

TORQUE TESTING PRODUCTS

Precise Torque Control Smart Manufacturing for Future

Full-line Coverage

multiple codes suitable for
industrial applications

Precise Measurement

0.3% torque error control

Wide-area Adaptation

stable operation across all
temperature and operating
conditions

Safe Reliable

industrial-grade protection
standard certification

Durable Long-lasting

long-life core precision
components

INSIZE CO., LTD.

INSIZE - Founded in 1995, is a dedicated supplier of measuring instruments. To enable us to serve the world-wide market, we are setting up an INSIZE distribution network on a global basis. INSIZE headquarter is located in China. We have branch companies in Canada, USA, Mexico, Brazil, India, Bangladesh, Pakistan, Vietnam, Thailand, Malaysia, Indonesia, Turkey, Taiwan, China, Italy, Czech Republic, Spain, France, UK, Romania, Slovenia, Poland, Australia and distributors in over 120 countries. We ensure that wherever you are, our INSIZE products have service and support that are within hands reach. Our dedication to Quality, Innovation, Service and Value has created a worldwide demand for the INSIZE products.



is our standard quality, made in China



is our premium quality, made in Europe



To become the world's leading supplier of
industrial measurement solutions,
providing measurement products and services for
industrial production,
addressing measurement challenges,
continuously innovating, and contributing to social
development.



Widespread Application: Ensuring success of modern industrial assembly



From precision manufacturing to heavy industry, and from smart assembly to scientific research, our products are deeply integrated into the core applications of modern industry. With unparalleled precision and stability, they provide a solid foundation for production quality, equipment safety, and technological innovation across all sectors.



Automotive Manufacture And Machining

Covering the entire process of vehicle assembly, engine, and chassis manufacturing, ensuring the reliable fastening of precision components and assembly accuracy, and solving fastening challenges under complex operating conditions are key to ensuring efficient production in the automotive industry.



3C Electronics And Smart Assembly

Meets the precision torque requirements of high-density circuit boards, micro components, and smart home appliances; complies with the high-precision, high-speed assembly standards of automated production lines; and ensures the stable operation and durability of electronic products.



Energy, Heavy Industry And Specialized Sectors

Effortlessly tackle the challenges of heavy loads and vibration in wind power, oil, and rail applications, while meeting the stringent assembly standards of the aerospace industry and maintaining exceptional reliability and stability even under extreme operating conditions.



Research, Education And Technological Innovation

Serving university laboratories, defense research institutions, and product development centers, we provide precise and controllable testing and assembly tools to support new materials analysis, process validation, educational experiments, and cutting-edge technology R&D.

Introduction to the Principle of Torque : Foundation of Precise Control

What Is Torque? Torque is a special moment that causes an object to rotate and serves as the core indicator for bolt tightening. It directly determines the magnitude of bolt pre tension, and further affects the sealing performance, anti loosening capacity of joints, as well as the reliability and safety of the overall structure.



01 Torque Control Method

The most classic tightening method sets pre-tension by directly controlling the torque value applied to the tool. Featuring simple operation and high versatility, it is the most widely used basic method in industrial assembly.



02 Angle Control Method

Tighten first to an initial torque to eliminate clearances, then rotate by a specific angle. This method effectively avoids the influence of friction coefficient fluctuations, delivers more stable and accurate pre-tension, and is suitable for critical joint locations.



03 Composite Control Method

Adopting dual judgment of torque and angle, this is the most advanced tightening strategy available. It ensures torque compliance while monitoring tightening quality via rotation angle, greatly improving assembly consistency.

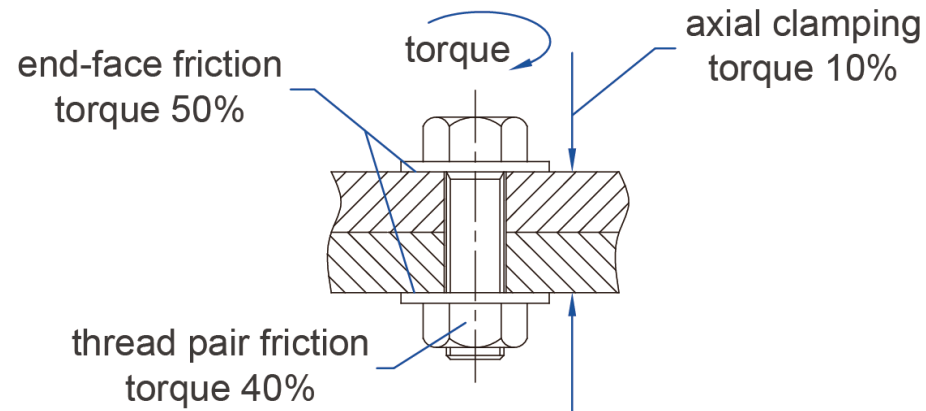
Common Torque Unit Conversions

Unit	N·m	kg·cm	Lb·ft	Lb·in
1 N·m	1	10.1972	0.737562	8.850744
1 kg·cm	0.09807	1	0.07233	0.86796
1 Lb·ft	1.35582	13.8255	1	12
1 Lb·in	0.112985	1.1521	0.08333	1

Torque and Force

There are many ways to tighten screws. When using open end wrenches or ring spanners, the operation relies on manual mechanical force and operator intuition. It may seem logical to judge whether a bolt has been safely tightened based on the reaction force felt on the wrench, yet this method is highly unreliable. For tightening critical bolts, advanced methods should be adopted, such as torque wrenches (with or without angle of rotation control), motor driven electric wrenches, ultrasonic tightening for large bolts (to determine preload), and zone pressure tightening. Experience shows that proper selection and application of tightening tools is a prudent practice, and the torque wrench serves as the fundamental and essential tool for bolt tightening control.

