



LEGEND

TORQUE WRENCHES		
Accuracy (%)	Ratchet	Digital Display
Single Scale	Torque Handle	IP Rated
Dual Scale	Fixed	Case Included
Multi Scale	Declaration of Conformance	Calibration Certificate
Adjustment Lock	Torque & Angle	UKAS Accredited Certification

MANUAL TORQUE MULTIPLIERS		
Accuracy (%)	Calibration Certificate	Anti Wind-up Ratchet
Adjustable Reaction	UKAS Accredited Certification	Case Included

POWERED TORQUE MULTIPLIERS		
Accuracy (%)	2 Speed	Calibration Certificate
Multi Scale	Bi-Directional	IP Rated
Digital Display	Adjustable Reaction	Air Consumption - litres/sec
Lifting Attachment	Torque & Angle	Bluetooth Enabled

TORQUE MEASUREMENT INSTRUMENTS		
Accuracy (%)	Digital Display	Case Included
Multi Transducers	Calibration Certificate	Back-up Data
Multi Scale	UKAS Accredited Certification	

HYDRAULIC TOOL CALIBRATION FIXTURES		
Accuracy (%)		

HARSH ENVIRONMENT INSTRUMENTS		
Accuracy (%)	UKAS Accredited Certification	Case Included
Multi Transducers	IP Rated	
Multi Scale	Digital Display	

ULTRASONIC MEASUREMENT		
Multi Scale	Back-up Data	Case Included
Digital Display	Calibration Certificate	

CALIBRATION BEAMS & WEIGHTS		
UKAS Accredited Certification	Case Included	

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Q06228

ENMS 621746

Printed in the UK



ABOUT NORBAR



GLOBAL SERVICE

We are the world's leading specialist in torque control and we are engaged solely in the design, development and production of torque tightening and measuring equipment.

Our customers include manufacturers and engineering services in such diverse sectors as aerospace, energy, oil and gas, mining and sub-sea.

There are sales and service branches in Australia, New Zealand, North America, Singapore, China and India.

In addition, we have distributors of our torque control products in more than 60 countries around the world.

A FAMILY RUN BUSINESS

The Brodey family has been a part of Norbar since Bill Brodey and his partner Ernest Thornitt incorporated the company in 1943. We are now the third generation of the family to manage the business and are passionate about its every aspect. From our humble beginnings in a small workshop in North Bar, Banbury town centre, Norbar has grown into an international group of companies that leads the field of torque control. However, what has not changed in over 75 years is that our product range is still substantially manufactured in Banbury with many suppliers in the surrounding area and we are still dedicated to being the best at what we do. As Bill Brodey's original slogan stated 'made in Banbury in accordance with time-honoured tradition'.

Early in 2019 we will be launching our highly anticipated EvoTorque® Battery Tool, giving our customers the ability to reach high torque values with freedom from cables and hoses. Norbar's tool will combine a powerful brushless motor, accurate transducer controlled torque, comprehensive data gathering and wireless communication capability.

We also take a new look at one of our original products – the Industrial Torque Wrench. Our customers told us that they wanted a wrench that was easier to set accurately, that would pack down smaller for transportation in service vehicles and for shipping and that was even easier to maintain. We believe that we have met all of these requirements and we are proud to introduce the resulting new product on page 26.

We continue to invest in the very latest design, manufacturing and quality control technology to achieve the highest level of innovation and precision in the field of torque control and equipment.



The Norbar Directors from left to right: Philip Brodey (Marketing Director), Catherine Rohll (Commercial Director), Neill Brodey (Managing Director)



INTRODUCTION TO TORQUE

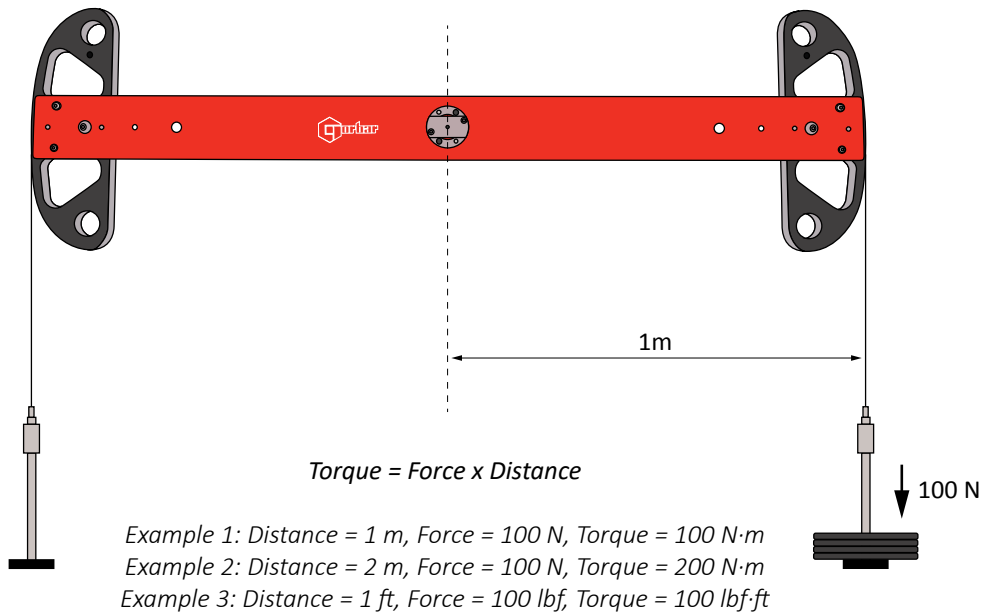
What is Torque?

Torque is any force or system of forces that tends to cause rotation about an axis.

Measurement of Torque

Imagine someone tightening a bolt using a socket attached to a meter (m) long bar. If they apply 10 kg of force (kgf) perpendicular to the bar they will produce a torque of 10 kgf·m at the axis (the centre of the bolt).

However, under the S.I. system of measurement, force is expressed in Newtons (N) rather than kgf. The conversion between kgf and N is x 9.807 so the person is applying 98.07 N·m of torque.



The Importance of Torque Control

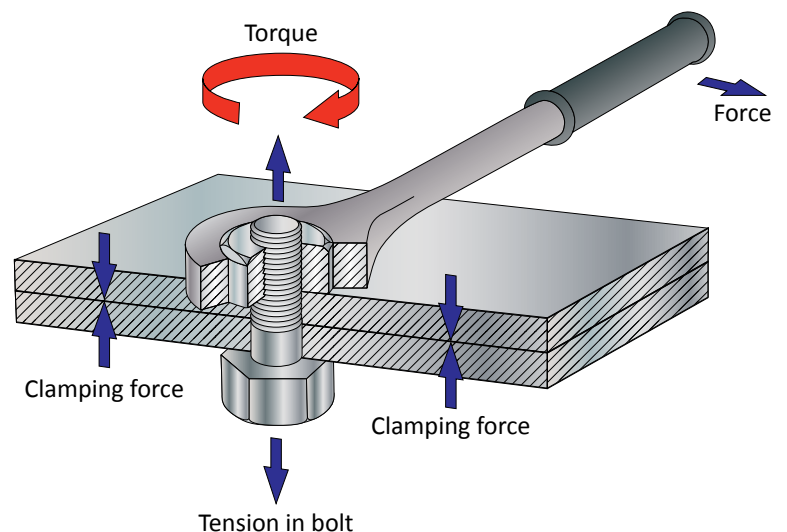
Although many methods exist to join two or more parts together, the ease of assembly and disassembly provided by threaded fasteners make them the ideal choice for many applications.

The object of a threaded fastener is to clamp parts together with a tension greater than the external forces tending to separate them. The bolt then remains under constant stress and is immune from fatigue. However, if the initial tension is too low, varying loads act on the bolt and it will quickly fail. If the initial tension is too high, the tightening process may cause bolt failure. Reliability therefore depends upon correct initial tension. The most practical way of ensuring this is by specifying and controlling the tightening torque.

Bolt Tension

When an assembly is clamped by tightening a nut and bolt, the induced tension causes the bolt to stretch. An equal force acts to compress the parts which are thus clamped.

The proof load of a bolt, normally established by test, is the load which just starts to induce permanent set – also known as the yield point. Typically bolts are tightened to between 75% and 90% of yield.

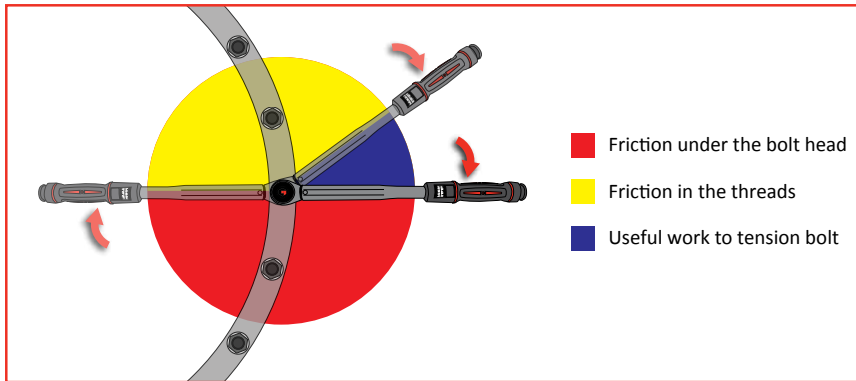




INTRODUCTION TO TORQUE

Friction in the Bolted Joint

When a threaded fastener is tightened, the induced tension results in friction under the head of the bolt and in the threads. It is generally accepted that as much as 50% of the applied torque is expended in overcoming friction between the bolt head and the abutting surface and another 30% to 40% is lost to friction in the threads. As little as 10% of the applied torque results in useful work to tension the bolt.



Given that up to 90% of the applied torque will be lost to friction, it follows that any changes in the coefficient of friction resulting from differences in surface finish, surface condition and lubrication can have a dramatic effect on the torque versus tension relationship. Some general points can be made:

- Most torque tightened joints do not use washers because their use can result in relative motion between the nut and washer or the washer and joint surface during tightening. This has the effect of changing the friction radius and hence affects the torque-tension relationship. Where a larger bearing face is required then flange nuts or bolts can be used. If washers are to be used, hard washers with a good fit to the shank of the bolt give lower and more consistent friction and are generally to be preferred.
- Degreasing fasteners of the film of oil usually present on them as supplied will decrease the tension for a given torque and may result in shear of the fastener before the desired tension is achieved.
- Super lubricants formulated from graphite, molybdenum disulphide and waxes result in minimal friction. Unless allowance is made in the specified tightening torque, the induced tension may be excessive causing the bolt to yield and fail. However, used in a controlled manner, these lubricants serve a useful purpose in reducing the torque to produce the desired tension meaning that a lower capacity tightening tool can be used.
- For reasons of appearance or corrosion resistance, fasteners may be plated. These treatments affect the coefficient of friction and therefore the torque versus tension relationship.
- Friction is often deliberately introduced into the fastener to reduce the possibility of loosening due to vibration. Devices such as lock-nuts must be taken into account when establishing the correct tightening torque.

As a rough guide, the calculated tightening torque should be multiplied by the factor from the table below according to surface treatment and lubrication.

		Surface Condition of Bolt			
		Untreated	Zinc	Cadmium	Phosphate
Surface Condition of Nut	Untreated	1.00	1.00	0.80	0.90
	Zinc	1.15	1.20	1.35	1.15
	Cadmium	0.85	0.90	1.20	1.00
	Phosphate and oil	0.70	0.65	0.70	0.75
	Zinc with wax	0.60	0.55	0.65	0.55



INTRODUCTION TO TORQUE

Tightening to Yield

Bolts tightened to yield provide consistently higher preloads from smaller diameter bolts. The reduced fastener stiffness reduces the fatigue loading to which the bolt is subjected under repeated external load reversals, e.g. cylinder heads and connecting rods.

In theory, a bolt tightened to its yield point will provide the strongest and most fatigue-resistant joint possible, within the physical limitations of the bolt material and manufacturing process.

The downside of this method is the cost of the sophisticated equipment necessary to determine when the bolt goes into yield.

Torque Tension Calculator

For further information and guidance on establishing the correct tightening torque for a fastener, see Norbar's web based calculator, www.norbar.com/Home/Torque-Tension-Calculator



Calculated Maximum Torque
N.m.: 0.05
lbf. ft.: 0.04

Calculated Maximum Load
kN: 0.15
lbf: 34.7

Bolt Properties

Bolt Diameter	1.6 mm
Yield Stress	180 Nmm ²
Pitch	0.35 mm
Pitch Diameter	1.373 mm
Root Diameter	1.171 mm
Hex A/F Diameter	3.2 mm

Standard Parameters

Bolt Type: Metric Coarse
Bolt Dia.: 1.6
Grade: 3.6

Friction Coefficients

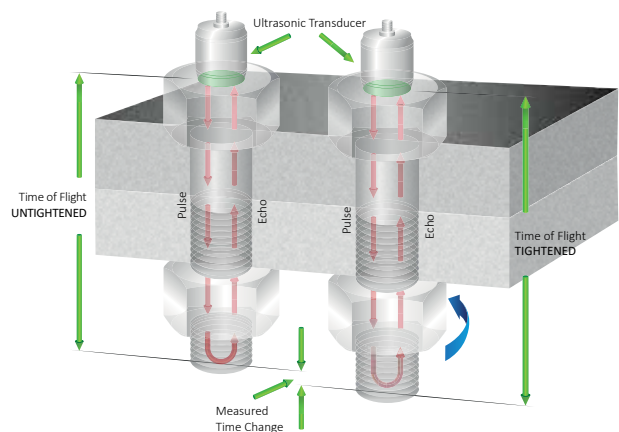
Thread: 0.14
Head: 0.14

These torque and load values are for guidance only! Always check with equipment/bolt manufacturer

When Torque Doesn't Equal Tight

As we have established, it is the tension in a fastener rather than the torque that is the critical factor. Torque is an indirect means of establishing tension and in a correctly engineered joint and with a controlled tightening process, it is a satisfactory method under the majority of circumstances.

However, in joints that are highly critical due to safety or the cost and implications of machine down-time, a more direct means of establishing tension is needed. Various methods exist including several types of load indicating bolts or washers. However, one of the most versatile methods is to measure the extension of the bolt due to the tightening process using ultrasound and this is exactly what Norbar's USM-3 does. For full details of this instrument see page 117 and Norbar's web site: www.norbar.com.







INTRODUCTION TO TORQUE

Recommended Maximum Torque Values

The information supplied here is intended to be an acceptable guide for normal conditions. For critical applications, further information and research will be necessary. The following basic assumptions have been made:

- a. Bolts are new, standard finish, uncoated and not lubricated (other than the normal protective oil film)
- b. The load will be 90% of the bolt yield strength
- c. The coefficient of friction is 0.14
- d. The final tightening sequence is achieved smoothly and slowly

If lubrication is to be applied to the nut/bolt, multiply the recommended torque by the appropriate factor shown in the table on page 4. Alternatively, use the Torque/Tension Calculator on the Norbar website (shown on page 5) which enables fastener and friction conditions to be modified with ease.

 M	BOLT GRADE									 mm
	3.6	4.6	5.6	5.8	6.8	8.8	9.8	10.9	12.9	
	Torque in N·m									
M 1.6	0.05	0.07	0.09	0.11	0.14	0.18	0.21	0.26	0.31	3.2
M 2	0.11	0.14	0.18	0.24	0.28	0.38	0.42	0.53	0.63	4
M 2.5	0.22	0.29	0.36	0.48	0.58	0.78	0.87	1.09	1.31	5
M 3	0.38	0.51	0.63	0.84	1.01	1.35	1.52	1.9	2.27	5.5
M 4	0.71	0.95	1.19	1.59	1.91	2.54	2.86	3.57	4.29	7
M 5	1.71	2.28	2.85	3.8	4.56	6.09	6.85	8.56	10.3	8
M 6	2.94	3.92	4.91	6.54	7.85	10.5	11.8	14.7	17.7	10
M 8	7.11	9.48	11.9	15.8	19	25.3	28.4	35.5	42.7	13
M 10	14.3	19.1	23.8	31.8	38.1	50.8	57.2	71.5	85.8	17
M 12	24.4	32.6	40.7	54.3	65.1	86.9	97.9	122	147	19
M 14	39	52	65	86.6	104	139	156	195	234	22
M 16	59.9	79.9	99.8	133	160	213	240	299	359	24
M 18	82.5	110	138	183	220	293	330	413	495	27
M 20	117	156	195	260	312	416	468	585	702	30
M 22	158	211	264	352	422	563	634	792	950	32
M 24	202	270	337	449	539	719	809	1,011	1,213	36
M 27	298	398	497	663	795	1,060	1,193	1,491	1,789	41
M 30	405	540	675	900	1,080	1,440	1,620	2,025	2,430	46
M 33	550	734	917	1,223	1,467	1,956	2,201	2,751	3,301	50
M 36	708	944	1,180	1,573	1,888	2,517	2,832	3,540	4,248	55
M 39	919	1,226	1,532	2,043	2,452	3,269	3,678	4,597	5,517	60
M 42	1,139	1,518	1,898	2,530	3,036	4,049	4,555	5,693	6,832	65
M 45	1,425	1,900	2,375	3,167	3,800	5,067	5,701	7,126	8,551	70
M 48	1,716	2,288	2,860	3,813	4,576	6,101	6,864	8,580	10,296	75
M 52	2,210	2,947	3,684	4,912	5,895	7,859	8,842	11,052	13,263	80
M 56	2,737	3,650	4,562	6,083	7,300	9,733	10,950	13,687	16,425	85
M 60	3,404	4,538	5,673	7,564	9,076	12,102	13,614	17,018	20,422	90
M 64	4,100	5,466	6,833	9,110	10,932	14,576	16,398	20,498	24,597	95
M 68	4,963	6,617	8,271	11,029	13,234	17,646	19,851	24,814	29,777	100



INTRODUCTION TO TORQUE

Torque Conversion Factors

Units to be converted	S.I. Units		Imperial Units			Metric Units	
	cN·m	N·m	ozf·in	lbf·in	lbf·ft	kgf·cm	kgf·m
1 cN·m =	1	0.01	1.416	0.088	0.007	0.102	0.001
1 N·m =	100	1	141.6	8.851	0.738	10.20	0.102
1 ozf·in =	0.706	0.007	1	0.0625	0.005	0.072	0.0007
1 lbf·in =	11.3	0.113	16	1	0.083	1.152	0.0115
1 lbf·ft =	135.6	1.356	192	12	1	13.83	0.138
1 kgf·cm =	9.807	0.098	13.89	0.868	0.072	1	0.01
1 kgf·m =	980.7	9.807	1389	86.8	7.233	100	1

FORCE

$$\text{lbf} \times 4.45 = \text{N}$$

$$\text{N} \times 0.225 = \text{lbf}$$

FLOW

$$\text{l/s} \times 2.119 = \text{cu-ft/min}$$

$$\text{cu-ft/min} \times 0.472 = \text{l/s}$$

PRESSURE

$$\text{lbf/in}^2 \times 0.069 = \text{bar}$$

$$\text{bar} \times 14.504 = \text{lbf/in}^2$$

POWER

$$\text{hp} \times 0.746 = \text{kW}$$

$$\text{kW} = \frac{\text{N}\cdot\text{m} \times \text{rev/min}}{9,546}$$

Formulae

Accepted formulae relating torque and tension, based on many tests are:-

For Imperial Sizes

$$M = \frac{P \times D}{60}$$

M = torque lbf·ft
P = bolt tension lbf
D = bolt diameter (ins)

For Metric Sizes

$$M = \frac{P \times D}{5000}$$

M = torque N·m
P = bolt tension Newtons
D = bolt diameter (mm)

These formulae may be used for bolts outside the range of the tables.

Formula for Calculating the Effect of Torque Wrench Extensions

$$M1 = M2 \times L1/L2$$

Where L1 is the normal length and L2 is the extended length, M1 is the set torque and M2 the actual torque applied to the nut.

Example

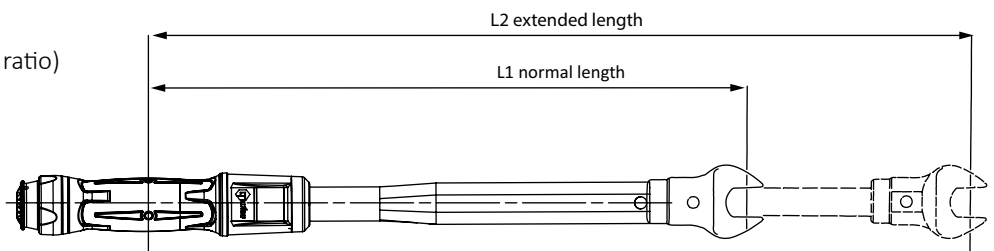
The required torque on the fastener is 130 N·m (M2) but what do you set on the torque wrench scale?

$$L1 = 500 \quad L2 = 650$$

(units of length not important, this is ratio)

$$M1 = 130 \times 500/650$$

$$M1 = 100$$



For further information and guidance on converting torque and calculating the effect of torque wrench extensions download our purpose built applications for iPhone and Android.



TORQUE SCREWDRIVER AND TORQUE WRENCHES

Norbar Torque Tools manufacture an extensive range of high quality torque screwdrivers and torque wrenches to cover torque values from 0.3 N·m to 2,000 N·m. They are designed and manufactured to exceed international standards for accuracy.

In addition to the normal 'adjustable' torque wrenches, Norbar offer Production 'P' Type versions which can be pre-set and dedicated to a particular application. This setting system is designed to discourage unauthorised alteration.

All Norbar torque wrenches are offered as standard with a quality ratchet. For applications where interchangeable end fittings are required, 'Torque Handles' which allow for interchangeable spanner fittings, are also available in various models up to 650 N·m.

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Model 5 Professional	16
Professional Torque Wrenches	17
Professional 'P' Type Wrenches	21
Large Professional Wrenches	23
Industrial Torque Wrenches	25
Electrode Wrenches	30
ClickTronic® Torque Wrenches	31
NorTronic® Torque Wrenches	33
Insulated Torque Wrenches	34
Spanner End Fittings	35





Since 1993, ISO 6789 has been the international standard for “Assembly tools for screws and nuts – hand torque tools”. The standard now covers a range of topics guiding the design, marking, conformance testing and calibration of hand torque tools. As such, it is a key reference document for torque wrench manufacturers and those re-calibrating torque wrenches in the after sales market. While it is not primarily aimed at torque tool users, some users may benefit from understanding the parameters that torque wrench manufacturers are working to and the standard will be necessary for larger users carrying out their own, in-house testing or calibration.



Norbar's UKAS accredited laboratory has been working to the new standard since September 2017 and was the first laboratory to do so.

What has changed?

The 2003 edition was itself a development of the 1993 edition. The 2003 standard divided requirements into three sections of: design conformance testing; quality conformance testing and recalibration. The intention was to allow different groups of users to identify the relevant clauses for their needs.

The 2017 edition takes this logic even further and divides the standard into two distinct parts:

Part 1 still provides requirements for design and quality control during manufacture, it also provides specifications for documenting conformance of hand torque tools. This documentation is referred to as a declaration of conformance because it is stating that the torque tool conforms to the requirements of the standard.

Part 2 defines the requirements for calibration of torque tools including the establishment of uncertainty budgets and the content of certificates of calibration.

Calibration is defined by ISO as: “a set of operations that establish, under specified conditions, the relationship between values of quantities indicated by a measuring instrument or measuring system ... and the corresponding values realised by standards.”

Calibration does not include adjustment or imply conformance, it provides information for the user to assess and act upon.

Why make it more complex?

The standard is splitting into two parts because it has been recognised that torque tool calibration requirements have moved on since the standard was last published in 2003.

The two new parts can be described as one part which follows closely to the 2003 standard and one part which provides a consistent framework for calibrating a hand torque tool to the level that exists in accredited calibration laboratories across the world. The titles of the standards help clarify the difference.

EN ISO 6789-1:2017 (Part 1): Requirements and Methods for design conformance testing and quality conformance testing- Minimum requirements for declaration of conformance.

The quality conformance testing performed under Part 1 is the testing performed on a new torque tool during manufacture. The document that manufacturers will now deliver is a “declaration of conformance” rather than a “calibration certificate”. This is because the manufacturer is declaring that the tool conforms to the standard.

EN ISO 6789-2:2017 (Part 2): Requirements for calibration and determination of measurement uncertainty.

The calibration performed under Part 2 is a traceable calibration including steps to understand the factors for that particular torque tool that might cause the calibration values to vary from calibration to calibration. Any UKAS accredited laboratory in the United Kingdom, or indeed any laboratory accredited to ISO 17025 by an appropriate organisation, will be required to establish the uncertainty by conducting these steps. A model of torque tool that the laboratory has not seen before would take about 60 minutes to calibrate to the new standard.



