



MicroTorque Smart Connected Electronics

Get smart, connected and efficient

Smart Tools for the Smart Factory

Realizing the Smart Factory with Atlas Copco MicroTorque

Industry 4.0 – The Fourth Industrial Revolution – is driving the evolution of the assembly process. The digitalization of manufacturing and assembly means shifting the way we look at manufacturing in terms of production optimization and automation.

The more informed you are, the better decisions you can make. Having smart tools on your line means that you have specific tightening information fed into the production system, information communicated to you concerning critical details of your components, materials and tightening process. This provides a valuable opportunity to increase efficiency and results with pro-active problem solving, alongside with considerable energy savings from efficiency improvements.

We call it – Smart Connected Electronics.



A part of Atlas Copco Smart Connected Electronics. The industry is moving forward with Industry 4.0 – and the benefits to gain from the evolution are huge. With MicroTorque you have a fastening solution that is fully equipped to meet the requirements of the future. Whatever your needs – there is a solution in the MicroTorque family.



Increased uptime: Schedule preventive maintenance and use multiple and flexible tightening strategies to easily switch settings and increase your uptime. Decrease downtime with instant reaction to tightening issues and drive data driven process improvements.



Reduction in defects: A secure and effective error proofing assembly with smart tightening strategies and work flow instructions directly in the compact controller.



New product introduction: Save time and make efficient new product introductions. Set up new advanced processes quickly – and utilize existing information for the future.



Improved productivity: Drive process improvements and boost your productivity while reducing rework from common tightening issues such as floating screws and stripped joints.



Human factors: Give the tightening system full control. Assure high quality tightenings with smart and advanced tightening strategies, and simplify the process with work flow sequences and instructions.



Reduction in energy use: MicroTorque is designed to be energy efficient with its compact and lightweight systems and integrated functionalities.

Is this your factory Today?



1. Lack of operator guidance

No error proofing & poor process control

High turnover of operators combined with lack of guidance and error proofing leads to high human errors in production process.



2. Multiple screwdrivers

More human errors & lower productivity

Operators can easily choose the wrong screwdrivers for tightening. This affects productivity and has high risk of quality issues.



3. Unreliable and unintelligent screwdrivers

Lower yield rate but higher inspection investment cost

These low-end clutch screwdrivers cannot screw properly based on component variations and detect common tightening issues, e.g. floating screws. Issues will pass undetected to testing station affecting the yield rate of the line.



4. No error detection of missing screws and screw misalignment

Higher rework & scrap costs due to poor product quality

Robots failing to detect missing screws can result in cycle time increase, loss of productivity and quality issues. Without detection of screw misalignment, unnecessary rework and damaged parts and components can increase, resulting in high scrap costs.



5. Lack of quality data and assembly process information

No traceability of defects & process visibility

Without data and information about the process, it becomes a guessing game to address issues and optimize your production process.



1. Operator guidance with SQS & TPS

More error proofing & full process control

Clear operator guidance and instructions with SQS and full position and sequence control with TPS can increase error proofing and minimize mistakes to the workstation.



2. One smart MicroTorque, multiple torques delivered

Higher productivity with lower human errors

Multiple torque programs of smart MicroTorque combined with batch sequence make the process extremely easy and reliable.



3. MTF6000 & advanced tightening strategies

Higher yield rate & lower investment cost in inspection

Clamp torque measurement & multi step tightening, configurable speed, angle monitoring guarantee that the screw is properly tightened and assembled correctly.



4. Smart screw pick up & automatic rework

Lower rework & scrap cost with better product quality

Smart screw pick up & detection of misaligned screws with smart vacuum pump eliminates time waste, improving the cycle time and product quality. Automatic rework directly inside the station helps to minimize reworks, inspections and makes it right at first time.



5. Process optimization with QA Station MT & ToolsNet 8

Full traceability of defects and process visibility

QA Station MT stores all the torque verification data, which can be exported as a digital report for quality assurance audit. Meanwhile, ToolsNet 8 software can collect all the tightening data, enabling continuous process improvement.



Your Vision, Our Mission

Atlas Copco has more than 140 years of experience of improving the production process for our customers. Now, as a pioneer to drive innovation in smart manufacturing process, we would like to guide our customers through the journey of Industry 4.0.

Ready for Industry 4.0 when you are

Connecting it, controlling it, and passing it forward.



The only way to deliver in the era of Industry 4.0, is to work with smart tools and smart solutions that connect and communicate. The MTF6000 is revolution-ready!

MES



Information transparency:

ToolsNet 8 delivers the information and the overview you need to form correct decisions. Or integrate via Open Protocol with any MES system and make the information available where and when needed. With the power of knowledge your process will be optimized – and your results will speak for themselves.

Interoperability:

MTF6000 makes sure that all your machines, devices and sensors are connected and communicating efficiently – anything from barcode readers to PLC:s, sensors and collaborative robots. With the interoperability and commonality of working with tools that are made to collaborate, you gain complete error proof workstations.

Technical assistance:

Powered by ToolsTalk MT, the MTF6000 takes responsibility of the process. With a user friendly software interface, and the power to easily analyze and configure improvements, it makes complex processes simple. The MicroTorque system is a natural step towards automating and systemizing manual operations.

Decentralized decisions:

The MicroTorque system decentralizes the decision, down to the smallest of components making sure no faulty products leave your hands. With advanced error proofing tightening strategies and complete workflows, MicroTorque takes control of your tightening process – giving you an automated, stable and flexible production process.

The enabler of Smart Connected Electronics

ToolsTalk MT lets you take advantage of all the benefits the MicroTorque system has to offer your assembly process. ToolsTalk MT is a powerful software for setup, viewing results, analyzing graphs and keeping track of tool information. Taking your tightening into Industry 4.0.



ToolsTalk MT – empowering the MicroTorque System

ToolsTalk MT is the software that makes everything possible. It is an important piece that completes and empowers the MicroTorque System – and it is the right solution for any low torque application management system.

