

## Technical Support

### Our Worldwide Commitment to Service

From our base in the UK, Gedore Torque provides unparalleled technical information, services and support in the UK and worldwide, with its network of factory-trained distributors.

Our commitment to Quality Assurance and Standards includes conformance with national and international standards and our own UKAS-accredited Calibration Laboratory.

With a worldwide network of factory-trained distributors, we can offer high levels of service and support, wherever you are.

#### In this section you'll find information about the following:

Calibration Service and Repairs

Quality Assurance and Standards

Calibration and Traceability

Information on Torque

#### Mawuli Austin, Service Technician

*In the calibration laboratory, we are committed to absolute precision and consistent accuracy. I am proud that every day, we achieve national and international standards on behalf of our customers.*

#### UK Head Office

Contact us for any technical information or support that you may need.

Tannery Lane, Gosden Common, Bramley,  
Guildford, Surrey GU5 0AJ

Phone: +44 (0) 1483 894 476

Fax: +44 (0) 1483 898 536

Email: [salesandrepairs@gedore-torque.com](mailto:salesandrepairs@gedore-torque.com)

#### Technical Support

For expert technical advice, contact us by phone or email. If there is a problem to be discussed, or you would like a product demonstration, a visit to your site by one of our Technical Managers can be arranged.

#### Distributors

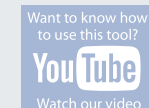
With 74 Distributors in 51 countries, our products are available and supported worldwide. All Distributors are factory-trained and are able to give a full service and to offer expert advice. Contact us (details above) for your local distributor, or visit [www.gedore-torque.com](http://www.gedore-torque.com)

#### Website

Our website contains a wealth of product information, including a Knowledge Centre and Tool Selector - [www.gedore-torque.com/tool-selector](http://www.gedore-torque.com/tool-selector)

#### Videos

Our YouTube channel contains videos showing how to use most of our tools. [www.youtube.com/gedore-torque](http://www.youtube.com/gedore-torque)



# Taking Care of Your Tools

## Calibration, Servicing & Repair

When you buy from Gedore Torque, everything you need to maintain, service and repair your torque equipment is available in house, at our UK site. Regular re-calibration and servicing are essential if Torque Tools are to deliver absolute precision and consistent accuracy throughout their lifetime. What's more, today's Quality Assurance Systems demand

that measuring torque tools and calibration equipment are checked regularly and provided with traceable calibration certificates. For these reasons, Gedore Torque offers a comprehensive Calibration, Servicing & Repair service, to ensure that your tools continue to operate to the highest standards. And in most cases, we are able to provide a 24-hour turnaround.

### Torque Calibration

Torque Calibration ensures that torque equipment operates to peak performance, ensuring absolute and consistent accuracy and adherence to National and International standards

It also ensures that potential tooling problems are identified before they arise, hence ensuring that lifetime ownership costs are minimised

### Calibration Laboratory, Servicing and Repair Centre

Gedore Torque has a UKAS-accredited Calibration Laboratory, based at our site in the UK. Here, we are able to recalibrate most Hand Torque Tools, Analysers and Transducers in accordance with National and International Standards.

Our Calibration Laboratory offers an in-depth Torque Calibration Service. This provides:

Torque Wrench calibration to ISO 6789:2003

Torque Sensor calibration to BS 7882:2008

'As found' and 'As left' Calibration Certificates

UKAS Scope 0.14 - 3000 N.m

The technical competence of the Laboratory and its staff have been independently accredited by UKAS to ISO/IEC 17025:2005. UKAS (the United Kingdom Accreditation Service) is the only national accreditation body recognised by the British Government to assess the competence of organisations that provide certification, testing, inspection and calibration services.

We can also accommodate tools from other manufacturers subject to inspection and acceptance. For more information, call us on: **+44 (0) 1483 892 772** or email: **salesandrepairs@gedore-torque.com**

### In House Calibration Service

Our in house calibration service is a cost-effective method to ensure that your equipment is always in peak condition.

