It combines traceability for all products and across all workstations into one simple interface. The web UI is responsive; suitable for desktop PCs, laptops, tablets and smartphones.

Dashboard

The web UI also offers you a dashboard for each SQS3 station, grouping and displaying its information in graphical tiles. The tiles show real-time information about the stations' health condition (processors, memory and drives), their connections and NOK trends, in case result data is being stored in the database of the Scalable Quality Solution 3.

Event Log

The web UI's event log lists critical station events, such as the loss of a connection to a device or when tightening tools get locked, because the operator has used up all of his tightening attempts.

Messaging

From the web UI, users can send messages to the operator guidance of any SQS3 station; even to multiple stations at once. Sent messages will be stored on the SQS3 station for reuse whenever needed.



Applications for SQS3

Assembly in complex processes

(e.g. pre- and subassembly, CKD- and pilot production, axle and engine assembly)

Challenge:

- Increased complexity for human factor in all operations by reducing 90% of normal process stations to a CKD plant

Solution:

- SQS3 stations for process control and operator guidance instead of printed hand-outs
- Consolidated collection of result data replaces manual recording
- Operator identification to track performance
- Pick-to-light for generic material selection

Benefit:

- High product quality, rework rates reduced by 30%
- Saved time and reduced costs



Improved productivity



30%

less rework approved by one of our CKD-plant customers



**Human
interaction**

Product rework or repair

Challenge:

- No control of repair processes
- Quality issues due to wrongly repaired products

Solution:

- SQS3 for error-proofing with new stations installed in the line to capture assembly results and product status
- Repair of NOK tasks right away or later repair in dedicated rework station
- Repair process is controlled as rigorously as the regular assembly

Benefit:

- Avoidance of product recalls or field repair
- Reduction of line stops
- Guaranteed product quality
- Traceability in stations



**Reduced
defects**

Applications for SQS3

Backup and training station

Challenge:

- No backup solution in case of tool controller failures
- Product quality endangered
- Possibility of line stop if multiple controllers fail

Solution:

- SQS3 mounted on a mobile cart
- All critical station processes configured into the SQS3
- Added traceability with operator login and barcode scanning
- Repair process is controlled with the same rigour as the regular assembly
- SQS3 EasyStart included



Reduced defects

Benefit:

- Reduction of line stops
- Traceability of every step
- Save time through standardized and traceable employee training



70%

reduction in tool related line stops approved by one of our customers



New product introduction

Prototype station

Challenge:

- Tools used in the prototype area are often not the same as in the main line
- Product rework rate is high

Solution:

- SQS3 at prototype station records process results, including tightening and manual operations
- Engineers test, improve and verify assembly process for prototypes before going into production
- Operators train new assembly routines



Improved productivity

Benefit:

- Reduction of line stops during production
- Increased product quality
- Less rework due to fewer operator errors
- Saved costs in operator trainings

Smart Connected Tools

Use Scalable Quality Solution 3 in combination with Atlas Copco tools and controllers to strengthen product quality. Connect SQS3 with the tools and controllers that best fit your product build process to optimize traceability, product quality and to reduce costs.



Power Focus 6000

Expand your error proofing and traceability possibilities: Choose the Power Focus 6000 as your perfect platform for any safety critical assembly. In combination with hand held or fixture tools and bundled with our Scalable Quality Solution 3, the Power Focus 6000 helps you to make your everyday-production easier and more efficient through zero-defect strategy. Good for your product quality and cost savings.



MTF 6000

Get full process control, improved quality and an optimized tightening process with MT Focus 6000 and Scalable Quality Solution 3 when working in low-torque-segments like electronics.

While the compact system reveals and eliminates tightening issues, you can support your operators through the process with the Operator Guidance.

MTF 6000 and SQS3 are your perfect combination to gain a complete error-proof workstation. Reduce down time, setup time and assure full traceability.

Key applications:

Car media, surgical robots, MRI machines.





Mechatronic System

Increase the quality of your manual tightening joints considerably with the error proofing functionalities of the MWR Mechatronic system. Perfect support even for tightening in limited working space.

Expand your prospects of connectivity and error proofing by combining the Scalable Quality Solution 3 with the Focus Controller and the MWR mechatronic wrenches.

Key applications:
Hydraulic connections, brake pedals, anti-lock brakes, wheel alignment, tube nuts and product repair.



STwrench

The modular STwrench controller with smartHEAD is a state-of-the-art, four-patent wrench for any critical tightening where extreme tolerances are a must-have.

Measuring exact torque and angle of your assembly tasks, the STwrench also checks the residual torque on an already tightened joint. Bundle the STwrench with SQS3 to get perfect traceability and error proofing of your processes and to ensure perfect quality of your products.

Key applications in production:
Safety critical tightening, hydraulic hoses, difficult access joints, rework stations.

EasyStart SQS for saving time and money

Benefit from EasyStart SQS for a fast and efficient start of operations through a standardized and proven process from installation to training.



