

Operating Instruction

**Smart Driven Tool Holders
with QuickFlex®**



Type DNI

Type DNE

Introduction



Operating Instruction for Smart Driven Tool Holders with QuickFlex® can be downloaded in several languages.

Translation de

Translation es

Translation fr

Translation it

Translation jp

Translation ko

Translation ru

Translation tw

Translation zh

Translation cz

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General

WTO Smart Driven Precision Tool Holders (*smart DTH*) are high quality products with low maintenance requirements. A *smart DTH* includes the electronic unit *WTO SC 002*. Please follow these instructions to maintain a high accuracy and a long service life.

This manual contains important safety directions and instructions for product setup and operation.

Keep for further reference

Product identification

Product type and article numbers are printed on the product.

Refer to this when contacting WTO.

Validity of this manual

This manual applies to the *smart DTH* with QuickFlex®, Chapter 3 describes the naming rules.

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1 Safety

1.1 General

Description

The following instructions should enable the person responsible for the product and the person who actually uses the equipment to anticipate and avoid operational hazards. The person responsible for the product must ensure that all users understand these instructions and adhere to them.

Generalities

When operating and using our *smart DTH*, **observe** the **safety regulations** of the regional associations and the **safety laws and guidelines** of the respective state and/or the European Union.


Above such regulations, **observe** the **safety instructions of the manufacturer of your machine tool**.


About warning messages


Warning messages are an essential part of product safety. They appear wherever hazards or hazardous situations can occur.

For user safety, all safety instructions and safety messages shall be strictly observed and followed. Therefore, the manual must always be available to all product users.

DANGER, WARNING, CAUTION and NOTICE are standardized signal words for identifying levels of hazards and risks related to personal injury and property damage. For your safety it is important to read and fully understand the table below with the different signal words and their definitions. Supplementary safety information symbols may be placed within a warning message as well as supplementary information.

 **DANGER** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

 **WARNING** Indicates a potentially hazardous situation or an unintended use which, if not avoided, could result in death or serious injury.

 **CAUTION** Indicates a potentially hazardous situation or an unintended use which, if not avoided, may result in minor or moderate injury.

NOTICE Important information which must be adhered to in practice as it enables the product to be used in a technically correct and efficient manner.

1.2 Purpose

Permitted use

To prepare Smart Driven Tool Holders with QuickFlex® for operation.

Adverse use

- Use of the product without instruction
- Use outside of the intended limits
- Disabling safety systems
- Removal of hazard notices
- Opening the product using tools, e.g., screwdriver, unless specifically instructed for certain functions
- Modification or conversion of the product
- Use after misappropriation
- Use of products with obviously recognizable damages or defects
- Use with accessories from other manufacturers without the prior approval of WTO

WARNING

Adverse use can lead to injury, malfunction and damage. It is the task of the person responsible for the equipment to inform the user about hazards and how to counteract them. The product is not to be operated until the user has been instructed on how to work with it.

1.3 Limits of use

Environment

Suitable for use under rough conditions, ref. technical data. Not suitable for use in aggressive or explosive environments.

1.4 Areas of responsibility

Manufacturer of the product

WTO is responsible for supplying the product, including the operating instruction and original accessories, in a completely safe condition.

Manufacturers of non-WTO Accessories

The manufacturers of non-WTO accessories are responsible for developing, implementing and communicating safety concepts for their products, and are also responsible for the effectiveness of those safety concepts in combination with the WTO product.

Person in charge of the product

The person in charge of the product has the following duties:

- To understand the safety instructions on the product and the instructions in the manual
- To be familiar with local regulations relating to safety and accident prevention
- To inform WTO immediately if the product becomes unsafe

1.5 Hazard of use

WARNING

The absence of instruction, or the inadequate imparting of instruction, can lead to incorrect or adverse use, and can give rise to accidents with far-reaching human, material, financial and environmental consequences.

Precautions: All users must follow the safety instructions given by the manufacturer and the directions of the person responsible for the product.

WARNING

This tool is intended for use by skilled persons with knowledge on the use of this tool who understand the resulting risks.

Precautions: Read all instructions before using the tool system.

WARNING

Use all appropriate safety guards or machine encapsulations to securely collect particles such as chips or cutting elements that may spin off.

Precautions: Always use appropriate personal protective equipment such as safety gloves, safety shoes and workwear with tight fitting sleeves.

CAUTION

The user must use the tool as intended.

Precautions: Only WTO owned service centers and authorized service workshops are permitted to repair these products.

CAUTION

Check important components for damage prior to every operation.

Precautions: DO NOT USE or operate damaged tool or product. Return the product to the appropriate location for repair, replacement or recycling.

1.6 Unpacking

When unpacking the product, make sure that no accessories are missing and that none of the package contents have been damaged.

If you detect any transport damages please contact your sales representatives.

WARNING



For safety reasons it is recommend to use lifting equipment for lifting *smart DTH* heavier than 18 kg/40 lb. Lifting slings are recommended.

CAUTION

Check the center of gravity before lifting.

NOTICE

Keep the packaging for safe storage of tools.

1.7 Power-off magnet

WARNING

Keep magnet out of reach of children.

WARNING

Never put magnets in mouth. If swallowed, contact your physician.

WARNING

Magnets could affect the functioning of pacemakers and implanted heart defibrillators.

- **A pacemaker could switch into test mode and cause illness.**
- **A heart defibrillator may stop working.**
- If you wear these devices keep sufficient distance to magnet.
Minimum 46 mm (1.81 inch).
- Warn others who wear these devices from getting too close to magnets.

1.8 Battery

WARNING

Use only one of the batteries listed here with a maximum permissible operating temperature of at least +85°C (185°F). Use of another battery may present a risk of fire or explosion.

At the time of writing, the following types of batteries can be used and are available from the listed suppliers.

<u>Batterytype:</u>	<u>Supplier:</u>
Panasonic CR2032	https://newark.com/panasonic/CR2032
Murata CR2032X	https://www.avnet//murata/CR2032X
Murata CR2032W	https://www.avnet/murata/CR2032W

Use the flag symbol to select your country.

WARNING

The battery shall be inserted or exchanged by a trained technician only.

WARNING

Risk of fire, explosion, and burns. Do not recharge, disassemble, heat above 100°C (212°F) or incinerate.

Keep battery out of reach of children and in original package until ready to use.

Dispose of used batteries promptly, the country specific environmental protection laws need to be considered.

Do not dispose of in fire.

WARNING

Never put batteries in mouth. If swallowed, contact your physician or local poison control.

2 Quick start guide

System requirements

- Operating system Windows 10 or higher
- Internet connection
- Bluetooth® connection BLE 4.2 or higher

1. “My Tools” registration

“My Tools” user account is necessary for the next steps. Create user account online at:

<https://my.wto-tools.com> or using the QR code on the right.



2. Download software

Download the *smart Monitor* software from the download page:

<https://my.wto-tools.com/downloads> or using the QR code on the right.