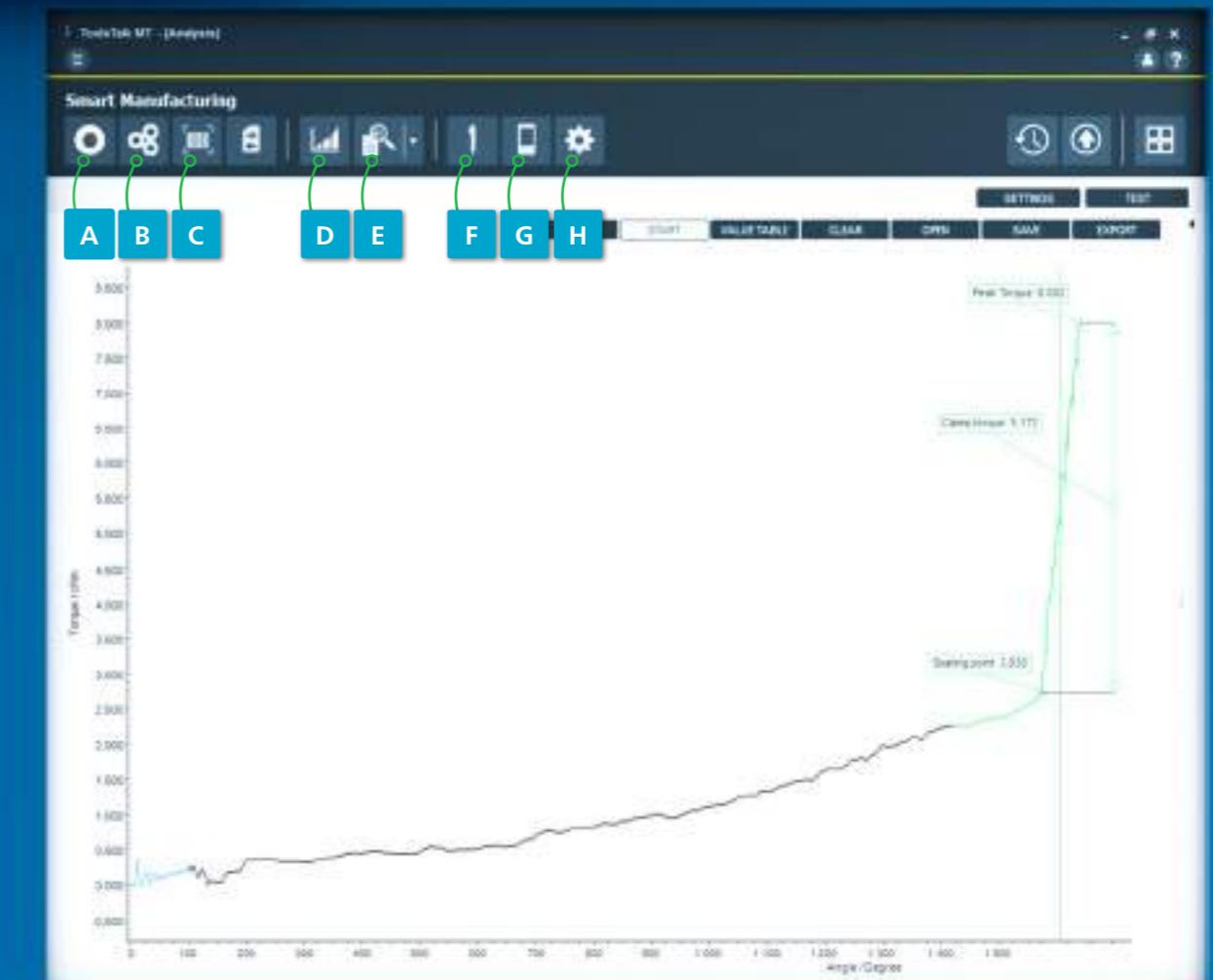
A PSETS: Optimize your quality and productivity by creating customized tightening programs, Psets, for each joint. Define angle, speed and torque – or simply use our smart tightening strategies. And easily change the settings whenever needed.

B BATCH SEQUENCES: Set your workflow sequence with batch sequence, and let your MTF6000 do the rest. It will automatically apply requested torque or instruct the operator, all to ensure an error proof and productive assembly.

C IDENTIFIERS: Reach higher flexibility by adding barcodes or RFID codes to easily activate workflow instructions (batch sequences), tightening programs (Psets), save important information to your tightening or set up rejection management.

D ANALYSIS: Review your tightening in depth, with information from critical details of your process and components. Elevate your productivity and quality by making decisions based on accurate and reliable information.

E RESULTS: Review your results. Understand your process and make informed decisions. Make sure to have a traceable production and track results to understand current and previous tightening results.



F TOOL SETTINGS: Keep track of the quality of your tools, by analyzing the tool lifetime performance and setting calibration intervals.

G CONTROLLER SETTINGS: Modify your controller to fit your needs. Name it, customize units for your reports, choose your result view and make it an integrated part of your process. Simply access everything you need to set up the controller the way you want it.

H DIGITAL I/O AND PASSWORD SETTINGS: Make MTF6000 an integrated part of the assembly process by managing the configurable Digital I/O, and define access levels for different users. Make your controller an integrated, intelligent part of your process.

MTF6000 – our latest innovation in MicroTorque

Whether you are manufacturing high value consumer goods or sensitive electronics, MTF6000 together with ToolsTalk MT and our wide range of screwdrivers, is designed to bring productivity and quality to your production.



Smart

Get full process control, improved quality and an optimized tightening process with MTF6000. The smart tightening strategies Torque Seating Monitoring and Seating Control Strategy automatically reveal and eliminate tightening issues such as floating screws, stripped joints or insufficient torque. Com-

bined with saving and graphically displaying tightening data, MTF6000 assures detection and reporting of process abnormalities. Providing you with invaluable information on the tightening, as well as the complete assembly process. This is the investment that will, from day one, save you time and money.



Connected

Reduce down time and setup time, assure full traceability and integrate with any system using one of the many communication ports. Get complete access from anywhere, using Remote Access and Ethernet to detect and react instantly to any tightening process abnormality. Connect barcode scanner and RFID reader

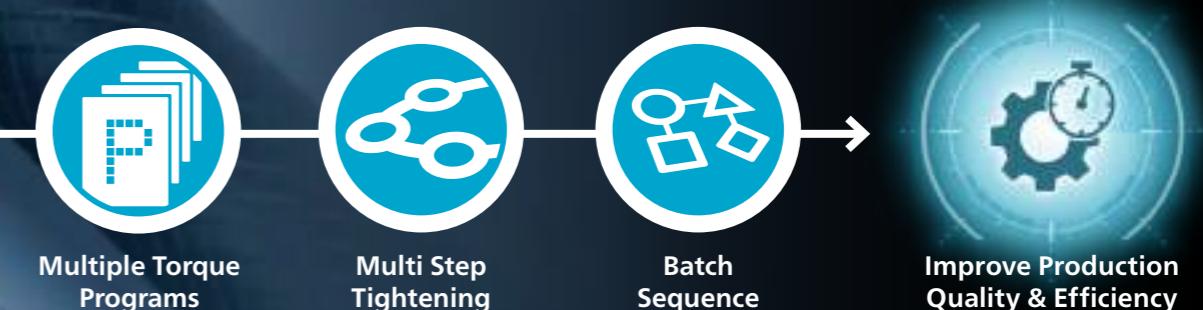
directly with the controller to assure traceability, control operators' access level and add rejection management. Easily connect to the powerful software ToolsNet 8 for full visualization of your process. All of this, only using MTF6000.



Efficient

It has never been easier to combine productivity with flexibility. Multiple Torque Programs minimizes and eliminates setups while Multistep Tightening helps you to reduce cycle time maintaining high quality. With batch sequence it is easy to create work flow

sequences that combine multiple strategies, customized for your product, that will error proof your assembly – sometimes eliminating the need of a PLC altogether. It is all you need to maintain maximum productivity with maximum flexibility.