**Assessment of process
configuration requirements**

**System and process configuration
check and optimization**

**Configuration backup and
documentation**

**Operator training including
certificate**

Additional services can be added

Your benefits

**Time and
cost saving**

**Right
first time**

**Trouble-free and
efficient start of
operations**

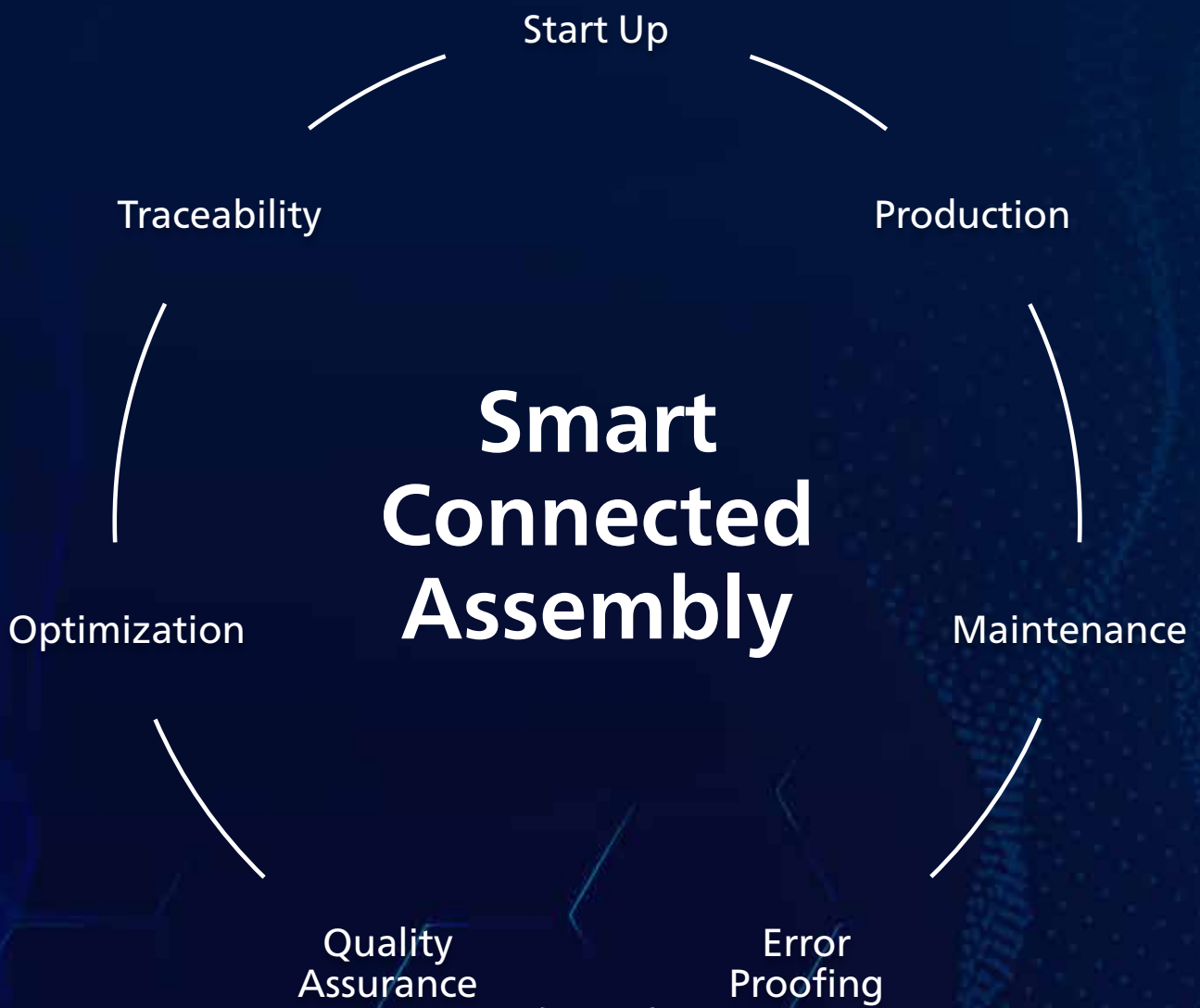
**Minimizes risks
in production
quality**

**Globally stan-
dardized process
for every step**

Ordering data



<i>Description</i>	<i>Ordering No.</i>
SQS3 Standard software package, single license <i>(Carton box with USB stick and quick-info)</i>	8434 2380 01
SQS3 Standard software package, single license	8434 2380 02
SQS3 Standard edition, single license <i>(without software installation package)</i>	8434 2380 03
SQS3 Standard edition, 2 licences <i>(without software installation package, packed in a small box)</i>	8434 2380 04
SQS3 Tool <i>(electronic delivery)</i>	8434 2380 09
SQS3 Tool, single license	8434 2380 10
SQS3 Tool, 2 licences	8434 2380 11
SQS3 PLC <i>(electronic delivery)</i>	8434 2380 12
SQS3 PLC, single license	8434 2380 13
SQS3 PLC, 2 licences	8434 2380 14
SQS3 Connect <i>(electronic delivery)</i>	8434 2380 15
SQS3 Connect, single license	8434 2380 16
SQS3 Connect, 2 licences	8434 2380 17
SQS3 Rework <i>(electronic delivery)</i>	8434 2380 18
SQS3 Rework, single license	8434 2380 19
SQS3 Upgrade <i>(electronic delivery)</i>	8434 2380 20
SQS3 Upgrade, single license	8434 2380 21





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