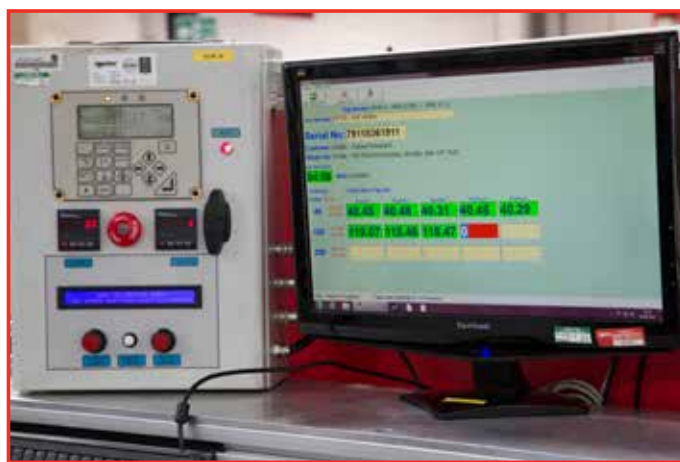
ISO 6789-1:2017 (Part 1)
Feature Icon



ISO 6789-2:2017 (Part 2)
Feature Icon



ISO 6789:2017



How does it affect a torque tool user?

If a current end user was previously content to buy a new torque tool and put it into service on the basis of the “calibration certificate” supplied with the tool by the manufacturer, then they can continue to do so after the standard changes, even though the new piece of paper is now called a “declaration of conformance”.

If the end user’s quality control processes currently require a traceable calibration certificate issued by an accredited laboratory then they will already not accept the current manufacturer’s document but will be paying for a calibration in an accredited laboratory.

If the end user is currently happy with the manufacturer’s document for a new tool, then a periodic assessment from their in-house facility or from a sub-contractor should provide an equivalent level of confidence in the performance of the tool. Under the new Part 1 these sub-contractors will be able to continue that work as long as they observe the new changes, but they will not be able to call it a calibration and will not be able to issue a “calibration certificate”. They will be able to issue a “declaration of conformance”.

In essence, one of the key changes in the standard is to protect the use of the term “calibration”. It will initially be confusing to both end users and service providers, but the International Standards Organisation has clear definitions of words such as “calibration” and we will have to adapt our thinking to conform.

Torque Wrench Calibrator (TWC)

To help our customers meet the requirements of this new standard we have launched the TWC which enables torque wrench calibration or testing in accordance with ISO 6789-2:2017 if used with T-Box XL™ software version 3.0.0.X and TDMS version 4.0.X. Further details can be found on page 99.



Torque Wrench Calibrator (TWC) Manual shown with Counterbalanced Reaction Post, Flange Mounted Transducer and a T-Box XL™ Meeting the requirements of ISO 6789-2:2017



Further Information

Further information on the new standard can be found on our website through the following link:

www.norbar.com/Quality/ISO-6789

If you have any questions specifically on the new standard please make contact with us here:

ISO6789@norbar.com



TORQUE SCREWDRIVERS

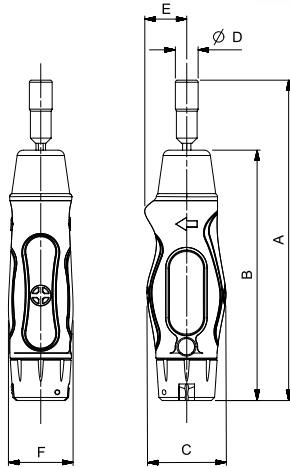


Versatile, accurate and easy torquing for smaller fasteners and restricted spaces

- Accuracy meets the requirements of ISO 6789-1:2017
- Supplied with ¼" hexagon bit holder
- Single scale, either N·m or lbf·in



MODEL	ALL MODELS	
Dimensions (mm)	A	155
	B	121
	C	38
	∅D	11
	E	20
	F	31
Weight (kg)	0.2	



2 ADJUSTABLE N·m

13850	TTs1.5, ¼", 0.3 - 1.5 N·m
13851	TTs3.0, ¼", 0.6 - 3 N·m
13852	TTs6.0, ¼", 1.2 - 6 N·m

2 ADJUSTABLE lbf·in

13853	TTs13, ¼", 2.5 - 13 lbf·in
13854	TTs26, ¼", 5 - 26 lbf·in
13855	TTs53, ¼", 10 - 53 lbf·in

2 PRODUCTION 'P' TYPE

13856	TTs1.5, ¼", 0.3 - 1.5 N·m, 2.5 - 13 lbf·in
13857	TTs3.0, ¼", 0.6 - 3 N·m, 5 - 26 lbf·in
13858	TTs6.0, ¼", 1.2 - 6 N·m, 10 - 53 lbf·in
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)

2 ADJUSTABLE N·m KIT

13700	TTs0.3 - 1.5 N·m Kit with 12 piece bit set and case
13701	TTs0.6 - 3 N·m Kit with 12 piece bit set and case
13702	TTs1.2 - 6 N·m Kit with 12 piece bit set and case
28937	12 Piece ¼", Hex bit set

TT TORQUE WRENCHES



For no-nonsense torquing - comfortable, accurate and easy to use

- Accurate to ±3% of reading which meets the requirements of ISO 6789-1:2017
- Micrometer scale for simple and error free setting
- All models feature a lock to prevent accidental adjustment of the set torque
- Handle and lens materials resistant to commonly used industrial chemicals



TTi Reversible Ratchet



TTf Fixed Head



TTfth Torque Handle

2 RATCHET ADJUSTABLE - DUAL SCALE

13830	TTi20, ¼", 4 - 20 N·m, 35 - 180 lbf·in
13831	TTi20, ⅜", 4 - 20 N·m, 35 - 180 lbf·in
13841	TTi50, ⅜", 10 - 50 N·m, 8 - 35 lbf·ft
13842	TTi50, ½", 10 - 50 N·m, 8 - 35 lbf·ft

2 RATCHET ADJUSTABLE - N·m ONLY

13832	TTi20, ¼", 4 - 20 N·m
13833	TTi20, ⅜", 4 - 20 N·m
13843	TTi50, ⅜", 10 - 50 N·m
13844	TTi50, ½", 10 - 50 N·m

2 RATCHET ADJUSTABLE - lbf·ft ONLY

13834	TTi15, ¼", 35 - 180 lbf·in
13835	TTi15, ⅜", 35 - 180 lbf·in
13845	TTi35, ⅜", 8 - 35 lbf·ft
13846	TTi35, ½", 8 - 35 lbf·ft

2 FIXED HEAD ADJUSTABLE

13836	TTf 20, ⅜", 4 - 20 N·m, 35 - 180 lbf·in
13837	TTf 20, ⅜", 4 - 20 N·m (N·m ONLY)
13838	TTf 15, ⅜", 35 - 180 lbf·in (lbf·in ONLY)

2 FEMALE TORQUE HANDLE ADJUSTABLE

13839	TTfth 20, 9 x 12 mm, 4 - 20 N·m, 35 - 180 lbf·in
13847	TTfth 50, 9 x 12 mm, 10 - 50 N·m, 8 - 35 lbf·ft
13840	TTfth 20, 9 x 12 mm, 4 - 20 N·m (N·m ONLY)
13848	TTfth 50, 9 x 12 mm, 10 - 50 N·m (N·m ONLY)



NORTORQUE® TETHERED TORQUE WRENCHES



Features inbuilt tethering point to secure the tool for safe work at height and double-sided locking plunger square

- Pinned head in line with DROPS recommendation for ultra safe handling of sockets when working at height
- Built on a trusted, versatile torque wrench design
- Micrometer scale for simple and error free setting
- Lock feature helps prevent accidental adjustment of the set torque

2 RATCHET ADJUSTABLE - DUAL SCALE	
130178	Model 100, ½", 20 - 100 N·m, 20 - 80 lbf·ft
130179	Model 200, ½", 40 - 200 N·m, 30 - 150 lbf·ft
130180	Model 300, ½", 60 - 300 N·m, 45 - 220 lbf·ft

TTi NON-MAGNETIC TORQUE WRENCHES



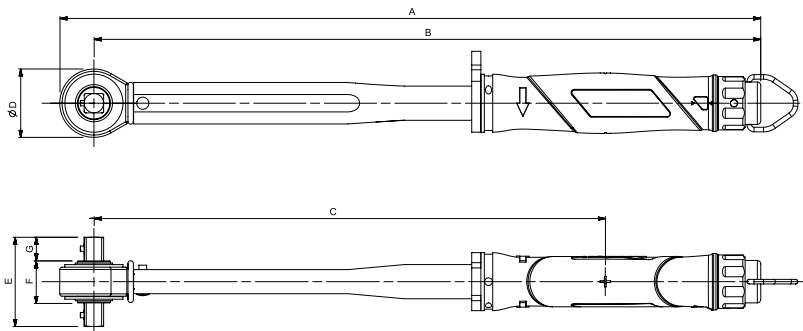
Carefully selected and tested materials replace the ferrous components present in standard torque wrenches, thereby giving an extremely low magnetic footprint. Being based on the TT range of torque wrenches means that they also retain the high standards of Norbar's other torque wrenches. Perfect for MRI scanner applications.

4 ADJUSTABLE - DUAL SCALE	
13900	TTi20, ⅜" Non-Mag, 4 - 20 N·m, 35 - 180 lbf·in
13901	TTi20, ½" Non-Mag, 4 - 20 N·m, 35 - 180 lbf·in
13902	TTi50, ⅜" Non-Mag, 10 - 50 N·m, 8 - 35 lbf·ft
13903	TTi50, ½" Non-Mag, 10 - 50 N·m, 8 - 35 lbf·ft

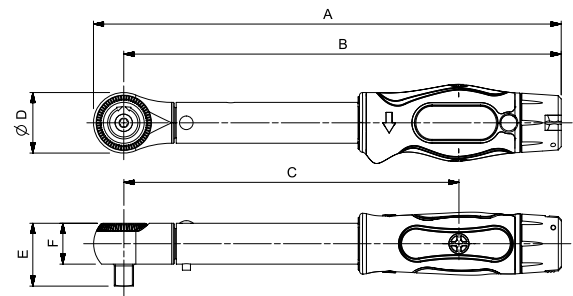
4 ADJUSTABLE - N·m ONLY	
13904	TTi20, ⅜" Non-Mag, 4 - 20 N·m
13905	TTi20, ½" Non-Mag, 4 - 20 N·m
13906	TTi50, ⅜" Non-Mag, 10 - 50 N·m
13907	TTi50, ½" Non-Mag, 10 - 50 N·m

Model	TT Torque Wrenches					NorTorque Tethered Torque Wrenches			
	TTi20 TTi15	TTi50 TTi35	Tf20 Tf15	Tfth20 Tfth15	Tfth50	Model 100	Model 200	Model 300	
Part Number	13830	13841							
	13831	13842							
	13832	13843							
	13833	13844							
	13834	13845	13836	13839	13847	130178	130179	130180	
	13835	13846	13837	13840	13848				
	13900	13902	13838						
	13901	13903							
	13904	13906							
	13905	13907							
Dimensions (mm)	A	232	328	225	214	310	375	459	589
	B	217	313	217	204	300	354	437	562
	C	166	263	166	153	250	252	335	460
	∅D	30	30	20	22	22	42	45	54
	E	31	31	28	17	17	53	59	59
	F	20	20	18	N/A	N/A	22	28	28
	G	N/A	N/A	N/A	N/A	N/A	16	16	16
Weight (kg)	0.5	0.7	0.5	0.4	0.6	0.9	1.1	1.5	

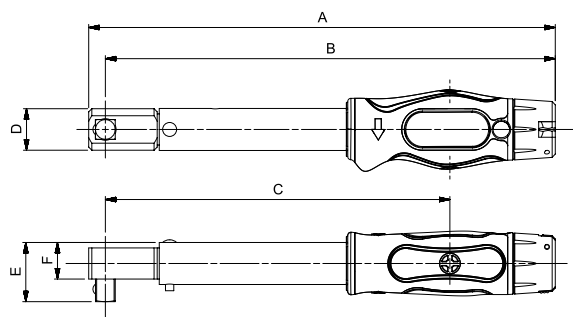
NorTorque® Tethered Torque Wrench



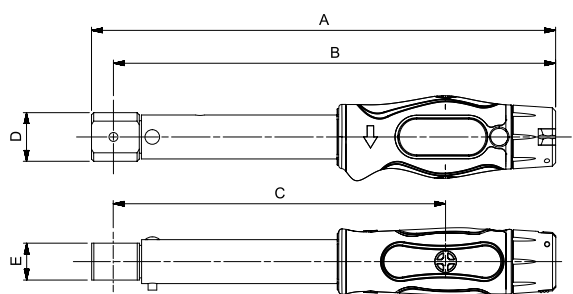
TTi Ratchet



Tf Fixed Head



Tfth Female Torque Handle





NORTORQUE®



The NorTorque® utilises Norbar's proven mechanism and internal components and incorporates them into a purposeful and attractive torque wrench that will delight a wide range of users from professional mechanics to hobby enthusiasts

- Accurate to $\pm 3\%$ of reading which meets the requirements of ISO 6789-1:2017
- Light and fast adjustment saves operator time and effort
- Micrometer scale applying to the primary torque units (N·m on a dual scale wrench) for simple and error free setting
- 'Push-through' ratchets allow torque control in both the clockwise and counter-clockwise directions
- Tough ratchets with narrow engagement angles allow for easy positioning of the tool in confined spaces. 5° for models up to 200 N·m and 6° for models 300 N·m and above
- Push/pull lock is fast and intuitive to use and prevents accidental adjustment of the set torque
- Convenient hanger feature for tool storage also aids wrench unlocking and adjustment



2	RATCHET ADJUSTABLE - DUAL SCALE
130101*	Model 60, 3/8", 12 - 60 N·m, 10 - 45 lbf-ft
130103*	Model 100, 1/2", 20 - 100 N·m, 20 - 80 lbf-ft
130104	Model 200, 1/2", 40 - 200 N·m, 30 - 150 lbf-ft
130105	Model 300, 1/2", 60 - 300 N·m, 45 - 220 lbf-ft
130106	Model 340, 1/2", 60 - 340 N·m, 45 - 250 lbf-ft

2	RATCHET ADJUSTABLE - N·m ONLY
130111*	Model 60, 3/8", 12 - 60 N·m
130113*	Model 100, 1/2", 20 - 100 N·m
130114	Model 200, 1/2", 40 - 200 N·m
130115	Model 300, 1/2", 60 - 300 N·m
130116	Model 340, 1/2", 60 - 340 N·m

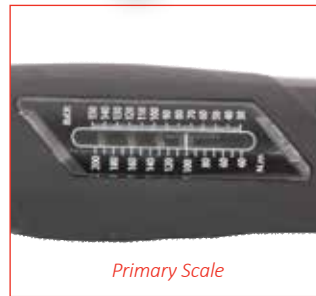
* Supplied with 1/2" sq. dr. adaptor

· Supplied with 3/8" sq. dr. adaptor



2	FEMALE TORQUE HANDLE ADJUSTABLE - DUAL SCALE
130121	Model 60, 9 x 12 mm, 12 - 60 N·m, 10 - 45 lbf-ft
130123	Model 100, 9 x 12 mm, 20 - 100 N·m, 20 - 80 lbf-ft
130125	Model 200, 9 x 12 mm, 40 - 200 N·m, 30 - 150 lbf-ft
130126	Model 200, 14 x 18 mm, 40 - 200 N·m, 30 - 150 lbf-ft
130127	Model 300, 14 x 18 mm, 60 - 300 N·m, 45 - 220 lbf-ft
130128	Model 340, 14 x 18 mm, 60 - 340 N·m, 45 - 250 lbf-ft

2	FEMALE TORQUE HANDLE ADJUSTABLE - N·m ONLY
130131	Model 60, 9 x 12 mm, 12 - 60 N·m
130133	Model 100, 9 x 12 mm, 20 - 100 N·m
130135	Model 200, 9 x 12 mm, 40 - 200 N·m
130136	Model 200, 14 x 18 mm, 40 - 200 N·m
130137	Model 300, 14 x 18 mm, 60 - 300 N·m
130138	Model 340, 14 x 18 mm, 60 - 340 N·m



Primary Scale



Micrometer Scale



Push-Through Ratchet



Rapid Adjustment with convenient hanger



Female Torque Handle



16 mm Spigot End



2	TORQUE HANDLE ADJUSTABLE 16 mm SPIGOT - DUAL SCALE
130141	Model 60, 16 mm spigot, 12 - 60 N·m, 10 - 45 lbf-ft
130142	Model 100, 16 mm spigot, 20 - 100 N·m, 20 - 80 lbf-ft
130143	Model 200, 16 mm spigot, 40 - 200 N·m, 30 - 150 lbf-ft
130144	Model 300, 16 mm spigot, 60 - 300 N·m, 45 - 220 lbf-ft

2	TORQUE HANDLE ADJUSTABLE 16 mm SPIGOT - N·m ONLY
130161	Model 60, 16 mm spigot, 12 - 60 N·m
130162	Model 100, 16 mm spigot, 20 - 100 N·m
130163	Model 200, 16 mm spigot, 40 - 200 N·m
130164	Model 300, 16 mm spigot, 60 - 300 N·m

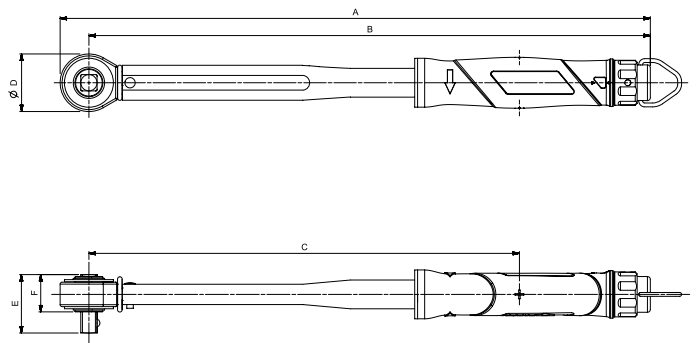


NORTORQUE®



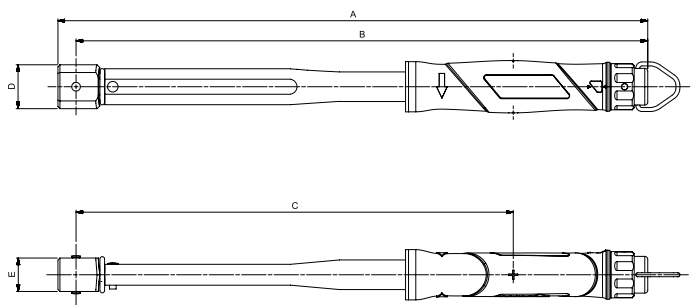
Ratchet Adjustable

Model	NorTorque 60	NorTorque 100	NorTorque 200	NorTorque 300	NorTorque 340	
Part Number	130101 130111	130103 130113	130104 130114	130105 130115	130106 130116	
Dimensions (mm)	A	328	375	459	587	679
	B	310	354	437	562	654
	C	209	252	335	460	552
	∅D	36	42	45	52	52
	E	34	38	45	45	45
	F	21	22	25	25	25
Weight (kg)	0.7	0.8	1.0	1.4	1.6	



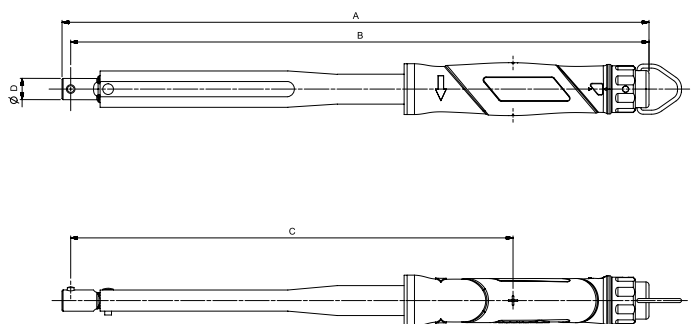
Female Torque Handle Adjustable

Model	NorTorque 60	NorTorque 100	NorTorque 200 9 x 12 mm	NorTorque 200 14 x 18 mm	NorTorque 300	NorTorque 340
Part Number	130121 130131	130123 130133	130125 130135	130126 130136	130127 130137	130128 130138
Dimensions (mm)	A	319	360	437	446	566
	B	308	348	426	430	550
	C	206	247	324	329	448
	D	22	22	24	33	36
	E	20	20	20	25	28
Weight (kg)	0.6	0.7	0.8	0.9	1.2	1.3



Torque Handle Adjustable 16 mm Spigot

Model	NorTorque 60	NorTorque 100	NorTorque 200	NorTorque 300	
Part Number	130141 130161	130142 130162	130143 130163	130144 130164	
Dimensions (mm)	A	317	357	439	564
	B	310	350	433	557
	C	208	248	331	455
	∅D	16	16	16	16
Weight (kg)	0.6	0.7	0.8	1.1	





SLIMLINE™ TORQUE WRENCHES



- Accurate to $\pm 3\%$ of reading which meets the requirements of ISO 6789-1:2017
- Unmistakable signal when set torque is reached
- High quality 72 tooth ratchet allows use in confined spaces
- Fixed head version has a push-through square for left and right handed torque tightening
- Moulded grip aids correct hand location and operator comfort

2	ADJUSTABLE RATCHET - DUAL SCALE
11123	SLO, 1/4", 4 - 20 N·m, 40 - 180 lbf·in
11087	SLO, 3/8", 4 - 20 N·m, 40 - 180 lbf·in



2	ADJUSTABLE - FIXED HEAD - DUAL SCALE
11125	SLO, 3/8" Fixed Head, 4 - 20 N·m, 40 - 180 lbf·in



2	TORQUE HANDLE ADJUSTABLE - DUAL SCALE
11126	SLO 16 mm spigot, 4 - 20 N·m, 40 - 180 lbf·in
11122	SLO 9 x 12 mm female, 4 - 20 N·m, 40 - 180 lbf·in

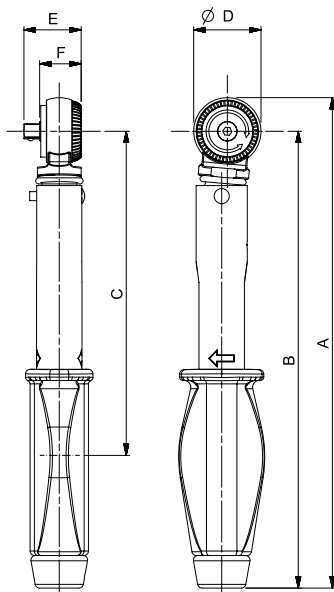


Production 'P' type versions are designed to discourage unauthorised alteration. They have no scale and so must be set against a torque measuring device such as Norbar's TruCheck™ - see page 82.