3. Go Online

Start software and log in using your “My Tools” user name and password to automatically register your *smart DTH* for activation.

4. Connect

Follow the guidelines in the software to connect your *smart DTH*.

The first time you connect, a free license limited to 30 days starts automatically. After that an activation is required to use all functions of the *smart DTH* without restrictions.

5. Activate

Log in to “My Tools” to purchase a license and activate your *smart DTH*.

Activate online at:

<https://my.wto-tools.com> or using the QR code on the right.



6. Operation & Safety

Read the operating and safety instructions for safe and correct use of the *smart DTH*. Operating advices for the software are included in the software itself.

Frequently Asked Questions

See FAQ’s online at:

<https://my.wto-tools.com/faq> or using the QR code on the right.



3 Product description

smart DTH type label

Serial No.

Important for *smart DTH* identification (e.g. for spare part request)

Ratio / Rotating direction

1:2, 1:3 => speed increaser
2:1, 3:1 => torque increaser

Max. output RPM

Max. coolant pressure



Product Code

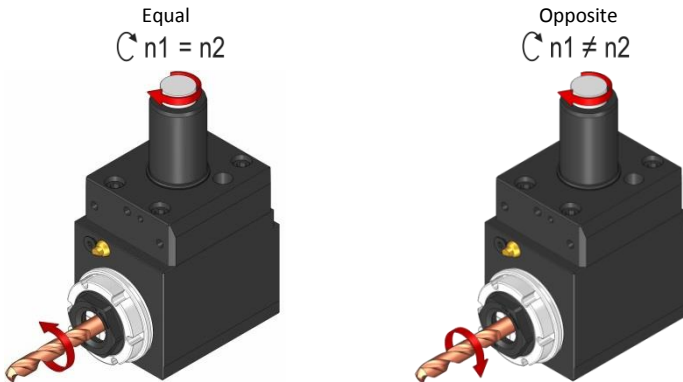
S = Integrated Sensors
A = Region EU
B = Region EU, US, CA, JP

Data-Matrix

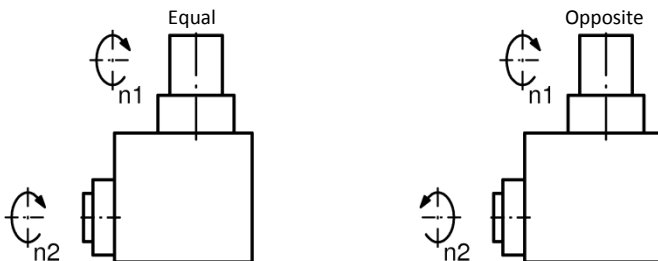
Information about *smart DTH*

OEM No.

Rotating direction




Rotating direction stated on *smart DTH* dimensional drawing

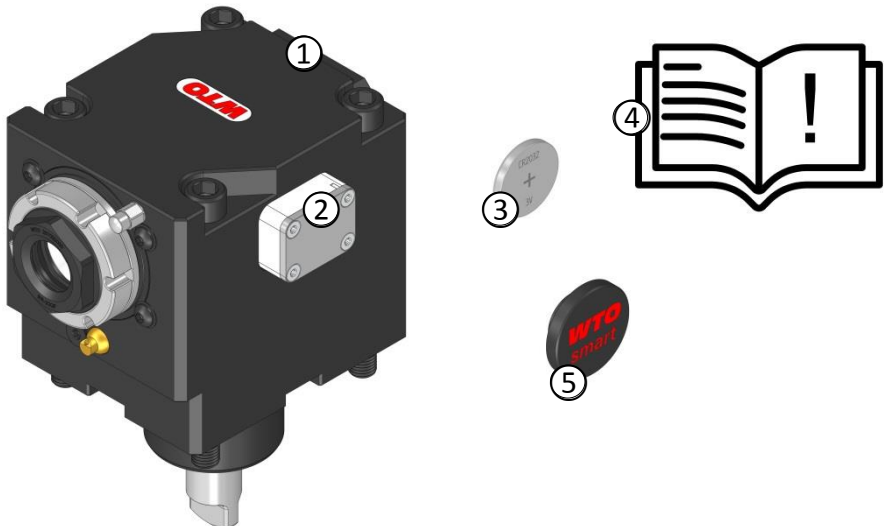


A **dimensional drawing** is delivered with each *smart DTH* stating the technical specifications and the *smart DTH* outside dimensions.

Access the **WTO Online Catalog** to download the dimensional drawing at www.wto-tools.com.

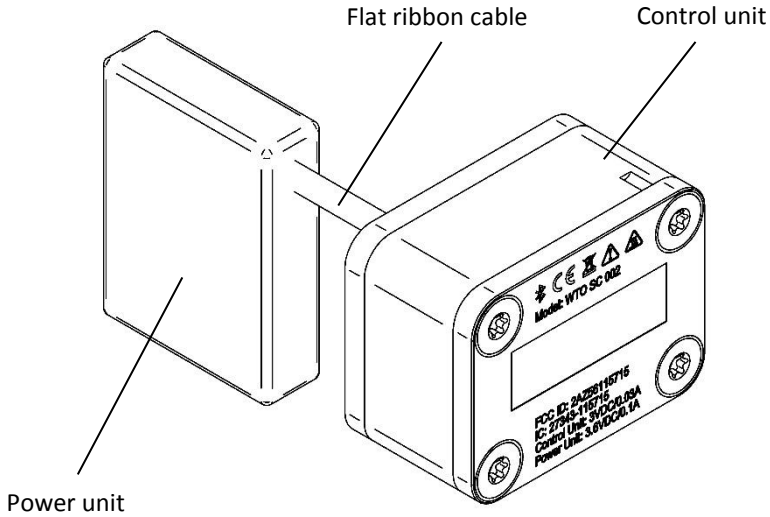
4 System component description

Component	Description
1 Smart Driven Tool Holder	<ul style="list-style-type: none">Smart Driven tool holder (<i>smart DTH</i>) with cutting tool interface for machining with integrated electronic unit <i>WTO SC 002</i> (2)
2 Electronic unit <i>WTO SC 002</i>	<ul style="list-style-type: none">Electronic unit <i>WTO SC 002</i> with Bluetooth® interface and integrated sensors and transmission unit. See chapter 5
3 Battery	<ul style="list-style-type: none">Type: Coin cell CR2032 Not included in delivery  WARNING See chapter 1.8 and 6.1
4 Operating instruction	<ul style="list-style-type: none">Smart Driven Tool Holder with QuickFlex®
5 Power-off magnet	<ul style="list-style-type: none">For switching off electronic unit See chapter 6.5 and 6.6



5 Electronic unit *WTO SC 002*

The electronic unit *WTO SC 002* contains a control unit and a power unit. Both are connected via flat ribbon cable.



5.1 Intended use

The electronic unit type *WTO SC 002* enables the transmission of sensor data of tool holders based on Bluetooth® low energy 5.0 technology. This enables condition monitoring and predictive maintenance.