Components of Tightening Torque



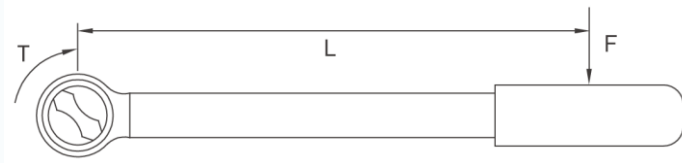
As shown in the figure, two joint components are assembled by tightening a single nut with a bolt. The helix angle of the thread generates tension in the bolt, producing a helical derived force. This axial force defines a well optimized bolted joint.

But why? A properly tightened, optimized bolted joint prevents bolt loosening. If the axial force is too low, the joint may slip or loosen under vibration. If the axial force is excessively high, there is a risk of bolt fracture. You can optimize the axial force by selecting the correct tightening torque. For numerous fastening requirements, every threaded connection has a specific tightening torque target. Only a well-considered preload torque value enables the threaded joint to operate safely, function properly, and achieve cost effective performance.

How is torque defined?

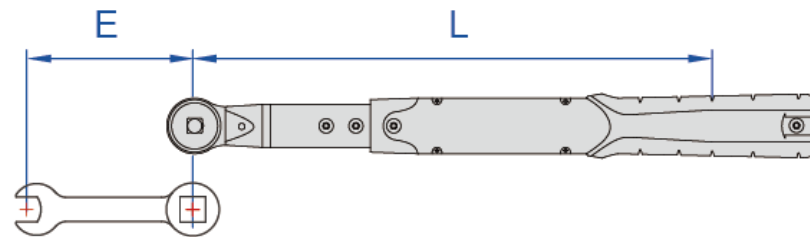
Torque equals the product of the force (F) perpendicular to the lever arm (L) and the lever arm (L).

Example: $F=100\text{N}$, $L=2\text{m}$, then $T=100 \times 2 = 200 \text{ N}\cdot\text{m}$. $T = F \cdot L$ T —Torque F —Force L —Lever arm



This means that when torque is applied, the lever arm L is a critical factor affecting the magnitude of the resulting torque. This explains why a torque wrench must be gripped at its handle for torque application. Torque correction is required when the wrench head length is extended. By contrast, electric or hydraulic tightening tools control rotation at the centre of the tool head, so no torque correction is needed.

Torque Correction Formula



$$K = \frac{L}{L+E}$$

$$T_{(W)} = T \cdot K$$

K - Correction factor

L - Standard effective length of wrench

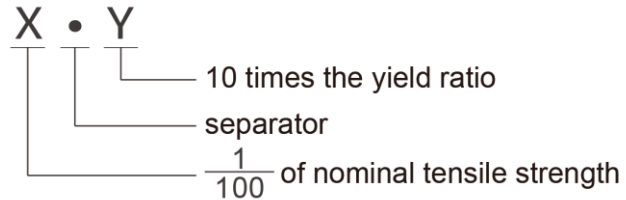
E - Length of the extended part of the wrench

$T_{(W)}$ - Preset torque value on wrench

T - Actual required torque value

Introduction to bolt property class

The property class marking of bolts consists of two groups of numerals :



$$(\text{yield ratio} = \frac{\text{nominal yield strength}}{\text{nominal tensile strength}})$$

Example: Meaning of property class 8.8 bolts

(1) The nominal tensile strength of the bolt material is 800 MPa.

(2) The yield ratio of the bolt material is 0.8.

(3) The nominal yield strength $R_{p0.2}$ of the bolt material equals $800 \times 0.8 = 640$ MPa.

Common bolt property classes include 3.6, 4.6, 4.8, 5.6, 5.8, 6.8, 8.8, 9.8, 10.9 and 12.9.

Bolts of class 8.8 and above are high strength bolts; all others are generally referred to as ordinary bolts.



How can we quickly determine the proper tightening torque for a bolt? And how does it relate to the bolt property class?

In engineering practice, bolts are generally not tightened to 100 % of yield. The target preload force is normally taken as $F = (70\% \sim 80\%) \times F_y$, i.e. preloaded to 70~80 % of the yield load to retain a safety margin.

Example: (M10 bolt, stress cross section area $A_s = 58 \text{ mm}^2$, typical friction efficient $K = 0.1 \sim 0.2$, property class 8.8: $R_{p0.2} = 640 \text{ MPa}$)

Yield load: $F_y = 640 \times 58 = 37120 \text{ N}$

Preload at 75 % (mid range value): $F = 0.75 \times 37120 = 27840 \text{ N}$

Suitable tightening torque: $T = 0.15 \times 27480 \times 10 \div 1000 = 41.8 \text{ N.m}$

Core Product Catalog

1 ***Torque Tester***

2 ***Torque Screwdriver***

3 ***Digital Torque Wrench***

4 ***Mechanical Torque Wrench***

5 ***Dial Torque Wrench***

6 ***Assistant Plugin of wrench***

7 ***Electronic Torque Tool***

8 ***High-Torque Bolt Tightening***



1

Torque Tester

As a “checkup center” for torque tools, it is a key piece of equipment for calibrating and testing the accuracy and reliability of various torque tools, providing core support for quality control and metrological testing in industrial manufacturing.

High precision

Results are accurate, with minimal error

Standardization

Follow the standards, recognize authority

Stability control

Data-driven, excellent quality control



Full-Category Calibration

Covers torque wrenches, screwdrivers, and electric tightening tools; eliminates measurement errors in equipment and ensures tool accuracy.



High-Precision Data Collection

Built-in high-sensitivity sensor captures torque data accurately in real time and ensuring the authenticity and reliability of the data at the source.



Bench-Assisted Testing

When used in conjunction with a professional test bench, it effectively eliminates human operational errors and significantly improves testing stability.



Basis for Compliance Determination

Quickly determine whether instruments comply with specifications by strictly adhering to industry standards, thereby supporting quality system certification.