2	PRODUCTION 'P' TYPE (Must be set using a Torque Tester, see pages 80 - 87)
11089	SLO, 3/8" Fixed Head, 1 - 20 N·m, 10 - 180 lbf·in
11085	SLO, 1/4", 1 - 20 N·m, 10 - 180 lbf·in
11086	SLO, 3/8", 1 - 20 N·m, 10 - 180 lbf·in
11090	SLO, 16 mm spigot, 1 - 20 N·m, 10 - 180 lbf·in
11088	SLO, 9 x 12 mm female, 1 - 20 N·m, 10 - 180 lbf·in
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)

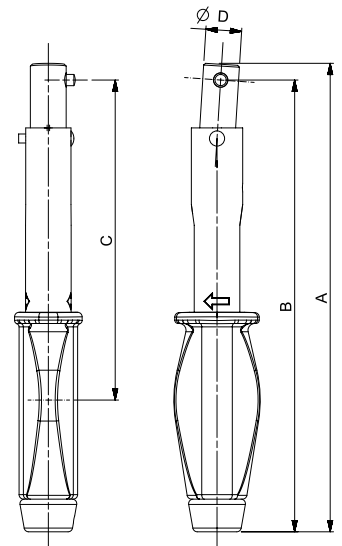
SLO Ratchet

Model	SLO 1/4"	SLO 3/8"
Part Number	11123 11085	11087 11086
Dimensions (mm)	A	219
	B	204
	C	146
	ØD	30
	E	26
	F	19
Weight (kg)	0.4	0.4



SLO Spigot Torque Handle

Model	SLO Spigot	
Part Number	11126 11090	
Dimensions (mm)	A	206
	B	199
	C	143
	ØD	16
Weight (kg)	0.4	



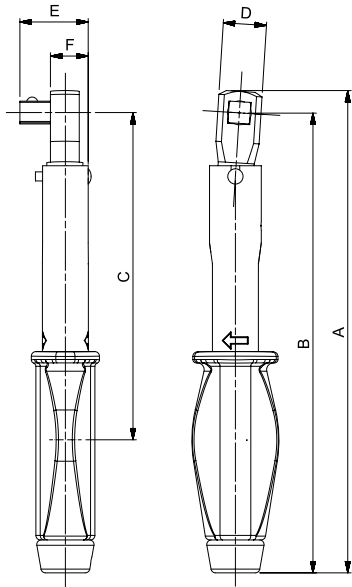


SLIMLINE™ TORQUE WRENCHES



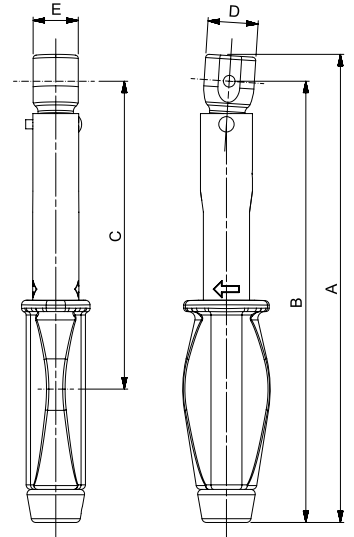
SLO Fixed Head

Model	SLO 3/8" Fixed Head	
Part Number	11125 11089	
Dimensions (mm)	A	213
	B	203
	C	145
	D	19
	E	30
	F	17
Weight (kg)	0.4	



SLO Female Torque Handle

Model	SLO FTH	
Part Number	11122 11088	
Dimensions (mm)	A	205
	B	194
	C	135
	D	22
	E	20
Weight (kg)	0.4	



PROFESSIONAL TORQUE WRENCHES MODEL 5

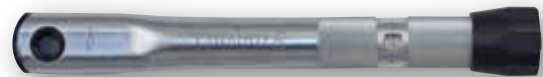
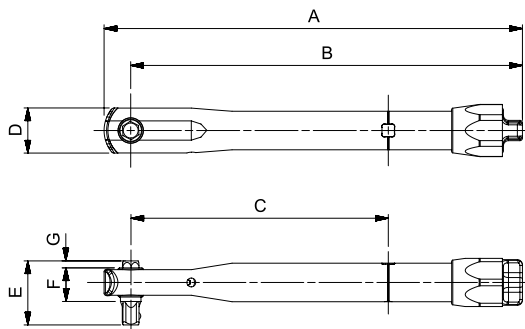


The Model 5 is a unique torque wrench that offers the convenience of interchangeable 1/4" hexagon bits. (ISO 1173:2001 Form C drive bits).

- Accuracy meets the requirements of ISO 6789-1:2017
- Non-length dependent. The Model 5 remains accurate regardless of hand position
- Supplied in a storage case. The case allows space for the storage of additional drive bits and optional stepless ratchet

2	ADJUSTABLE
13001	Pro 5, 1/4" female hex, 1 - 5 N·m
13002	Pro 5, 1/4" female hex, 10 - 50 lbf·in
13003	Pro 5, 1/4" female hex, 10 - 50 kgf·cm

Model	Adjustable	'P' Type
Part Number	13001 13002 13003	13004 13005 13006
Dimensions (mm)	A	165
	B	155
	C	102
	D	18
	E	25
	F	13
	G	2.8
Weight (kg)	0.1	0.1



Also available as Production 'P' Types, preventing unauthorised alteration of torque setting. No external calibration equipment is required to set the Model 5 'P' Type.

2	PRODUCTION 'P' TYPE
13004	Pro 5, 1/4" female hex, 1 - 5 N·m
13005	Pro 5, 1/4" female hex, 10 - 50 lbf·in
13006	Pro 5, 1/4" female hex, 10 - 50 kgf·cm

8	MODEL 5 ACCESSORY
13122	Stepless Ratchet 1/4" female hex

8	MODEL 5 SPARES
28900	1/4" Hex to 1/4" male square drive



Model 5 'P' Type in storage case



PROFESSIONAL TORQUE WRENCHES



Since its original, award winning launch in 1984 and extensive face-lift in 2000, Norbar's Professional torque wrench range has become one of the most popular wrench ranges available worldwide. In this re-engineered version, the core principles of accuracy, durability and comfort are carried over but almost every component part is new and improved.

- Accurate to $\pm 3\%$ of reading which meets the requirements of ISO 6789-2:2017
- Supplied with a traceable 'Calibration Certificate' allowing end users to adhere to more stringent quality control processes
- Large scale for better visibility and more accurate setting
- Fast scale adjustment reducing the effort required to adjust. If you adjust your wrench regularly, you can do more work

Compared with other torque wrenches:

Norbar's 'harmonic drive' scale provides a long scale length for good resolution and accurate setting in both scale units. By contrast, micrometer type scales allow accurate setting in the primary scale unit but relatively poor accuracy of setting in the secondary units because of limited resolution. The Professional wrench is amongst the easiest wrenches on the market to accurately set.

Timestrip® Feature

Torque wrenches should be calibrated once a year as a minimum, more frequently in harsh environments and with high levels of usage. Norbar's Timestrip® gives a visual indication that the wrench is due for re-calibration and has 3, 6, 9 and 12 month graduations. (Timestrip® is a registered trademark of Timestrip UK Ltd).



Unlocked



Locked



Automotive Ratchet



Industrial Ratchet



Timestrip®



Professional Scale



Female Torque Handle



16 mm Spigot End



PROFESSIONAL TORQUE WRENCHES



'Mushroom' Square Drive

2 INDUSTRIAL RATCHET ('Mushroom' Head) - DUAL SCALE

15002*	Pro 50, 3/8", 10 - 50 N·m, 7.5 - 37.5 lbf·ft
15003	Pro 100, 1/2", 20 - 100 N·m, 15 - 75 lbf·ft
15004	Pro 200, 1/2", 40 - 200 N·m, 30 - 150 lbf·ft
15005	Pro 300, 1/2", 60 - 300 N·m, 44 - 222 lbf·ft
15006	Pro 340, 1/2", 60 - 340 N·m, 44 - 250 lbf·ft
15007*	Pro 400, 3/4", 80 - 400 N·m, 60 - 300 lbf·ft

2 INDUSTRIAL RATCHET ('Mushroom' Head) - N·m ONLY

15042*	Pro 50, 3/8", 10 - 50 N·m
15043	Pro 100, 1/2", 20 - 100 N·m
15044	Pro 200, 1/2", 40 - 200 N·m
15045	Pro 300, 1/2", 60 - 300 N·m
15046	Pro 340, 1/2", 60 - 340 N·m
15047*	Pro 400, 3/4", 80 - 400 N·m

2 INDUSTRIAL RATCHET ('Mushroom' Head) - lbf·ft ONLY

15172*	Pro 50, 3/8", 7.5 - 37.5 lbf·ft
15173	Pro 100, 1/2", 15 - 75 lbf·ft
15174	Pro 200, 1/2", 30 - 150 lbf·ft
15175	Pro 300, 1/2", 44 - 222 lbf·ft
15176	Pro 340, 1/2", 44 - 250 lbf·ft
15177*	Pro 400, 3/4", 60 - 300 lbf·ft

2 INDUSTRIAL RATCHET ('Mushroom' Head) - lbf·in ONLY

15052*	Pro 50, 3/8", 90 - 440 lbf·in
15053	Pro 100, 1/2", 200 - 900 lbf·in
15054	Pro 200, 1/2", 400 - 1,800 lbf·in
15055	Pro 300, 1/2", 500 - 2,500 lbf·in
15056	Pro 340, 1/2", 500 - 3,000 lbf·in
15057*	Pro 400, 3/4", 700 - 3,500 lbf·in

* Supplied with 1/2" sq. dr. adaptor

· Supplied with 3/8" sq. dr. adaptor

* Model 400 supplied with a Stepped Square

2 AUTOMOTIVE RATCHET (Reversible) - DUAL SCALE

15008	Pro 15, 1/4", 3 - 15 N·m, 27 - 132 lbf·in
15009	Pro 15, 3/8", 3 - 15 N·m, 27 - 132 lbf·in
15010	Pro 25, 1/4", 5 - 25 N·m, 44 - 220 lbf·in
15011	Pro 25, 3/8", 5 - 25 N·m, 44 - 220 lbf·in
15012	Pro 50, 3/8", 10 - 50 N·m, 7.5 - 37.5 lbf·ft
15013	Pro 50, 1/2", 10 - 50 N·m, 7.5 - 37.5 lbf·ft
15014	Pro 100, 3/8", 20 - 100 N·m, 15 - 75 lbf·ft
15015	Pro 100, 1/2", 20 - 100 N·m, 15 - 75 lbf·ft
15016	Pro 200, 1/2", 40 - 200 N·m, 30 - 150 lbf·ft

2 AUTOMOTIVE RATCHET (Reversible) - N·m ONLY

15018	Pro 15, 1/4", 3 - 15 N·m
15019	Pro 15, 3/8", 3 - 15 N·m
15020	Pro 25, 1/4", 5 - 25 N·m
15021	Pro 25, 3/8", 5 - 25 N·m
15022	Pro 50, 3/8", 10 - 50 N·m
15023	Pro 50, 1/2", 10 - 50 N·m
15024	Pro 100, 3/8", 20 - 100 N·m
15025	Pro 100, 1/2", 20 - 100 N·m
15026	Pro 200, 1/2", 40 - 200 N·m

2 AUTOMOTIVE RATCHET (Reversible) - lbf·ft ONLY

15142	Pro 50, 3/8", 7.5 - 37.5 lbf·ft
15143	Pro 50, 1/2", 7.5 - 37.5 lbf·ft
15144	Pro 100, 3/8", 15 - 75 lbf·ft
15145	Pro 100, 1/2", 15 - 75 lbf·ft
15146	Pro 200, 1/2", 30 - 150 lbf·ft

2 AUTOMOTIVE RATCHET (Reversible) - lbf·in ONLY

15028	Pro 15, 1/4", 27 - 132 lbf·in
15029	Pro 15, 3/8", 27 - 132 lbf·in
15030	Pro 25, 1/4", 44 - 220 lbf·in
15031	Pro 25, 3/8", 44 - 220 lbf·in
15032	Pro 50, 3/8", 90 - 440 lbf·in
15033	Pro 50, 1/2", 90 - 440 lbf·in
15034	Pro 100, 3/8", 200 - 900 lbf·in
15035	Pro 100, 1/2", 200 - 900 lbf·in
15036	Pro 200, 1/2", 400 - 1,800 lbf·in



PROFESSIONAL TORQUE WRENCHES



2 TORQUE HANDLE ADJUSTABLE 16 mm SPIGOT - DUAL SCALE

15060	Pro 15, 16 mm spigot, 3 - 15 N·m, 27 - 132 lbf-in
15061	Pro 25, 16 mm spigot, 5 - 25 N·m, 44 - 220 lbf-in
15062	Pro 50, 16 mm spigot, 10 - 50 N·m, 7.5 - 37.5 lbf-ft
15063	Pro 100, 16 mm spigot, 20 - 100 N·m, 15 - 75 lbf-ft
15064	Pro 200, 16 mm spigot, 40 - 200 N·m, 30 - 150 lbf-ft
15065	Pro 300, 16 mm spigot, 60 - 300 N·m, 44 - 222 lbf-ft

2 TORQUE HANDLE ADJUSTABLE 16 mm SPIGOT - N·m ONLY

15070	Pro 15, 16 mm spigot, 3 - 15 N·m
15071	Pro 25, 16 mm spigot, 5 - 25 N·m
15072	Pro 50, 16 mm spigot, 10 - 50 N·m
15073	Pro 100, 16 mm spigot, 20 - 100 N·m
15074	Pro 200, 16 mm spigot, 40 - 200 N·m
15075	Pro 300, 16 mm spigot, 60 - 300 N·m

2 TORQUE HANDLE ADJUSTABLE 16 mm SPIGOT - lbf-ft ONLY

15082	Pro 50, 16 mm spigot, 7.5 - 37.5 lbf-ft
15083	Pro 100, 16 mm spigot, 15 - 75 lbf-ft
15084	Pro 200, 16 mm spigot, 30 - 150 lbf-ft
15085	Pro 300, 16 mm spigot, 44 - 222 lbf-ft

2 TORQUE HANDLE ADJUSTABLE 16 mm SPIGOT - lbf-in ONLY

15090	Pro 15, 16 mm spigot, 27 - 132 lbf-in
15091	Pro 25, 16 mm spigot, 44 - 220 lbf-in
15092	Pro 50, 16 mm spigot, 90 - 440 lbf-in
15093	Pro 100, 16 mm spigot, 200 - 900 lbf-in
15094	Pro 200, 16 mm spigot, 400 - 1,800 lbf-in
15095	Pro 300, 16 mm spigot, 500 - 2,500 lbf-in



2 FEMALE TORQUE HANDLE ADJUSTABLE - DUAL SCALE

15100	Pro 15, 9 x 12 mm, 3 - 15 N·m, 27 - 132 lbf-in
15101	Pro 25, 9 x 12 mm, 5 - 25 N·m, 44 - 220 lbf-in
15102	Pro 50, 9 x 12 mm, 10 - 50 N·m, 7.5 - 37.5 lbf-ft
15103	Pro 100, 9 x 12 mm, 20 - 100 N·m, 15 - 75 lbf-ft
15104	Pro 200, 9 x 12 mm, 40 - 200 N·m, 30 - 150 lbf-ft
15105	Pro 200, 14 x 18 mm, 40 - 200 N·m, 30 - 150 lbf-ft
15106	Pro 300, 14 x 18 mm, 60 - 300 N·m, 44 - 222 lbf-ft
15107	Pro 340, 14 x 18 mm, 60 - 340 N·m, 44 - 250 lbf-ft
15108	Pro 400, 14 x 18 mm, 80 - 400 N·m, 60 - 300 lbf-ft

2 FEMALE TORQUE HANDLE ADJUSTABLE - N·m ONLY

15110	Pro 15, 9 x 12 mm, 3 - 15 N·m
15111	Pro 25, 9 x 12 mm, 5 - 25 N·m
15112	Pro 50, 9 x 12 mm, 10 - 50 N·m
15113	Pro 100, 9 x 12 mm, 20 - 100 N·m
15114	Pro 200, 9 x 12 mm, 40 - 200 N·m
15115	Pro 200, 14 x 18 mm, 40 - 200 N·m
15116	Pro 300, 14 x 18 mm, 60 - 300 N·m
15117	Pro 340, 14 x 18 mm, 60 - 340 N·m
15118	Pro 400, 14 x 18 mm, 80 - 400 N·m

2 FEMALE TORQUE HANDLE ADJUSTABLE - lbf-ft ONLY

15122	Pro 50, 9 x 12 mm, 7.5 - 37.5 lbf-ft
15123	Pro 100, 9 x 12 mm, 15 - 75 lbf-ft
15124	Pro 200, 9 x 12 mm, 30 - 150 lbf-ft
15125	Pro 200, 14 x 18 mm, 30 - 150 lbf-ft
15126	Pro 300, 14 x 18 mm, 44 - 222 lbf-ft
15127	Pro 340, 14 x 18 mm, 44 - 250 lbf-ft
15128	Pro 400, 14 x 18 mm, 60 - 300 lbf-ft

2 FEMALE TORQUE HANDLE ADJUSTABLE - lbf-in ONLY

15130	Pro 15, 9 x 12 mm, 27 - 132 lbf-in
15131	Pro 25, 9 x 12 mm, 44 - 220 lbf-in
15132	Pro 50, 9 x 12 mm, 90 - 440 lbf-in
15133	Pro 100, 9 x 12 mm, 200 - 900 lbf-in
15134	Pro 200, 9 x 12 mm, 400 - 1,800 lbf-in
15135	Pro 200, 14 x 18 mm, 400 - 1,800 lbf-in
15136	Pro 300, 14 x 18 mm, 500 - 2,500 lbf-in
15137	Pro 340, 14 x 18 mm, 500 - 3,000 lbf-in
15138	Pro 400, 14 x 18 mm, 700 - 3,500 lbf-in

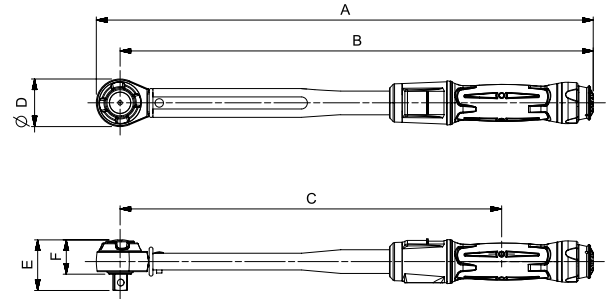


PROFESSIONAL TORQUE WRENCHES



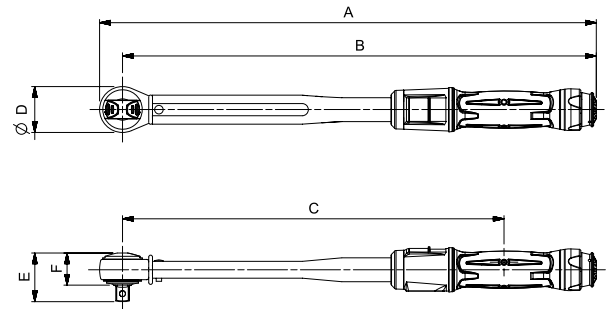
Industrial Ratchet

Model	Pro 50	Pro 100	Pro 200	Pro 300	Pro 340	Pro 400	
Part Number	15002	15003	15004	15005	15006	15007	
	15042	15043	15044	15045	15046	15047	
	15172	15173	15174	15175	15176	15177	
	15052	15053	15054	15055	15056	15057	
Dimensions (mm)	A	335	387	470	593	685	686
	B	317	364	447	567	659	661
	C	231	278	361	480	572	574
	∅D	35	45	45	52	52	51
	E	37	48	48	48	48	47
	F	26	32	32	33	33	24
Weight (kg)	0.7	0.9	1.1	1.4	1.5	1.9	



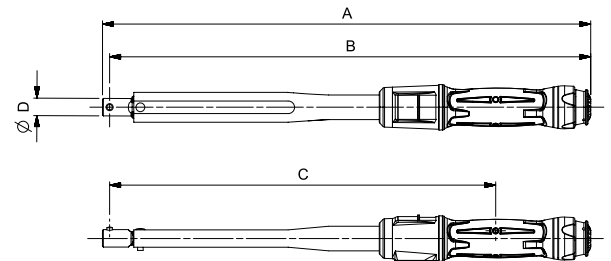
Automotive Ratchet

Model	Pro 15 Pro 25	Pro 50 3/8"	Pro 50 1/2"	Pro 100 3/4"	Pro 100 1"	Pro 200	
Part Number	15008, 15009, 15010, 15011, 15018, 15019, 15020, 15021, 15028, 15029, 15030, 15031	15012 15022 15142 15032	15013 15023 15143 15033	15014 15024 15144 15034	15015 15025 15145 15035	15016 15026 15146 15036	
	A	221	327	327	367	367	465
	B	209	312	312	352	352	444
	C	140	226	226	266	266	358
Dimensions (mm)	∅D	25	30	30	30	30	43
	E	25	33	38	33	38	46
	F	18	22	22	22	22	30
	Weight (kg)	0.3	0.7	0.7	0.8	0.8	1.0



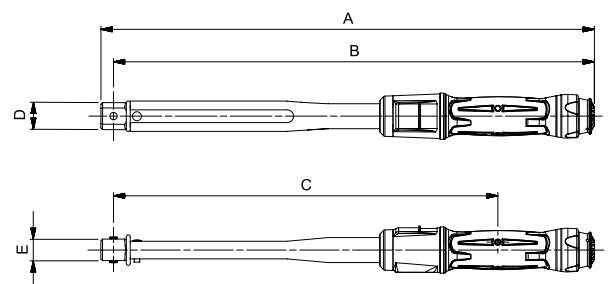
Spigot Torque Handle

Model	Pro 15 Pro 25	Pro 50	Pro 100	Pro 200	Pro 300	
Part Number	15060 15061 15070 15071 15090 15091	15062 15072 15082 15092	15063 15073 15083 15093	15064 15074 15084 15094	15065 15075 15085 15095	
	A	223	322	363	445	569
	B	216	316	356	438	563
	C	148	229	269	351	476
	∅D	16	16	16	16	16
	Weight (kg)	0.3	0.6	0.7	0.9	1.2



Female Torque Handle

Model	Pro 15 Pro 25	Pro 50	Pro 100	Pro 200 9 x 12 mm	Pro 200 14 x 18 mm	Pro 300	Pro 340	Pro 400	
Part Number	15100 15101 15110 15111 15112 15122 15130 15131	15102 15112 15122 15132	15103 15113 15123 15133	15104 15114 15124 15134	15105 15115 15125 15135	15106 15116 15126 15136	15107 15117 15127 15137	15108 15118 15128 15138	
	A	218	325	365	442	453	570	662	664
	B	204	314	354	431	440	557	649	649
	C	139	227	267	345	353	440	562	563
	D	22	22	22	25	34	34	34	32
	E	20	20	20	20	26	28	28	24
Weight (kg)	0.3	0.6	0.7	0.9	1.0	1.2	1.3	1.7	





PROFESSIONAL 'P' TYPE TORQUE WRENCHES



For production line applications requiring a sealed torque setting, 'P' Type wrenches have no scale and must be set against a suitable torque measuring device (see pages 81 - 87).