The following sensor data are measured and transmitted:






- Sensor 1: Vibration
- Sensor 2: Temperature
- Sensor 3: Rotation speed

The battery status is also detected and transmitted.

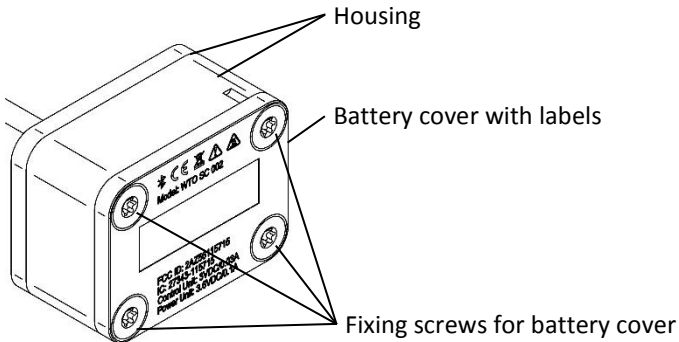
The electronic unit *WTO SC 002* is mounted at Smart Driven Tool Holders.

5.2 Symbols on the WTO SC 002



-  Product with Bluetooth® low energy 5.0 technology
-  Product certified according to applicable European standards
-  Do not dispose of the product with the household waste. See chapter 11
-  Read and follow the information and safety instructions
-  Product can have hot surface. See chapter 1.5

5.3 Control unit



NOTICE

Only parts specified by WTO must be used as battery covers, fixing screws and power-off magnet. Power-off Magnet see chapter 6.4 and 6.5

5.4 Power unit

The *WTO SC 002* contains a power unit for generating electrical energy. The amount of the generated energy depends strongly on the applied RPMs; depending on these the lifetime of the battery can be heavily increased. The power unit contains also an energy buffer to optimize the energy management of the *WTO SC 002*.

With an intact battery the *WTO SC 002* will operate over the full RPM range. The *WTO SC 002* is designed for running even with empty batteries in the case that in the startup phase at least 2500 RPMs are achieved for minimum 8 seconds under normal operating conditions, minimum 16 seconds after storage for more than 24 hours. Afterwards enough energy is available down to lower operation RPM. The minimum operation RPM depend on *smart DTH*.

NOTICE

Please take attention to the battery; to avoid damage for the electronics old and / or empty batteries should be replaced.

The power unit is located in the center of the *smart DTH*. Due to the big RPM range there might appear quite high voltages, but they are not accessible and specially protected. The achieved voltage is then converted to a low voltage of less than 4V DC. This low voltage supplies the control unit in the outside housing.

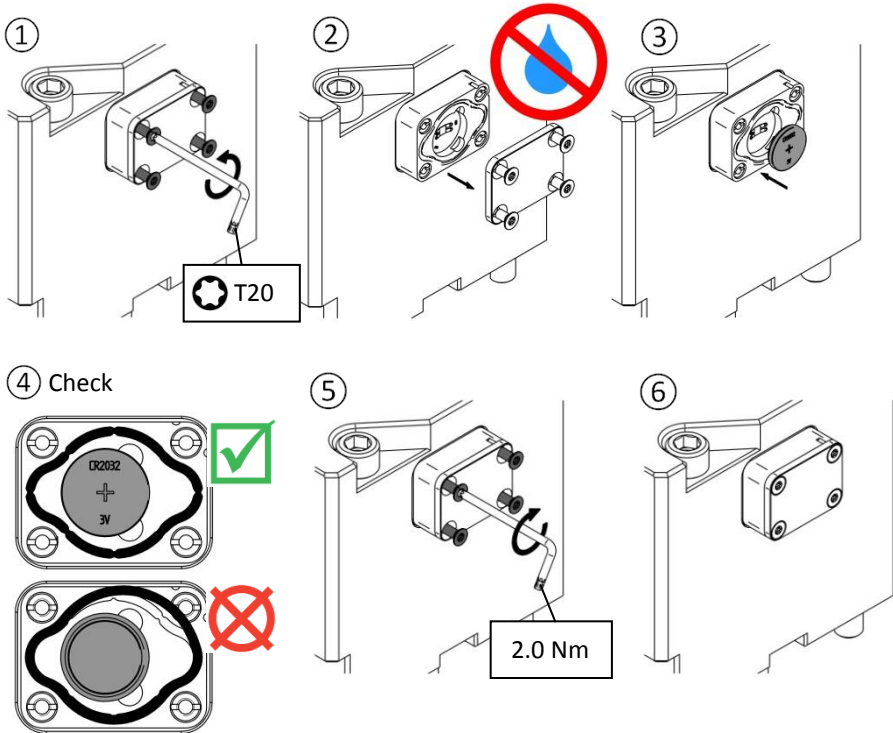
6 Operating advice for electronic unit *WTO SC 002*

WARNING

If the equipment is used in a manner not specified, the protection provided by the equipment may be impaired.

6.1 Insert battery

Mount the battery as shown below.



NOTICE

When inserting the battery, the electronics goes into power saving mode after 5.0 minutes. The *smart DTH* must be connected via Bluetooth within this period. If the connection does not take place within this period, a connection is only possible again when operating the tool holder (rotation > 0 rpm) or when re-activating the electronic using the power-off magnet. See chapter 6.5

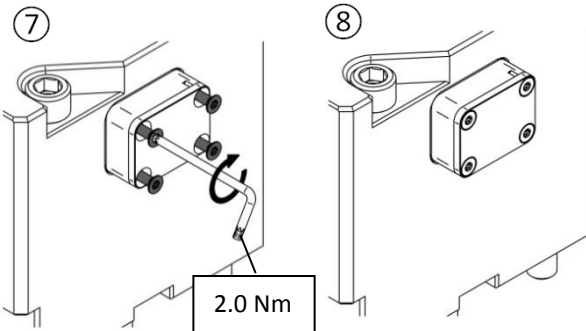
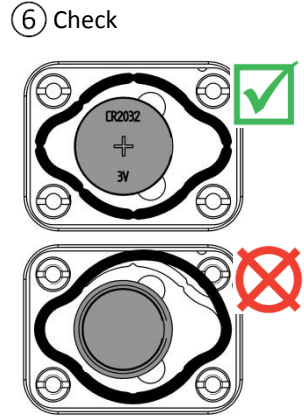
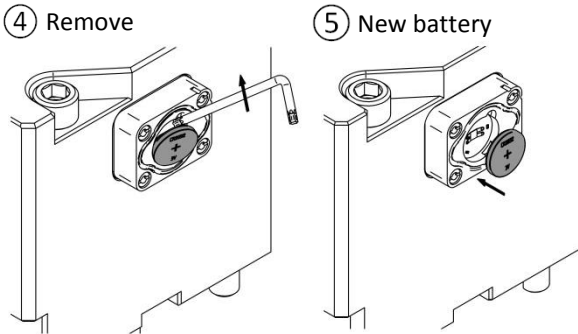
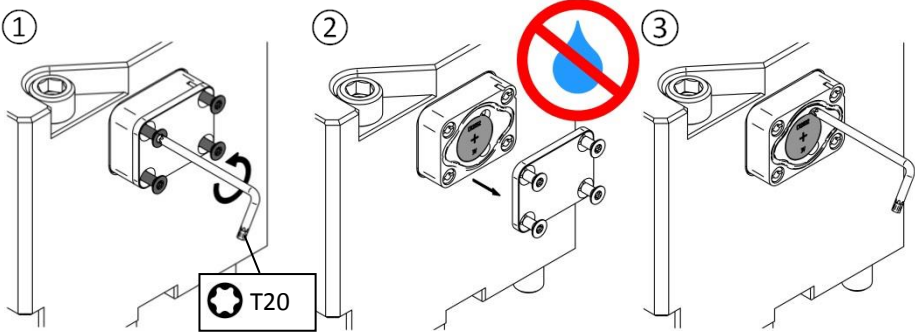
NOTICE