This provides:

**Gedore Torque Calibration Certificates**

**Clear results**

**Traceability to National Standards**

**Tools that are accurate, precise and performing to the highest standard**

### Servicing and Repairs

Our tools contain moving parts that require periodic servicing and lubrication. The recommended service interval is twelve months, or more frequent if usage is high. And even in the best work environment, repairs are sometimes necessary.

That's why we offer a full and comprehensive After Sales Service. On return of any product, the work necessary to bring the torque tool to first class condition is assessed and the customer advised of the cost involved. Once the customer has given their permission to proceed, the work is carried out to an agreed timescale.

If you choose to do your own servicing, the following lubrication tables give details of the recommended oils and greases as used in our tools.

### Tool Lubrication Table For Gedore Torque Products

Lubricants - Correct at time of going to print								
Torque Wrenches	Fuchs Renolit CXI 2 Grease	Total Multis MS 2	Fuchs Renolit EP X1 PBF	Total Multis EP2	Silicon Grease RS 555-083	Shell Tonna 32 Lubricating Oil	Rocol Dry Moly Paste (ASP)	Amalgam of 75% Dry Moly Paste 25% Lubricating Oil
Dial Wrenches	ADS Ratchet & Pawl			BDS/CDS/DDS Ratchet & Pawl	Window Assembly 'O' Rings	Ratchet & Pawl		
STB			Spring, Cam & Roller					
TSC & TSP	Bearings, TSC Locking Mechanism						Thrust Pin	
TSN			Spring, Cam & Roller		'O' Rings	Ratchet & Pawl		
TBN 2 & 10		Spring				Adj. Screw	Roller, Cam, Thrust Pad, Captive Pin	
TBN 25,65,135 & 200		Spring					Roller, Cam, Thrust Pad, Captive Pin	Trunnion, Adj. Screw
ATB 5, 10, 25, 50, 100							Adj. Screw, Captive Pin, Int. Spring Adjuster, Lock Knob & Adj. Screw End, Ext. Handle	

Lubricants - Correct at time of going to print								
Torque Screwdrivers & Analysers	Shell Stamina EP2 Grease	Total Multis EP2	Silicon Grease RS 555-083	NYE Rheolube 368 F Strained Grease	WD-40 Lubricant/Inhibitor	Renolin B3 - VG10	All Purpose 3 in 1	
TT					Torsion Bars & Spring Clamps		Memory Assembly	
Quickset, QSN & QSA	General Use Ball Housing	Handle Threads	'O' Rings					
TLS	General Use Spring Housing							
Cleanroom CRS				General Use Spring Housing				
MTS & MTP						Drive Spindle & Needle Bearings		
ISO 1000 & ISO 1500		Multiplier & Worm Gearbox						

For more information: Tool Selector; [gedore-torque.com/tool-selector](http://gedore-torque.com/tool-selector) Telephone; +44 (0) 1483 894 476  
Videos; [www.youtube.com/gedore-torque](http://www.youtube.com/gedore-torque) Email; [salesandrepairs@gedore-torque.com](mailto:salesandrepairs@gedore-torque.com)

Want to know how to use this tool?  
**YouTube**  
Watch our video

## British & International Standards

Our commitment to excellence means that our own business and the tools we manufacture conform to the appropriate National and International Standards. This means that you can be assured that our products are manufactured to the highest quality standards for absolute accuracy, consistency and precision.

Gedore Torque is assessed and registered to **BS EN ISO 9001:2008 Certificate FM 00363**

All Gedore Torque tools are manufactured to the relevant British and International Engineering Standards and conform to the International Standard on Torque Tools **ISO 6789:2003** or as specified.