Code		Torque testing category	Sensor type	Installation method	With buffer?
IST-DTT Series		Static torque	Fixed type	Portable installation	N
IST-HP Series		Static + Dynamic torque	Fixed type	Portable installation	Y
IST-CD Series		Specific torque (electric screwdriver)	Fixed type	Portable installation +Mounted on machine	Y
IST-DCT Series		Specific torque (bottle cap)	Fixed type	Portable installation	N
IST-04TT Series		Specific torque (manual wrench)	Fixed type	Portable installation	N
IST-TT Series		Static + Dynamic torque	Fixed type	Portable installation +Mounted on machine	N

Code		Torque testing category	Sensor type	Installation method	With buffer?
IST-06TS Series		Static torque	Fixed type	Mounted on machine	N
IST-07TS3000		Static torque	Fixed type	Mounted on machine	N
IST-HT1000		Static torque	Fixed type	Mounted on machine	N
IST-NJ Series		Static + Dynamic torque	Fixed type	Portable installation +Mounted on machine	Y
IST-IR Series		Dynamic torque	Rotary type	Portable installation +Mounted on machine	Y
IST-TA Series		Dynamic torque	Rotary type	Mounted on machine	N

>>> **Typical Application**

←IN SIZE→

Accuracy Testing of Torque Wrench

Product

Torque Wrench Test Stand **IST-06TS550**

Digital Torque Tester **IST-TT550**



Application

Turn the handwheel to apply a standard torque and perform a check to verify the accuracy of the torque wrench

Features

- Rotate the wheel to apply force, rotary speed is adjustable
- Easy operation due to the gear box
- Depending on the length of the torque wrench , move the slider and adjust the support plate to keep the wrench level
- With external sensor, to test torque wrenches, torque screwdrivers and other torque tools
- Peak, track and first peak working modes
- Tolerance testing
- LED indicator and buzzer for target torque alarm
- Ability to upload data in real time, save data and export data to EXCEL
- Curve analysis software (optional): Over-torque analysis when Click signal is insufficient and real-time data tracking and recording

>> **Test**



>>> Typical Application

←IN SIZE→

Dynamic Torque

Product

Torque Tester For Electric Screwdriver

IST-CD50A + Buffer IST-CD-BF2

Static Torque Sensor

IST-NJ200L + Buffer IST-NJ-BF3

Dynamic Torque Sensor IST-TA100



Application

Spot-check testing of electric screwdriver and electric torque wrench; Dynamic torque sensor connected via couplings between motor and the load end for testing

1. Compatible with all electric screwdrivers; Widely used in manufacturing sectors such as 3C, new energy, automotive parts and etc.; Compact in size, extremely easy to integrate; Set upper and lower tolerance limits and output pass/fail signals via I/O ports; Support multiple standard communication protocols and compatible with mainstream communication ports such as RS485 and RS232; Can be paired with different buffers to simulate real-world operating conditions
2. Wide range of applications: for testing electric, pneumatic and manual torque screwdrivers and torque wrenches and other torque tools and torque monitoring; High overall accuracy, good long-term stability; Can be used with buffers for torque testing
3. Non-contact digital signal transmission guarantee wear-free and maintenance-free operation; Real-time display of torque, RPM and power values; Support RS485 communication, support active uploading protocols; Communication rate up to 1000 Hz; Torque signal is $\pm 5V$ transformed voltage output; OLED display, simple calibration, zeroing, filtering, etc. can be performed

>> Test





2

Torque Screwdriver

It is a “micro-wrench” in the field of precision assembly, designed specifically for tightening operations that require strict torque control, and serves as a key tool for ensuring product assembly quality and reliability.

←INSIZE→



Full-Category Coverage

A full range of digital, mechanical, and dial models to meet everything from general-purpose to high-precision assembly needs.



Precise Torque Control

By presetting torque values as needed, constant force application is achieved, eliminating human operational errors at the source.



Assembly Safety Protection

Effectively prevents thread stripping, hidden damage to components, or insufficient tightening, thereby improving the yield rate.



Compact and Portable, with Flexible Operation

With its compact design, it easily handles precision assembly in tight spaces such as inside equipment and in the corners of enclosures.



Engineered Design, Comfortable and Effortless

The streamlined, non-slip handle fits comfortably in the palm, reducing hand fatigue during long periods of continuous use.



Consistent Output, Consistent Quality

Precision mechanical structures and calibration processes ensure torque repeatability and guarantee assembly consistency.



Smart Connectivity, Data Traceability

Digital display models support data output and storage, enabling the recording of tightening data and quality traceability.

Code	Appearance design	Type	Data transmission
IST-SD Series		Digital	No transmission
IST-5SD Series		Digital	Wired transmission
IST-3SD Series		Digital	Wireless transmission (keyboard signal)
IST-4SD Series		Digital	Wireless transmission (built-in wireless)
IST-MG Series		Mechanical	No transmission
IST-DS Series		Dial	No transmission

>>> Typical Application

←IN SIZE→

Circuit Boards for the Electronics Industry

Product

Built-in Wireless Digital Torque Screwdriver
IST-4SD200



Application

Tighten the small screws on the circuit board and enable wireless data transmission

Features

Upper and lower tolerance limits can be set and measurement results automatically calculate % difference from target value; 10 preset target torque values and usage modes, parameters can be locked to prevent change; With audible and visible alarm; Memory of 2000 results; Non-slip grip handle; 1×AAA battery and digital display for extra-Long 110 hours working

Built-in wireless data transmission

Measurement results can be sent manually by pressing the M button or sent automatically after measurement; Built-in wireless data transmission module, which can be connected with computers, mobile phones, tablets and other devices; Data can be transmitted to Excel, Word, Txt, etc. via wireless connection; Transmission distance is 10m (under the condition of no obstruction and no electromagnetic interference); Optional accessory: receiver (code 7315-2/3/6/7/8/9)

>> Test



3

Digital Torque Wrench

As the “data brain” of smart assembly, it provides high-precision, traceable tightening solutions, enabling the digitization of torque control and the standardization of assembly processes, thereby laying a solid data foundation for quality control in industrial manufacturing.