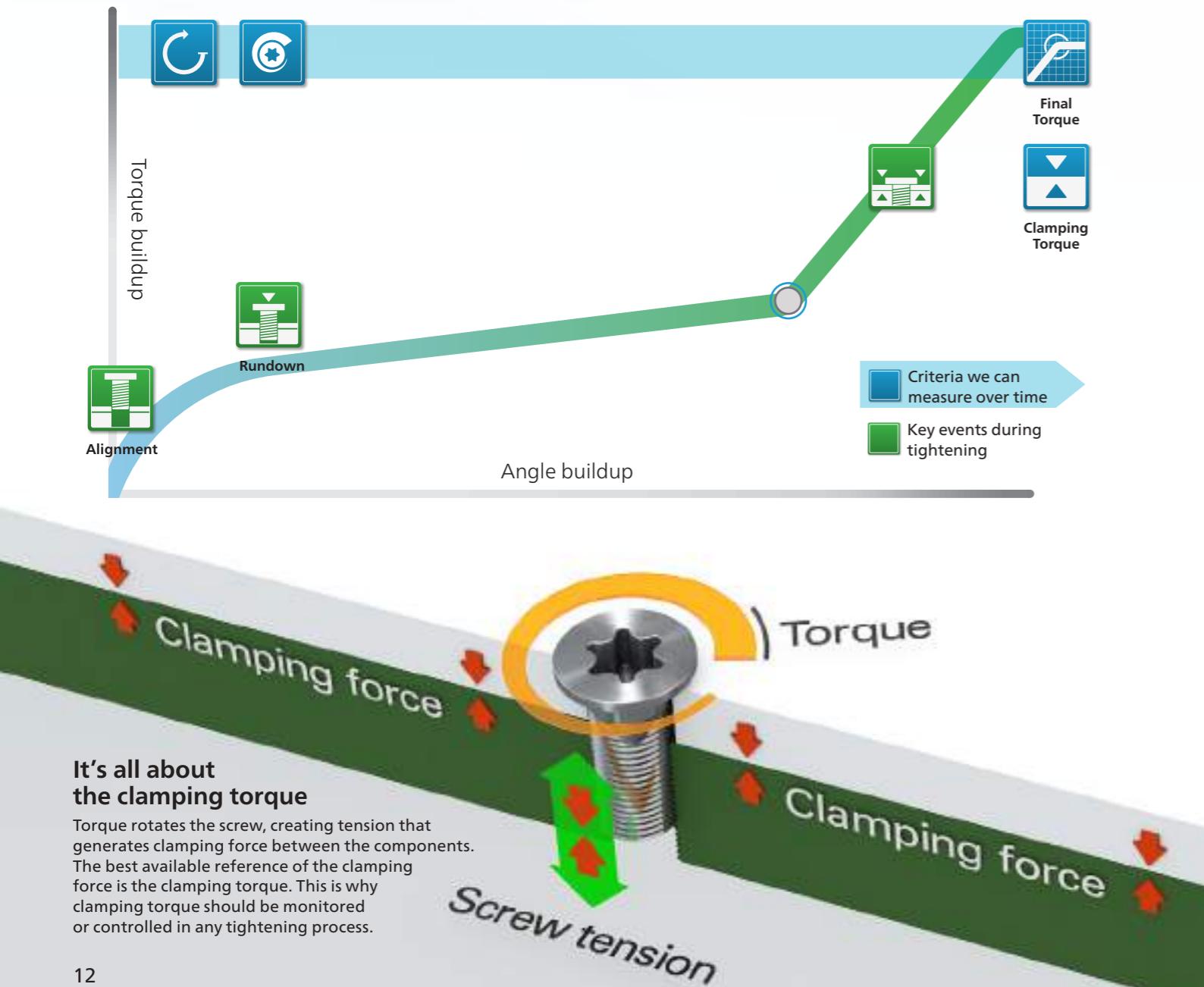


We focus on clamping torque – so should you

It really pays off to take a closer look at what happens during a tightening. There is a lot more to it than meets the eye. In order to visualize the general concept of a tightening we split the process into three phases: alignment, rundown and clamping. In the alignment phase, the tightening process is initiated, and the screw gently aligned with the joint. In the rundown, productivity is of importance and the screw is quickly tightened. The clamping force is initiated at the seating point, the point where the screw head meets the surface.

During all phases, critical factors are controlled and monitored; rotation angle, running torque and clamping torque.

With this information actions can be triggered in order to achieve a perfect tightening. And also, of course, in order to abort tightenings where errors such as damaged threads, missing parts and floating screws, would occur. These are all issues that would go undetected if you use conventional clutch screwdrivers. More about that on the page to the right.



The clutch tool will let a floating screw pass...

Many errors can go undetected when using clutch tools. As long as the final torque is reached, the tool will shut off. Even if, for instance, the tightening results in a floating screw, and your product leaves the assembly line with a built in defect. Resulting in rework, expensive recalls and damage to your brand.

- Misaligned entry
- Broken screw
- Damaged thread
- Missing parts
- Floating screw



Know when to avoid a clutch tool

When it comes to error proofing, all parameters you set for angle and torque are really to control the clamping torque. So why not just control the clamping torque to start with? A clutch tool will shut off when the right tension is reached on the clutch.

The relation between the tension and the torque is not consistent for different joints, nor a reliable measurement. So it really says nothing about the clamping torque. And this is a good reason to use a smart tool, for anyone working with high quality requirements!

OK

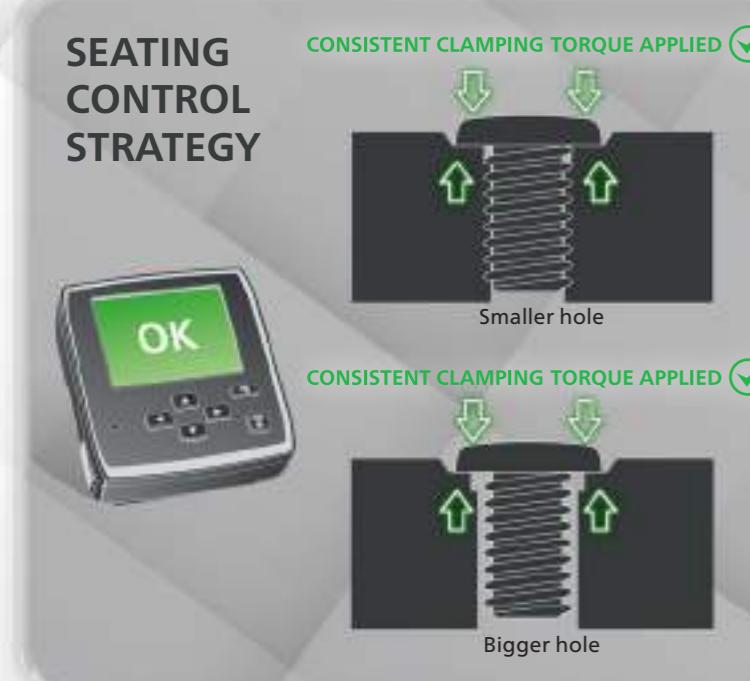
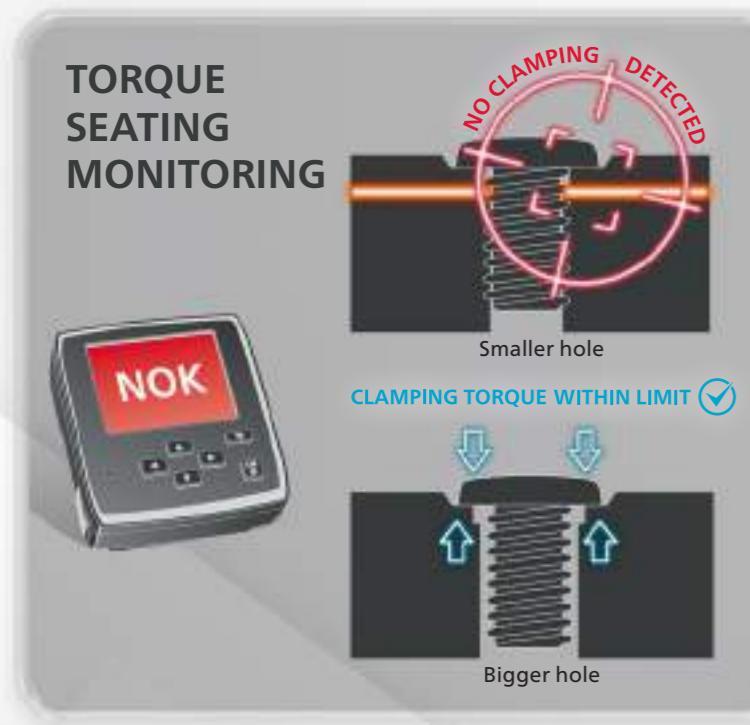
False comfort

The clutch tool has signaled the tightening as OK. But there is no way to know what really happened during the tightening. It's really just guess work.