### The International Standard ISO 6789:2003 for Hand Torque Tools states:

The effective working range of a tool is from 20% to 100% of its maximum torque value

The accuracy requirements for Torque Screwdrivers are +/- 6% of reading and for Torque Wrenches are +/- 4% of reading or +/- 6% for Torque Wrenches below 10 N.m

The maximum torque value for each square drive size

Scale and marking requirements

An overload ability of 125% of maximum torque capacity

A calibration interval of 5000 cycles or 12 months

Test and measuring procedures at 23° +/- 5°C

The maximum permissible uncertainty of measurement of the calibration device shall be +/-1% of the indicated value

### Explanation on Terms

**Accuracy** of Measuring and Calibrated Scale Tools is their ability to deliver the torque as set on their scale, dial or digital display. This is usually expressed as a percentage of the target torque

**Resolution** of Measuring and Calibrated Scale Tools is the number of divisions that their full torque range is divided into. This can be displayed as decimal places on a digital display, number of divisions on a dial or graduations on a scale

**Repeatability** of Preset Tools is the ability to consistently apply the same torque in subsequent tightening operations. This is usually expressed as a percentage of the preset torque

### Explanation on Serial Numbers

All new and newly reconditioned Gedore Torque tools are marked with a serial number that enables **Complete Traceability**. This number is stored together with other data such as the original works order number and calibration details



## Calibration: Certification & Traceability

Regular Torque Tool Calibration and re-calibration guarantees the operator repeatable accuracy and adherence to international standards. To guarantee this, all Tools that have been calibrated or re-calibrated by Gedore Torque come with a Certificate of Calibration. This in turn provides confirmation that all equipment used by us has certification traceable to International Standards.

**Supplier Section...** can be tailored to include our Distributor's name and address

**Tool Identification Section...** for easy identification of the tool, its maximum capacity and its individual serial number

**Test Result Section...** gives the normal point at which the tool was tested, the tolerances and the actual results obtained

**Certification Section...** date and approval signature of test

**Standard Section...** confirms the standard requirements to which the tool complies

**Note Section...** gives information regarding slave pointers etc

**Traceability Section...** the serial numbers of the test equipment and the route back to National Standards

Gedore Torque's testing and calibration procedures are performed using equipment traceable to National Standards

### Traceability to International Standards

All equipment used by us in the Calibration of Torque Tools is regularly checked to ensure that the results obtained are accurate. All Calibration Equipment is itself assessed using equipment with certification traceable to International Standards as listed below:

#### For Length/Metre & Weight/Mass:

- Coordinate Measuring Machine
- Transfer Standards held by National Physical Laboratory
- National Physical Laboratory Stabilised Lasers
- National Standard for the Metre\*
- Trading Standards Department
- UKAS Accredited Mass Laboratory
- National Measurement Office
- International Bureau of Weights & Measures Sèvres, Paris

\*Defined as the length of the path travelled by light in vacuum during a time interval of 1/299 792 498 of a second

**UKAS Accreditation Certificate for Gedore Torque's Calibration Laboratory & Personnel**



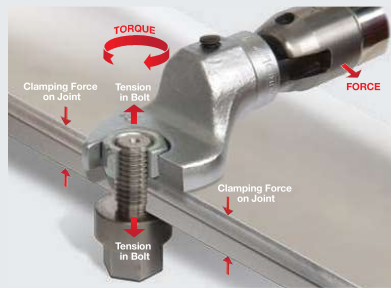
For more information: Tool Selector; [gedore-torque.com/tool-selector](http://gedore-torque.com/tool-selector) Telephone; +44 (0) 1483 894 476 Videos; [www.youtube.com/gedore-torque](http://www.youtube.com/gedore-torque) Email; [salesandrepairs@gedore-torque.com](mailto:salesandrepairs@gedore-torque.com)

YouTube

# An Explanation of Torque

## Information on Measuring Torque

What you need to know to avoid incorrect tightening



Torque is the application of a **Force** acting at a radial **Distance** and tending to cause rotation. Torque is used to create tension in threaded fasteners

When the nut and bolt are tightened the two plates are clamped together. The thread converts the applied torque into tension in the bolt shank. This in turn is converted into a clamping force. The amount of tension created in the bolt is critical

### Explanation on the creation of a Clamping Force

The tension in the bolt creates a clamping force (generally referred to as the preload) between the two parts