High-definition digital display, intuitive readings

Equipped with a high-contrast display that dynamically updates torque readings in real time, it eliminates the visual errors associated with traditional scales and remains clearly visible even in harsh workshop environments.



Audible and visual alarm, preventing errors and omissions

Supports precise presetting of torque thresholds; when set value is reached, an audible alarm and flashing LED immediately trigger, effectively preventing over-tightening or under-tightening and ensuring assembly consistency.



Data storage, fully traceable throughout entire process

The built-in memory chip automatically records tightening data, supports wireless and USB data output, generates traceable quality records, and facilitates digital analysis of the production process.

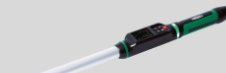


Smart mode, versatile and efficient

It supports various measurement modes (peak hold, preset and tracking) and is compatible with two-way torque detection, meeting the operational needs of multiple scenarios such as assembly lines and maintenance.

Code	Appearance design		Operating modes	Data transmission	Head type
IST-WP Series		Mini type	Peak	No transmission	Fixed ratchet head
IST-WS Series		Short handle	Peak	No transmission	Fixed ratchet head
IST-W Series		Regular style	Peak	No transmission	Fixed ratchet head
IST-2W Series		Regular style	Peak	No transmission	Interchangeable head
IST-21W Series		Regular style	Peak	No transmission	Swing ratchet head
IST-24W Series		Regular style	Peak	No transmission	Adjustable open head
IST-33W Series		Basic type	Peak	No transmission	Fixed ratchet head
IST-34W Series		Basic type	Peak	No transmission	Interchangeable head
IST-1W Series		Regular style	Peak +Angle	No transmission	Fixed ratchet head

Code	Appearance design		Operating modes	Data transmission	Head type
IST-4W Series		Regular style	Peak +Quality inspection	Storage and review	Fixed ratchet head
IST-16W Series		Regular style	Peak +Quality inspection	Storage and review	Interchangeable head
IST-5W Series		Without handle	Peak +Angle	Storage and review	Fixed square head
IST-37W Series		Regular style	Peak	Wired transmission	Fixed ratchet head
IST-47W Series		Regular style	Peak	Wired transmission	Interchangeable head
IST-40W Series		Color screen	Peak +Curve	Wired transmission	Fixed ratchet head
IST-46W Series		Mini “click”	Peak+ Mechanical click	Wired transmission	Interchangeable head
IST-22W Series		Regular “click”	Peak+ Mechanical click	Wired transmission	Fixed ratchet head
IST-15W Series		Regular style	Peak	Wireless transmission (keyboard signal)	Fixed ratchet head

Code	Appearance design		Operating modes	Data transmission	Head type
IST-18W Series		Regular style	Peak	Wireless transmission (keyboard signal)	Interchangeable head
IST-42W Series		Regular style	Peak	Wireless transmission (built-in wireless)	Fixed ratchet head
IST-44W Series		Regular style	Peak	Wireless transmission (built-in wireless)	Interchangeable head
IST-12/38/13W Series		Regular style	Peak	Wireless tightening system (PC software)	Fixed ratchet head
IST-45W Series		Regular style	Peak+Angle+Quality inspection+Prevent repeated tightening+Curve with angle	Wireless tightening system (PC software)	Interchangeable head
IST-WPE Series		Color screen preset "Click"	Peak+Mechanical click +Prevent repeated tightening+Curve	Wireless tightening system (Web framework server host)	Interchangeable head
IST-WEC Series		Color screen vibrating handle	Peak+Angle +Prevent repeated tightening+Curve	Wireless tightening system (Web framework server host)	Interchangeable head

Customized Selection Guide: How to Quickly Choose the Right Digital Torque Wrench?

01

Appearance Design

Select mini portable, short handle compact or standard extended length configurations flexibly according to working space and gripping habits, to enhance operability in confined spaces and comfort during long duration operations.

02

Operating Modes (Multiple selections)

Select functions including peak value, angle, quality inspection, anti-re-locking, digital click and curve analysis based on assembly processes and quality-control requirements, to meet diverse demands ranging from basic assembly to precision processes.

03

Data Transmission

For data traceability and industrial interconnection requirements, digital communication solutions such as wireless communication, direct wired USB connection, keyboard-signal transmission, or direct MES-system docking are optional to realize automatic data acquisition.

04 Head Type and Socket Capacity

Adapt to structures such as fixed ratchet heads, interchangeable heads, open end heads or box-end heads according to fastener types. Select interfaces of 1/4", 3/8" or 1/2" etc. based on bit sizes to secure firm clamping and compatibility with various accessories, satisfying tightening requirements for different specifications.

05 Select Appropriate Torque Range

Ensure the tool's measuring range fully covers the actual working torque range. It is recommended that the frequently-used torque falls within 20%-80% of the full-scale range to guarantee measurement accuracy and repeatability. Meanwhile, prevent tool damage or safety risks caused by range overload, balancing measurement precision and service life of the equipment.

>>> Typical Application

←INSIZE→

Key Workstation in the Automotive Industry

Product

Built-in Wireless Digital Torque Wrench **IST-42W30A**
Measurement Data Management And Analysis Software **7349**



Application

Cost-effective application for tightening automobile clutch upper covers. Workpieces can be sorted via Excel, or measured guided by software 7349 for data transmission, storage, classification, retrieval and statistical analysis.