- Accurate to ±3% of reading which meets the requirements of ISO 6789-1:2017
- Colour coded adjustment seals and locking tool provided
- On request 'P' Type wrenches can be set, marked with the setting and certified for production line applications requiring a sealed torque setting. Only if a pre-set has been requested will the tool be supplied with a Declaration of Conformance



- Push-through ratchet allows clockwise and counter-clockwise torque control

2	PRODUCTION 'P' TYPE - INDUSTRIAL RATCHET (Push-through square)
13051	Pro 60, 3/8", 12 - 60 N·m, 5 - 45 lbf-ft
13052	Pro 60, 1/2", 12 - 60 N·m, 5 - 45 lbf-ft
13053	Pro 100, 3/8", 20 - 100 N·m, 15 - 75 lbf-ft
13054	Pro 100, 1/2", 20 - 100 N·m, 15 - 75 lbf-ft
13055	Pro 200, 1/2", 40 - 200 N·m, 30 - 150 lbf-ft
13057	Pro 300, 1/2", 60 - 300 N·m, 45 - 220 lbf-ft
13056	Pro 400, 3/4", 80 - 400 N·m, 60 - 300 lbf-ft
11698	Calibration Kit Professional 'P' Type
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)



- Reversible, 72 tooth ratchet

2	PRODUCTION 'P' TYPE AUTOMOTIVE RATCHET (Reversible)
11164	Pro 60, 3/8", 12 - 60 N·m, 5 - 45 lbf-ft
11171	Pro 60, 1/2", 12 - 60 N·m, 5 - 45 lbf-ft
11138	Pro 100, 3/8", 20 - 100 N·m, 15 - 75 lbf-ft
11139	Pro 100, 1/2", 20 - 100 N·m, 15 - 75 lbf-ft
11140	Pro 200, 1/2", 40 - 200 N·m, 30 - 150 lbf-ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)



Setting a 'P' Type Torque Wrench



2	TORQUE HANDLE PRODUCTION 'P' TYPE - 16 mm SPIGOT
11167	Pro 60, 16 mm spigot, 12 - 60 N·m, 5 - 45 lbf-ft
11143	Pro 100, 16 mm spigot, 20 - 100 N·m, 15 - 75 lbf-ft
11144	Pro 200, 16 mm spigot, 40 - 200 N·m, 30 - 150 lbf-ft
11117	Pro 300, 16 mm spigot, 60 - 300 N·m, 45 - 220 lbf-ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)



2	FEMALE TORQUE HANDLE PRODUCTION - 'P' TYPE
11170	Pro 60, 9 x 12 mm, 12 - 60 N·m, 5 - 45 lbf-ft
11150	Pro 100, 9 x 12 mm, 20 - 100 N·m, 15 - 75 lbf-ft
11151	Pro 200, 9 x 12 mm, 40 - 200 N·m, 30 - 150 lbf-ft
11152	Pro 200, 14 x 18 mm, 40 - 200 N·m, 30 - 150 lbf-ft
11153	Pro 300, 14 x 18 mm, 60 - 300 N·m, 45 - 220 lbf-ft
13068	Pro 400, 14 x 18 mm, 80 - 400 N·m, 60 - 300 lbf-ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)

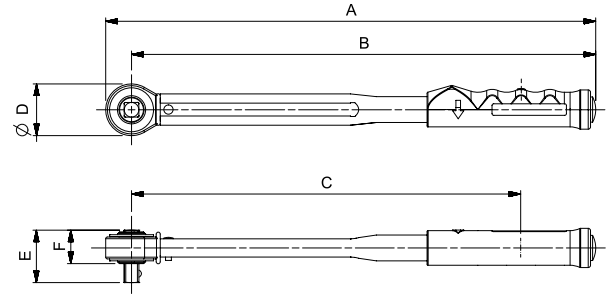


PROFESSIONAL 'P' TYPE TORQUE WRENCHES



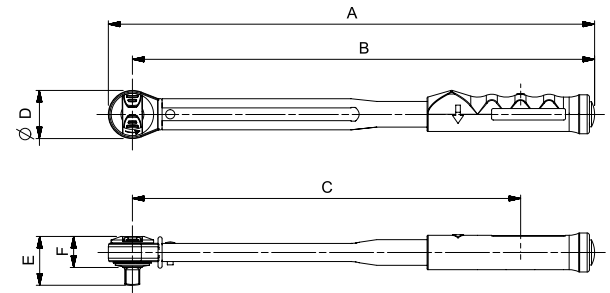
Industrial Ratchet

Model	Pro 60, 3/8"	Pro 60, 1/2"	Pro 100, 3/8"	Pro 100, 1/2"	Pro 200	Pro 300	Pro 400
Part Number	13051	13052	13053	13054	13055	13057	13056
Dimensions (mm)	A	295	301	335	342	425	668
	B	277	281	317	321	403	641
	C	212	216	252	256	338	577
	∅D	36	42	36	42	45	54
	E	34	38	34	38	46	46
	F	21	23	21	22	29	29
Weight (kg)	0.6	0.7	0.7	0.7	1.0	1.2	2.0



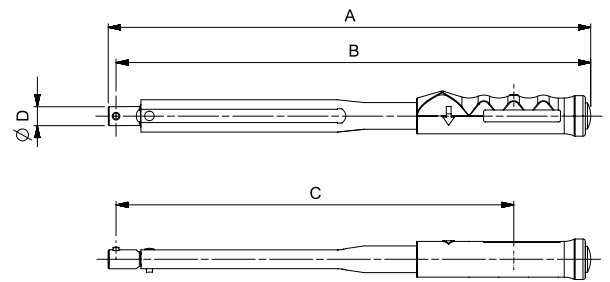
Automotive Ratchet

Model	Pro 60, 3/8"	Pro 60, 1/2"	Pro 100, 3/8"	Pro 100, 1/2"	Pro 200
Part Number	11164	11171	11138	11139	11140
Dimensions (mm)	A	289	289	329	329
	B	274	274	314	314
	C	209	209	249	249
	∅D	30	30	30	30
	E	33	38	33	38
	F	22	22	22	22
Weight (kg)	0.6	0.6	0.7	0.7	1



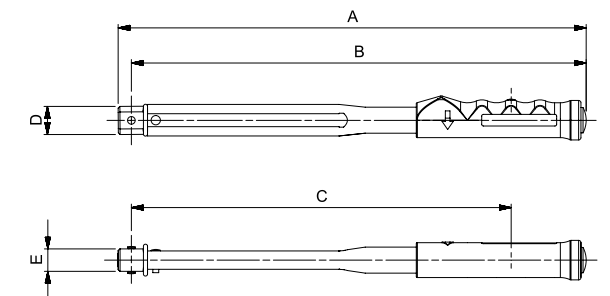
Spigot Torque Handle

Model	Pro 60	Pro 100	Pro 200	Pro 300
Part Number	11167	11143	11144	11117
Dimensions (mm)	A	283	324	405
	B	277	317	399
	C	212	252	334
	∅D	16	16	16
Weight (kg)	0.6	0.6	0.8	1.1



Female Torque Handle

Model	Pro 60	Pro 100	Pro 200, 9 x 12 mm	Pro 200, 14 x 18 mm	Pro 300	Pro 400
Part Number	11170	11150	11151	11152	11153	13068
Dimensions (mm)	A	286	326	403	414	534
	B	274	314	392	400	518
	C	210	250	327	336	453
	D	22	22	25	34	36
	E	20	20	20	26	28
Weight (kg)	0.6	0.6	0.8	0.8	1.1	1.8





PROFESSIONAL TORQUE WRENCHES MODELS 650 - 1500 ADJUSTABLE AND 'P' TYPE



For precision applications to 1,500 N·m

- Exceptionally clear torque signal from unique mechanism
- Non length dependant so can be used with or without the supplied extension handle (optional on Pro 650)
- Extension handle significantly reduces operator effort to achieve high torque values
- Accurate to $\pm 3\%$ of reading which meets the requirements of ISO 6789-2:2017
- On request 'P' Type wrenches can be set, marked with the setting and certified for production line applications requiring a sealed torque setting. Only if a pre-set has been requested will the tool be supplied with a Declaration of Conformance

2	ADJUSTABLE RATCHET - DUAL SCALE
14037	Pro 650, 3/4", 130 - 650 N·m, 100 - 480 lbf-ft
14015	Pro 800, 3/4", 200 - 800 N·m, 150 - 600 lbf-ft
14016	Pro 800, 1", 200 - 800 N·m, 150 - 600 lbf-ft
14002	Pro 1000, 3/4", 300 - 1,000 N·m, 220 - 750 lbf-ft
14003	Pro 1000, 1", 300 - 1,000 N·m, 220 - 750 lbf-ft
14004	Pro 1500, 3/4", 500 - 1,500 N·m, 370 - 1,100 lbf-ft
14005	Pro 1500, 1", 500 - 1,500 N·m, 370 - 1,100 lbf-ft

2	ADJUSTABLE RATCHET - N·m ONLY
14038	Pro 650, 3/4", 130 - 650 N·m
14024	Pro 800, 3/4", 200 - 800 N·m
14025	Pro 800, 1", 200 - 800 N·m
14026	Pro 1000, 3/4", 300 - 1,000 N·m
14027	Pro 1000, 1", 300 - 1,000 N·m
14028	Pro 1500, 3/4", 500 - 1,500 N·m
14029	Pro 1500, 1", 500 - 1,500 N·m

2	ADJUSTABLE RATCHET - lbf-ft ONLY
14044	Pro 650, 3/4", 100 - 480 lbf-ft
14045	Pro 800, 3/4", 150 - 600 lbf-ft
14046	Pro 800, 1", 150 - 600 lbf-ft
14047	Pro 1000, 3/4", 220 - 750 lbf-ft
14048	Pro 1000, 1", 220 - 750 lbf-ft
14049	Pro 1500, 3/4", 370 - 1,100 lbf-ft
14050	Pro 1500, 1", 370 - 1,100 lbf-ft



2	TORQUE HANDLE ADJUSTABLE - DUAL SCALE
14040	Pro 650, 22 mm spigot, 130 - 650 N·m, 100 - 480 lbf-ft



2	FEMALE TORQUE HANDLE ADJUSTABLE - DUAL SCALE
14041	Pro 650, 14 x 18 mm, 130 - 650 N·m, 100 - 480 lbf-ft



2	RATCHET PRODUCTION 'P' TYPE (Must be set using a Torque Tester, see pages 81 - 87)
14039	Pro 650, 3/4", 130 - 650 N·m, 100 - 480 lbf-ft
14017	Pro 800, 3/4", 200 - 800 N·m, 150 - 600 lbf-ft
14018	Pro 800, 1", 200 - 800 N·m, 150 - 600 lbf-ft
14007	Pro 1000, 3/4", 300 - 1,000 N·m, 220 - 750 lbf-ft
14008	Pro 1000, 1", 300 - 1,000 N·m, 220 - 750 lbf-ft
14009	Pro 1500, 3/4", 500 - 1,500 N·m, 370 - 1,100 lbf-ft
14010	Pro 1500, 1", 500 - 1,500 N·m, 370 - 1,100 lbf-ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)



8	PRO 650 - 1500 ACCESSORY
14142	Extension Handle (included with Pro 800 - 1500 as standard)



2	TORQUE HANDLE PRODUCTION 'P' TYPE (Must be set using a Torque Tester, see pages 81 - 87)
14042	Pro 650, 22 mm spigot, 130 - 650 N·m, 100 - 480 lbf-ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)



2	FEMALE TORQUE HANDLE PRODUCTION 'P' TYPE (Must be set using a Torque Tester, see pages 81 - 87)
14043	Pro 650, 14 x 18 mm, 130 - 650 N·m, 100 - 480 lbf-ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)



All models supplied in carry case

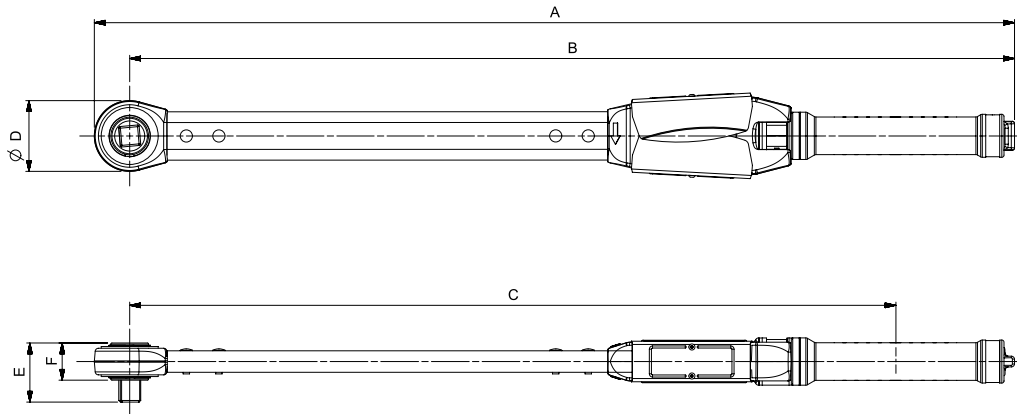


PROFESSIONAL TORQUE WRENCHES MODELS 650 - 1500 ADJUSTABLE AND 'P' TYPE



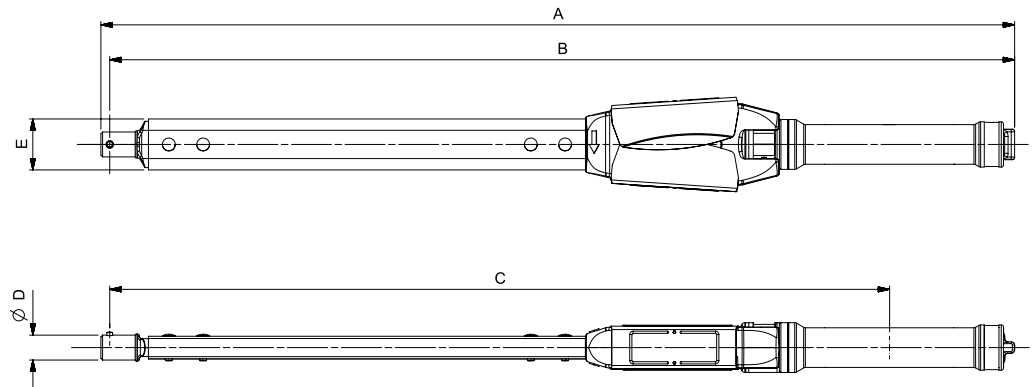
Push-Through Ratchet

Model	Pro 650	Pro 800 ¾"	Pro 800 1"	Pro 1000 ¾"	Pro 1000 1"	Pro 1500 ¾"	Pro 1500 1"	Pro 650 'P' Type	Pro 800 ¾" 'P' Type	Pro 800 1" 'P' Type	Pro 1000 ¾" 'P' Type	Pro 1000 1" 'P' Type	Pro 1500 ¾" 'P' Type	Pro 1500 1" 'P' Type	
Part Number	14037 14038 14044	14015 14024 14045	14016 14025 14046	14002 14026 14047	14003 14027 14048	14004 14028 14049	14005 14029 14050	14039	14017	14018	14007	14008	14009	14010	
Dimensions (mm)	A	856	1,037	1,037	1,245	1,245	1,571	1,571	848	1,030	1,030	1,238	1,238	1,563	1,563
	B	823	999	999	1,208	1,208	1,533	1,533	816	992	992	1,201	1,201	1,526	1,526
	C	713	889	889	1,097	1,097	1,423	1,422	713	889	889	1,097	1,097	1,424	1,423
	ØD	66	75	75	75	75	75	75	66	75	75	75	75	75	75
	E	56	58	66	58	66	58	66	55	58	66	58	58	58	66
	F	30	33	33	38	38	38	38	35	38	38	38	38	38	38
Weight (kg)	4.0	5.2	5.2	5.8	5.8	6.7	6.7	4.0	5.2	5.2	5.7	5.7	6.7	6.7	



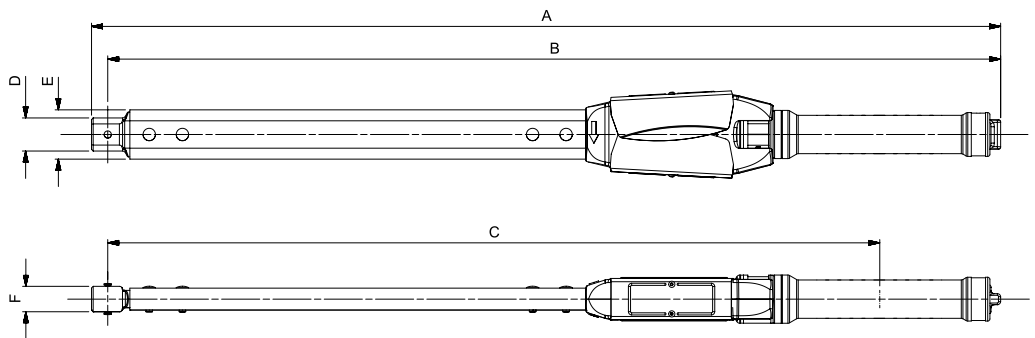
Spigot Torque Handle

Model	Pro 650	Pro 650 'P' Type	
Part Number	14040	14042	
Dimensions (mm)	A	807	800
	B	799	792
	C	688	689
	ØD	22	22
E	45	45	
Weight (kg)	3.6	3.6	



Female Torque Handle

Model	Pro 650	Pro 650 'P' Type	
Part Number	14041	14043	
Dimensions (mm)	A	830	823
	B	815	808
	C	704	705
	D	30	30
	E	45	45
	F	23	23
Weight (kg)	3.6	3.6	



NOTE: When using the Extension Handle (14142) add 495 mm to dimensions 'A' and 'B', add 515 mm to dimension C and add 1.6 kg to the weight.



INDUSTRIAL 2R AND 2AR



A re-engineered, robust, easy to use industrial torque wrench. Ideal for light commercial vehicle maintenance.

- Unique profiled cam and reaction plate - gives much clearer 'torque break point' reducing the possibility of over torquing
- Robust construction gives accurate results, to $\pm 4\%$, even in arduous working conditions meeting the requirements of ISO 6789-1:2017
- Easy to read scale is shielded from dust, dirt and spray
- Integral pull-out adjustment bar - no additional torque setting tool required
- Push-through ratchet allows two direction torquing
- Provided with sturdy, padded fabric carry case with shoulder strap
- Easily replaceable ratchet - held in place with pin and clip
- New handle - more comfortable and guides operator's hand to correct position
- Tethering point allows the wrench to be attached to a harness



2 RATCHET ADJUSTABLE - DUAL SCALE

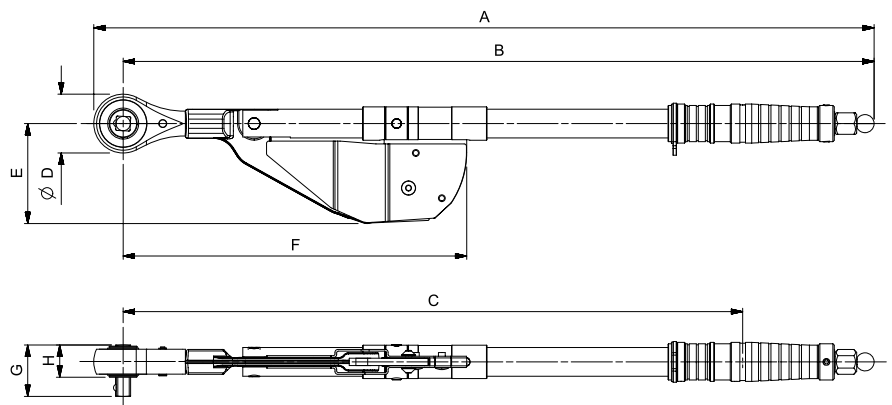
12110	2R, ½", 70 - 270 N·m, 50 - 200 lbf·ft
12111	2AR, ½", 80 - 340 N·m, 60 - 250 lbf·ft

2 RATCHET ADJUSTABLE - lbf·ft ONLY

12112	2R, ½", 50 - 200 lbf·ft
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Model	2R	2AR
Part Number	12110 12112	12111
Dimensions (mm)	A	690
	B	629
	C	548
	ØD	52
	E	89
	F	304
	G	45
	H	28
Weight (kg)	2.7	3.0





INDUSTRIAL TORQUE WRENCHES ADJUSTABLE AND 'P' TYPE - NEW GENERATION



Coming Soon



4AR-N shown split

A long time customer favourite re-engineered to be more compactable, robust and easy to use. Ideal for heavy duty applications.

- Unique profiled cam and reaction plate - gives much clearer 'torque break point' reducing the possibility of over torquing
- Robust construction gives accurate results to ±4% even in arduous working conditions, meeting the requirements of ISO 6789-1:2017
- Easy to read scale is shielded from dust, dirt and spray
- Easy to set accurately
- Can be split and packed in two parts for a smaller, easier to transport package
- Push-through ratchet allows two direction torquing
- Designed to be cost effectively serviced
- New handle - more comfortable and guides operator's hand to correct position



2 RATCHET ADJUSTABLE - DUAL SCALE

120101	3AR-N, 3/4", 120 - 600 N·m, 100 - 450 lbf·ft
120101.01	3AR-N, 1", 120 - 600 N·m, 100 - 450 lbf·ft
120110	4AR-N, 3/4", 200 - 800 N·m, 150 - 600 lbf·ft
120110.01	4AR-N, 1", 200 - 800 N·m, 150 - 600 lbf·ft
120115	5R-N, 3/4", 300 - 1,000 N·m, 200 - 750 lbf·ft
120115.01	5R-N, 1", 300 - 1,000 N·m, 200 - 750 lbf·ft

2 RATCHET ADJUSTABLE - N·m ONLY

120107	3AR-N, 3/4", 120 - 600 N·m
120107.01	3AR-N, 1", 120 - 600 N·m
120114	4AR-N, 3/4", 200 - 800 N·m
120114.01	4AR-N, 1", 200 - 800 N·m
120117	5R-N, 3/4", 300 - 1,000 N·m
120117.01	5R-N, 1", 300 - 1,000 N·m

2 TORQUE HANDLE ADJUSTABLE - DUAL SCALE

120102	3AR-N, 22 mm Spigot, 120 - 600 N·m, 100 - 450 lbf·ft
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2 TORQUE HANDLE ADJUSTABLE - N·m ONLY

120108	3AR-N, 22 mm Spigot, 120 - 600 N·m
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2 RATCHET PRODUCTION 'P' TYPE (Must be set using a Torque Tester, see pages 81 - 87)

120104	3AR-N, 3/4", 120 - 600 N·m, 100 - 450 lbf·ft
120104.01	3AR-N, 1", 120 - 600 N·m, 100 - 450 lbf·ft
120111	4AR-N, 3/4", 200 - 800 N·m, 150 - 600 lbf·ft
120111.01	4AR-N, 1", 200 - 800 N·m, 150 - 600 lbf·ft
120116	5R-N, 3/4", 300 - 1,000 N·m, 200 - 750 lbf·ft
120116.01	5R-N, 1", 300 - 1,000 N·m, 200 - 750 lbf·ft

2 TORQUE HANDLE PRODUCTION 'P' TYPE (Must be set using a Torque Tester, see pages 81 - 87)

120105	3AR-N, 22 mm Spigot, 120 - 600 N·m, 100 - 450 lbf·ft
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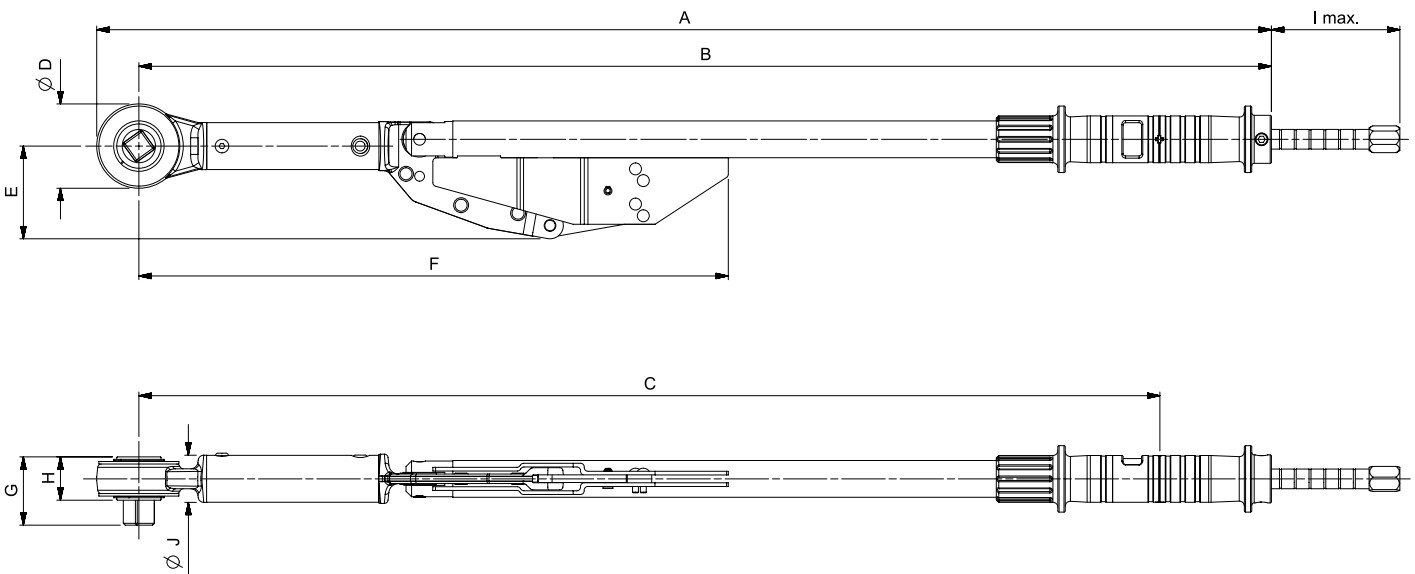


INDUSTRIAL TORQUE WRENCHES ADJUSTABLE AND 'P' TYPE - NEW GENERATION



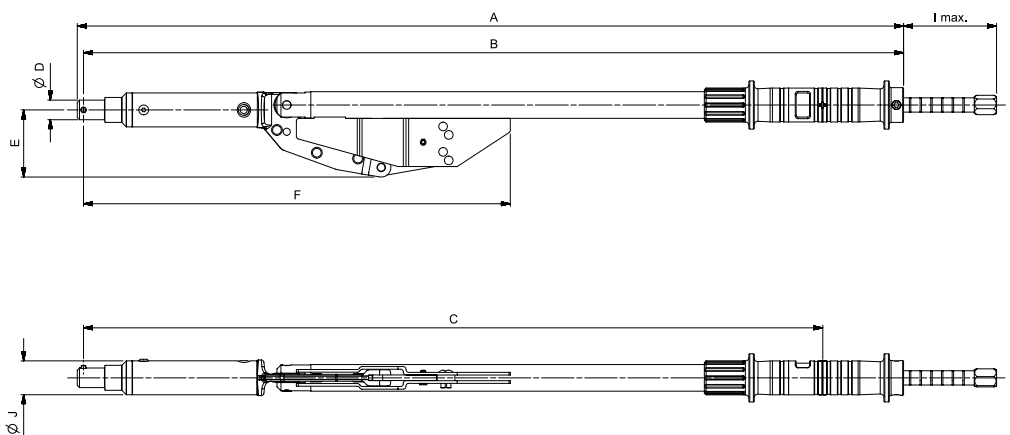
Industrial Push-Through Ratchets

Model	3AR-N	3AR-N 'P' Type	4AR-N	4AR-N 'P' Type	5R-N	5R-N 'P' Type	
Part Number	120101 120101.01 120107 120107.01	120104 120104.01	120110 120110.01 120114 120114.01	120111 120111.01	120115 120115.01 120117 120117.01	120116 120116.01	
Dimensions (mm)	A	954	954	1,214	1,214	1,449	1,449
	B	920	920	1,180	1,180	1,415	1,224
	C	829	829	1,089	1,089	1,324	1,324
	ØD	69	69	69	69	69	69
	E	75	75	75	75	75	75
	F	479	479	738	738	974	974
	G	¾" = 55 1" = 63	¾" = 55 1" = 63	¾" = 55 1" = 63	¾" = 55 1" = 63	¾" = 55 1" = 63	¾" = 55 1" = 63
	H	35	35	35	35	35	35
	I max.	105	18	105	18	105	18
	ØJ	38	38	38	38	38	38
Weight (kg)	6.0	6.0	6.7	6.7	7.4	7.4	



Spigot Torque Handle

Model	3AR-N	3AR-N 'P' Type	
Part Number	120102 120108	120105	
Dimensions (mm)	A	927	927
	B	920	920
	C	829	829
	ØD	22	22
	E	75	75
	F	479	479
	I max.	105	18
	ØJ	38	38
Weight (kg)	6.0	5.3	





INDUSTRIAL TORQUE WRENCHES ADJUSTABLE AND 'P' TYPE



For ultimate torque control in heavy duty applications

- Unique 'break action' mechanism gives unparalleled control over the applied torque
- Perfect for wheel nuts and many other applications
- Accurate to ±4% of reading which meets the requirements of ISO 6789-1:2017
- Split versions available for when storage space is limited such as vehicle tool kits
- 2,000 N·m 6R, see 'split' versions on page 30

2	RATCHET ADJUSTABLE - DUAL SCALE
12001	3AR, 3/4", 100 - 500 N·m, 70 - 350 lbf-ft
12001.01	3AR, 1", 100 - 500 N·m, 70 - 350 lbf-ft
12006	4R, 3/4", 150 - 700 N·m, 100 - 500 lbf-ft
12006.01	4R, 1", 150 - 700 N·m, 100 - 500 lbf-ft
12007	4AR, 3/4", 200 - 800 N·m, 150 - 600 lbf-ft
12007.01	4AR, 1", 200 - 800 N·m, 150 - 600 lbf-ft
12009	5R, 3/4", 300 - 1,000 N·m, 200 - 750 lbf-ft
12009.01	5R, 1", 300 - 1,000 N·m, 200 - 750 lbf-ft
12012	5AR, 3/4", 700 - 1,500 N·m, 500 - 1,000 lbf-ft
12012.01	5AR, 1", 700 - 1,500 N·m, 500 - 1,000 lbf-ft

2	RATCHET ADJUSTABLE - N·m ONLY
12105	4AR, 3/4", 200 - 800 N·m
12106	4AR, 1", 200 - 800 N·m
12107	5R, 3/4", 300 - 1,000 N·m
12108	5R, 1", 300 - 1,000 N·m

2	TORQUE HANDLE ADJUSTABLE - DUAL SCALE
12003*	No.4, 22 mm spigot, 130 - 550 N·m, 100 - 400 lbf-ft

*Carry case not included



Production 'P' type versions are designed to discourage unauthorised alteration. They have no scale and so must be set against a torque measuring device such as Norbar's TruCheck™ - see page 83.