If the battery is empty and low RPM, no new data of the machining cycles will be stored in the memory of the electronic unit! The existing data will remain.

6.2 Exchange battery

NOTICE

The battery of the electronic unit must be changed as soon as displayed by the software.
Exchange the battery as shown below.



6.3 Updating the Firmware

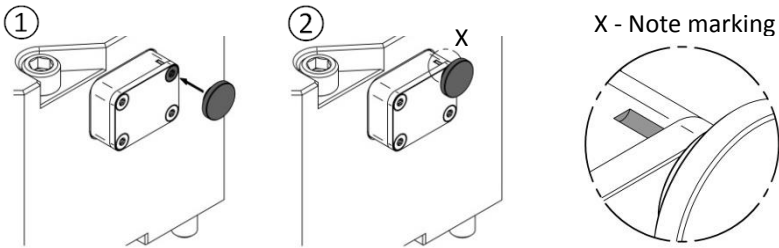
Available Firmware updates will be notified on the Tool View page in the software.

The updates can be performed automatically by the Bluetooth connection to the tool holder, and may take a couple of minutes to complete.

When an update is selected, it will be queued in the tool holder. The next time the tool holder is used, the update will be performed. Work cycle data from machining during the firmware update process will not be stored. The status can be seen in the software during the update.

6.4 Energy saving mode

For saving energy of the battery, fix the power-off magnet at the top of the marked screw. The electronic unit is switched off completely, as long as the power-off magnet is fixed.

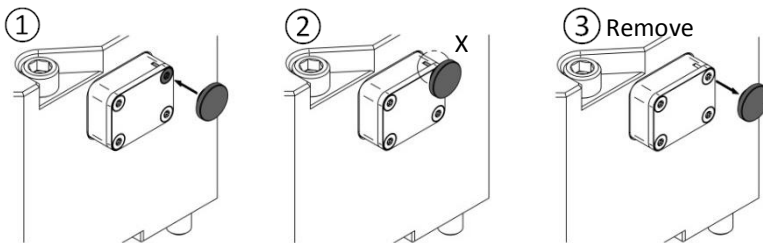


NOTICE

Use this function to save energy when the *smart DTH* is outside the machine. Remove the magnet before using the *smart DTH* inside the machine.

6.5 Activate electronic unit

To activate the electronic unit, place the power-off magnet at the top of the marked screw and remove it. Now the control unit is active for 5.0 minutes.



NOTICE

Use this function when the *smart DTH* is outside the machine to connect it via Bluetooth, or for data export.

7 Mechanical Instructions

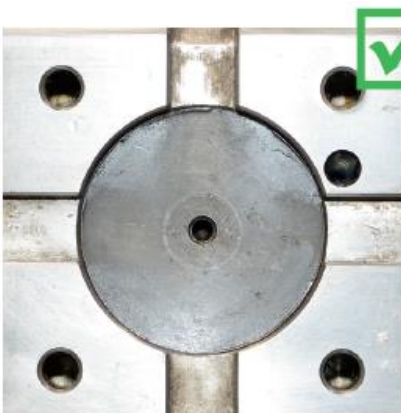
7.1 Installation and operation advice

WARNING

Consider the **operating instructions of the machine tool manufacturer.**



Avoid damages and dirt at the contact surfaces of the *smart DTH* and turret.



Rotate *smart DTH* spindle by hand before mounting on turret. In case of problems like roughness, backlash or visual runout, do not use the *smart DTH* and contact WTO immediately for repair.

NOTICE

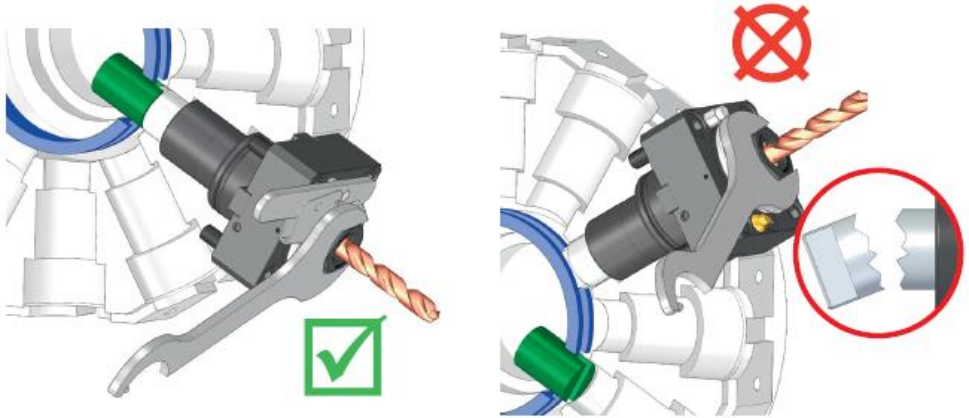
Never operate *smart DTH* beyond the maximum design torque and/or output RPM which are stated on the *smart DTH* dimensional drawing. Overloading the *smart DTH* will cause high wear and possibly gear breakage, and warranty will not cover damages caused by overloading.

WARNING

Remove or at least cover the cutting tool when handling, transporting or storing the *smart DTH*. Otherwise the **danger of injury increases.**

⚠ WARNING

Never change cutting tool or QuickFlex® adapter without holding the spindle! Use one-hand wrench for holding the spindle!



⚠ WARNING

Never change cutting tool or QuickFlex® adapter in turret positions other than the operation position when turret drive is released.

7.2 Break in period

Break in period is essential for long life of the *smart DTH*.

Break in removes intensified friction of internal components, especially bearings and gears, and helps to distribute the lubrication applied during assembly.