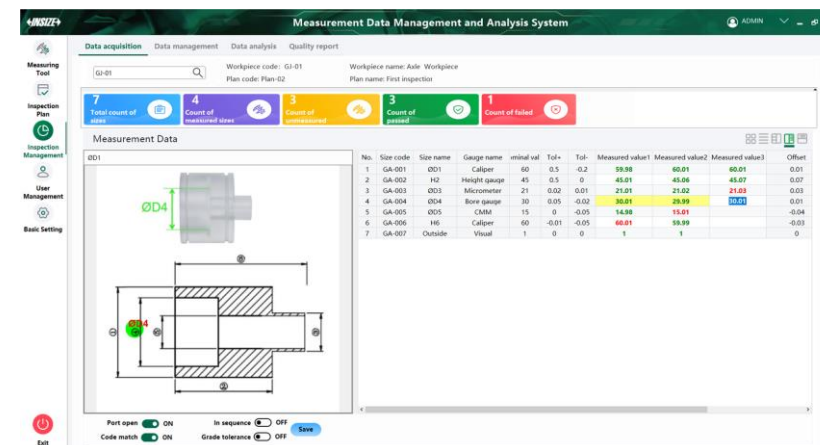
Features

Upper and lower tolerance limits can be set to determine pass or fail by LED lights; 10 preset target torque values and usage modes; With audible and visible alarm; Measurement results automatically calculate % difference from target value; Memory of 2000 results; Non-slip grip handle; Built-in wireless data transmission module, which can be connected with computers, mobile phones, tablets and other devices; Data can be transmitted to Excel, Word, Txt, etc. via wireless connection

7349 software

Measuring tools management; Make inspection plan; Data acquisition;
Data management; SPC analysis; Quality report;
Can be connected with PDM, ERP, MES and other systems

>> Test



>>> Typical Application

←IN SIZE→

Key Workstation in the Automotive Industry



Product

Interchangeable Head Preset Digital "Click" Torque Wrench **IST-WPE100**
Web Framework Extension Software System **IST-WPE-TS**

Application

Tighten bolts on auto engine upper cover; record data over LAN and interface with factory MES to strictly guarantee assembly quality.

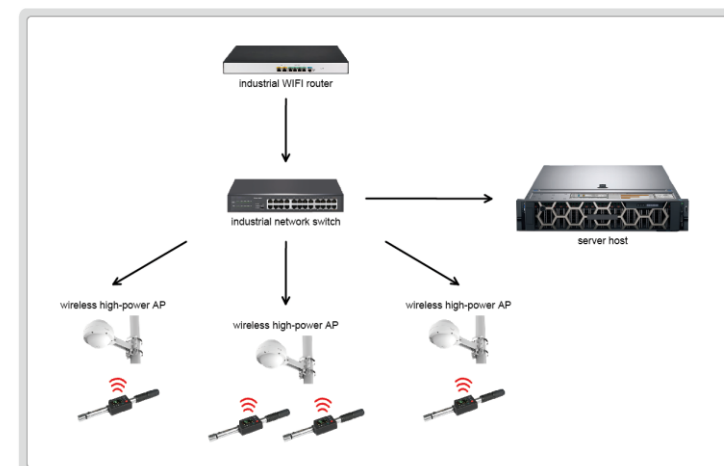
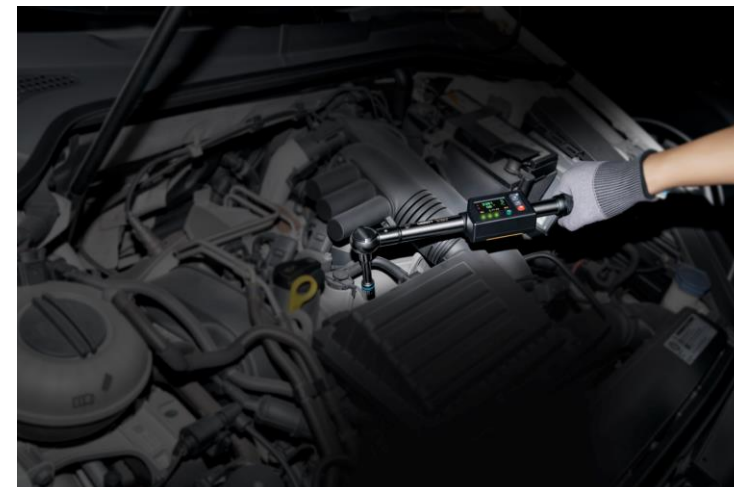
Features