- Unique 'break action' mechanism gives unparalleled control over the applied torque
- Perfect for wheel nuts and many other applications
- Accurate to ±4% of reading

2	RATCHET PRODUCTION 'P' TYPE (Must be set using a Torque Tester, see pages 80 - 87)
12015	3AR, 3/4", 100 - 500 N·m, 70 - 350 lbf-ft
12020	4R, 3/4", 150 - 700 N·m, 100 - 500 lbf-ft
12023	5R, 3/4", 300 - 1,000 N·m, 200 - 750 lbf-ft
12002	5AR, 3/4", 700 - 1,500 N·m, 500 - 1,000 lbf-ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)



2	TORQUE HANDLE 'P' TYPE (Must be set using a Torque Tester, see pages 80 - 87)
12017*	No.4, P Type, 22 mm spigot, 130 - 550 N·m, 100 - 400 lbf-ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)

*Carry case not included

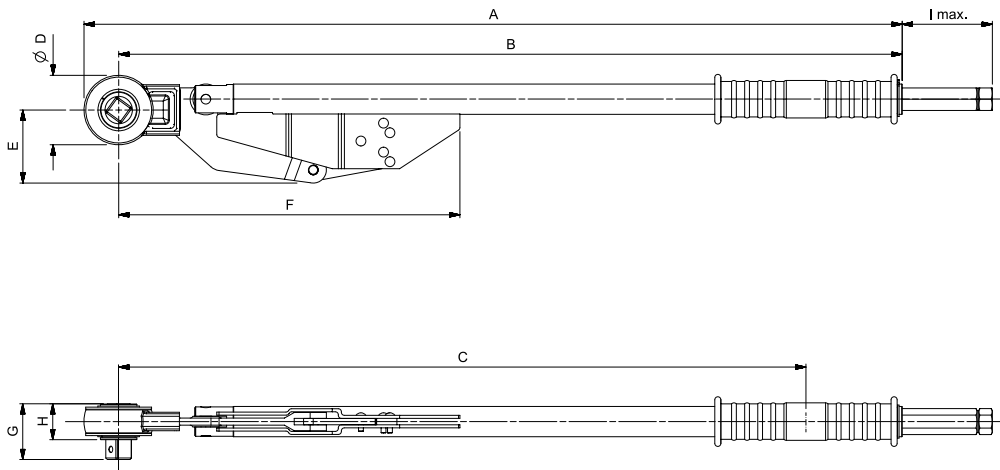


INDUSTRIAL TORQUE WRENCHES ADJUSTABLE AND 'P' TYPE



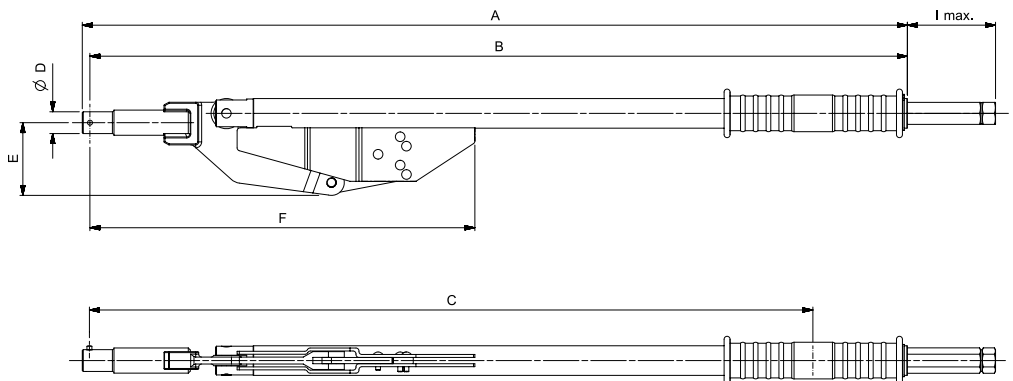
Industrial Push-Through Ratchets / Split / Bi-Square

Model	3AR	3AR 'P' Type	4R	4R 'P' Type	4R Split	4AR	5R	5R 'P' Type	5R Split	5AR	5AR 'P' Type	6R Split	Bi-Square	
Part Number	12001 12001.01	12015	12006 12006.01	12020	12102 12102.01	12007 12007.01 12105 12106	12009 12009.01 12107 12108	12023	12101 12101.01	12012 12012.01	12002	12100	12026	
Ratchet teeth	36	36	36	36	36	36	36	36	36	36	36	36	N/A	
Dimensions (mm)	A	808	811	1,049	1,052	1,049	1,149	1,382	1,385	1,382	1,382	1,385	1,802	1,351
	B	773	777	1,014	1,018	1,015	1,114	1,347	1,351	1,348	1,347	1,351	1,767	1,313
	C	678	678	919	919	915	1,019	1,252	1,252	1,248	1,267	1,267	1,687	1,218
	∅D	69	69	69	69	69	69	69	69	69	69	69	69	76
	E	73	73	73	73	73	73	73	73	73	73	73	73	73
	F	337	337	578	578	578	678	911	911	911	911	911	1,331	877
	G	¾" = 55 1" = 63	55	¾" = 55 1" = 63	55	¾" = 55 1" = 63	¾" = 55 1" = 63	¾" = 55 1" = 63	55	¾" = 55 1" = 63	¾" = 55 1" = 63	55	63	N/A
	H	35	35	35	35	35	35	35	35	35	35	35	35	N/A
I max.	105	N/A	105	N/A	105	105	105	N/A	105	105	N/A	105	105	
Weight (kg)	5.2	5.2	6.3	6.3	6.3	6.4	7.3	7.3	7.3	10.4	10.4	13.0	7.1	



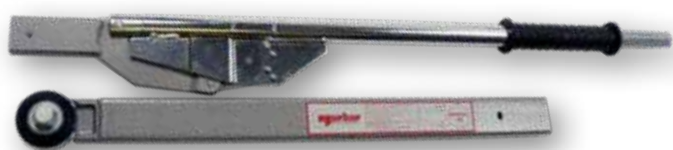
Spigot Torque Handle

Model	No.4	No.4 'P' Type	
Part Number	12003	12017	
Dimensions (mm)	A	833	837
	B	826	829
	C	731	731
	D	22	22
	E	73	73
	F	389	389
I max.	105	N/A	
Weight (kg)	4.6	4.6	





INDUSTRIAL TORQUE WRENCHES - SPLIT



Split Industrials are supplied in two parts for easier transportation and storage, but can be assembled and disassembled in seconds.

2	RATCHET SPLIT ADJUSTABLE - DUAL SCALE
12102	4R, 3/4", 150 - 700 N·m, 100 - 500 lbf-ft
12102.01	4R, 1", 150 - 700 N·m, 100 - 500 lbf-ft
12101	5R, 3/4", 300 - 1,000 N·m, 200 - 750 lbf-ft
12101.01	5R, 1", 300 - 1,000 N·m, 200 - 750 lbf-ft
12100	6R, 1", 900 - 2,000 N·m, 700 - 1,500 lbf-ft

INDUSTRIAL TORQUE WRENCH - BI-SQUARE



The 1 1/16" Bi-square version of the Industrial Torque Wrench was developed specifically with rail track maintenance in mind. The critical need of the rail industry is to reduce the chance of any object being left on the track. Fitting directly onto rail fishplate bolts means that no socket or square drive is required, two components that could potentially be separated from the regular version of the Industrial Torque Wrench.

Other versions of this tool are available on request.

2	BI-SQUARE - DUAL SCALE
12026	1 1/16" Bi-Square, 300 - 1,000 N·m, 200 - 750 lbf-ft

ELECTRODE WRENCHES



For torque tightening of carbon electrodes.

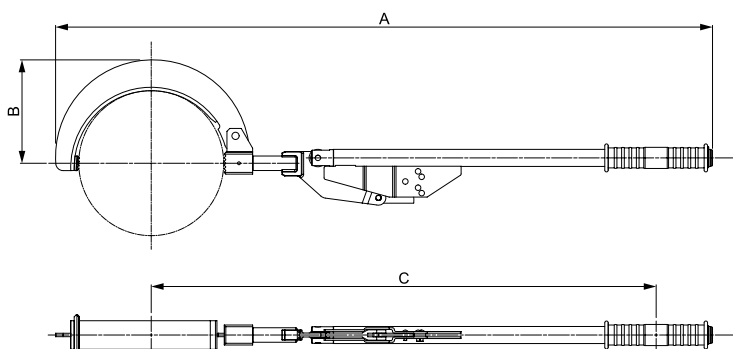
Standard torque settings are shown. Other settings are available. The 8" diameter electrode wrench uses the professional torque handle as the control mechanism. Above 8" the Industrial wrench is used as the control mechanism.

9	LOW RANGE
12506	8" (200 mm) 312 N·m
12530	10" (250 mm) 542 N·m
12531	12" (300 mm) 780 N·m

Other models available on request.

9	HIGH RANGE
12532	14" (350 mm) 1,140 N·m
12533	16" (400 mm) 1,300 N·m
12535	18" (450 mm) 1,500 N·m
12536	20" (500 mm) 2,000 N·m
12537	22" (550 mm) 2,370 N·m
12538	24" (600 mm) 2,370 N·m
12538.HD	24" (600 mm) 3,200 N·m

Model	8" (200 mm)	10" (250 mm)	12" (300 mm)	14" (350 mm)	16" (400 mm)	18" (450 mm)	20" (500 mm)	22" (550 mm)	24" (600 mm)	24" (600 mm)
Part Number	12506	12530	12531	12532	12533	12535	12536	12537	12538	12538.HD
Dimensions (mm)	A	897	1,150	1,286	1,764	1,825	1,727	2,211	2,571	3,350
	B	159	194	239	288	299	336	386	398	446
	C	658	883	994	1,443	1,472	1,643	1,811	2,141	2,140
Weight (kg)	3.2	6.8	8.4	13.8	14.3	16.5	20.0	25.4	26.1	31.7





CLICKTRONIC® TORQUE WRENCHES



A first for our range of torque wrenches, ClickTronic® combines the accuracy, durability and comfort from the mechanism of the tried and tested Professional wrench with a dynamic, easy to use, digital readout all packaged in a sleek, aesthetically appealing product.

- Accurate to ±3% of reading which meets the requirements of ISO 6789-2:2017
- Supplied with a traceable 'Calibration Certificate' allowing end users to adhere to more stringent quality control processes
- OLED display provides a clear and easy to read display, which helps to significantly reduce setting errors
- Multiple torque units selectable by operator
- The lock is a push/pull type. It is faster and more intuitive to use. A coloured band on the lock clearly shows that the wrench is unlocked
- Utilises a rechargeable lithium battery which is charged using a mini USB lead
- Square drive adaptors are provided with the 50 N·m and 100 N·m Industrial Ratchet models

Timestrip® Feature

Torque wrenches should be calibrated once a year as a minimum, more frequently in harsh environments and with high levels of usage. Norbar's Timestrip® gives a visual indication that the wrench is due for re-calibration and has 3, 6, 9 and 12 month graduations. (Timestrip® is a registered trademark of Timestrip UK Ltd).



Lock Adjustment Knob



Mini USB



Timestrip®



Digital Scale



Automotive Ratchet

These compact ratchets allow rapid direction change enabling you to, for example, back off a nut that you have tightened. Torque control is in the clockwise direction only.

2	AUTOMOTIVE RATCHET (Reversible)
15152	ClickTronic 50, 3/8", 10 - 50 N·m
15153	ClickTronic 50, 1/2", 10 - 50 N·m
15154	ClickTronic 100, 3/8", 20 - 100 N·m
15155	ClickTronic 100, 1/2", 20 - 100 N·m
15156	ClickTronic 200, 1/2", 40 - 200 N·m



Industrial Ratchet

The square drive of these robust ratchets can be removed and replaced in the other side of the ratchet head so that the wrench will give torque control in both the clockwise and counter-clockwise directions.

2	INDUSTRIAL RATCHET ('Mushroom' Head)
15166*	ClickTronic 50, 3/8", 10 - 50 N·m
15167	ClickTronic 100, 1/2", 20 - 100 N·m
15168	ClickTronic 200, 1/2", 40 - 200 N·m
15157	ClickTronic 300, 1/2", 60 - 300 N·m
15158	ClickTronic 340, 1/2", 68 - 340 N·m

* Supplied with 1/2" sq. dr. adaptor

· Supplied with 3/8" sq. dr. adaptor





CLICKTRONIC® TORQUE WRENCHES



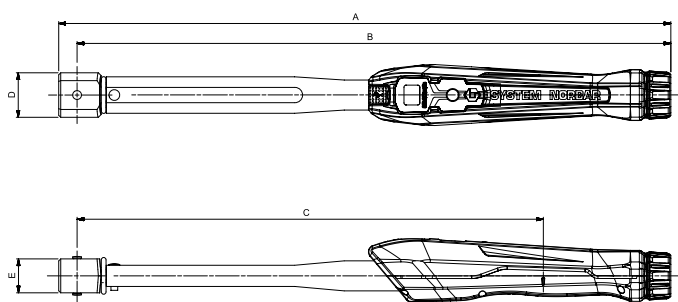
Female Torque Handle

Model	ClickTronic 50	ClickTronic 100	ClickTronic 200 9 x 12 mm	ClickTronic 200 14 x 18 mm	ClickTronic 300	ClickTronic 340
Part Number	15192	15193	15194	15195	15196	15197
Dimensions (mm)	A	330	371	450	457	575
	B	319	359	436	443	561
	C	223	264	341	349	465
	D	22	22	24	33	36
	E	20	20	19	25	28
Weight (kg)	0.7	0.8	0.9	1.0	1.2	1.3

Female Torque Handle

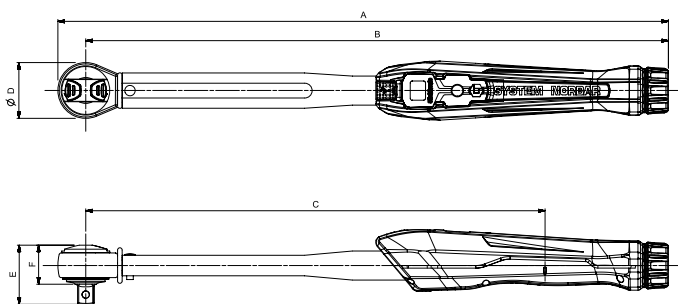
For many applications a spanner end fitting rather than a socket is the best or often, the only solution. Typically this will be because the joint is a pipe union (such as a brake pipe).

2	FEMALE TORQUE HANDLE
15192	ClickTronic 50, 9 x 12 mm, 10 - 50 N·m
15193	ClickTronic 100, 9 x 12 mm, 20 - 100 N·m
15194	ClickTronic 200, 9 x 12 mm, 40 - 200 N·m
15195	ClickTronic 200, 14 x 18 mm, 40 - 200 N·m
15196	ClickTronic 300, 14 x 18 mm, 60 - 300 N·m
15197	ClickTronic 340, 14 x 18 mm, 68 - 340 N·m



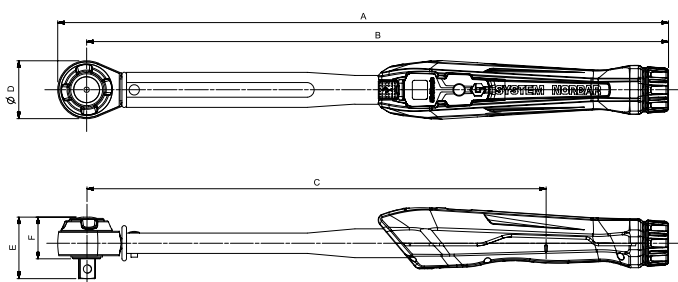
Automotive Ratchet

Model	ClickTronic 50 3/8"	ClickTronic 50 1/2"	ClickTronic 100 3/8"	ClickTronic 100 1/2"	ClickTronic 200	
Part Number	15152	15153	15154	15155	15156	
Dimensions (mm)	A	333	347	373	373	469
	B	318	318	358	358	449
	C	223	223	263	263	354
	∅D	30	30	30	30	42
	E	33	38	33	38	46
	F	22	22	22	22	30
Weight (kg)	0.8	0.8	0.8	0.8	1.1	



Industrial Ratchet

Model	ClickTronic 50	ClickTronic 100	ClickTronic 200	ClickTronic 300	ClickTronic 340	
Part Number	15166	15167	15168	15157	15158	
Dimensions (mm)	A	340	392	474	598	690
	B	322	370	452	572	664
	C	228	275	357	478	569
	∅D	35	45	45	52	52
	E	37	38	48	48	48
	F	26	32	32	33	33
Weight (kg)	0.8	1.0	1.1	1.5	1.6	





NORTRONIC® ELECTRONIC TORQUE WRENCHES



Bluetooth®
Versions
Coming
Soon



The NorTronic®, our first electronic torque wrench, sets the benchmark with its unique Torque Data System (TDS) software and combination of accuracy, wireless capability and angle measurement, in a versatile, robust and easy to use package.

- Accurate and traceable torque and angle control
- Two full colour OLED displays positioned at 90° to each other for visual indication both horizontally and vertically
- 3 models covering 5 - 330 N·m
- IP44 protection against dust and water ingress
- One piece aluminium handle
- Extruded aluminium case
- Torque & Angle readings can be sent to TDS in real time or downloaded via the USB lead or wireless interface. For a wireless connection, a wireless adaptor is required for your PC. Each wireless adaptor can handle up to 8 wrenches
- Ability to interface to ProSuite® process control software
- Calibration date of tool can be displayed via TDS or third party software
- ASCII mode allows for interfacing the tool to third party software
- When used with a HandTorque® gearbox the NorTronic can directly display, save and send the output Torque of the HandTorque®
- Ability to set a Torque, Angle and Final Torque Target
- Ability to produce and save Torque & Angle graphs (in real time) from a USB connected tool
- Ability to have up to 15 linked or non-linked Targets on the tool at any one time
- Angle calibration in accordance with VDI/VDE 2648
- UKAS accredited Torque calibration in both clockwise and counter-clockwise direction



Compatible with Norbar's huge range of spanner end fittings

Unique Torque Data System software enables data management and archiving to a PC



NorTronic® DLL (Dynamic Link Library) plugin enables NorTronic® tools to be interfaced to a customer's existing production line control software.

Contact Norbar for more details.





NORTRONIC® ELECTRONIC TORQUE WRENCHES



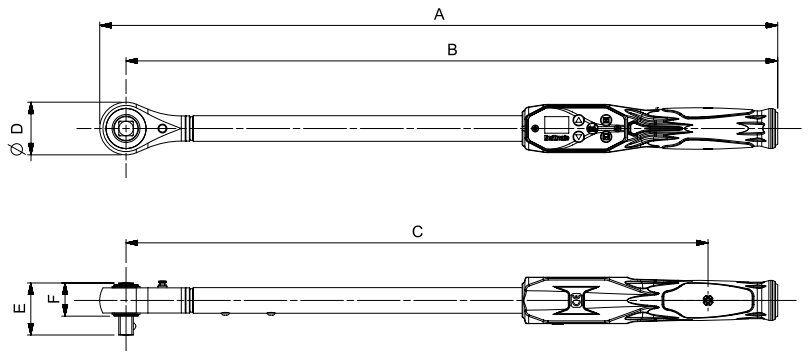
4 NORTRONIC 868 MHZ	
43500	NorTronic 50, 3/8", 868 MHz, 5 - 50 N·m
43501	NorTronic 50, 1/2", 868 MHz, 5 - 50 N·m
43502	NorTronic 200, 1/2", 868 MHz, 20 - 200 N·m
43503	NorTronic 330, 1/2", 868 MHz, 33 - 330 N·m
43508	USB Wireless Adaptor, 868 MHz

For UK, Europe, Singapore and India

4 NORTRONIC 915 MHZ	
43504	NorTronic 50, 3/8", 915 MHz, 5 - 50 N·m
43505	NorTronic 50, 1/2", 915 MHz, 5 - 50 N·m
43506	NorTronic 200, 1/2", 915 MHz, 20 - 200 N·m
43507	NorTronic 330, 1/2", 915 MHz, 33 - 330 N·m
43509	USB Wireless Adaptor, 915 MHz

For USA, Canada, Australia and New Zealand

Model	NorTronic 50 3/8"	NorTronic 50 1/2"	NorTronic 200 1/2"	NorTronic 330 1/2"
Part Number	43500 43504	43501 43505	43502 43506	43503 43507
Dimensions (mm)	A	438	472	592
	B	449	449	569
	C	388	388	508
	ØD	38	46	46
	E	34	45	45
	F	20	20	28
Weight (kg)	1.2	1.2	1.5	1.9



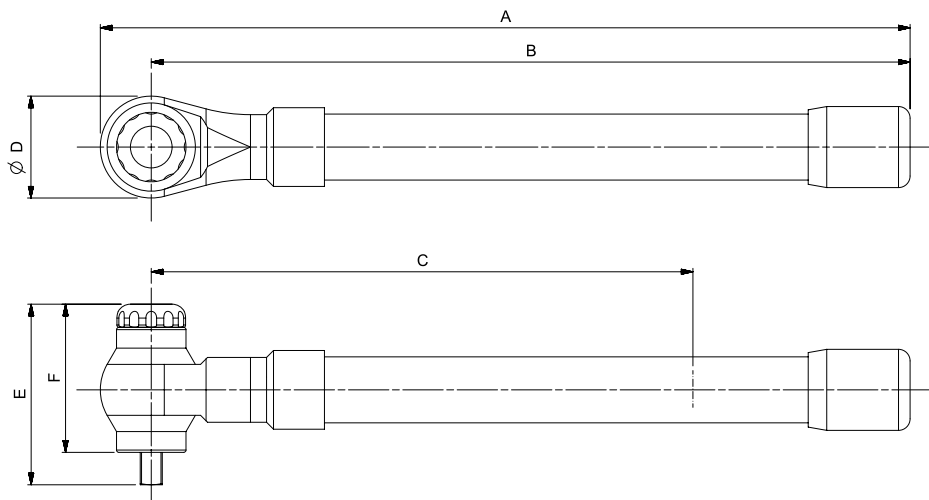
INSULATED TORQUE WRENCH



Using injection moulded Nylon 11, Norbar's insulated torque wrench complies with IEC 60900:2004 and is more durable than the traditional PVC dipped insulated tools. Certified to 1,000 volts.