NOTICE


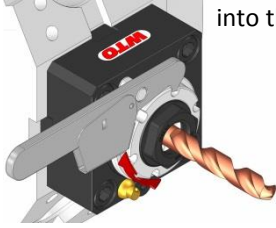
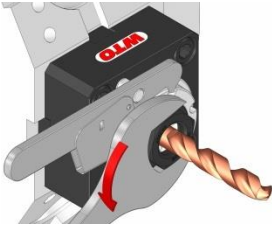
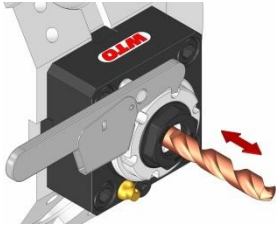
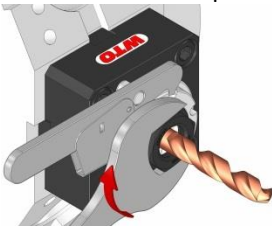

Run the *smart DTH* at 50% of the maximum output RPM for 30 minutes without load during first start-up. Maximum RPM is stated on the *smart DTH* dimensional drawing.

In case of error put *smart DTH* out of operation. Check if *smart DTH* is installed correctly, if necessary and possible, correct the error. Let potential errors be repaired by WTO.

Vibrations of the *smart DTH*, excessive noises, high heat generation or excessive coolant leakage are signs of an error.

During **break in period** *smart DTH* body temperature **75°C (167°F)** must not be exceeded.

7.3 Changing the cutting tool

<p>1. Rotate turret into machining position (released machine drive)</p> 	<p>2. Put on one-hand wrench and rotate <i>smart DTH</i> spindle by hand until it locks into the spindle nose</p> 
<p>3. Release clamping nut with spanner wrench</p> 	<p>4. Change cutting tool</p> 
<p>5. Tighten clamping nut with spanner wrench. Follow torque recommendation!</p> 	<p>6. Remove spanner wrench and one-hand wrench</p> 

Recommended tightening torque for the collet clamping nut

ER-20QF	ER-25QF	ER-32QF	ER-40QF	ER-50QF
80 Nm/59 ft-lb	110 Nm/81 ft-lb	140 Nm/103 ft-lb	180 Nm/133 ft-lb	240 Nm/177 ft-lb

WARNING

Tighten or release the clamping nut only when holding the spindle!

NOTICE

Never clamp oversize tool shanks. Never use a $\varnothing 12$ -11 mm collet to clamp a shank $\varnothing 12,2$ mm. Rather use the next bigger collet, in that case $\varnothing 13$ -12 mm!

Improper handling causes poor runout and damage of the clamping nut!

7.4 Changing the QuickFlex® adapter

1. Rotate turret into machining position (released machine drive)



2. Put on one-hand wrench and rotate *smart DTH* spindle by hand until it locks into the spindle nose



3. Release clamping nut with spanner wrench



4. Change QuickFlex® adapter



5. Tighten clamping nut with spanner wrench. Follow torque recommendation!



6. Remove spanner wrench and one-hand wrench



Recommended tightening torque of the clamping nut for adapters

ER-20QF	ER-25QF	ER-32QF	ER-40QF	ER-50QF
70 Nm/52 ft-lb	90 Nm/66 ft-lb	110 Nm/81 ft-lb	150 Nm/111 ft-lb	180 Nm/133 ft-lb

Watch video:



7.5 *smart DTH* with internal coolant supply

Designed to supply coolant both through spindle (internal coolant supply) and external coolant supply port. It is possible to operate the *smart DTH* without coolant. The external coolant supply port can be plugged for internal coolant supply only.

NOTICE

In case internal coolant is used, the coolant flow must be ensured. Only use cutting tool inserts with accordant coolant holes.

NOTICE

To avoid excess wear and/or damage to the internal sealing system, **coolant fluid must be filtered to a particle size less than 50 µm**. If not available on the machine, install an additional filtration system.

NOTICE

For machining **Gray Cast Iron**, use only *smart DTH* with **external coolant design**.

7.6 Plug *smart DTH* coolant nozzle to use for IC only

Ball nozzle

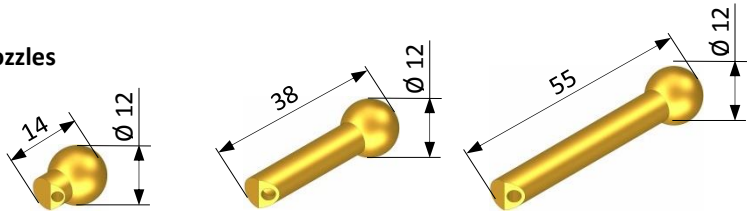


Copper pipe fitting



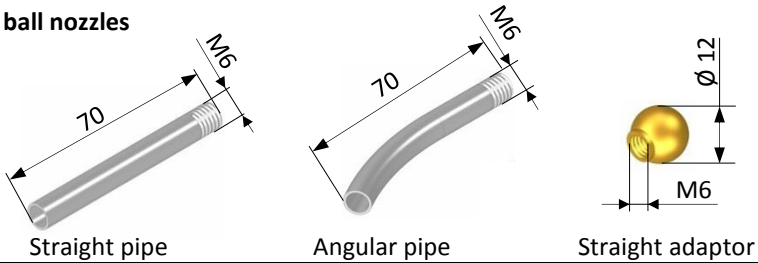
7.7 Ball nozzle options

One-piece ball nozzles



Item No.	59145	45168	79542
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Modular ball nozzles

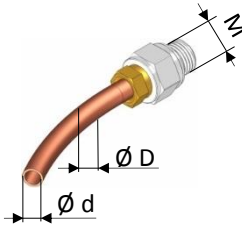


Item No.	111128	111129	111126
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7.8 Copper pipe fitting options

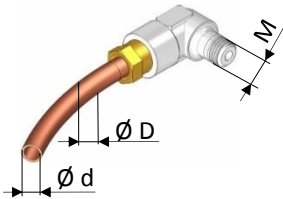
Straight type

Item No.	M	ØD	Ød
30549	M 10 x 1	6	4,8
31638	M 12 x 1	8	6



Angular type

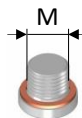
Item No.	M	ØD	Ød
55753	M 8 x 1	6	4,8
47997	M 10 x 1	6	4,8



Plug screw

Item No.	M	Item No.
97184	M 8 x 1	-
18483	M 10 x 1	26263
18529	M 12 x 1	26264

Sealing ring



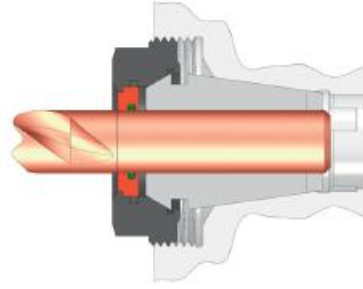
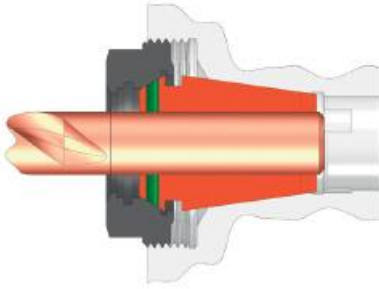
Dimensions in mm

7.9 Collet solutions for *smart DTH* with internal coolant supply

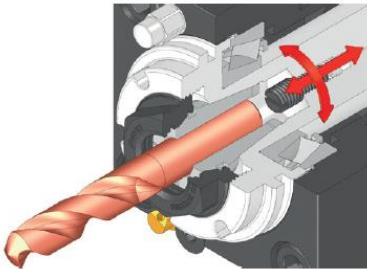
For *smart DTH* with internal coolant supply use:

Sealed ER collets (WTO type 1910...) or

Standard ER collets (WTO type 1900...) in combination with seal washer (WTO type 2101...)