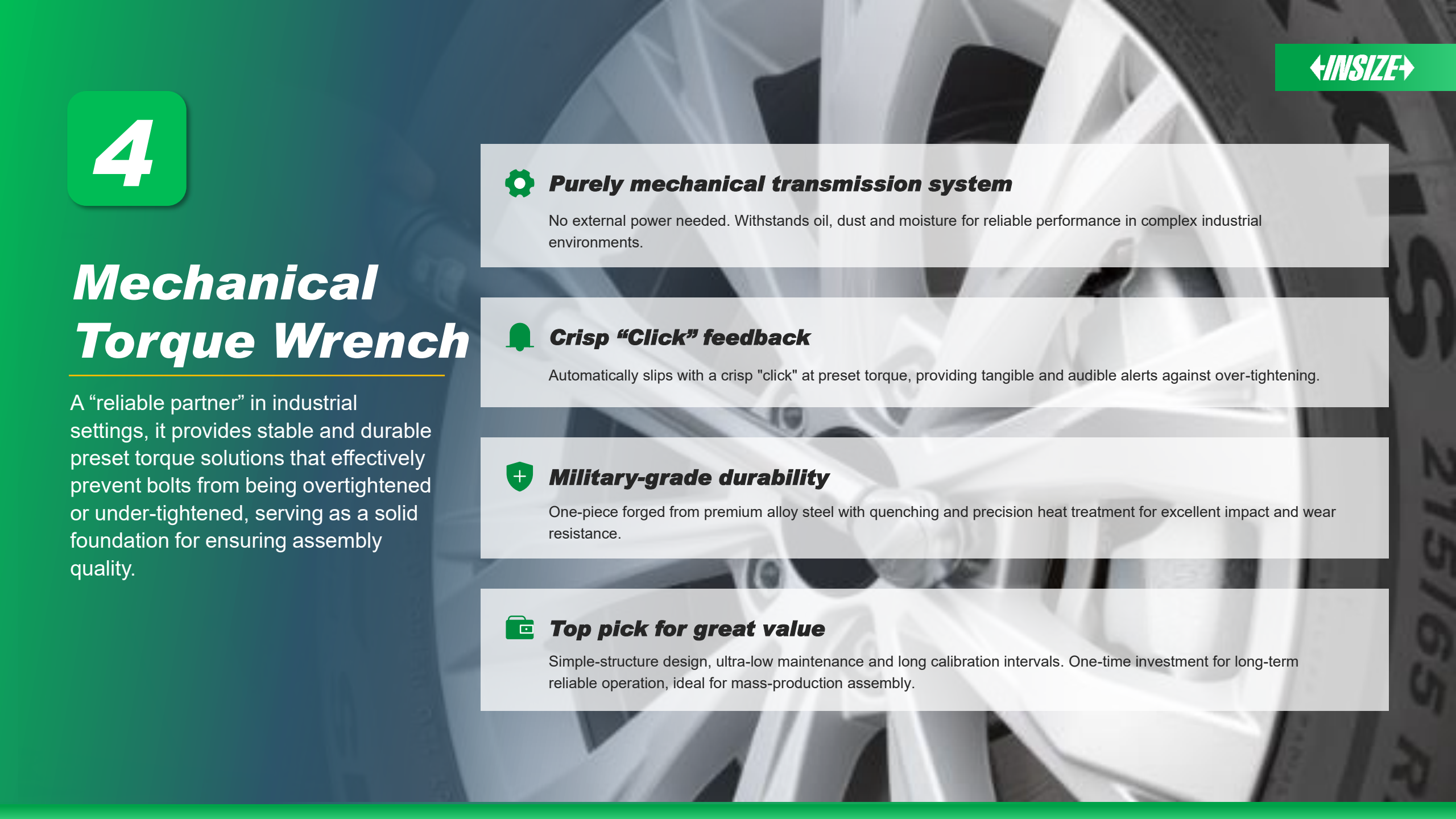
Dual display of peak and first peak; Maintain the click audible alarm feature of mechanical wrench;
Mechanical structure adjusts torque value, digital sensor displays real torque value; Set the angle range to strictly monitor angle of the screw from fitting surface to tightening; Upper and lower tolerance limits can be set; Scanning module and scanning windows to match corresponding screws; Open communication protocols for users to develop and interface with factory MES, PLC and other systems

Web framework extension software system

Backend administration console: Provides an advanced management interface that not only delivers all functions of control center software but also enables comprehensive workstation configuration and permission management, and allows for more flexible assignment of torque tools and operator tasks
Operator console: Provides operators with an intuitive panel, enabling them to quickly access task information, scan codes, receive pass notifications, etc. and complete work tasks with high quality

>> Test



A background image of a car wheel, showing the spokes and the tire. The wheel is slightly out of focus, emphasizing the text in the foreground.

4

Mechanical Torque Wrench

A “reliable partner” in industrial settings, it provides stable and durable preset torque solutions that effectively prevent bolts from being overtightened or under-tightened, serving as a solid foundation for ensuring assembly quality.

←INSIZE→



Purely mechanical transmission system

No external power needed. Withstands oil, dust and moisture for reliable performance in complex industrial environments.



Crisp “Click” feedback

Automatically slips with a crisp "click" at preset torque, providing tangible and audible alerts against over-tightening.



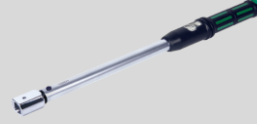
Military-grade durability

One-piece forged from premium alloy steel with quenching and precision heat treatment for excellent impact and wear resistance.



Top pick for great value

Simple-structure design, ultra-low maintenance and long calibration intervals. One-time investment for long-term reliable operation, ideal for mass-production assembly.

Code	Appearance design	Type	Head type
IST-9WM Series		All-metal and engraved-line	Fixed ratchet head
IST-11WM Series			Interchangeable head
IST-30WM Series			Fixed ratchet head
IST-28WM Series		Soft-grip handle and window design	Fixed ratchet head
IST-29WM Series			Interchangeable head
IST-43WM Series			Hollow ratchet head
IST-19WM Series		Soft-grip handle and digital setting	Fixed ratchet head
IST-25WM Series			Interchangeable head

Code	Appearance design	Type	Head type
IST-31WM Series		Big range with extension rod	Fixed ratchet head
IST-32WM Series			Interchangeable head
IST-39WM Series		Big range with extension rod	Dual-drive ratchet head
IST-PW Series		Preset fixed-torque	Fixed ratchet head
IST-41WM Series			Interchangeable head
IST-36WM Series		Preset fixed-torque	Slide ratchet head

>>> Typical Application

←IN SIZE→

Car Dealership Repair



Product

Mechanical Torque Wrench **IST-28WM60**

Application

Post repair installation of auto tires.
Preset torque mechanical click prompt effectively prevents bolt over tightening and under fastening.

Features

According to DIN ISO 6789, ASME B107.300

Ratchet head

Dual window design with clear scale

Non-slip grip handle

Push-pull locking device, easy to operate

>> Test



5

Dial Torque Wrench

Product Positioning: An intuitive window for real-time monitoring, designed specifically for scenarios requiring real-time observation of torque value changes. It serves as a core tool for visual torque control in assembly production and quality inspection processes.



Features: Dynamic Visibility & Precise Control

Intuitive pointer offers real-time lag-free torque readings. Continuous monitoring during tightening and inspection avoids over/under tightening. Precise fastening force control ensures reliable and consistent bolt connections.



Intuitive display

Real-time display of complete torque change process; peak and live values at a glance for fast, simple readout.



Clockwise and counter-clockwise operation

Supports forward/reverse bidirectional torque measurement. Multi-purpose single unit ideal for assembly-tightening and disassembly-testing scenarios.



Stable and Durable

Power-free all-mechanical design, ultra-low failure rate, simple maintenance, suitable for diverse harsh industrial conditions.