4 ADJUSTABLE - DUAL SCALE	
13870	TT60, 3/8", Insulated, 12 - 60 N·m, 8 - 44 lbf·ft
13871	TT60, 1/2", Insulated, 12 - 60 N·m, 8 - 44 lbf·ft

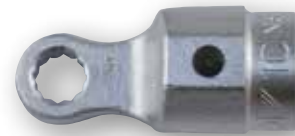
Model	All Models	
Part Number	13870 13871	
Dimensions (mm)	A	350
	B	328
	C	234
	ØD	44
	E	80
	F	65
Weight (kg)	0.9	





SPANNER END FITTINGS FOR NORBAR 16 mm TORQUE HANDLES

On this page you will find our standard range of end fittings.
For other sizes, see page 37 & 38.



2	OPEN ENDS METRIC
29841	7 mm, 9 N·m*
29842	8 mm, 13 N·m*
29843	9 mm, 19 N·m*
29844	10 mm, 25 N·m*
29845	11 mm, 32 N·m*
29846	12 mm, 41 N·m*
29847	13 mm, 51 N·m*
29848	14 mm, 63 N·m*
29849	15 mm, 77 N·m*
29850	16 mm, 92 N·m*
29851	17 mm, 107 N·m*
29876	18 mm, 128 N·m*
29877	19 mm, 149 N·m*
29852	20 mm, 172 N·m*
29853	21 mm, 198 N·m*
29854	22 mm, 225 N·m*
29855	23 mm, 255 N·m*
29856	24 mm, 287 N·m*
29857	25 mm, 322 N·m*
29858	26 mm, 330 N·m*
29878	27 mm, 330 N·m*
29860	29 mm, 330 N·m*
29861	30 mm, 330 N·m*
29863	32 mm, 330 N·m*

2	OPEN ENDS IMPERIAL
29701	¼", 7 N·m*
29702	⅜", 13 N·m*
29703	½", 21 N·m*
29704	⅞", 32 N·m*
29705	1", 48 N·m*
29706	⅝", 67 N·m*
29707	¾", 90 N·m*
29708	1⅛", 118 N·m*
29709	¾", 150 N·m*
29710	1⅜", 187 N·m*
29711	⅞", 230 N·m*
29712	1⅝", 281 N·m*
29713	1", 330 N·m*
29714	1 ⅛", 330 N·m*
29715	1 ⅜", 330 N·m*
29716	1 ⅝", 330 N·m*
29717	1 ¾", 330 N·m*
29718	1 ⅞", 330 N·m*

2	RING ENDS METRIC
29881	7 mm, 25 N·m*
29882	8 mm, 35 N·m*
29883	9 mm, 45 N·m*
29884	10 mm, 52 N·m*
29885	11 mm, 73 N·m*
29886	12 mm, 89 N·m*
29887	13 mm, 107 N·m*
29888	14 mm, 128 N·m*
29889	15 mm, 150 N·m*
29890	16 mm, 175 N·m*
29891	17 mm, 201 N·m*
29913	18 mm, 230 N·m*
29914	19 mm, 261 N·m*
29892	20 mm, 294 N·m*
29893	21 mm, 330 N·m*
29894	22 mm, 330 N·m*
29895	23 mm, 330 N·m*
29896	24 mm, 330 N·m*
29915	27 mm, 330 N·m*

2	RING ENDS IMPERIAL
29726	¼", 25 N·m*
29727	⅜", 35 N·m*
29728	½", 42 N·m*
29729	⅞", 73 N·m*
29730	1", 115 N·m*
29731	⅝", 170 N·m*
29732	¾", 226 N·m*
29733	1⅛", 260 N·m*
29734	¾", 305 N·m*
29735	1⅜", 330 N·m*
29736	⅞", 330 N·m*
29737	1⅝", 330 N·m*
29738	1", 330 N·m*
29739	1 ⅛", 330 N·m*



2	FLARE ENDS METRIC
29921	7 mm, 7 N·m*
29922	8 mm, 6 N·m*
29923	9 mm, 5 N·m*
29924	10 mm, 26 N·m*
29925	11 mm, 19 N·m*
29926	12 mm, 13 N·m*
29927	13 mm, 34 N·m*
29928	14 mm, 24 N·m*
29929	15 mm, 18 N·m*
29930	16 mm, 66 N·m*
29931	17 mm, 56 N·m*
29953	18 mm, 45 N·m*
29954	19 mm, 80 N·m*
29932	20 mm, 60 N·m*
29933	21 mm, 43 N·m*
29934	22 mm, 172 N·m*
29935	23 mm, 153 N·m*
29936	24 mm, 118 N·m*
29955	27 mm, 76 N·m*

* Max torque values listed are proof torques quoted in BS 192:1982 & BS 3555:1988 (tested on hardened hexagon test stud).

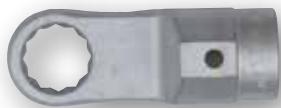


SPANNER END FITTINGS FOR NORBAR 22 mm TORQUE HANDLES

On this page you will find our standard range of end fittings.
For other sizes, see page 37 & 38.



2	OPEN ENDS METRIC
29963.22	22 mm Open End
29963.24	24 mm Open End
29963.27	27 mm Open End
29963.30	30 mm Open End
29963.32	32 mm Open End
29963.36	36 mm Open End
29963.41	41 mm Open End
29963.46	46 mm Open End



2	RING ENDS METRIC
29960.22	22 mm Ring End
29960.24	24 mm Ring End
29960.27	27 mm Ring End
29960.30	30 mm Ring End
29960.32	32 mm Ring End
29960.36	36 mm Ring End
29960.41	41 mm Ring End
29960.46	46 mm Ring End



SPIGOT ACCESSORIES



2	16 mm SPIGOT ACCESSORIES
44509	3/8" Ratchet with Push-through square
29825	1/2" Ratchet with Push-through square
29828	3/8" Fixed Square Drive
29827	1/2" Fixed Square Drive
29829	3/8" Reversible Ratchet Head
29830	1/2" Reversible Ratchet Head
29832	Blank End Fitting
85242	Blank End Fitting for Open End
11343	Blank End Fitting for Ring End
72000	Spigot Adaptor 16 mm female to 22 mm male



2	22 mm SPIGOT ACCESSORIES
29969	3/4" Square Drive Fixed Head
29972	3/4" Ratchet with Push-through square
85719	Blank End Fitting for Open End
85720	Blank End Fitting for Ring End





LARGE SPANNER END FITTINGS FOR NORBAR 16 mm TORQUE HANDLES UP TO 300 N·m

See below for explanation of part numbers. Other sizes available on request.



2	OPEN OFFSET METRIC 16 mm	2	OPEN OFFSET IMPERIAL 16 mm
29200.Mxx	28 - 54 mm	29200.lxx	1 1/8" - 2 1/8"
29200.Mxx	55 - 80 mm	29200.lxx	2 3/16" - 2 3/4"



2	FLARE OFFSET METRIC 16 mm	2	FLARE OFFSET IMPERIAL 16 mm
29204.Mxx	25 - 49 mm	29204.lxx	1" - 1 15/16"
29204.Mxx	50 - 70 mm	29204.lxx	2" - 2 3/4"



2	RING OFFSET METRIC 16 mm	2	RING OFFSET IMPERIAL 16 mm
29202.Mxx	25 - 49 mm	29202.lxx	1" - 1 15/16"
29202.Mxx	50 - 70 mm	29202.lxx	2" - 2 3/4"



2	OPEN INLINE METRIC 16 mm	2	OPEN INLINE IMPERIAL 16 mm
29201.Mxx	25 - 54 mm	29201.lxx	1 1/8" - 2 1/8"
29201.Mxx	55 - 70 mm	29201.lxx	2 3/16" - 2 3/4"

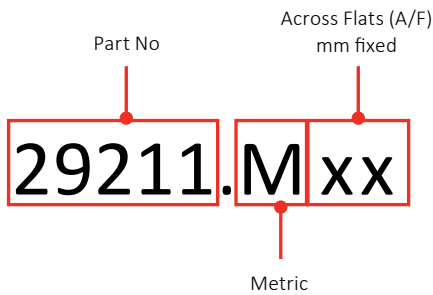


2	RING INLINE METRIC 16 mm	2	RING INLINE IMPERIAL 16 mm
29203.Mxx	25 - 51 mm	29203.lxx	1" - 2"
29203.Mxx	52 - 70 mm	29203.lxx	2 1/16" - 2 3/4"

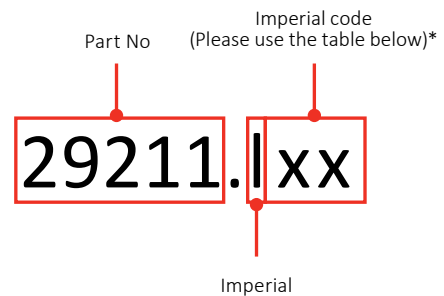


2	FLARE INLINE METRIC 16 mm	2	FLARE INLINE IMPERIAL 16 mm
29205.Mxx	25 - 51 mm	29205.lxx	1" - 2"
29205.Mxx	52 - 70 mm	29205.lxx	2 1/16" - 2 3/4"

METRIC



IMPERIAL





LARGE SPANNER END FITTINGS FOR NORBAR 22 mm TORQUE HANDLES UP TO 650 N·m

See page 37 for explanation of part numbers. Other sizes available on request.



2	OPEN OFFSET METRIC 22 mm	2	OPEN OFFSET IMPERIAL 22 mm
29206.Mxx	28 - 88 mm	29206.lxx	1 1/8" - 3 7/16"



2	FLARE OFFSET METRIC 22 mm	2	FLARE OFFSET IMPERIAL 22 mm
29210.Mxx	28 - 88 mm	29210.lxx	1 1/8" - 3 7/16"



2	RING OFFSET METRIC 22 mm	2	RING OFFSET IMPERIAL 22 mm
29208.Mxx	28 - 88 mm	29208.lxx	1 1/8" - 3 7/16"



2	OPEN INLINE METRIC 22 mm	2	OPEN INLINE IMPERIAL 22 mm
29207.Mxx	28 - 88 mm	29207.lxx	1 1/8" - 3 7/16"



2	RING INLINE METRIC 22 mm	2	RING INLINE IMPERIAL 22 mm
29209.Mxx	28 - 88 mm	29209.lxx	1 1/8" - 3 7/16"



2	FLARE INLINE METRIC 22 mm	2	FLARE INLINE IMPERIAL 22 mm
29211.Mxx	28 - 88 mm	29211.lxx	1 1/8" - 3 7/16"

IMPERIAL A/F	CODE
5/16"	05
3/8"	06
7/16"	07
1/2"	08
9/16"	09
5/8"	10
11/16"	11
3/4"	12
13/16"	13
7/8"	14
15/16"	15
1"	16
1 1/16"	17

IMPERIAL A/F	CODE
1 1/8"	18
1 3/16"	19
1 1/4"	20
1 5/16"	21
1 3/8"	22
1 7/16"	23
1 1/2"	24
1 9/16"	25
1 5/8"	26
1 11/16"	27
1 3/4"	28
1 13/16"	29
1 7/8"	30

IMPERIAL A/F	CODE
1 15/16"	31
2"	32
2 1/16"	33
2 1/8"	34
2 3/16"	35
2 1/4"	36
2 5/16"	37
2 3/8"	38
2 7/16"	39
2 1/2"	40
2 9/16"	41
2 5/8"	42
2 11/16"	43

IMPERIAL A/F	CODE
2 3/4"	44
2 13/16"	45
2 7/8"	46
2 15/16"	47
3"	48
3 1/16"	49
3 1/8"	50
3 3/16"	51
3 1/4"	52
3 5/16"	53
3 3/8"	54
3 7/16"	55

*Example: 1 7/8" open inline for 22 mm Spigot = 29207.I30



Accredited Calibration Laboratory No. 0256

The hallmark of Norbar's high standard of workmanship is clearly seen in the fact that we were the first torque equipment manufacturer to have an in-house UKAS accredited calibration laboratory. We have no intention of resting on our laurels and take pride that we still provide the most comprehensive service available, ensuring we evolve to continue to meet your needs.

Norbar's laboratory has approval for torques between 0.005 and 108,500 N·m and operates to BS EN ISO/IEC 17025:2005, which sets standards for the technical competence of the laboratory. This should not be confused with laboratories claiming ISO 9001 which relates only to a laboratory's quality management systems.

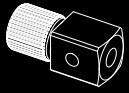
The part numbers shown below are for a comprehensive calibration, for all new torque screwdrivers and torque wrenches, including NorTronic®, up to the maximum capacity shown.

Please see page 123 for Norbar's After Sale Service.

12	ONE DIRECTION
TWCC4.CW	Up to 400 N·m / 300 lbf·ft
TWCC5.CW	Up to 1,000 N·m / 750 lbf·ft
TWCC6.CW	Up to 3,000 N·m / 2,200 lbf·ft

12	TWO DIRECTIONS
TWCC4.CW+CCW	Up to 400 N·m / 300 lbf·ft
TWCC5.CW+CCW	Up to 1,000 N·m / 750 lbf·ft
TWCC6.CW+CCW	Up to 3,000 N·m / 2,200 lbf·ft





SPARES KITS

In order to maintain the quality, performance and peace of mind associated with their products Norbar recommend that only genuine Norbar spares are fitted to their products.

SERVICE REPLACEMENT POLICY

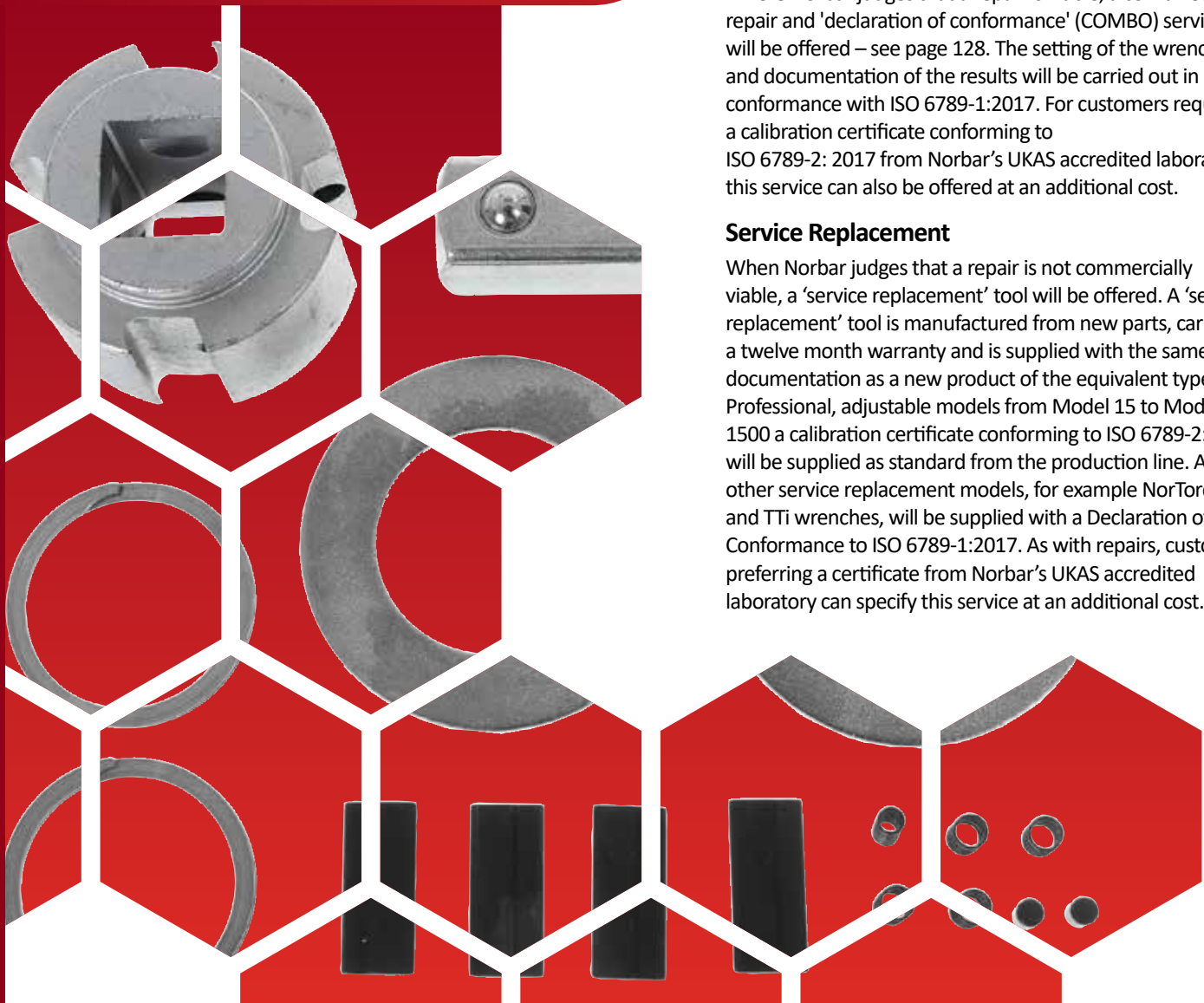
Our aim is to give you the fastest possible service when you send in a wrench for repair. Therefore, our policy is that all Norbar wrenches will, at Norbar's discretion, either be repaired or a 'service replacement' tool will be offered. This policy may be extended to wrenches from other manufacturers sent to Norbar for repair/replacement.

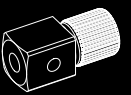
Repair

Where Norbar judges that a repair is viable, a combined repair and 'declaration of conformance' (COMBO) service will be offered – see page 128. The setting of the wrench and documentation of the results will be carried out in conformance with ISO 6789-1:2017. For customers requiring a calibration certificate conforming to ISO 6789-2: 2017 from Norbar's UKAS accredited laboratory, this service can also be offered at an additional cost.

Service Replacement

When Norbar judges that a repair is not commercially viable, a 'service replacement' tool will be offered. A 'service replacement' tool is manufactured from new parts, carries a twelve month warranty and is supplied with the same documentation as a new product of the equivalent type. For Professional, adjustable models from Model 15 to Model 1500 a calibration certificate conforming to ISO 6789-2:2017 will be supplied as standard from the production line. All other service replacement models, for example NorTorque® and TTi wrenches, will be supplied with a Declaration of Conformance to ISO 6789-1:2017. As with repairs, customers preferring a certificate from Norbar's UKAS accredited laboratory can specify this service at an additional cost.





SPARES KITS

8	TORQUE SCREWDRIVER
13593.001NM	TTs Handle Repair Kit for 1.5 N-m Tool
13593.003NM	TTs Handle Repair Kit for 3.0 N-m Tool
13593.006NM	TTs Handle Repair Kit for 6.0 N-m Tool
13593.013LBI	TTs Handle Repair Kit for 13 lbf-in Tool
13593.026LBI	TTs Handle Repair Kit for 26 lbf-in Tool
13593.053LBI	TTs Handle Repair Kit for 53 lbf-in Tool
13593.P	TTs Handle Repair Kit for P Type Tool
13594	TTs Adjusting Screw & Retention Clip Repair Kit
13595	TTs Body Tube & Cam Assembly Repair Kit
13596	TTs End Knob Assembly Repair Kit
13597	TTs ¼" Blade Repair Kit
13609	TTs P Type Locking Knob Repair Kit

8	TT WRENCHES UP TO 50 N-m/35 lbf-ft
13425	¼" Ratchet Repair Kit, Mdl 20 N-m, 180 lbf-in
13426	⅜" Ratchet Repair Kit, Mdl 20 N-m, 180 lbf-in, 50 N-m, 35 lbf-ft
13427	½" Ratchet Repair Kit, Mdl 50 N-m, 35 lbf-ft
13636.020NLF	Handle Repair Kit, 20 N-m/lbf-in Scale
13636.020NM	Handle Repair Kit, 20 N-m Scale
13636.180LBI	Handle Repair Kit, 180 lbf-in Scale
13636.050NLF	Handle Repair Kit, 50 N-m/lbf-ft Scale
13636.050NM	Handle Repair Kit, 50 N-m Scale
13636.035LBF	Handle Repair Kit, 35 lbf-ft Scale
13417	Adjusting Knob Repair Kit
13637	Thrust Washer Repair Kit
11762	Rivet Repair Kit

8	TT WRENCHES 100 N-m/75 lbf-ft TO 300 N-m/250 lbf-ft
13410.100NLF	Handle Repair Kit, 100 N-m/lbf-ft Scale
13410.100NM	Handle Repair Kit, 100 N-m Scale
13410.075LBF	Handle Repair Kit, 75 lbf-ft Scale
13410.150NLF	Handle Repair Kit, 150 N-m/lbf-ft Scale
13410.150NM	Handle Repair Kit, 150 N-m Scale
13410.110LBF	Handle Repair Kit, 110 lbf-ft Scale
13410.200NLF	Handle Repair Kit, 200 N-m/lbf-ft Scale
13410.200NM	Handle Repair Kit, 200 N-m Scale
13410.150LBF	Handle Repair Kit, 150 lbf-ft Scale
13410.250NLF	Handle Repair Kit, 250 N-m/lbf-ft Scale
13410.250NM	Handle Repair Kit, 250 N-m Scale
13410.185LBF	Handle Repair Kit, 185 lbf-ft Scale
13410.300NLF	Handle Repair Kit, 300 N-m/lbf-ft Scale
13410.300NM	Handle Repair Kit, 300 N-m Scale
13410.220LBF	Handle Repair Kit, 220 lbf-ft Scale
13410.250LBF	Handle Repair Kit, 250 lbf-ft Scale

8	TT WRENCHES 100 N-m/75 lbf-ft TO 300 N-m/250 lbf-ft
13411	Adjusting Knob Repair Kit
13415	Thrust Washer Repair Kit
13414	Rivet Repair Kit

8	TTi WRENCHES
13693	TTi20 ¼" Ratchet Lever Arm Assemblies
13694	TTi20 ⅜" Ratchet Lever Arm Assemblies
13690	TTi50 ⅜" Ratchet Lever Arm Assemblies
13691	TTi50 ½" Ratchet Lever Arm Assemblies
13212	Ratchet Repair Kit, ⅜" sq. dr., 60/100
13214	Ratchet Repair Kit, ½" sq. dr., 200
13215	Ratchet Repair Kit, ½" sq. dr., Mdl 250/300 N-m, 185/220 lbf-ft
13491	Ratchet Replacement Kit, ⅜" sq. dr., 60/100
13492	Ratchet Replacement Kit, ½" sq. dr., 50 - 200
13493	Ratchet Replacement Kit, ½" sq. dr. Mdl 250/300 N-m, 185/220 lbf-ft)

For Handle Repair Kits please see TT section to the left.