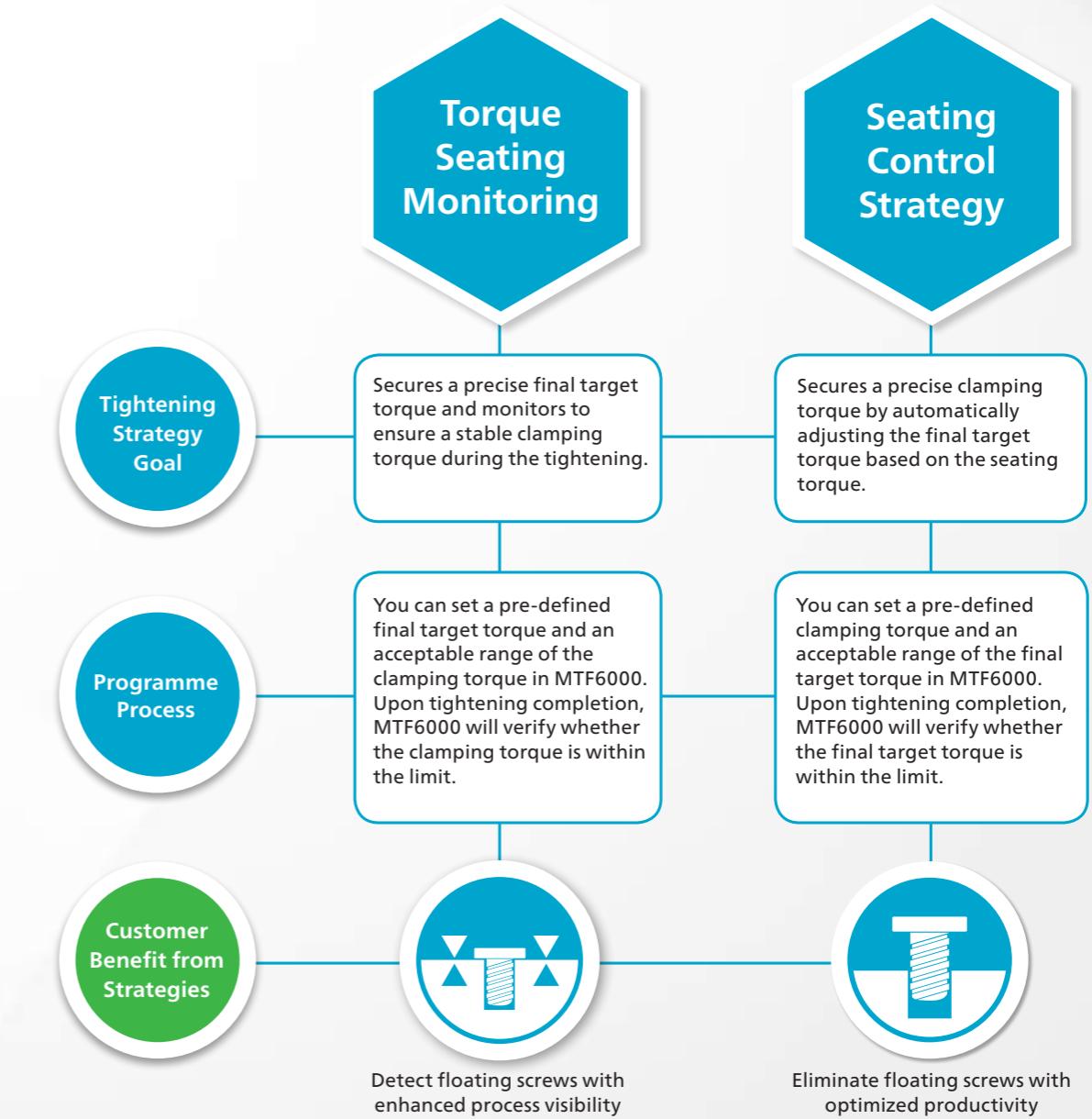
The benefit of knowing – it's yours if you want it

Every step of the way

Two examples of a tightening process. Both utilizing clamping torque in some way. Throughout both processes angle and torque is measured, error proofing every step of the process. At completion, clamping torque and final torque is used to validate that the tightening was successful.



With the MTF6000 teamed up with ToolsTalk MT you set up and adjust any kind of tightening process to fit your exact needs. This is the fastest and most productive way for you to make sure that your products are assembled with perfect tightenings time after time. Safeguarding you from reworks and expensive recalls.



Functionality design according to process needs

Intelligent Application Modules (IAM) offers the right functionality level to any process



IAM Workstation

For stand alone solutions

for the single work place...

- ✓ High quality tightening
- ✓ I/O integration
- ✓ Workflow control with batch sequence



High tightening quality



Full connectivity & advanced tightening strategies



Simple automation integration with field bus

IAM Automation

Made for automation

all the benefits of IAM Process and more...

- ✓ 999 Psets for joint optimization
- ✓ Field bus communication for simple integration
- ✓ Allow parameters updates of Pset through external system
- ✓ Support UR+ cobot integration

IAM Functionality Matrix

| | IAM Workstation 8432 0852 10 | IAM Process 8432 0852 20 | IAM Automation 8432 0852 30 |
|---|---------------------------------|-----------------------------|--------------------------------|
| Tightening | | | |
| Number of Psets | 50 | 150 | 999 |
| Multi Step Tightening | ✓ | ✓ | ✓ |
| Number of Tightening Steps | 5 | 10 | 15 |
| Number of Batch sequences | 20 | 50 | 100 |
| Batch Sequence – Batch Count | 250 | 250 | 250 |
| Batch Sequence – Steps | 30 | 30 | 30 |
| Number of identifiers | 20 | 50 | 100 |
| Torque & Angle Control | ✓ | ✓ | ✓ |
| Thread Engagement Step | ✓ | ✓ | ✓ |
| Angle Step | ✓ | ✓ | ✓ |
| Torque Step | ✓ | ✓ | ✓ |
| Seating Control Strategy (SCS) | | ✓ | ✓ |
| Torque Seating Monitoring (TSM) | | ✓ | ✓ |
| Bit Slip Detection | | ✓ | ✓ |
| Damaged Thread Detection | | ✓ | ✓ |
| Data Storage & Analysis | | | |
| Detailed Data Results Stored in the Controller | ✓ | ✓ | ✓ |
| Results – Data Storage | 100 000 | 100 000 | 100 000 |
| Graphs – Data Storage | | 1 000 | 1 000 |
| Download Results Data via USB Memory | ✓ | ✓ | ✓ |
| Download Graphs Data via USB Memory | | ✓ | ✓ |
| Realtime Trace Analysis – ToolsTalk MT (USB Only) | ✓ | ✓ | ✓ |
| Download Results Data via ToolsTalk | | ✓ | ✓ |
| Save Graphs via ToolsTalk Analysis (USB) | | ✓ | ✓ |
| Auto Save Graph via ToolsTalk Analysis (USB Only) | ✓ | ✓ | ✓ |
| ToolsNet 8 Data Reporting | | ✓ | ✓ |
| Communication | | | |
| Configurable Digital I/Os | ✓ | ✓ | ✓ |
| Number of Digital I/Os (in/out) | (12/8) | (12/8) | (12/8) |
| Open Protocol (Microtorque Legacy) | | USB, RS232, Ethernet | USB, RS232, Ethernet |
| Open Protocol (Atlas Copco V2) | | USB, RS232, Ethernet | USB, RS232, Ethernet |
| Direct Communication with ToolsNet 8 | | ✓ | ✓ |
| Fieldbus Module Compatible | | ✓ | ✓ |
| URCaps Compatible | | ✓ | ✓ |
| Ports (Hardware) | | | |
| RS232 | 1 | 1 | 1 |
| Fieldbus | 1 | 1 | 1 |
| USB Device | 1 | 1 | 1 |
| USB Host | 1 | 1 | 1 |
| I/O Bus | 1 | 1 | 1 |
| Ethernet | 1 | 1 | 1 |
| Digital I/Os | (12/8) | (12/8) | (12/8) |
| Others | | | |
| Transducerized Tools | | ✓ | ✓ |
| Barcode Reader | ✓ | ✓ | ✓ |
| Quick Programming | ✓ | ✓ | ✓ |
| Password Protection | ✓ | ✓ | ✓ |
| Customized 3 Levels of Password Protection | ✓ | ✓ | ✓ |
| Remote Configuration via Ethernet | | ✓ | ✓ |
| Vacuum Pick Up Screw Detection | ✓ | ✓ | ✓ |