Code	Appearance design	Type
IST-DW Series		Integrated type for small and medium range
IST-2DW Series		Big range with extension rod

Features

- According to DIN ISO 6789, ASME B107.300
- Clockwise and counter-clockwise operation
- Dial with metric and inch scales

6

Assistant Plugin of wrench

To address complex and ever-changing industrial tightening applications, we offer a variety of wrench head attachments—ranging from standard sockets to standard and specialty interchangeable heads—that comprehensively meet your assembly needs through robust craftsmanship and flexible solutions.



Standard Socket

Ratchet-head-and-precision-socket assembly compatible with most standard screw scenarios. Accurate torque transfer, high-hardness construction for long service life, ideal for high-frequency industrial assembly.



Multifunctional Interchangeable Head

Including the **IST-2W-xxx** and **IST-11WM-xxx** series. Special heads including open-end and box-end types are offered, engineered for confined spaces, irregular bolts and closed-line nuts to flexibly resolve assembly challenges.



Exclusive Customized Services

To meet specific process requirements, we offer end-to-end customization—from design to production—to create tailored wrench head solutions that perfectly align with your production lines and technical specifications.

>>> Typical Application

←INSIZE→

Two Most Common Use Cases and Custom-Designed Head

Product

12-Point Short Socket **IST-S-D17**
Open End Wrench Head **IST-2W-K17**
Type C Wrench Head **IST-34W600-75C-DZ**



Application

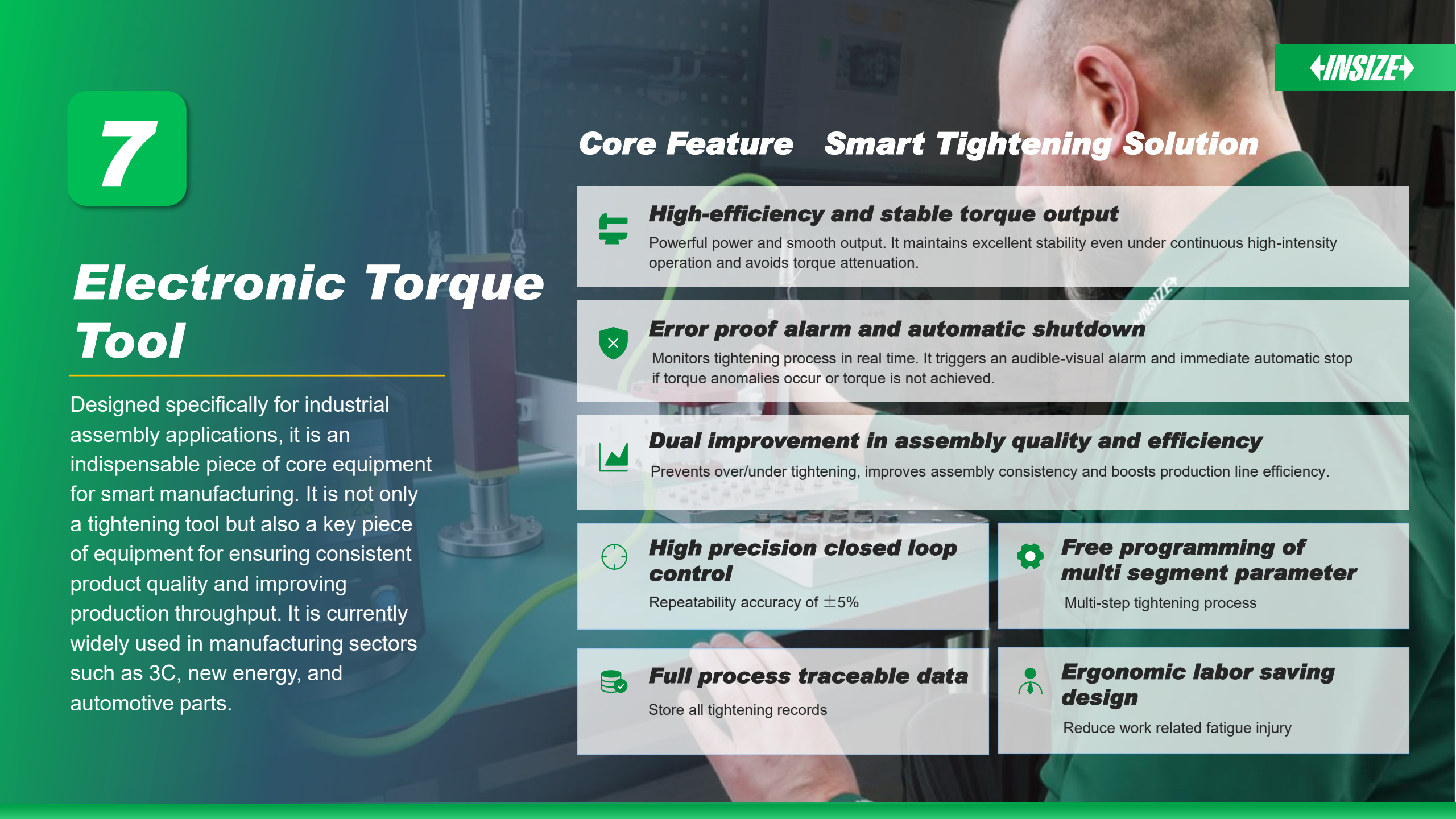
Fixed ratchet head + socket;
Interchangeable head wrench + open-end head;
Hook-shaped (Type-C) head

Features

1. In most application scenarios of torque wrenches, a fixed ratchet head fitted with a socket is used to tighten external hex bolts.
2. Fit an open end wrench head onto the interchangeable head wrench for nuts on enclosed pipelines.
3. Custom non standard crescent hook shaped head for slotted retaining lock nuts.

>> Test



7

Electronic Torque Tool

Designed specifically for industrial assembly applications, it is an indispensable piece of core equipment for smart manufacturing. It is not only a tightening tool but also a key piece of equipment for ensuring consistent product quality and improving production throughput. It is currently widely used in manufacturing sectors such as 3C, new energy, and automotive parts.

