80+ YEARS OF TORQUE INNOVATION

EXPERTS BY CHOICE

Norbar® Norbar Torque Tools

DRILCO

DRILCO

GENERIC

Accuracy (%)	Torque & Angle	Digital Display
Single Scale	Dual Scale	Multi Scale
Calibration Certificate	UKAS Accredited Certification	IP Rated
Bluetooth Enabled	Case Included	

SCREWDRIVERS & TORQUE WRENCHES

Ratchet	Torque Handle	Fixed
Adjustment Lock	Declaration of Conformance	Calibration Certificate
¼" Hex Bit Holder		

MANUAL TORQUE MULTIPLIERS

Adjustable Reaction	Anti Wind-up Ratchet	

POWERED TORQUE TOOLS

Adjustable Reaction	2 Speed	Air Consumption - litres/sec
Lifting Attachment	Bi-Directional	

TORQUE MEASUREMENT INSTRUMENTS

Multi Transducers	Back-up Data	

HARSH ENVIRONMENT INSTRUMENTS

Multi Transducers		

ULTRASONIC MEASUREMENT

Back-up Data		

CUSTOMER RELATIONS

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OFFICE OPENING HOURS

Monday - Thursday	07:30 - 17:00
Friday	07:30 - 16:15

NORBAR SOCIAL MEDIA

Norbar Torque Tools Ltd

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QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001:2015

bsi ISO 50001 Energy Management CERTIFIED ENMS 621748

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Welcome to NORBAR

John Reynertson

Managing Director
Norbar Torque Tools

"From our humble beginnings over 80 years ago in a small workshop in North Bar, to our latest purpose-built factory on Wildmere Road, Norbar has pioneered many of today's solutions for torque control. Our offices around the world are excellent at taking core Banbury product and developing it for your use in your application. From manual torque wrenches to sophisticated control systems, we are still dedicated to being the best at what we do.

Norbar is now a member of the Snap-on Incorporated family of companies and is proud to be part of a business which has beliefs, values and a vision closely aligned with those that Norbar was founded on. We still strive to be "The best torque tool company in the world. Respected, profitable and a great place to work."

FASTORQ® The Speed of Innovation.

FASTORQ is a preferred global provider of precision bolt loading and removal solutions. FASTORQ is a pioneer of the hydraulic tools industry and today designs, manufactures and sells an innovative line of bolting solutions including a complete line of hydraulic, electric and pneumatic tools, as well as design resources to customise existing tools or create one-of-a-kind bolting solutions.

Sturtevant Richmont

From torque wrenches to torque screwdrivers, interchangeable heads for torque wrenches and the first torque analyzers and calibration instruments, Paul Sturtevant and Frank Livermont led the way. Sturtevant Richmont continues to shape the industry with game-changing innovation including the development of radio-equipped torque hand tools that connect to a process monitor.

mountz® the torque tool specialists

Mountz began with a passion for creating exceptional tools and a deep understanding of the critical role torque plays in the world. The Mountz story started in a Cupertino garage in 1965, and over the decades, the company has grown into a leader in torque innovation. From pioneering the first electronic torque calibrator to continuously challenging industry norms, Mountz has remained dedicated to helping customers achieve precision, accuracy, and quality in their manufacturing processes.

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The Speed of Innovation.