7.10 Adjusting the projection length of the cutting tool



Turn screw inside the *smart DTH* spindle to adjust the projection length of the cutting tool

NOTICE

Remove stop screw from spindle when using QuickFlex® adapter

7.11 One-hand wrench

Size	Item No.
20	107720000
25	107725000
32	107732000
40	107740000
50	107750000

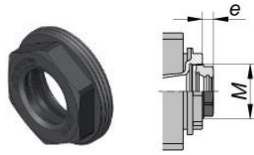



For *smart DTH*: to hold the QuickFlex® spindle when tightening or releasing

7.12 Available ER collet nuts for QuickFlex®

Collet nut ERQF

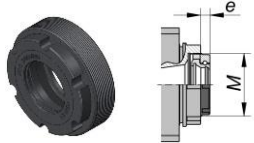
For external and internal coolant supply using seal washers
For collets DIN 6499, ISO 15488




Size	Item No.	e	M	Recommended torque [Nm]	Seal washer	
ER-20QF	207020000	7.5	M 32 x 1.50	80	210120...	107520020
ER-25QF	207025000	8	M 40 x 1.50	110	210125...	107525020
ER-32QF	207032000	8	M 50 x 1.50	140	210132...	107532020

Collet nut ERQF-BC

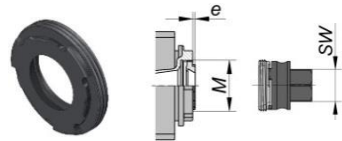
With ball bearing
For external and internal coolant supply using seal washers
For collets DIN 6499, ISO 15488





Size	Item No.	e	M	Recommended torque [Nm]	Seal washer	
ER-40QF	208040001	9	M 62 x 1.50	180	210140...	107540020
ER-50QF	208050001	17	M 68 x 1.50	240	210150...	107550020

Collet nut ERQF-A – short

For external and internal coolant supply using sealed collets
For collets DIN 6499, ISO 15488



Size	Item No.	e	M	Recommended torque [Nm]			SW
ER-20QF	202120001	2.4	M 32 x 1.50	75	107525101	107525104	27
ER-25QF	202125001	2.0	M 40 x 1.50	100	107532101	107532104	30
ER-32QF	202132001	2.3	M 50 x 1.50	130	107540101	107540104	36
ER-40QF	202140001	3.0	M 62 x 1.50	150	107540101	107540104	36

Seal washer for collet nuts ERQF, ERQF-BC

For internal coolant supply



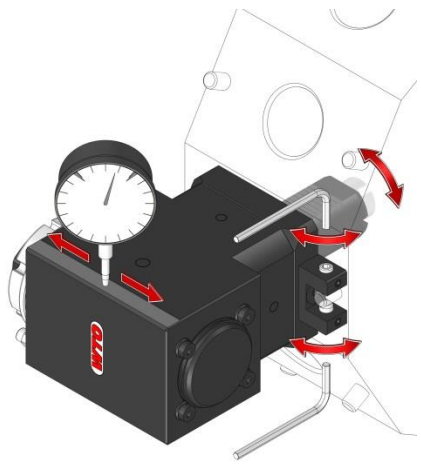
Size	Item No. Single parts	Item No. Complete set	d min.	d max.	Range per seal washer	Number per set	No. included per set
ER 16	210116...[d*10]	210116000	3.0	10	0.5	14	3.0-10
ER 20	210120...[d*10]	210120000	3.0	13	0.5	20	3.0-13
ER 25	210125...[d*10]	210125000	3.0	16	0.5	26	3.0-16
ER 32	210132...[d*10]	210132000	3.0	20	0.5	34	3.0-20
ER 40	210140...[d*10]	210140000	3.0	26	0.5	46	3.0-26
ER 50	210150...[d*10]	210150000	6.0	25	0,5	11	6, 8, 10, 12, 14, 19, 20, 21, 23, 24, 25

Ordering example: 210116040 suits to ER 16 and shank d = 4.0 - 3.5

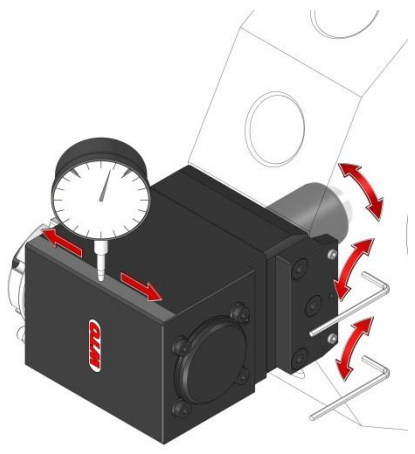
Dimensions in mm

7.13 Turret centerline alignment

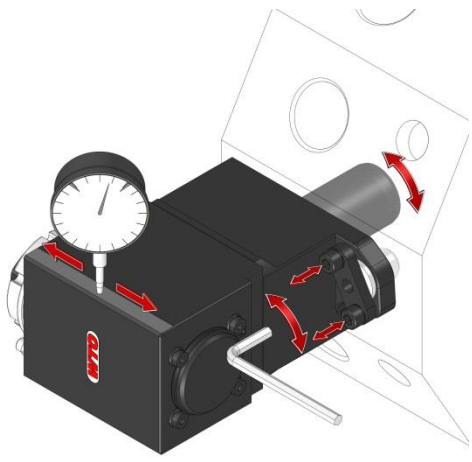
Using orientation pin on turret:



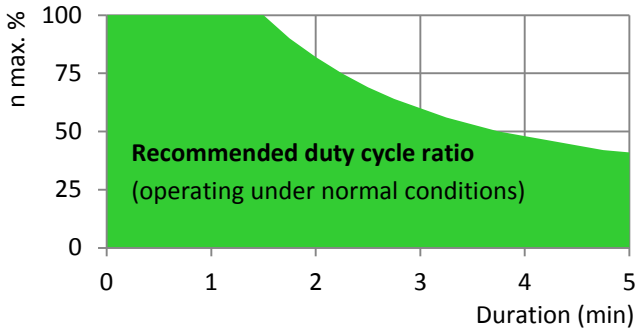
Using turret surface:



Using eccentric pin on *smart DTH*:



7.14 Duty cycle ratio



NOTICE

Operating the *smart DTH* beyond the recommended duty cycle ratio can cause excessive heat generation and damages to the *smart DTH* like bearing failures.

smart DTH body temperature should **not exceed 65°C (149°F)** when operating under normal conditions.