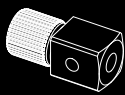
8	TTfth WRENCHES
13695	TTfth20 9 x 12 mm Female End Repair Kit
13692	TTfth50 9 x 12 mm Female End Repair Kit

8	NON-MAGNETIC RATCHET REPAIR KITS
13769	Ratchet Repair Kit for 13292 & 13294
13770	Ratchet Repair Kit for 13585 & 13295

8	MODEL 5
13123	Spares Kit Model 5 Adjustable
13125	Spares Kit Model 5 'P' Type
13124	Calibration Kit Model 5 'P' Type

8	PROFESSIONAL TORQUE WRENCHES MODELS 60 - 400 (pre March 2015)
11598	'Automotive Ratchet' Repair Kit ⅜" Beta (Pro 60 & 100)
11618	'Automotive Ratchet' Repair Kit ½" Beta (Pro 60 & 100)
11622	'Automotive Ratchet' Repair Kit ½" Rev Beta (Pro 200 & 300)
11623	Push-Through Beta 72 Tooth Repair Kit ½"
13212	'Industrial Ratchet' Repair Kit ⅜" (Pro 60/100)
13213	'Industrial Ratchet' Repair Kit ½" (Pro 60/100)
13214	'Industrial Ratchet' Repair Kit ½" (Pro 200)
13215	'Industrial Ratchet' Repair Kit Mdl 300/330 ½" for 13047, 13049 & 13057
13216	'Industrial Ratchet' Repair Kit Pro 400 ¾" for 13050 & 13056
13190	Pro 400 ¾" sq. dr to 17 mm Hex.
13235	Sq. Dr. Repair Kit ⅜" (Pro 60/100)
13236	Sq. Dr. Repair Kit ½" (Pro 60/100)
13237	Sq. Dr. Repair Kit ½" Pro 200/300/330
13157	Spares Kit Prof. Handle (post 1 st Jan 2001)

8	PROFESSIONAL TORQUE WRENCHES PRO 15 - 25 SPARES KITS
15395	'Automotive Ratchet' Repair Kit, ¼" sq. dr.
15396	'Automotive Ratchet' Repair Kit, ⅜" sq. dr.
15397.K	Handle Repair Kit
15398.K	Scale Mechanism Repair Kit
15399.K	Locking Knob Repair Kit
15400.K	Thrust Washer and Screw Kit
15401.K	Spring Repair Kit



SPARES KITS

8	PROFESSIONAL TORQUE WRENCHES SPARES KITS
150100.K	Handle Repair Kit
150101.K	Scale Mechanism Repair Kit
150102.K	Locking Knob Repair Kit
150103.K	Thrust Washer and Screw Kit
150104.K	Spring Repair Kit
150105.K	½" sq. dr. Mushroom Kit
150106.K	¾" sq. dr. Mushroom Kit
150112.K	'Industrial Ratchet' Repair Kit, ¾" sq. dr. (Pro 50)
254100.PK	SKT Grub M5 x 8 LG Oval Point - Pack of 50
150113.K	'Industrial Ratchet' Repair Kit, ½" sq. dr. (Pro 100 - 200)
150114.K	'Industrial Ratchet' Repair Kit, ½" sq. dr. (Pro 300 - 340)
150115.K	'Industrial Ratchet' Repair Kit, ¾" sq. dr. (Pro 400)
11598	'Automotive Ratchet' Repair Kit ¾" sq. dr. (Pro 50 & 100)
11618	'Automotive Ratchet' Repair Kit ½" sq. dr. (Pro 50 & 100)
150111.K	'Automotive Ratchet' Repair Kit, ½" sq. dr. (Pro 200)

8	PROFESSIONAL TORQUE WRENCHES SPARES PACKS
10628.PK	Label TimeStrip - Pack of 50
10640.PK	TimeStrip Adhesive Gasket - Pack of 50
11521.PK	Shaped Washer - Pack of 20
11522.PK	End Stop - Pack of 10
15312.PK	End Cap - Pack of 25
25496.PK	SCR:SKT Grub M5 x 6 LG Oval - Pack of 50
25497.PK	SCR:SKT Grub M5 x 5 LG Dog Point - Pack of 50
254100.PK	SCR:SKT Grub M5 x 8 LG Oval Point - Pack of 50
25746.PK	M3 Dog Point Grub SCR - Pack of 50
25938.PK	Washer M4 STD.Flat - Pack of 100
26033.PK	Pivot Pin - Pack of 20
27029.PK	Steel Ball 3.8 mm Dia - Pack of 50
25351.10.PK	SHCS M4 x 10 LG - Pack of 50

8	CLICKTRONIC® TORQUE WRENCHES SPARES KITS
150104.K	Spring Repair Kit
150105.K	½" sq. dr. Mushroom Kit
150106.K	¾" sq. dr. Mushroom Kit
150107.K	Adjusting Screw and Wiper Kit
150108.K	Locking Knob Kit
150109.K	Lower Handle Kit
150110.K	Complete Handle Kit

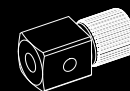
8	CLICKTRONIC® TORQUE WRENCHES SPARES PACKS
10628.PK	Label TimeStrip - Pack of 50
10640.PK	TimeStrip Adhesive Gasket - Pack of 50
15524.PK	USB Bung - Pack of 5
39721.PK	Wiper 1 - 3 N - Pack of 5
25742.PK	M2.5 x 12 LG Torx Pan Screw - Pack of 80
25743.PK	M4 x 8 LG Torx CSK Screw - Pack of 50

8	PROFESSIONAL TORQUE WRENCHES MODELS 550 - 1500
14195	Ratchet Repair Kit Mdl 550/650 ¾"
14196	Ratchet Repair Kit Mdl 800/1000/1500 ¾"
14197	Ratchet Repair Kit Mdl 800/1000/1500 1"
14162	Ratchet Assembly Mdl 550/650
14163	Ratchet Assembly Mdl 1000
12297	Replacement Square Drive Mdl 550/650 ¾"
12299	Replacement Square Drive Mdl 550 1"
14157	Replacement Square Drive Mdl 800 - 1500 ¾"
14165	Replacement Square Drive Mdl 800 - 1500 1"
14185	Cover Kit for all Models
14218	Secondary Lever and Support Block Assy Upgrade kit for all Models pre 2004/169391
14217	Secondary Lever and Support Block Assy for all Models post 2004/169391
14220	Secondary Lever Assembly
14187	Screw Adjustable Kit for all Models
14166	Calibration Kit 'P' Type for all Models
13217	Replacement Professional Handle Kit
11807	Handle Spares Kit Professional 'P' Type
11698	Calibration Kit Professional 'P' Type
13242	Rivet Repair Kit

8	SLIMLINE TORQUE WRENCHES
11831	Ratchet Repair Kit SLO ¾" (post Jan 2008)
11832	Ratchet Repair Kit SLO ⅝" (post Jan 2008)
11806	Spares Kit - SLO Adj Knob
29683	Mushroom Head Sq. Dr. Assy ½" SL3
11914	¾" sq.dr for SLO Fixed Head
11762	Rivet Repair Kit

8	INDUSTRIAL TORQUE WRENCHES
12307	Ratchet Repair Kit Industrial (except 6R)
12373	Ratchet Repair Kit (6R only)
12297	¾" Square Drive Assy for 3AR - 5AR
12299	1" Square Drive Assy for 3AR - 5AR
18492	1" Square Drive Assy for 6R
12374	1" Square Drive Repair Kit (6R only)
12355	Industrial Thrust Washer Spares Kit
12360	End Caps - Plastic 10 pack (Industrial)
12381	3AR Adjusting Nut
12382	No.4 Adjusting Nut
12383	4R Adjusting Nut
12384	4AR Adjusting Nut
12385	5R Adjusting Nut
12386	5AR Adjusting Nut
12387	6R Adjusting Nut

In order for Norbar to supply the correct adjusting nut, we need to know the correct scale length for the tool being repaired. The scale length is denoted by a number on the nut being replaced and will be of the form e.g. 159/60.



SPARES KITS

8	NORTORQUE TORQUE WRENCHES HANDLE KITS
130501.060NLF	Handle Repair Kit, 60 N-m/lbf-ft Scale
130501.060NM	Handle Repair Kit, 60 N-m Scale
130501.100NLF	Handle Repair Kit, 100 N-m/lbf-ft Scale
130501.100NM	Handle Repair Kit, 100 N-m Scale
130501.200NLF	Handle Repair Kit, 200 N-m/lbf-ft Scale
130501.200NM	Handle Repair Kit, 200 N-m Scale
130501.300NLF	Handle Repair Kit, 300 N-m/lbf-ft Scale
130501.300NM	Handle Repair Kit, 300 N-m Scale
130501.340NLF	Handle Repair Kit, 340 N-m/lbf-ft Scale
130501.340NM	Handle Repair Kit, 340 N-m Scale



13235 Repair Kit

8	NORTORQUE TORQUE WRENCHES SQUARE DRIVE REPAIR KITS
13235	Sq. Dr. Repair Kit 3/8" (Mdl60)
13236	Sq. Dr. Repair Kit 1/2" (Mdl100)
13237	Sq. Dr. Repair Kit 1/2" (Mdl200/300/340)



13212 Repair Kit

8	NORTORQUE TORQUE WRENCHES RATCHET REPAIR KITS
13212	Ratchet Repair Kit 3/8" (Mdl60)
13213	Ratchet Repair Kit 1/2" (Mdl100)
13214	Ratchet Repair Kit 1/2" (Mdl200)
13215	Ratchet Repair Kit 1/2" (Mdl300/340)

8	NORTORQUE TORQUE WRENCHES OTHER REPAIR KITS
130500.K	Locking Knob Kit
150103.K	Thrust Washer and Screw Kit



13215 Repair Kit

8	MULTIPLIER SPARES KIT
16831	Spares Kit No. 2 Output Carrier
16836	Spares Kit No. 5 Output Carrier
16832	Spares Kit No. 7 Output Carrier
16835	Spares Kit No. 9 Output Carrier
19348	HT3-1000 N-m Retention Pin
19349	HT3-1000 N-m Cranked Reaction
19347	HT3-1000 N-m Straight Reaction
77018.1	Sq. Drive HT3 3/4" (old style)
17185	Spares Kit HT3 3/4" Sq Dr (Pre May 1993 style with shoulder screw)
17676	Sq. Drive HT3 3/4" (to fit 17218, 17220 & all other models with square drive retained by rollpin)



77018.1



17676



17185

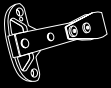
17223	Spares Kit HT3 Carriers
17224	Spares Kit HT3 1/2" Input Gear
17225	Spares Kit HT3 3/4" Input Gear
18365	Spares Kit 72 mm Air Motor Handle
18374	Spares 72 mm Remote Block
18544	Replacement 3/4" sq. dr., ET/PTS/PTM-52 Series
18545	Replacement 1" sq. dr., ET/PTS/PTM-52 Series
18779	Replacement 3/4" sq. dr., ET/PTS/PTM-72 Series
18492	Replacement 1" sq. dr., ET/PTS/PTM-72 Series
18221	Replacement 3/4" sq. dr., PT 72 Series
18220	Replacement 1" sq. dr., PT 72 Series
19260	Spares Kit for Fwd/Rev Gearbox Knob post Feb 2011 Tools
19077	Upgrade Kit for Fwd/Rev Gearbox for PTM

8	ET/PTS/PTM-92 & ET/PTS/PTM-119 SQUARE DRIVES
18934	1" for ET/PTS/PTM-92
18935	1 1/2" for ET/PTS/PTM-92
18959	1 1/2" for ET/PTS/PTM-119

8	VANE SETS FOR PNEUTORQUE MULTIPLIERS
18631	For PTM Series (Pack of 5)
18278	For PT 72 mm Series (Pack of 6)
16218	For PT Standard Series (Pack of 6)

8	SPARES FOR LUBRO CONTROL UNIT
28911	3 m Hose*
28912	6 m Hose*
28913	Pressure Gauge
28914	Filter Element for Filter/Regulator
28915	Bowl Assembly for Filter/Regulator
28916	Bowl Assembly for Lubricator
28917	Locking Collar
28918	1/2" BSP Taper Thread Adaptor

*Other lengths of hose are available, please contact Norbar for details.



CALIBRATION SERVICES

Declaration of Conformance	128
UKAS Accredited Calibration Certification	128
Other Certification	132
General Notes	132

A calibration 'priority booking' service is available, please contact the Customer Relations Department a minimum of one month prior to the required recalibration due date.

- Tel: +44 (0)1295 753635
- Fax: +44 (0)1295 753636
- Email: repairs@norbar.com

CALIBRATION SERVICES

Devices sent in for UKAS accredited calibration certification will be calibrated and the 'As Found' readings recorded. The calibration will be performed to the appropriate standard as specified in our schedule of accreditation.

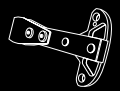
- Should the device be in specification 'As Found', a certificate will be raised and the device returned.
- Should the device be out of specification, but capable of adjustment, it will be adjusted, 'As Left' readings taken, and one certificate raised with 'As Found' and 'As Left' readings on it.
- Should the device require repair that is not covered by a combined calibration and service, we will do so where possible, after consultation with the customer.

Norbar are accredited by UKAS for torque measurements between 0.005 N·m and 108,500 N·m or the imperial equivalents. Our Schedule of Accreditation gives further details (please refer to www.norbar.com).

UKAS accredited calibration certificates are issued under the authority of the United Kingdom Accreditation Service.

Norbar can calibrate non-Norbar Torque products, please contact us with the details of your equipment.





DECLARATION OF CONFORMANCE

TORQUE WRENCH DECLARATION OF CONFORMANCE (DOC)



ONE DIRECTION

DOC1.CW	Up to 400 N·m / 300 lbf·ft
DOC2.CW	Up to 1,000 N·m / 750 lbf·ft
DOC3.CW	Up to 1,500 N·m / 1,100 lbf·ft

ONE DIRECTION & REPAIR COMBO

RCDOC1.CW	NorTorque and Professional wrenches up to 400 N·m
RCDOC2.CW	Industrial wrenches 2R - 5R
RCDOC3.CW	Industrial wrench 5AR
RCDOC4.CW	Large Professional 550 & 650 N·m
RCDOC5.CW	Large Professional 800 - 1,500 N·m

TWO DIRECTIONS

DOC1.CW+CCW	Up to 400 N·m / 300 lbf·ft
DOC2.CW+CCW	Up to 1,000 N·m / 750 lbf·ft
DOC3.CW+CCW	Up to 1,500 N·m / 1,100 lbf·ft

TWO DIRECTIONS & REPAIR COMBO

RCDOC1.CW+CCW	NorTorque and Professional wrenches up to 400 N·m
RCDOC2.CW+CCW	Industrial wrenches 2R - 5R
RCDOC3.CW+CCW	Industrial wrench 5AR
RCDOC4.CW+CCW	Large Professional 550 & 650 N·m
RCDOC5.CW+CCW	Large Professional 800 - 1,500 N·m

UKAS ACCREDITED CALIBRATION CERTIFICATION

TORQUE WRENCH, UKAS ACCREDITED CALIBRATION CERTIFICATION

On receipt an 'As Found' calibration certificate will be carried out where possible. If the results do not fall within specification the wrench will be adjusted and if the adjustment does not bring the wrench back within specification then it will either be repaired or a service replacement will be offered – see page 123 for further details.

Calibration certificates are in accordance with the current standard for hand torque tools BS ISO 6789-2:2017. The certificate shows the nominal torque applied and the measured torque readings.

For guidance on Norbar's procedure for wrenches sent in for repair, see page 123. If the same tool is required to be returned, i.e. if you do not want the tool to be service replaced, then this should be made clear on the purchase order which accompanies the tool.

ONE DIRECTION

TWCC1.CW	Up to 400 N·m / 300 lbf·ft
TWCC2.CW	Up to 1,000 N·m / 750 lbf·ft
TWCC3.CW	Up to 3,000 N·m / 2,200 lbf·ft

TWO DIRECTIONS

TWCC1.CW+CCW	Up to 400 N·m / 300 lbf·ft
TWCC2.CW+CCW	Up to 1,000 N·m / 750 lbf·ft
TWCC3.CW+CCW	Up to 3,000 N·m / 2,200 lbf·ft

NORTRONIC UKAS ACCREDITED CALIBRATION CERTIFICATION



ONE DIRECTION & ANGLE

NTCC1.CW	NorTronic all sizes
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TWO DIRECTIONS & ANGLE

NTCC1.CW+CCW	NorTronic all sizes
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MANUAL TORQUE MULTIPLYING GEARBOXES, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for Certification 'As Found',

ONE DIRECTION

HTCC1.CW	Up to 6,000 N·m / 5,000 lbf·ft
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TWO DIRECTIONS

HTCC1.CW+CCW	Up to 6,000 N·m / 5,000 lbf·ft
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UKAS ACCREDITED CALIBRATION CERTIFICATION

ELECTRONIC DEVICES

In accordance with the current standards for calibration of torque measurement devices, it is desirable to calibrate transducers with the display that is normally used. In this case the 'system' is calibrated. If it is not possible to supply the display unit, an equivalent calibrated display unit from the laboratory will be used. The calibration will then be valid for the transducer with the original display as long as the original display has been calibrated within the last 12 months.

Calibration certificates are in accordance with the current standard for torque measuring devices BS 7882:2017, and show the nominal torque applied, and the measured torque readings. Measured readings may be given in mV/V on request. Details of the standard are available on request.

It is not our intention to offer a full repair service for torque devices from other manufacturers. Where a device is in need of repair, the customer is advised to have this performed by an approved service agent or the manufacturer before submitting the device for UKAS accredited calibration. Some electronic transducer systems from other manufacturers may incur an additional calibration cost; the electronics department repair technicians will clarify this point if required. Occasionally it will be necessary to manufacture special adaptors to enable the calibration to be performed. This will of course affect the price and delivery, and will be discussed with the customer as the need arises.

CALIBRATION TO BS7882:2017 CLASS 0.1

Norbar's UKAS accredited laboratory performs standard calibrations on torque measuring devices to BS 7882:2017 class 0.2 increasing torques only. However the laboratory is able to calibrate devices to class 0.1 at the customer's request. Class 0.1 requires calibration in four different mounting positions each rotated 90° about the measurement axis. Classification to class 0.1 is dependent on the devices performance. Calibrations including a decreasing series of torques can also be provided if required. A price for these services is available on request.

This section contains combined calibration and service fixed details for Norbar products. Other manufacturers' equipment will be handled by individual quotation. Provided that the product is in serviceable condition*, we guarantee to carry out all calibration, function checks and repair work in order to bring the equipment back to its original functionality.

*Product would be regarded as unserviceable if either it or the components required for the repair are obsolete or unavailable. Serviceability also implies that the product is capable of repair without complete replacement.

Service replacements are available for some products.

ELECTRONIC TORQUE TRANSDUCERS, UKAS ACCREDITED CALIBRATION CERTIFICATION (WITH SQUARE DRIVE, FLANGE MOUNTED & PRE 2004 ROTARY)



The part numbers shown below are for Combined Calibration and Service, 'As Found' and 'As Left'

ONE DIRECTION

TDCCS1.CW	Up to 1,500 N·m / 1,000 lbf-ft
TDCCS5.CW®	From 1,501 to 7,000 N·m / 1,001 - 5,000 lbf-ft
TDCCS3.CW*	Square/Splined Drive From 7,001 to 100,000 N·m / 5,001 to 100,000 lbf-ft
TDCCS4.CW*	Flange Drive From 7,001 to 100,000 N·m / 5,001 to 100,000 lbf-ft
ADDCALPOINTS.CCS	Additional calibration steps below 10% of rated capacity to 2% for transducers up to 7,000 N·m (5,000 lbf-ft)

TWO DIRECTIONS

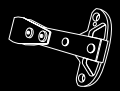
TDCCS1.CW+CCW	Up to 1,500 N·m / 1,000 lbf-ft
TDCCS5.CW+CCW®	From 1,501 to 7,000 N·m / 1,001 - 5,000 lbf-ft
TDCCS3.CW+CCW*	Square/Splined Drive From 7,001 to 100,000 N·m / 5,001 to 100,000 lbf-ft
TDCCS4.CW+CCW*	Flange Drive From 7,001 to 100,000 N·m / 5,001 to 100,000 lbf-ft

@ UKAS accredited calibration up to 6,000 N·m. A non-accredited value at 7,000 N·m is extrapolated and provided for reference only.

+ UKAS accredited calibration up to 80,000 lbf-ft. A non-accredited value at 100,000 lbf-ft is extrapolated and provided for reference only.

For part numbers TDCCS3.CW and TDCCS4.CW, static transducers with 2½" square drives and annular transducers to fit HT/PT9 & HT/PT11, a secondary calibration to extend the range below 10% of the rated capacity may be ordered using part number TDCCS5.CW

For part numbers TDCCS3.CW+CCW and TDCCS4.CW+CCW, static transducers with 2½" square drives and annular transducers to fit HT/PT9 & HT/PT11, a secondary calibration to extend the range below 10% of the rated capacity may be ordered using part number TDCCS5.CW+CCW



UKAS ACCREDITED CALIBRATION CERTIFICATION

ROTARY TRANSDUCERS (2004 ONWARDS), UKAS ACCREDITED CALIBRATION CERTIFICATION (PART CODE 50708.XXX-50724.XXX)



The part numbers shown below are for combined calibration and service, 'As Found' and 'As Left'

ONE DIRECTION

TDCCS2.CW	Up to 1,500 N·m / 1,000 lbf-ft
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TWO DIRECTIONS

TDCCS2.CW+CCW	Up to 1,500 N·m / 1,000 lbf-ft
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TRUCHECK



The part numbers shown below are for combined calibration and service, 'As Found' and 'As Left'

ONE DIRECTION

TCCCS1.CW	TruCheck All Sizes (UKAS Accredited Calibration Certification)
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TCCCS2.CW	TruCheck All Sizes *
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TWO DIRECTIONS

TCCCS1.CW+CCW	TruCheck All Sizes (UKAS Accredited Calibration Certification)
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*Issued with traceable certification.

PRO-TEST, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for combined calibration and service, 'As Found' and 'As Left'

ONE DIRECTION

PROCCS.CW	Pro-Test All sizes
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TWO DIRECTIONS

PROCCS.CW+CCW	Pro-Test All Sizes
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PRO-LOG, TTT, T-BOX, T-BOX XL & TTL-HE, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for combined calibration and service, 'As Found' and 'As Left'

ONE DIRECTION

INSTCCS3.CW	Pro-Log or TTT
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TWO DIRECTIONS

INSTCCS3.CW+CCW	Pro-Log or TTT
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INSTCCS4.CW+CCW	TTL-HE, T-Box or T-Box XL
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TST, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for combined calibration and service, 'As Found' and 'As Left' This includes both an instrument and system calibration

ONE DIRECTION

TSTCCS.CW	TST
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TWO DIRECTIONS

TSTCCS.CW+CCW	TST
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Section with combined calibration & service ends here

CALIBRATION BEAMS & WEIGHTS, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for Length Certification, 'As Found' and 'As Left'

CBLC1	Disc or Beam up to 150 N·m / 100 lbf-ft
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CBLC2	Disc or Beam up to 1,500 N·m / 1,000 lbf-ft
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CBLC3	Disc or Beam up to 6,800 N·m / 5,000 lbf-ft
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WEIGHT.CC1	Calibration of Weights up to 25 kgf / 245 N / 55 lbf
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UKAS ACCREDITED CALIBRATION CERTIFICATION

MECHANICAL TORQUE TESTING DEVICES, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for combined calibration and service, 'As Found' and 'As Left'

ONE DIRECTION

MCCS1.CW | Up to 5,000 N·m / 5,000 lbf-ft

TWO DIRECTIONS

MCCS1.CW+CCW | Up to 5,000 N·m / 5,000 lbf-ft

TWA, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for Combined Calibration and Service, 'As Found' and 'As Left'

ONE DIRECTION

TWACCS.CW | TWA All Sizes

TWO DIRECTIONS

TWACCS.CW+CCW | TWA All Sizes

ETS, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for combined calibration and service, 'As Found' and 'As Left'

INSTCCS1.CW | ETS

DTS, UKAS ACCREDITED CALIBRATION CERTIFICATION



ONE DIRECTION

DTSCCS1.CW® | DTS up to 7,000 N·m or 5,000 lbf-ft

DTSCCS2.CW* | DTS from 7,001 to 100,000 N·m / 5,001 to 100,000 lbf-ft Square and Spline drive

DTSCCS3.CW* | DTS from 7,001 to 100,000 N·m / 5,001 to 100,000 lbf-ft Flange drive

TWO DIRECTIONS

DTSCCS1.CW+CCW® | DTS up to 7,000 N·m or 5,000 lbf-ft

DTSCCS2.CW+CCW* | DTS from 7,001 to 100,000 N·m / 5,001 to 100,000 lbf-ft Square and Spline drive

DTSCCS3.CW+CCW* | DTS from 7,001 to 100,000 N·m / 5,001 to 100,000 lbf-ft Flange drive

@ UKAS accredited calibration up to 6,000 N·m. A non-accredited value at 7,000 N·m is extrapolated and provided for reference only.

+ UKAS accredited calibration up to 80,000 lbf-ft. A non-accredited value at 100,000 lbf-ft is extrapolated and provided for reference only.

ETTA, UKAS ACCREDITED CALIBRATION CERTIFICATION

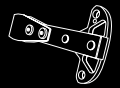


The part numbers shown below are for combined calibration and service, 'As Found' and 'As Left'

ETTACCS.CW | ETTA

GENERAL DEVICES, UKAS ACCREDITED CALIBRATION CERTIFICATION

EMCC | Mechanical Enclosure Meter Calibration (CW + CCW)



OTHER CERTIFICATION

EVOTORQUE AND PNEUTORQUE CERTIFICATES



These devices are outside the scheduled accreditation issued by UKAS.

HTCERT	Compact Series Calibration
PTCERT	PneuTorque Calibration
PTICEC	PTM IC/EC Certificate of air pressure vs torque
ETCERT	EvoTorque 1 & 2 Certificate of torque and angle

USM CERTIFICATES



These devices are outside the scheduled accreditation issued by UKAS.

USMCC	Ultrasonic Stress Meter certificate of calibration
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GENERAL DEVICES

These devices are outside the scheduled accreditation issued by UKAS.