If the clamping force is too low, the fasteners can work loose due to vibration or movement between the component parts

If a clamping force is too high, the fastener may permanently stretch and no longer apply the required clamping force

In severe cases the fastener may fail in assembly or during use when under load

### Explanation on how Torque is Calculated

Torque is the result of multiplying the value of **Force** applied by the **Distance** from the point of application

Comparing the two examples see below (A and B) the same resultant torque can be achieved with a lower Force if the Distance from the nut/bolt is increased

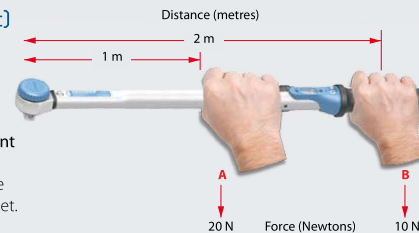
Some Torque Wrenches are length dependent that means that the actual torque applied to the fastener varies if the hand position on the wrench is varied - even with the wrench preset. This occurs if the pivot point of the wrench mechanism is not coincidental with the centre of rotation of the fastener

### Force x Distance = Torque (See right)

Example A:  $20\text{ N} \times 1\text{ m} = 20\text{ N.m}$

Example B:  $10\text{ N} \times 2\text{ m} = 20\text{ N.m}$

Some Torque Wrenches are **length dependent** that means that the actual torque applied to the fastener varies if the hand position on the wrench is varied - even with the wrench preset. This occurs if the pivot point of the wrench mechanism is not coincidental with the centre of rotation of the fastener



# Conversion Factors & Maximum Recommended Tightening Torques

Need help... call us on +44 (0) 1483 894 476

Units to be converted	Conversion Factors								
	mN.m	ISO cN.m	N.m	ozf.in	Imperial lbf.in	lbf.ft	gf.cm	Metric kgf.cm	kgf.m
1 mN.m	1	0.1	0.001	0.142	0.009	0.0007	10.2	0.01	0.0001
1 cN.m	10	1	0.01	1.416	0.088	0.007	102	0.102	0.001
1 N.m	1000	100	1	141.6	8.851	0.738	10197	10.20	0.102
1 ozf.in	7.062	0.706	0.007	1	0.0625	0.005	72	0.072	0.0007
1 lbf.in	113	11.3	0.113	16	1	0.083	1152.1	1.152	0.0115
1 lbf.ft	1356	135.6	1.356	192	12	1	13826	13.83	0.138
1 gf.cm	0.098	0.01	0.0001	0.014	0.0009	0.00007	1	0.001	0.00001
1 kgf.cm	98.07	9.807	0.098	13.89	0.868	0.072	1000	1	0.01
1 kgf.m	9807	980.7	9.807	1389	86.8	7.233	100000	100	1

Conversion Factors				
Thread Diameter (mm)	Hex Key Size (mm)	Hex Key Size (mm)	Hex Key Size (mm)	Hex Head Size (mm)
M 2	-	1.5	1.27	4
M 2.5	-	2	1.5	5
M 3	2	2.5	2	5.5
M 4	2.5	3	2.5	7
M 5	3	4	3	8
M 6	4	5	4	10
M 7	-	-	-	11
M 8	5	6	5	13
M 10	6	8	6	17
M 12	8	10	8	19
M 14	-	-	-	22
M 16	-	14	10	24
M 18	-	-	-	27
M 20	-	17	12	30
M 22	-	-	-	32
M 24	-	-	-	36
M 27	-	-	-	-

Recommended Tightening Torques N.m		
Bold Grade 8.8	Bold Grade 10.9	Bold Grade 12.9
0.37	0.52	0.63
0.86	1.21	1.45
1.3	1.9	2.3
3.0	4.3	5.1
6.0	8.5	10.2
10.3	14.7	17.9
17.2	24.5	28.4
25.5	35.3	42.2
50.0	70.6	85.3
87.3	123	147
138	194	235
211	299	358
289	412	490
412	579	698
559	785	941
711	1000	1198
1049	1481	1775



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