7.15 Service interval

smart DTH life time depends on cutting application and operation conditions.

Wear items such as bearings and seals need to be replaced periodically.

Recommended service interval is

- 12 months under normal conditions in 2 shifts.
- 6 months when operating under 3 shifts or heavy conditions or high RPM.
- 6 months for *smart DTH* with internal coolant supply.

Maintenance includes cleaning the inside of the *smart DTH* and lubricating the bearings and gears.

Maintenance work must be performed by WTO factory owned service centers or by staff who are trained by WTO.

8 Care and Cleaning

NOTICE

smart DTH must be cleaned frequently in order to maintain the high quality and accuracy.

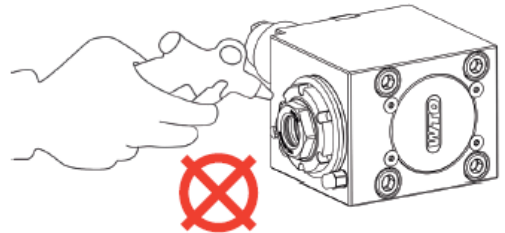
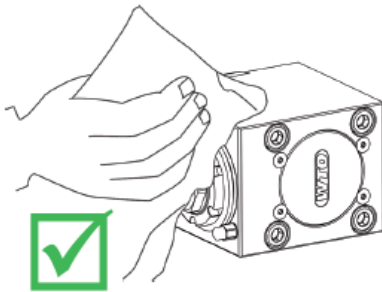
Chips, grease, oil, coolant, etc. must be removed after every 24 hours of operation. Cleaning must be performed only by using a clean rag.

NOTICE

Never use compressed air to clean the smart DTH. Compressed air forces chips and coolant through the sealing system causing premature failure of the *smart DTH*.

Clean and check the *smart DTH* once per week, rotate spindle several times by hand.

Clean carefully the spindle area when removing the cutting tool.



9 Storage and transport

9.1 Storage

NOTICE

Store *smart DTH* and accessories in clean and dry environment.

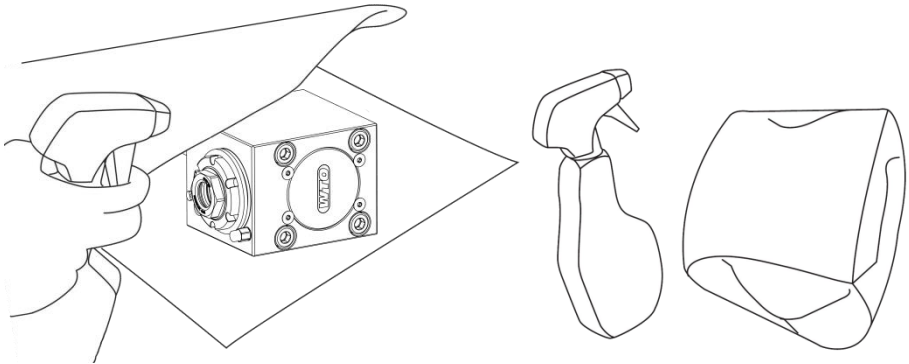
Bring electronic unit in energy saving mode as described in chapter 6.4.

Surfaces of *smart DTH* must be lightly lubricated and covered with corrosion protection paper to protect the unit from dirt and rust.

Tool interface needs to be protected with a proper cover.

NOTICE

Rotate *smart DTH* spindle by hand before storage and once per month when being in storage to avoid contact corrosion in the bearings.



9.2 Shipment

When transporting the product by rail, air or sea, always use the complete original WTO *smart DTH* packaging, transport container and cardboard box, or equivalent, to protect against shock and vibration.

NOTICE

Always remove the battery before transporting the *smart DTH*.

9.3 Shipping claims

Damage caused during shipment must be reported to WTO in writing immediately upon receipt of product. Claim for damage must include pictures of damage to packaging and product.

10 Conformity for electronic components

10.1 EU Declaration of conformity

WTO declares that the electronic components of Smart Driven Tool Holder with QuickFlex® complies to:

Safety:

Low Voltage Directive (2014/35/EU):

- Reference method: EN61010-1:2010+A1:2019

Radio:

Radio Equipment Directive (2014/53/EU):

- Reference method: EN 300328 V2.2.2:2019-07
- Reference method: EN 50663:2017
- Reference method: EN 301489-1 V2.2.3:2019-11
- Reference method: EN 301489-17 V3.2.4:2020-09

EMC:

EMC Directive (2014/30/EU):

- Reference method: EN IEC 61000-6-2:2019
- Reference method: EN IEC 61000-6-4:2019

Following the provisions of EU-directives:

- 2011/65/EU (RoHS2) including 2015/863/EU (RoHS3)
- 2012/19/EU (WEEE) see chapter 12

10.2 FCC Compliance statement (USA)

FCC Compliance statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications made to the device not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.

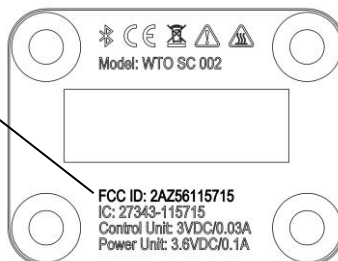
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Safety compliance to: UL 61010-1

Labeling for FCC:

FCC ID: 2AZ56115715



10.3 Industry Canada compliance statement (Canada)

This device complies with Industry Canada's applicable license-exempt RSSs. Operation is subject to the following two conditions:

- (1) this device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- 1) l'appareil ne doit pas produire de brouillage;
- 2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This product is certified as type of the mobile device with Industry Canada Rules. To maintain compliance with RF Exposure requirement, please use within specification of this product and have a separation distance of more than 20 mm between the user and/or bystander and the antenna and /or radiating element.

This distance ensures that the output power (e.i.r.p.) of EYSKBN is below the SAR evaluation Exemption limits defined in RSS-102 issue 5.

Ce produit est certifié comme type de l'appareil mobile avec Industrie Règles de Canada. Pour maintenir l'acquiescement avec exigence Exposition de RF, veuillez utiliser dans spécification de ce produit et respecter une distance de séparation plus de 20 mm entre l'utilisateur et / ou un tiers et l'antenne et / ou l'élément rayonnant.

Cette distance garantit que la puissance de sortie (p.i.r.e.) d'EYSKBN est inférieure aux limites d'exemption de l'évaluation SAR définies dans le numéro 5 de la norme RSS-102.

This product complies to ICES-003, CAN ICES-003 (B)/ NMB-003(B).