Weight Set Certificates accredited by UKAS or other certified bodies

ETSDPFT	ETS Data Printer. Function Test
ETSBPUFT	ETS Battery Power Unit. Function Test
FWSUFT	ETS or ETTA 5 Way Switch Unit. Function Test
TWSUFT	ETS or ETTA 2 Way Switch Unit. Function Test

TRANSDUCER CONVERSIONS

SQ8888	ETS Transducer conversion to Smart Transducer (does not include calibration)
SQ2005	ETTA Transducer conversion to Smart Transducer (does not include calibration)

GLOBAL SERVICE

Norbar is the only torque equipment manufacturer capable of offering tool and instrument calibration services to the original factory standard on four continents.



NORBAR TORQUE TOOLS LTD
 Wildmere Road, Banbury,
 Oxfordshire, OX16 3JU
 UNITED KINGDOM
 Tel + 44 (0)1295 753600
 Email sales@norbar.com



NORBAR TORQUE TOOLS
 45-47 Raglan Avenue,
 Edwardstown, SA 5039
 AUSTRALIA
 Tel + 61 (0)8 8292 9777
 Email enquiry@norbar.com.au



NORBAR TORQUE TOOLS INC
 36400 Biltmore Place,
 Willoughby, Ohio 44094
 USA
 Tel + 1 866 667 2272
 Email inquiry@norbar.us



NORBAR TORQUE TOOLS PTE LTD
 194 Pandan Loop,
 #07-20 Pantech Business Hub,
 SINGAPORE 128383
 Tel + 65 6841 1371
 Email enquires@norbar.sg



NORBAR TORQUE TOOLS (SHANGHAI) LTD
 7/F, Building 91, No. 1122,
 Qinzhou North Road
 Xuhui District, Shanghai
 CHINA 200233
 Tel + 86 21 6145 0368
 Email sales@norbar.com.cn



NORBAR TORQUE TOOLS INDIA PVT. LTD
 Plot No A – 168 Khairne Industrial Area
 Thane Belapur Road
 Mahape Navi Mumbai – 400 709
 INDIA
 Tel + 91 22 2778 8480
 Email enquiry@norbar.in



Accredited laboratories in Australia, USA, Singapore, China and India operate the same equipment and procedures as the UKAS accredited laboratory within our headquarters in the UK.



1. INTERPRETATION AND APPLICATION OF TERMS

1.1 In these Conditions the following words have the following meanings:

“Contract”	means the contract between Norbar and the Customer for the sale and purchase of the Goods and/or Services, incorporating these Conditions, the Order and the Order Acknowledgement;
“Customer”	means the person(s), firm or company who purchases Goods and/or Services from Norbar;
“Customer Equipment”	means equipment belonging to the Customer which is the subject of Services to be carried out under a Contract;
“Delivery Point”	means the address within the UK mainland which is notified to Norbar as the place for delivery of the Goods and/or Customer Equipment;
“Engineer to Order Goods”	means any non-standard Goods specifically designed, modified and/or made for the Customer or to the Customer’s specification;
“Goods”	means the goods set out in the Order to be supplied by Norbar to the Customer (including any part or parts of them);
“Norbar”	means Norbar Torque Tools Limited (380480), whose registered office address is at Wildmere Road, Banbury, Oxon, OX16 3JU;
“Order”	means the order for the Goods and/or Services placed on Norbar by the Customer;
“Order Acknowledgement”	means the acknowledgement of Order issued by Norbar to the Customer;
“Services”	means the services set out in the Order to be performed by Norbar for the Customer.

- 1.2 Subject to any variation under Condition 1.4 the Contract will be on these Conditions, the Order and the Order Acknowledgement to the exclusion of all other terms and conditions. They supersede any previously issued terms and conditions of supply. If there is any discrepancy between these Conditions, the Order and the Order Acknowledgement, the latter will prevail to the extent necessary to resolve the inconsistency.
- 1.3 No terms or conditions endorsed upon, delivered with or contained in the Customer’s Order, confirmation of order, specification or other document will form part of the Contract.
- 1.4 These Conditions apply to all of Norbar’s sales and any variation to these Conditions and any representations about the Goods and/or Services will have no effect unless expressly agreed in writing and signed by an authorised representative of Norbar. The Customer acknowledges that it has not relied on and will have no remedy in respect of any statement, promise or representation made or given by or on behalf of Norbar which is not set out in the Contract. Nothing in this Condition will exclude or limit Norbar’s liability for fraudulent misrepresentation.
- 1.5 Each Order or acceptance of a quotation for Goods or Services by the Customer from Norbar will be deemed to be an offer by the Customer to purchase Goods and/or Services subject to these Conditions and no Order will be deemed to be accepted by Norbar until a written Order Acknowledgement is issued by Norbar or Norbar delivers the Goods and/or Services to the Customer, whichever occurs first.
- 1.6 Any quotation is given on the basis that no Contract will come into existence until Norbar despatches an Order Acknowledgement or delivers the Goods and/or Services to the Customer. Any quotation is valid for a period of 30 days only from its date, provided that Norbar has not previously withdrawn or amended it.

2 DESCRIPTION

- 2.1 The description of the Goods will be as set out in Norbar’s catalogue or other published specification current at the time that the relevant order is accepted by Norbar or, in the case of Services and Engineer to Order Goods, as specified in the relevant quotation or Order Acknowledgement. If there is any inconsistency between the published specification, the quotation and the Order Acknowledgement, the Order Acknowledgement will take precedence over the quotation which will take precedence over the published specification to the extent necessary to resolve the inconsistency.
- 2.2 Norbar reserves the right to make any changes to the specification of the Goods (including Engineer to Order Goods) and/or Services which are required to conform with any applicable statutory or regulatory requirements or which do not materially affect their quality or performance. The Customer will not be permitted to reject Goods and/or Services and Norbar will have no liability to the Customer in respect of any failure of the Goods and/or Services to comply with any specification in these circumstances.
- 2.3 The Customer acknowledges that all intellectual property rights in the Goods (including Engineer to Order Goods) and in any novel combinations or applications of the Goods (whether as a kit, system or otherwise) or which arise in the course of conducting the Services belong solely to Norbar and, to the extent that any such rights do not automatically vest in Norbar by operation of law, hereby assigns to Norbar all such rights. The Customer will take any action and execute any document reasonably required by Norbar to give full effect to this Condition.

3 DELIVERY

- 3.1 In the case of sales of Goods within the UK mainland, delivery will take place:
- if the Goods are to be collected, on delivery to the Customer or to the Customer’s named carrier at Norbar’s premises at Wildmere Road, Banbury, Oxon OX16 3JU; and
 - in all other cases, on delivery to the Delivery Point.
- In the case of sales outside the UK mainland (including non-mainland UK) sales will be delivered FCA Norbar’s premises at Wildmere Road, Banbury, Oxon OX16 3JU (INCOTERMS 2010 edition), except where otherwise agreed in writing.
- 3.2 All Services will be performed at Norbar’s premises at Wildmere Road, Banbury, Oxon OX16 3JU unless otherwise agreed in writing and the Services will be deemed to be performed on completion of the performance of the Services as specified in the Order Acknowledgement.
- 3.3 Any dates specified by Norbar for delivery of the Goods or performance of the Services are intended to be an estimate and time for delivery will not be made of the essence by notice. If no dates are so specified, delivery will be within a reasonable time. The Goods and/or Services may be delivered by instalments.

- 3.4 If for any reason the Customer will not accept delivery of any of the Goods when they are ready for delivery, or Norbar is unable to deliver the Goods on time because the Customer has not provided appropriate instructions, documents, licences or authorisations then, without prejudice to any other right or remedy available to Norbar:
- risk in the Goods will pass to the Customer;
 - the Goods will be deemed to have been delivered; and
 - Norbar may store the Goods until delivery whereupon the Customer will be liable for all related costs and expenses (including, without limitation, storage and insurance).
- 3.5 Norbar may, at its discretion, accept returns of Goods ordered in error or no longer required, subject to the payment of a handling charge of 15% of the order value (excluding VAT), except that:
- Production ‘P’ type wrenches will not be accepted for return;
 - Goods supplied with a UKAS accredited calibration certificate will be subject to a recalibration charge in addition to the handling charge;
 - Engineer to Order Goods may be charged for up to 100% of full price.
- Goods returned for credit will only be accepted if they are returned in the original packaging, in a new, unused condition, carriage paid within 30 days after the despatch date.

4 NON DELIVERY

- 4.1 The quantity of any consignment of Goods as recorded by Norbar upon despatch from Norbar’s place of business will be conclusive evidence of the quantity received by the Customer on delivery unless the Customer can provide conclusive evidence proving the contrary.
- 4.2 Norbar will not be liable for any non delivery of Goods (even if caused by Norbar’s negligence) unless written notice is given to Norbar within 14 days of the date when the Goods would, in the ordinary course of events, have been received.
- 4.3 Any liability of Norbar for non delivery of the Goods will be limited to replacing the Goods within a reasonable time or issuing a credit note at the pro rata Contract rate against any invoice raised for such Goods.

5 RISK/TITLE

- 5.1 The Goods are at the risk of the Customer from the time of delivery.
- 5.2 Ownership of the Goods will not pass to the Customer until Norbar has received in full (in cash or cleared funds) all sums due to it in respect of the Goods and all other sums which are or which become due to Norbar from the Customer on any account.
- 5.3 Until ownership of the Goods has passed to the Customer, the Customer will hold all Goods on a fiduciary basis as Norbar’s bailee and Norbar will be entitled at any time:
- to require (at no cost to Norbar) that the Goods are stored separately and clearly marked in such a way that they will readily be seen to be the property of Norbar; and/or
 - to require the Customer to deliver up the Goods or any part of them to Norbar and if the Customer refuses to do so, to immediately repossess them; and/or
 - to enter any premises or vehicle (by its employees or agents and in the case of premises, with or without vehicles) where Goods still owned by Norbar are stored or reasonably thought to be stored in order to inspect and/or repossess them.
- 5.4 Norbar will be entitled to recover payment for the Goods ordered notwithstanding that ownership of the Goods has not passed from Norbar.
- 5.5 The Customer may resell the Goods before ownership has passed to it providing that any such sale is made in the ordinary course of its business at full market value and the Customer is not aware that an event specified in Condition 5.6(a) has occurred or is likely to occur.
- 5.6 Until ownership of the Goods has passed to the Customer, the Customer’s right to possession of the Goods will terminate immediately if:
- the Customer is made bankrupt or petitions for its own bankruptcy, or has a receiver, administrative receiver or administrator appointed over all or any of its assets or undertaking or, other than for the purposes of a solvent amalgamation or reconstruction, enters into liquidation, enters into any composition or arrangement with or for the benefit of its creditors or ceases to carry on business; or
 - the Customer fails to observe or perform any of its obligations under the Contract or any other contract between Norbar and the Customer; or
 - the Customer encumbers or in any way charges any of the Goods.
- 5.7 Ownership of all Customer Equipment will remain the property of the Customer throughout the provision of the Services. Subject to Condition 6.2, Norbar will take reasonable care to safeguard the Customer Equipment and no less care than it takes to safeguard its own similar property.
- 5.8 On termination of the Contract for any reason, Norbar’s rights under this Condition 5 will remain in effect.

6 PRICE AND PAYMENT

- 6.1 Unless otherwise agreed by Norbar in writing the price for the Goods and/or Services will be the price set out in Norbar’s price list current as at the date of delivery of the Goods or performance of the Services or will be as set out in any quotation provided by Norbar.
- 6.2 The price given in the current Norbar price list for calibration and repair services or in any quotation for such Services is subject to the returned Customer Equipment being of serviceable condition. If the Customer Equipment is not of serviceable condition or is out of specification and cannot be adjusted or is uneconomic to repair, either a new quotation will be provided or a service replacement tool will be offered to the Customer. If the Customer does not accept the revised quotation or service replacement within 30 days, Norbar will re-quote, revising the costs as necessary. If after a further 30 days instructions have still not been received, Norbar may (at its option) either return the Customer Equipment and invoice for costs incurred or dispose of the Customer Equipment.
- 6.3 The price for the Goods and/or Services will be exclusive of any value added tax which the Customer will pay in addition when it is due to pay for the Goods and/or Services. The price for Goods and Services includes the cost



- of delivery (or return of Customer Equipment in the case of Services) if the order (i) is for delivery on Monday to Friday (inclusive) within the UK mainland to the Customer's usual Delivery Point using Norbar's usual delivery method and (ii) has a value of over £100.00 (excluding VAT). If delivery is to Northern Ireland, the price for Goods and Services includes the cost of delivery (or return of Customer Equipment in the case of Services) if the order (i) is for delivery on Monday to Friday (inclusive) to the Customer's usual Delivery Point using Norbar's usual delivery method and (ii) has a value of over £300.00 (excluding VAT). In all other cases, the cost of delivery of Goods or return of Customer Equipment will be charged in addition and will be due for payment at the same time as payment for the Goods is due.
- 6.4 If the Customer holds an account with Norbar, payment of the price for the Goods and/or Services is due within the agreed payment terms for that account. If any amount payable is not made within 30 days after the due date in accordance with the terms of the account, Norbar may withdraw credit facilities. If the Customer does not have an account with Norbar, or if credit facilities have been withdrawn from the Customer, payment is due either at the time the Order is placed or in accordance with any payment schedule set out in the quotation and may be tendered by cheque, credit card or bank transfer. In all cases, payment must be in pounds sterling (except where otherwise agreed in writing).
- 6.5 Time for payment will be of the essence.
- 6.6 No payment will be deemed to have been received until Norbar has received cleared funds.
- 6.7 All payments payable to Norbar under the Contract will become due immediately upon termination of this Contract notwithstanding any other Condition of the Contract or any other arrangement or agreement between the parties.
- 6.8 The Customer will make all payments due under the Contract without any deduction whether by way of set-off, counterclaim, discount, abatement or otherwise unless the Customer has a valid court order requiring an amount equal to such deduction to be paid by Norbar to the Customer.
- 6.9 If the Customer fails to pay Norbar any sum due pursuant to the Contract the Customer will be liable to pay interest to Norbar on such sum from the due date for payment at the annual rate of 4% above the base lending rate from time to time of HSBC Bank plc, accruing on a daily basis until payment is made, whether before or after any judgment.
- 7. WARRANTY AND LIABILITY**
- 7.1 Norbar warrants that, subject to the other provisions of these Conditions upon delivery, and for a period of 12 months after the date of delivery, the Goods will:
- be of satisfactory quality within the meaning of the Sale of Goods Act 1979; and
 - comply in all material respects with the specification for them as set out in Norbar's catalogue or other published specification current at the time that the order for the Goods was accepted by Norbar.
- 7.2 Norbar warrants that, subject to the other provisions of these Conditions all Services will:
- be supplied with reasonable skill and care within the meaning of the Supply of Goods and Services Act 1982; and
 - conform in all material respects with the specification for them as set out in Norbar's catalogue or other published specification current at the time the order for the Services was accepted by Norbar (unless specifically varied in the quotation or Order Acknowledgement).
- 7.3 Norbar will not be liable for a breach of any of the warranties in Condition 7.1 unless:
- the Customer gives written notice of the defect to Norbar within 14 days of the time when the Customer discovers or ought to have discovered the defect; and
 - the Customer returns the defective Goods properly packed, carriage paid to Norbar's premises at the address given in Condition 1.1 or otherwise specified by Norbar.
- 7.4 Norbar will not be liable for a breach of the warranties in Condition 7.1 if:
- the Customer makes any further use of the Goods after giving notice of any defect; or
 - the Goods have been misused, mishandled, overloaded, amended, modified or repaired in any way by the Customer or its customers, or used for any purpose other than that for which they were designed; or
 - the defect is due to fair wear and tear or arises because the Goods have been subject to excessive use or used in an environment for which they were not designed; or
 - the Customer or its customer has failed to follow Norbar's oral or written instructions as to the storage, installation, commissioning, use, repair, calibration or maintenance of the Goods or the recommendations set out in any national or international standard applicable to the Goods or (if there are no applicable instructions or standards) good trade practice.
- 7.5 Norbar will not be liable for a breach of the warranties in Condition 7.2 unless:
- the Customer gives written notice to Norbar identifying which Services are defective in sufficient detail within 14 days of the time when the Customer discovers or ought to have discovered the defect; and
 - if the claim relates to Customer Equipment, Norbar is given a reasonable opportunity to examine the Customer Equipment and to assess the claim of defective Services,
- 7.6 Subject to Conditions 7.3 and 7.4, if any of the Goods do not conform with any of the warranties in Condition 7.1, Norbar will at its option repair or replace such Goods (or the defective part of them) or refund the price of such Goods at the pro rata Contract rate. The provisions of these Conditions will apply to any Goods that are remedied or replaced.
- 7.7 Subject to Condition 7.5 if any of the Services do not conform with any of warranties in Condition 7.2, Norbar will at its option remedy, re-perform or refund the Services that do not comply at the pro rata Contract rate. The provisions of these Conditions will apply to any Services that are remedied or re-performed for a period of 90 days with effect from the date of performance of the remedied or re-performed Services. If any repair of Customer Equipment fails within 90 days after the date on which it was returned to the Customer by Norbar, Norbar will at its option remedy, re-perform or refund the Services that do not comply at the pro rata Contract rate.
- 7.8 If Norbar complies with Condition 7.6 or 7.7 (as applicable), it will have no further liability for a breach of any of the warranties in Condition 7.1 or 7.2 in respect of such Goods and/or Services.

7.9 Except as provided in Conditions 7.1 and 7.2, Norbar makes no representation or warranty, whether express or implied, as to the quality or fitness for purpose of the Goods or Services and all warranties, Conditions and other terms which may be implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract.

7.10 Nothing in this Contract excludes or limits the liability of Norbar for:

- death or personal injury caused by Norbar's negligence; or
- defective products under the Consumer Protection Act 1987; or
- for fraud or fraudulent misrepresentation; or
- any matter for which it would be unlawful for Norbar to exclude or restrict liability.

THE CUSTOMER'S ATTENTION IS DRAWN TO THE PROVISIONS OF CONDITION 7.11

7.11 Subject to 7.10:

- Norbar's total liability in contract, tort (including negligence or breach of statutory duty), misrepresentation, restitution or otherwise arising in connection with the performance or contemplated performance of this Contract will be limited to the price of the Goods and/or Services; and
- Norbar will not in any event be liable to the Customer for any loss of profit, loss of business or depletion of goodwill or loss of data, in each case whether direct, indirect or consequential, or any claims for consequential compensation whatsoever (howsoever caused) which arise out of or in connection with this Contract.

7.9 The Customer acknowledges that the price of the Goods and/or Services has been calculated on the basis that Norbar excludes and limits its liability in accordance with Condition 7.11.

7.10 Where the Goods and/or Services are sold under a consumer transaction the statutory rights of the Customer are not affected by these Conditions.

8. FORCE MAJEURE

Norbar reserves the right to defer the date of delivery or to cancel the Contract or reduce the volume of the Goods or Services ordered by the Customer (without liability to the Customer) if it is prevented from or delayed in the carrying on of its business due to circumstances beyond the reasonable control of Norbar including, without limitation, acts of God, governmental actions, war or national emergency, riot, civil commotion, fire, explosion, flood, epidemic, lock-outs, strikes or other labour disputes (whether or not relating to either party's workforce), or restraints or delays affecting carriers or inability or delay in obtaining supplies of adequate or suitable materials or components.

9. NOTICES

Any notice to be given under this Contract will be in writing and will be sent by first class mail within the UK, or by air mail, or by fax; in the case of Norbar to the address set out in Condition 1.1 and in the case of the Customer to the Delivery Point or such other address or fax number as the Customer may from time to time notify to Norbar for this purpose in accordance with this Condition. Notices sent as above will be deemed to have been received three working days after the date of posting (in the case of mail within the UK), or seven working days after the date of posting (in the case of air mail), or on the next working day after transmission (in the case of faxed messages) but only if a transmission report is generated by the sender's fax machine recording error free transmission of all pages to the correct fax number.

10. ANTI-BRIBERY

- 10.1 Both Norbar and the Customer will comply with the United Kingdom Bribery Act 2010 and associated guidance and all other applicable United Kingdom legislation, statutory instruments and regulations in relation to bribery or corruption and similar or equivalent legislation in any other relevant jurisdiction.
- 10.2 Without limitation to clause 10.1, neither party shall make or receive any bribe (as defined in the Bribery Act 2010) or other improper payment or allow any such to be made or received on its behalf either in the United Kingdom or elsewhere and shall implement and maintain adequate procedures to ensure that such bribes or payments are not made or received directly or indirectly on its behalf.

11. GENERAL

- 11.1 The parties to the Contract do not intend that any term of the Contract will be enforceable by virtue of the Contracts (Rights of Third Parties) Act 1999 by any person that is not a party to it, except that any Affiliate of Norbar may directly enforce any term of the Contract where "Affiliate" means any entity that directly or indirectly Controls, is Controlled by or is under common control with Norbar and "Control" means ownership of more than 50% of the issued share capital of a company.
- 11.2 Each right or remedy of Norbar under the Contract is without prejudice to any other right or remedy of Norbar whether under the Contract or not.
- 11.3 If any provision of the Contract is found by any court, tribunal or administrative body of competent jurisdiction to be wholly or partly illegal, invalid, void, voidable or unenforceable it will to the extent of such illegality, invalidity, voidness, voidability or unenforceability be deemed severable and the remaining provisions of the Contract and the remainder of such provision will continue in full force and effect.
- 11.4 The Customer will not be entitled to assign the Contract or any part of it without the prior written consent of Norbar. Norbar may assign the Contract or any part of it or sub-contract any or all of its obligations under the Contract to any person, firm or company.
- 11.5 Failure or delay by Norbar in enforcing or partially enforcing any provision of the Contract will not be construed as a waiver of any of its rights under the Contract.
- 11.6 Any waiver by Norbar of any breach of, or any default under, any provision of the Contract by the Customer will not be deemed a waiver of any subsequent breach or default and will in no way affect the other terms of the Contract.
- 11.7 The formation, existence, construction, performance, validity and all aspects of the Contract will be governed by English law and the parties submit to the non-exclusive jurisdiction of the English courts.

2019 NORBAR SHUTDOWN PERIODS

THE FACTORY WILL BE CLOSED ON THE FOLLOWING DATES (INCLUSIVE)

Tuesday 1 st January - New Year's Day
Friday 19 th April to Monday 22 nd April - Easter Bank Holiday
Monday 6 th May - May Day Bank Holiday
Monday 27 th May - Spring Bank Holiday
Monday 26 th August - Late Summer Bank Holiday
Wednesday 25 th December to Wednesday 1 st January 2020 - Christmas Shutdown

NORBAR PROMOTIONAL MATERIAL

CATALOGUES & LEAFLETS

07571	NorTorque® Sales Leaflet
07536	ClickTronic® Sales Leaflet
07563	Professional Torque Wrench Sales Leaflet
07570	EvoTorque®2 Sales Leaflet
07560	T-Box XL™ Sales Leaflet
07554	USM Sales Leaflet
07557	Oil & Gas ETO Leaflet
07579	HandTorque® HT3-1000 Sales Leaflet
07580	Industrial 2R & 2AR Sales Leaflet
07581	PneuTorque® PTS™ Sales Leaflet
07585	Right Angle Gearbox Sales Leaflet
07589	TWC Sales Leaflet
07436	NorTronic® Sales Leaflet
07591	EvoTorque® Battery Tool Sales Leaflet
07512	Aerospace Leaflet
07515	Energy Generation Leaflet

PROMOTIONAL ITEMS

07532	Norbar Torque Wrench Display Board Contact Norbar for slat wall adaptors
07539	Norbar Branded Pen
07551	Norbar Branded Pocket Notepad
07555	Norbar Branded Baseball Cap
07590	Norbar Branded Beanie Hat
07587.18	Norbar Branded USB Stick
07572	Set of 12 Posters
07573	Norbar Branded Construction Pen
07574	Norbar Branded 2 Ring White Ring Binder
07576	Norbar Branded Screen Saver Cloth / Mouse Mat

CUSTOMER RELATIONS

OFFICE OPENING HOURS

Monday - Thursday	07:30 - 17:30
Friday	07:30 - 16:15

CONTACT DETAILS

New Sales
Direct Tel +44 (0)1295 753600
Email sales@norbar.com

NORBAR PRODUCT PORTFOLIO



Torque Screwdrivers



Torque Wrenches



Electronic Torque Wrenches



Manual Torque Multipliers



Pneumatic Torque Tools



Electronic Torque Tools



Battery Torque Tools



Torque Measurement Instruments



Torque Transducers



Ultrasonic Bolt Measurement



Calibration Services

NORBAR SOCIAL MEDIA



[@voiceoftorque](https://twitter.com/voiceoftorque)



www.norbar.com/news-events/blog



Norbar Torque Tools Ltd



Norbar Torque Tools



Norbar Torque



Norbar Torque Tools Ltd



Let's Talk

The live chat feature can be found at the bottom right of any page on our website