Bringing connectivity to a new level of low torque tightening, MTF6000 has a wide range of connection choices. Available on the back side of the controller.

Take tightening to a whole new level

Impeccable solutions for smart manufacturing

Our **transducerized screwdriver** is the most intelligent tool on the market. The transducer inside the tool measures the actual calibrated torque applied to each joint at every tightening.

The closed feedback loop between the transducer and the controller ensures that the true torque values are continuously sent back to the controller from the tool.

With the **current controlled screwdriver**, the desired target torque can be set in the controller. The controller automatically adjusts the current level supplied to the screwdriver in order to reach the pre-defined target torque, based on calculations from parameters such as friction and heat.



True torque values measured at every tightening

The true torque data are sent between transducer and controller in a closed feedback loop

A smart algorithm continuously compensates for temperature and friction variations

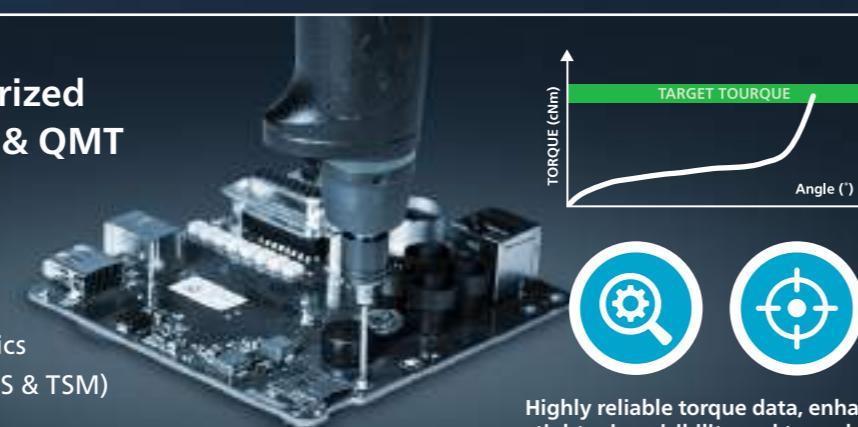


The current supply to the tool is automatically adjusted to achieve the pre-defined target torque

A smart algorithm continuously compensates for temperature and friction variations

Strengths of transducerized screwdrivers – ETD MT & QMT

- Superior torque accuracy
- Precisely detect overshoot
- Always measure the true torque applied
- Very reliable for process statistics
- Smart tightening strategies (SCS & TSM)



Highly reliable torque data, enhanced tightening visibility and traceability

Strengths of current-controlled screwdrivers – ETD M ABL & QMC

- High torque accuracy
- Integrated spring system and smart speed configuration to avoid overshoot
- Smart tightening strategies (SCS & TSM)



The transducerized handheld range -ETD MT

The MicroTorque's transducerized handheld screwdriver range ETD MT – An enhancer to further drive transformation of Industry 4.0 and smart manufacturing in your production process.

With superior ergonomic design and improved functionalities, ETD MT helps to minimize rework and scrapping cost, boosts productivity and further enhances detection and traceability of tightening errors.



Smart

ETD MT & MTF6000's torque seating monitoring & seating control strategy are unique error proofing solutions in the market which detect seating point, securing a sufficient clamping torque



Reduce Quality Cost

Interactive

The front LED light is fully configurable & improves the ergonomics, illuminating the workpiece and error proofing, by providing operator feedback. Gentle vibration will be given to the operator as an immediate feedback when a NOK result occurs. Con-

figurable function button is fully integrated with MTF6000 to light up the guiding light, start the vacuum & initiate a reverse tightening, etc. With batch sequence, the operator is guided through complex operations with repair & rejection assistance.



Increase Operators' Productivity

Precise

As a superior performer on tightening, ETD MT has a built-in transducer which can precisely measure the real torque applied on the screw at each tightening in real-time, giving extremely accurate and reliable

tightening results. This further enhances the detection & traceability of tightening errors. Current monitoring provides an extra security to monitor the tightening torque.



Improve Production Quality & Efficiency



The current controlled handheld range – ETD M ABL

The MicroTorque's current-controlled handheld screwdriver range ETD M ABL is extremely ergonomic, very compact and full of functionalities.

Equipped with torque control functionality, ETD M ABL has high torque accuracy and ensures great tightening.

Smart

ETD M ABL & MTF6000's torque seating monitoring & seating control strategy are unique error proofing solutions in the market which detect seating point, securing a sufficient clamping torque

every time. This ensures the best quality of each tightening. It also provides real-time tightening graphs & detailed data reporting for process control.



Torque Seating Monitoring



Seating Control Strategy



Graphic Data & Analysis



Reduce Quality Cost

Operator friendly

ETD M ABL range is extremely ergonomic, very compact with light weight. Operator feedback guides and supports the user – assuring an operator-friendly system. With batch sequence, the operator is



Operator Feedback



Batch Sequence



Compact & Light Weight



Increase Operators' Productivity

Error proofing

Bringing complete error proofing to your process, ETD M ABL range utilizes the angle monitoring and control, customizes the tightening strategy according to yours needs, detects wrong screws, missing components or floating and misaligned screws. With high torque accuracy, ETD M ABL delivers perfect

tightenings time after time. Combined with error proofing solutions such as bit slip detection, damaged thread detection, torque and angle limits and automatic work flow sequences, it gives you a complete control of your assembly process.



High Torque Accuracy



Angle Monitoring & Control



Error Proofing Integration



Improve Production Quality & Efficiency

The transducerized fixtured range – QMT

The MicroTorque's transducerized fixtured screwdriver range QMT –Automation ready design combined with extremely high accuracy & enhanced traceability will further evolve your smart manufacturing process to Industry 4.0



Smart

QMT & MTF6000's torque seating monitoring & seating control strategy are unique error proofing solutions in the market which detect seating point, securing a sufficient

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Torque Seating Monitoring



Seating Control Strategy



Graphic Data & Analysis



Reduce Quality Cost

Automation ready

MicroTorque QMT series is an innovative and revolutionary fixtured solution in the MicroTorque family. The compact design brings a powerful solution full of features to a lightweight tool – making

it optimal for automation. It is easy to install on any robot or torque arm and the many communication ports allow communication with, and integration in, any production process.