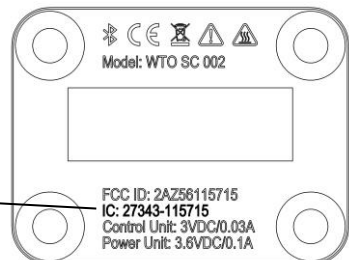
Ce produit est conforme à ICES-003, CAN ICES-003 (B)/ NMB-003(B).

Safety compliance to: CSA-C22.2 No. 61010-1

Conformité de la sécurité à: CSA-C22.2 No. 61010-1

Labeling for IC:

IC: 27343-115715



10.4 Japan

This product installs a radio system which has been approved as a radio station in a low power data communication system based on the Radio Law.

EYSKBN: 001-A14398

Safety compliance to: IEC61010-1

11 Warranty

WTO will repair, free of charge, any manufacturers defects arising from failure due to design, material, or workmanship in accordance with following conditions:

1. Warranty only applies to manufacturers defects occurring within 12 months after delivery for new products and 90 days after delivery for repair service.
2. Wear on perishable items and damage caused by overloading, or not operating in accordance with *smart DTH* specifications, are excluded.
3. Customer must discontinue use immediately and submit a claim in writing upon detection of defect.
4. Written claim must include a detailed description of fault, and is subject to verification by WTO.
5. Warranty repairs must be performed by WTO factory owned service centers.
6. Transportation to WTO must be prepaid. Customer assumes all risks for freight to WTO.
7. Warranty units will be returned by WTO via ground transportation. Upgrade to express shipping must be paid by the customer.

12 Disposal



For disposal in countries inside the European Union

This symbol means that the *smart DTH* must be disposed of in accordance with the directive on waste of electrical and electronic equipment (WEEE). Dispose the smart DTH via the local collection points for waste electronic equipment or send it back to WTO Service, Neuer Hohdammweg 1, 77797 Ohlsbach in Germany.

Phone: +49 7803 9392-751, service@wto.de

Do not dispose of the *smart DTH* with the household waste. The battery must be removed before disposal of the *smart DTH*. Dispose of the battery separately in compliance with the country specific environmental protection laws.

WEEE Directive: 2012/19/EU

WEEE Reg. No: DE 63980008

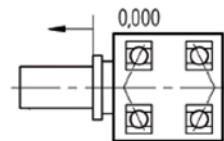
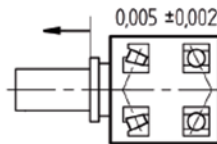
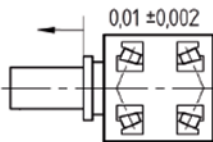
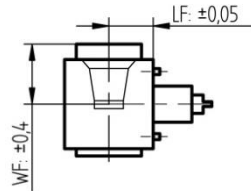
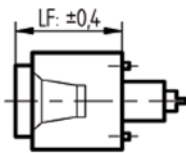
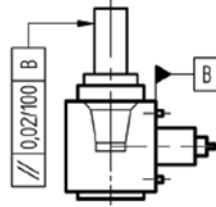
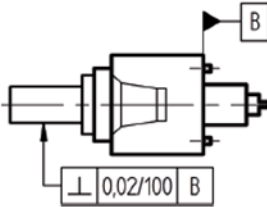
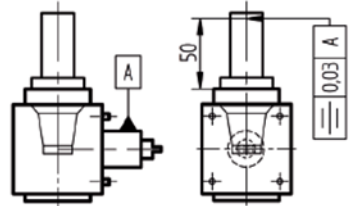
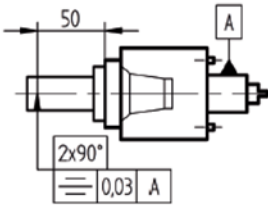
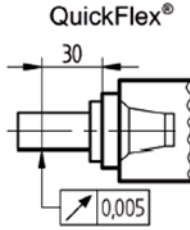
For disposal in countries outside of the European Union

This symbol is only valid in the European Union (EU). If you wish to discard this product please contact your local authorities and ask for the correct method of disposal.

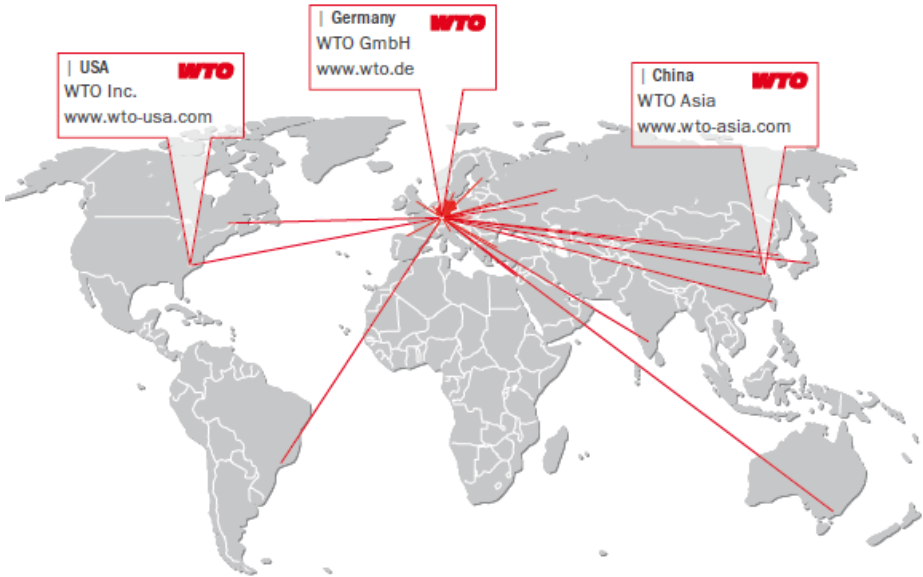
13 Technical data of electronic components

Supply voltage	Max 3.3VDC, 0.08W
Power supply	
Battery	3V Coin cell CR2032 See chapter 1.8
Radio	
Frequency range	2402 - 2480MHz
Output power	8.0dBm
Sensors	
Sensor 1, Vibration	Measures vibrations from 0 to 8g Measures vibrations in 3 axes (X-, Y- and Z-axis)
Sensor 2, Temperature	Measures temperature from 0°C to +85°C (32°F to 185°F)
Sensor 3, Rotation	Measures rotation maximum 12000rpm
Environmental conditions	
Operating environment	IP56 according to IEC 60529 Indoor use in lathe/CNC machine, closed or open, dry or wet machining.
Temperature range	Operating: 0°C to +65°C (32°F to 149°F) Storage: -40°C to +85°C (-40°F to 185°F) For battery operating and storage condition please refer to the battery datasheet.
Relative humidity	Operation 10%-95% Storage recommended 10%- 50%
Maximum altitude	2000m (6562ft)

14 smart DTH tolerances



WTO Service Centers



| USA **WTO**
WTO Inc.
www.wto-usa.com

| Germany **WTO**
WTO GmbH
www.wto.de

| China **WTO**
WTO Asia
www.wto-asia.com

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E-Mail: info@wto.de

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E-Mail: info@wto-asia.com

China