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Core Feature Smart Tightening Solution



High-efficiency and stable torque output

Powerful power and smooth output. It maintains excellent stability even under continuous high-intensity operation and avoids torque attenuation.



Error proof alarm and automatic shutdown

Monitors tightening process in real time. It triggers an audible-visual alarm and immediate automatic stop if torque anomalies occur or torque is not achieved.



Dual improvement in assembly quality and efficiency

Prevents over/under tightening, improves assembly consistency and boosts production line efficiency.



High precision closed loop control

Repeatability accuracy of $\pm 5\%$



Free programming of multi segment parameter

Multi-step tightening process



Full process traceable data

Store all tightening records



Ergonomic labor saving design

Reduce work related fatigue injury

Code	Appearance design	Type	Data transmission
HES-S Series		Electric mechanical preset fixed-torque	No transmission
HES-E Series		Intelligent electric control	Storage export + RS-485 communication port
HES-L Series			
ATM Series		Automatic assembly	Storage export + RS-485 communication port

>>> Typical Application

←INSIZE→

3C Manufacturing Industry



Product

Intelligent Electric Screwdriver **HES-E403**
Balance Arm **HES-E-X**

Application

Pre configured tightening programs for manufacturing batch workpieces improve tightening efficiency and guarantee production quality. Balance arm eases operational fatigue.

Features

- Highly efficient heat dissipation setting, ultra-low noise handling
- Permanent magnet synchronous servo motor and high-precision reducer power transmission mechanism
- High-precision angle sensor
- Two-color LED indication of locking status
- 12 task modes, each task can be configured with 8 different torque parameter
- Built-in servo drive for precise control of torque, angle and speed
- Provide programmable IO and RS485 communication port for process control and data transmission
- Physical buttons for assisted operation and they are monitored by LED lights

>> Test



8

High-Torque Bolt Tightening

The quality of large-bolt assembly directly determines the safety and service life of equipment. Traditional assembly tools suffer from issues such as low torque accuracy, a lack of data logging, and no basis for quality inspection. By addressing these industry challenges, they meet the stringent safety and reliability standards required in equipment manufacturing sectors such as wind power and petrochemicals.

INSIZE

End-to-end Digital Management Core Benefit

Enable end to end closed loop "execution inspection traceability" management. Transform high torque bolt assembly from experience based to data driven. Every bolt preload is controllable, measurable and traceable, delivering reliable support for long term stable equipment operation.

Torque Multiplier: Mechanical Torque Amplification

"Power amplifier" for heavy duty bolt assembly. Built for high-strength large size bolt disassembly & assembly. Planetary gear reduction delivers safe, effortless operation with great cost efficiency for large bolt tightening.

Hydraulic Wrench: Efficient Tightening

Fitted with a precision hydraulic control system for steady, adjustable torque output. It enables high-efficiency, precise assembly of large-diameter bolts for heavy machinery and greatly boosts operational efficiency.

Professional Axial Force Test: Quality Traceability

Real time high accuracy axial force acquisition automatically generates traceable quality inspection reports, providing scientific verification for bolt preload and reinforcing the safety barrier for equipment operation.

Code	Appearance design	Type	Workstation
IST-TM Series		Torque multiplier	Tightening workstation
IST-DT Series			
IST-ST Series			
IST-HW Series		Hydraulic torque wrench	Tightening workstation
IST-2HW Series			
UFT-Q100		Bolt axial force tester	Quality inspection workstation

>>> Typical Application

←INSIZE→

Large Flange Bolts

Product

Bevel Type Torque Multiplier **IST-TM7500**



Electromagnetic Ultrasonic Bolt Axial Force Tester **UFT-Q100**



Application

A torque multiplier paired with a digital torque wrench is adopted for tightening high torque flange bolts. An electromagnetic ultrasonic axial force tester is used for axial force quality check to ensure assembly quality.

1. High-efficiency planetary gear sets deliver high output torque from a low input torque; output torque accuracy is $\pm 5\%$; the reaction arm of the flat-plate multiplier can be adjusted to change the position where the force is applied based on operating conditions
2. Primarily applied in wind power, oil and petrochemical, nuclear power, hydrogen energy, heavy industry, and other sectors; Perform quality inspections, risk assessments, inspection-based maintenance, leak detection and etc. on flange bolts; The dual-wave method measurement principle for transverse and longitudinal waves enables direct measurement of the absolute axial force of in-service bolts; Unlike piezoelectric ultrasound, no grinding, no coupling, no patching; Precise calibration for multiple identical bolts (sample calibration service available); Temperature sensor (included) enables automatic temperature compensation; Establish a calibration database for different bolt grades for immediate access; Automatically save data and export to Excel, radar charts and statistical bar charts

>> Test



Typical Application

←INSIZE→

Tightening Four Synchronized Bolts with Hydraulic Wrenches

Product

Hollow Hydraulic Torque Wrenches **IST-2HW110**



Application

Four hydraulic torque wrenches are connected to a hydraulic pump with a 4-way splitter. ASME PCC-1, "Guidelines for Pressure Boundary Bolted Flange Joint Assembly", specifies the grouping sequence, tightening order and torque setting method for simultaneous four-point bolt tightening.

- Constructed with high-strength materials, the tool is lightweight and delivers an outstanding torque-to-weight ratio
- Ratchet and pawl adopt coarse-tooth structure, ensuring sufficient safety margin under full load
- Special anti-reversal detent prevents reverse rotation caused by springback of deformed bolts
- 360° × 360° oil pipe fitting can be connected to oil pipe in any direction
- Compact rounded corners make it easy to operate in tight spaces
- Work head is fitted with a bronze bushing which offers excellent wear resistance, eliminates jamming and maintains high torque accuracy
- Special anti-corrosion surface is suitable for harsh operating environments
- Dedicated hook-type structure for automatic connection between power head and work head prevents shutdown caused by detached work head

Test



THANKS !

Quality | Innovation | Service | Value