Compact & Light Weight



Easy Installation



Multi Communications



Reduce Automation Cost

Precise

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results. This further enhances the detection & traceability of tightening errors. Current monitoring provides an extra security to monitor the tightening torque.



Superior Torque Accuracy



Real Torque Measurement



Visibility & Traceability



Improve Production Quality & Efficiency

The current controlled fixtured range – QMC

Boosting productivity, improving quality and reducing costs – it is extremely light, compact and full of functionalities. The MicroTorque QMC Series fixtured screwdrivers, combined with the powerful MTF6000 controller, is the most advanced tightening solution for any low torque application.



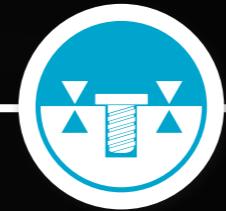
Made for Automation

QMC series brings years of development and experience from Atlas Copco into a compact tightening solution. QMC is made for automation, with countless error proofing possibilities making sure your costs are reduced.

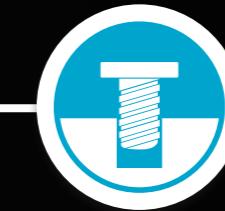
Smart

QMC & MTF6000's torque seating monitoring & seating control strategy are unique error proofing solutions in the market which detect seating point, securing a sufficient clamping torque

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Torque Seating Monitoring



Seating Control Strategy



Graphic Data & Analysis



Reduce Quality Cost

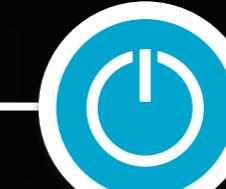
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Compact & Light Weight



Easy Installation



Multi Communications

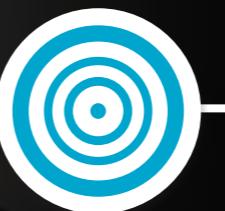


Reduce Automation Cost

Error proofing

Bringing complete error proofing to your process, QMC range utilizes the angle monitoring and control, customizes the tightening strategy according to yours needs, detects wrong screws, missing components or floating and misaligned screws. With high torque accuracy,

QMC delivers perfect tightenings time after time. Combined with error proofing solutions such as bit slip detection, damaged thread detection, torque and angle limits and automatic work flow sequences, it gives you a complete control of your assembly process.



High Torque Accuracy



Angle Monitoring & Control



Error Proofing Integration



Improve Production Quality & Efficiency

How is your quality assurance process nowadays?



Manual Reporting

PROBLEMS

- In a typical electronics factory, operators need to record and edit all quality assurance results manually every day.
- Torque check results are written down on a piece of paper and CMK is calculated manually.

CUSTOMER CONCERN

- How to guarantee data accuracy for quality audit?
- How to decrease labor hours with a manual reporting process?

POTENTIAL LOSSES



Higher labor cost



Legal liability

No Traceability

PROBLEMS

- Operators frequently need to verify the torque of a huge amount of different unintelligent clutch screwdrivers.
- Torque check without any traceability, for example, line, station ID, screwdriver & controller serials are rarely recorded.

CUSTOMER CONCERN

- How to ensure that operators follow the right process specification of each tool for torque check and adjustment in hectic production lines?
- How to track the defected screwdrivers once issues occur?

POTENTIAL LOSSES



Higher quality cost



Higher rework/scrap cost

QA Station MT

The ultimate quality control for your production!



SMART

- ⊕ Digital reporting reduces human errors and guarantees data accuracy, saving tremendous labor hours and hassles on manual reporting.
- ⊕ Intelligent real-time result feedback and statistic calculations, e.g. CMK & deviation allow operators to have a better monitoring of the whole quality assurance process.

Better QA Quality



Increased QA Efficiency



Increased QA Efficiency

FLEXIBLE

- ⊕ Pre-defined torque verification programs based on the process specification of the tools (target torque & limit %) can be activated easily via USB sync and barcode scan through QA Station MT for all screwdriver types.
- ⊕ Operators also have the possibility to store their ID and log in the QA Station MT with barcode scanner / RFID card reader.
- ⊕ High portability with robust carrier for easy and comfortable grip with 16-hour battery life. This allows a full-day torque verification in all the lines.

CONNECTED

- ⊕ With USB sync and barcode scan, the line numbers, station ID, tools' / controllers' info, even tightening results can be transferred to the QA Station MT, so this enhances the traceability.
- ⊕ It is possible for QA Station MT to be connected with the PLC of robot via IO cable, QA results like OK / NOK / test completed can be sent in between. The robot can be pre-programmed to run torque check automatically after certain amount of tightening.

Improved QA Process Visibility



Atlas Copco MicroTorque



Sustainable solutions have always been our focus.

We take pride in offering our customers

eco friendly tools and solutions.

From how they are produced, to how they run.

Prolonging product life. A decreased weight on our fixtured tools contribute to the possibility of higher cycle rates on robot applications. Spare parts and service instructions are provided for the customer to ensure long product life.

Triple certification. Atlas Copco Industrial Technique and Assembly Solutions are certified against ISO14001, ISO9001 and OHSAS 18001.

Software updates. Easy to update with new software, following industrial trends and customer needs. Updates available via Ethernet or USB memory stick prolonging life length of controllers and tools.

Recycling Information. Information regarding dismantling and recycling has been added in the Product Information to facilitate correct handling of parts within the MicroTorque system when it has served its purpose. WEEE (2012/19/EU)

Decreased standby consumption. Energy consumption decreased through integrated standby mode via timer, open protocol, digital I/O or standby button.

Safe chemicals. All chemicals used are ensured not to contain prohibited substances. Safety data sheets are available for all chemicals.

Prohibited and restricted lists. Compliance with Atlas Copco Prohibited and Restricted lists ensure use of safe chemicals and materials. RoHS II directive (2011/65/EU) REACH (EC No 1907/2006)

Less transportation. Minimized packaging and lower product weight decreases environmental impact from transport. The Atlas Copco worldwide service organization provides immediate and local service, reducing the need for unnecessary transportation.

Accessories and part numbers



MT FOCUS 6000

Controller & IAM

| Controller Unit | Ordering No. |
|--------------------|--------------|
| MTF6000 | 8432 0851 00 |
| IAM MT Workstation | 8432 0852 10 |
| IAM MT Process | 8432 0852 20 |
| IAM MT Automation | 8432 0852 30 |
| IAM MT QA | 8432 0852 40 |

*Please note that with only IAM QA, MTF6000 can be used as a stationary QA controller, if you need portability & agility, it is recommended to purchase the whole QA Station MT.

MTF6000 Portable Station

| Model | Ordering No. |
|--------------------------|--------------|
| MTF6000 Portable Station | 8432 0851 10 |



MTF6000 Portable Station

MTF6000 Portable Station includes:

- Holder
- MTF6000 controller
- 36V lithium battery

Please note that the following accessories need to be purchased separately:

- IAM
- MicroTorque tools
- Tool cable
- Power supply



Fixtured Screwdrivers - QMC range

| Model | Torque range | | | | Overall width mm | Weight | | | Bit Drive | Ordering No.* |
|-----------------------------|--------------|------------|-----------|-----------|------------------|--------|------|-----------|--------------|---------------|
| | cNm | in lb | Speed rpm | Length mm | | kg | lb | Bit Drive | | |
| Fixtured current controlled | | | | | | | | | | |
| QMC 21-05-HM4 | 1.2-5 | 0.11-0.44 | 1500 | 124 | 57 | 0.3 | 0.46 | HM4 | 8432 0844 05 | |
| QMC 21-10-HM4 | 3.0-10 | 0.27-0.89 | 1500 | 178 | 57 | 0.3 | 0.66 | HM4 | 8432 0844 10 | |
| QMC 21-25-HM4 | 5.5-25 | 0.49-2.21 | 1000 | 178 | 57 | 0.3 | 0.65 | HM4 | 8432 0844 25 | |
| QMC 41-50-HM4 | 12.5-50 | 1.11-4.42 | 2000 | 200 | 65 | 0.6 | 1.32 | HM4 | 8432 0844 52 | |
| QMC 41-100-HM4 | 25.0-100 | 2.21-8.85 | 2000 | 200 | 65 | 0.6 | 1.32 | HM4 | 8432 0844 53 | |
| QMC 41-50-I06 | 12.5-50 | 1.11-4.42 | 2000 | 205 | 65 | 0.6 | 1.32 | 1/4" Hex | 8432 0844 61 | |
| QMC 41-100-I06 | 25.0-100 | 2.21-8.85 | 2000 | 205 | 65 | 0.6 | 1.32 | 1/4" Hex | 8432 0844 62 | |
| QMC 41-150-I06 | 37.5-150 | 3.32-13.27 | 1000 | 213 | 65 | 0.6 | 1.32 | 1/4" Hex | 8432 0844 63 | |
| QMC 41-250-I06 | 62.5-250 | 5.53-22.13 | 850 | 224 | 65 | 0.7 | 1.54 | 1/4" Hex | 8432 0844 64 | |

* Ordering number for screwdriver only. Tool cable, controller and PSU need to be ordered separately.



Fixtured Screwdrivers – QMT range

| Model | Torque range | | | | Overall width mm | Weight | | | Bit Drive | Ordering No.* |
|-------------------------|--------------|-------------|-----------|-----------|------------------|--------|------|-----------|------------|---------------|
| | cNm | lb | Speed rpm | Length mm | | kg | lb | Bit Drive | | |
| Fixtured transducerized | | | | | | | | | | |
| QMT 21-25-HM4 | 5 - 25 | 0,44 - 2,21 | 1000 | 182,4 | 22 | 0,30 | 0,66 | HM4 | 8432084325 | |
| QMT 41-50-HM4 | 10 - 50 | 0,9 - 4,4 | 2000 | 204 | 30 | 0,61 | 1,30 | HM4 | 8432084350 | |
| QMT 41-100-HM4 | 20 - 100 | 1,8 - 8,9 | 2000 | 204 | 30 | 0,61 | 1,30 | HM4 | 8432084360 | |
| QMT 41-50-I06 | 10 - 50 | 0,9 - 4,4 | 2000 | 209 | 30 | 0,61 | 1,30 | 1/4" Hex | 8432084351 | |
| QMT 41-100-I06 | 20 - 100 | 1,8 - 8,9 | 2000 | 209 | 30 | 0,61 | 1,30 | 1/4" Hex | 8432084361 | |
| QMT 41-150-I06 | 30 - 150 | 2,7 - 13,3 | 1000 | 217 | 30 | 0,63 | 1,40 | 1/4" Hex | 8432084370 | |
| QMT 41-250-I06 | 50 - 250 | 4,4 - 22,1 | 750 | 217 | 30 | 0,63 | 1,40 | 1/4" Hex | 8432084380 | |

* Ordering number for screwdriver only. Tool cable, controller and PSU need to be ordered separately.

Accessories and part numbers



Handheld Screwdrivers - ETD M ABL V2 range

| Model | Torque range | | | | Overall width mm | Weight | | | Bit Drive | Ordering No.* |
|---|--------------|------------|-----------|-----------|------------------|--------|------|----------|--------------|---------------|
| | cNm | in lb | Speed rpm | Length mm | | kg | lb | | | |
| Handheld current controlled, without push-to-start | | | | | | | | | | |
| ETD M08 ABL V2 | 2–8 | 0.18–0.7 | 1350 | 185 | 29 | 0.30 | 0.66 | HM 4 | 8432 0815 18 | |
| ETD M20 ABL V2 | 5–20 | 0.44–1.77 | 900 | 185 | 29 | 0.30 | 0.66 | HM 4 | 8432 0815 21 | |
| ETD M27 ABL V2 | 7.5–27 | 0.66–2.4 | 900 | 185 | 29 | 0.30 | 0.66 | HM 4 | 8432 0815 27 | |
| Handheld current controlled, configurable push-to-start | | | | | | | | | | |
| ETD M50 ABL V2 | 15–50 | 1.33–4.4 | 1000 | 238 | 36 | 0.61 | 1.37 | HM 4 | 8432 0815 50 | |
| ETD M80 ABL V2 | 20–80 | 1.77–7.1 | 1100 | 238 | 36 | 0.61 | 1.37 | HM 4 | 8432 0815 80 | |
| ETD M120 ABL V2 | 30–120 | 2.7–10.6 | 900 | 240 | 43 | 0.65 | 1.43 | 1/4" Hex | 8432 0815 82 | |
| ETD M200 ABL V2 | 50–200 | 4.42–17.7 | 700 | 240 | 43 | 0.65 | 1.43 | 1/4" Hex | 8432 0815 84 | |
| ETD M250 ABL V2 | 75–250 | 6.64–22.13 | 700 | 240 | 43 | 0.65 | 1.43 | 1/4" Hex | 8432 0815 86 | |

* Ordering number for screwdriver only. Tool cable, controller and PSU need to be ordered separately

| Cables QMC, QMT, ETD M ABL V2, ETD MT | Ordering No. |
|---------------------------------------|--------------|
| 2 m | 8432 0835 20 |
| 3.5 m | 8432 0835 35 |
| 5 m | 8432 0835 50 |



Handheld Screwdrivers - ETD MT range

| Model | Torque range | | | | Overall width mm | Weight | | | Bit Drive | Ordering No.* |
|-------------------------|--------------|-----------|-----------|-----------|------------------|--------|------|----------|------------|---------------|
| | cNm | in lb | Speed rpm | Length mm | | kg | lb | | | |
| Handheld transducerized | | | | | | | | | | |
| ETD MT 21-25-HM4 | 5–25 | 0.44–2.21 | 1000 | 226 | 32 | 0.35 | 0.77 | HM4 | 8432084525 | |
| ETD MT 41-50-HM4 | 10–50 | 0.9–4.4 | 2000 | 248 | 34 | 0.60 | 1.32 | HM4 | 8432084550 | |
| ETD MT 41-100-HM4 | 20–100 | 1.8–8.9 | 2000 | 248 | 34 | 0.60 | 1.32 | HM4 | 8432084560 | |
| ETD MT 41-50-I06 | 10–50 | 0.9–4.4 | 2000 | 254 | 34 | 0.65 | 1.43 | 1/4" Hex | 8432084551 | |
| ETD MT 41-100-I06 | 20–100 | 1.8–8.9 | 2000 | 254 | 34 | 0.65 | 1.43 | 1/4" Hex | 8432084561 | |
| ETD MT 41-150-I06 | 30–150 | 2.7–13.3 | 1000 | 254 | 34 | 0.65 | 1.43 | 1/4" Hex | 8432084570 | |
| ETD MT 41-250-I06 | 50–250 | 4.4–22.1 | 750 | 254 | 34 | 0.65 | 1.43 | 1/4" Hex | 8432084580 | |

* Ordering number for screwdriver only. Tool cable, controller and PSU need to be ordered separately.

| Multi Charger & Extra Battery (Optional) * | Ordering No. |
|--|--------------|
| Multichanger 18–36V | 4211 6083 84 |
| Extra Lithium Battery 36 V | 4211 6083 86 |

* The charging rate of the multi charger is higher than normal power supply. This is an optional product for customers who prefer a higher charging rate.



Accessories and part numbers

Vacuum Adapters

| Model | Nozzle Ø mm | Tool Bit Drive | Tool Model | Ordering No. |
|-------------------|-------------|----------------|------------------------------|--------------|
| QC Vacuum Adapter | 5.8 | HM4 | ETD MT | 8432 0770 60 |
| QC Vacuum Adapter | 9.8 | 1/4" HEX | ETD MT | 8432 0770 61 |
| QC Vacuum Adapter | 5.8 | HM4 | QMC 21, ETD M ABL V2, QMT 21 | 8432 0770 62 |
| QC Vacuum Adapter | 9.8 | 1/4" HEX | QMC 41, QMT 41 | 8432 0770 63 |
| QC Vacuum Adapter | 5.8 | HM4 | QMC 41, QMT 41 | 8432 0770 64 |
| QC Vacuum Adapter | 9.8 | 1/4" HEX | ETD M ABL V2 | 8432 0770 65 |



Vacuum Adapters



SDS SR



SDS

Vacuum Nozzles

| Model | Nozzle Ø mm | Ordering No. |
|-------------------------------------|-------------|--------------|
| Plastic Nozzle – HM4 (5 pack) | 5.8 | 4216 2912 90 |
| Plastic Nozzle – 1/4" HEX (5 pack) | 9.8 | 4216 2937 90 |
| Metallic Nozzle – HM4 (1 pack) | 5.8 | 8432 5251 00 |
| Metallic Nozzle – 1/4" HEX (1 pack) | 9.8 | 8432 5251 01 |



Vacuum Adapters

| Screw Dispenser System | Screw Size | Ordering No. |
|------------------------------------|-------------|--------------|
| Screw dispenser for magnetized bit | | |
| SDS | M 1.0 – 5.0 | 8432 0830 00 |
| Screw dispenser for vacuum pick up | | |
| SDS SR 10 | M 1.0 | 8432 0870 30 |
| SDS SR 12 | M 1.2 | 8432 0870 32 |
| SDS SR 14 | M 1.4 | 8432 0870 34 |
| SDS SR 17 | M 1.7 | 8432 0870 31 |
| SDS SR 20 | M 2.0 | 8432 0870 33 |
| SDS SR 23 | M 2.3 | 8432 0870 35 |
| SDS SR 26 | M 2.6 | 8432 0870 36 |
| SDS SR 30 | M 3.0 | 8432 0870 37 |

| Vacuum Pump | Ordering No. |
|----------------------|--------------|
| Smart Vacuum Pump MT | 8432 0854 00 |



Smart Vacuum Pump

| Fieldbus Module | Ordering No. |
|-----------------------|--------------|
| EtherCAT Module MT | 8432 0853 10 |
| Profinet Module MT | 8432 0853 20 |
| Ethernet/IP Module MT | 8432 0853 30 |



Fieldbus Module



Tool Holder

| Torque Arm | Model | Ordering No. |
|-------------------------|----------|--------------|
| SMS T Series (Max 5Nm) | SMS T-5 | 4390 2006 00 |
| SMS T Series (Max 12Nm) | SMS T-12 | 4390 2007 00 |
| SML T Series (Max 5Nm) | SML T-5 | 4390 2000 00 |
| SML T Series (Max 12Nm) | SML T-12 | 4390 2001 00 |
| Tool holder | | 4390 1510 86 |



Torque Arm

Accessories and part numbers



QA Station MT includes:

- Holder
- MTF6000 controller
- 0,23 m transducer cable
- 36V lithium battery

Please note that the following accessories need to be purchased separately:

- IAM QA
- Test joints
- Bits for test joints
- Transducers
- Power supply

QA Station MT & IAM QA

| Model | Ordering No. |
|---------------|--------------|
| QA Station MT | 8432 0855 00 |

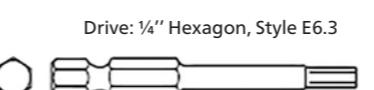
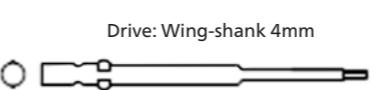
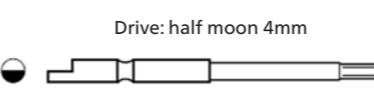


| Transducer cable | Ordering No. |
|--------------------------|--------------|
| Transducer Cable 0, 23 m | 8432 0822 31 |
| Transducer Cable 1, 8 m | 8432 0822 30 |

Test Joints



| Model | cNm | Drive | Screw Head Profile | Ordering No. |
|---------------|----------|----------|--------------------|--------------|
| M6 Soft joint | 500-1000 | 1/4" HEX | HEX 5mm | 8432 0833 62 |
| M6 Soft joint | 200-500 | 1/4" HEX | HEX 5mm | 8432 0833 61 |
| M4 Soft joint | 27-200 | 1/4" HEX | HEX 3mm | 8432 0833 60 |
| M3 Soft joint | 5-27 | 1/4" HEX | HEX 2,5mm | 8432 0833 59 |
| M3 Soft joint | 5-27 | Ø 3 mm | HEX 2,5mm | 8432 0833 58 |
| M2 Soft joint | 0-10 | 1/4" HEX | HEX 1,5mm | 8432 0833 57 |
| M2 Soft joint | 0-10 | Ø 3 mm | HEX 1,5mm | 8432 0833 56 |
| M6 Hard joint | 200-1000 | 1/4" HEX | HEX 5mm | 8432 0833 55 |
| M4 Hard joint | 27-200 | 1/4" HEX | HEX 3mm | 8432 0833 54 |
| M3 Hard joint | 5-27 | 1/4" HEX | HEX 2,5mm | 8432 0833 53 |
| M3 Hard joint | 5-27 | Ø 3 mm | HEX 2,5mm | 8432 0833 52 |
| M2 Hard joint | 0-10 | 1/4" HEX | HEX 1,5mm | 8432 0833 51 |
| M2 Hard joint | 0-10 | Ø 3 mm | HEX 1,5mm | 8432 0833 50 |



Hex Bits for Test Joints

| Screw Head Profile | Length (mm) | Ordering No. |
|--------------------|-------------|--------------|
| HEX 1,5mm | 44 | 4023 0002 41 |
| HEX 2,5mm | 44 | 4023 0002 43 |
| HEX 3mm | 44 | 4023 0002 44 |

| HEX 1,5mm | 60 | 4023 0002 60 |
|-----------|----|--------------|
| HEX 2,5mm | 60 | 4023 0002 62 |
| HEX 3mm | 60 | 4023 0002 63 |

| HEX 2,5mm | 49 | 4023 131200 |
|-----------|----|-------------|
| HEX 3mm | 49 | 4023 071000 |
| HEX 4mm | 49 | 4023 071100 |
| HEX 5mm | 49 | 4023 071200 |

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