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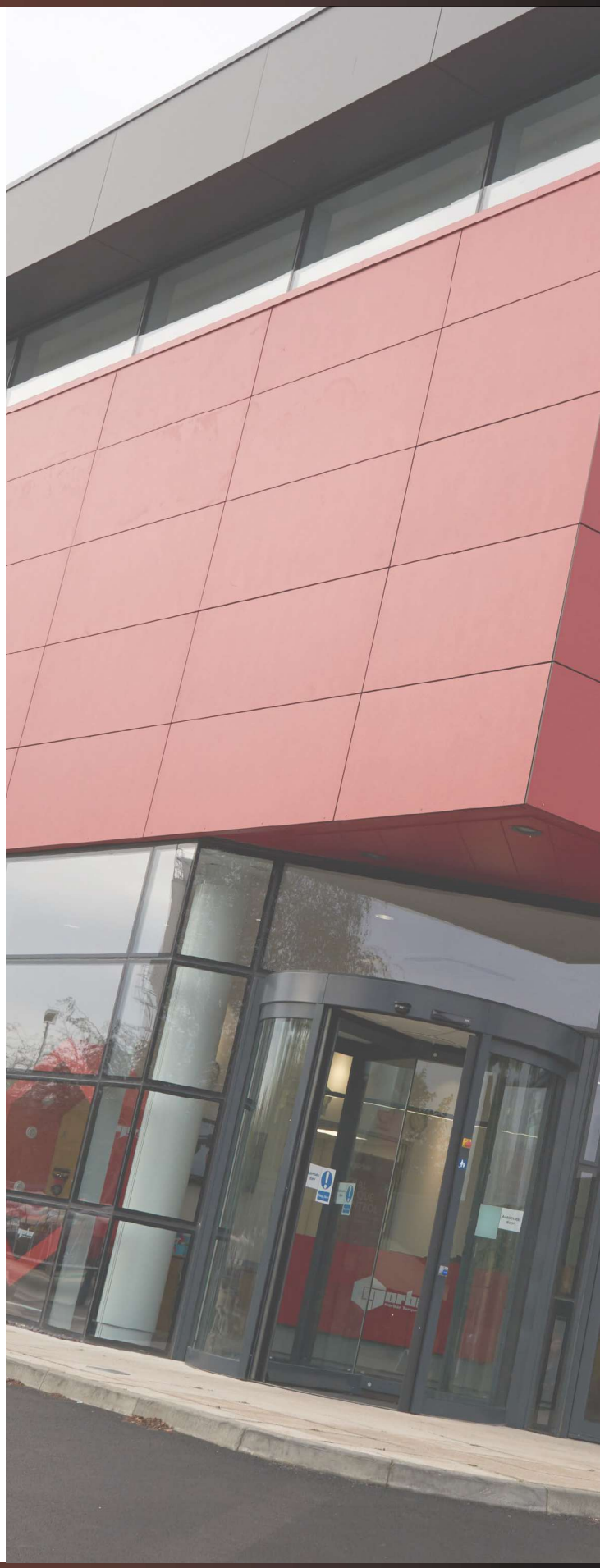
the torque tool specialists



Norbar 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.

We have distributors of our torque control products in more than 60 countries around the world.

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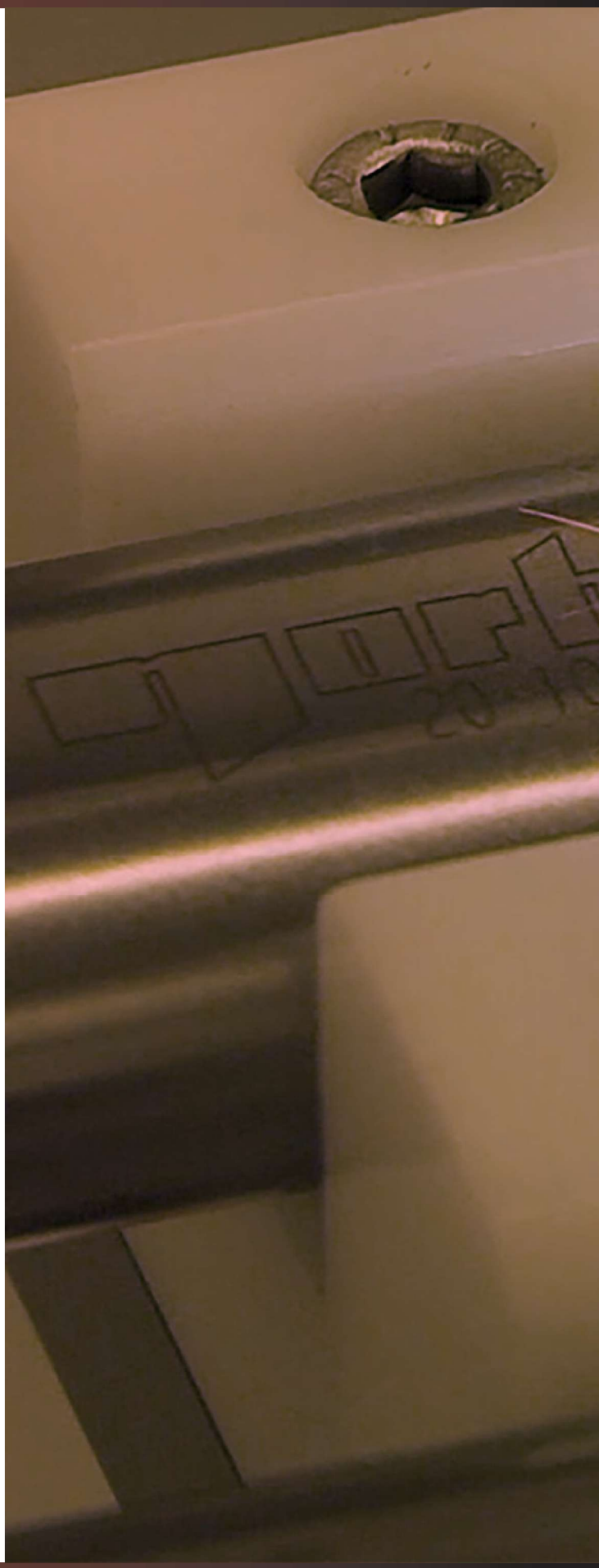
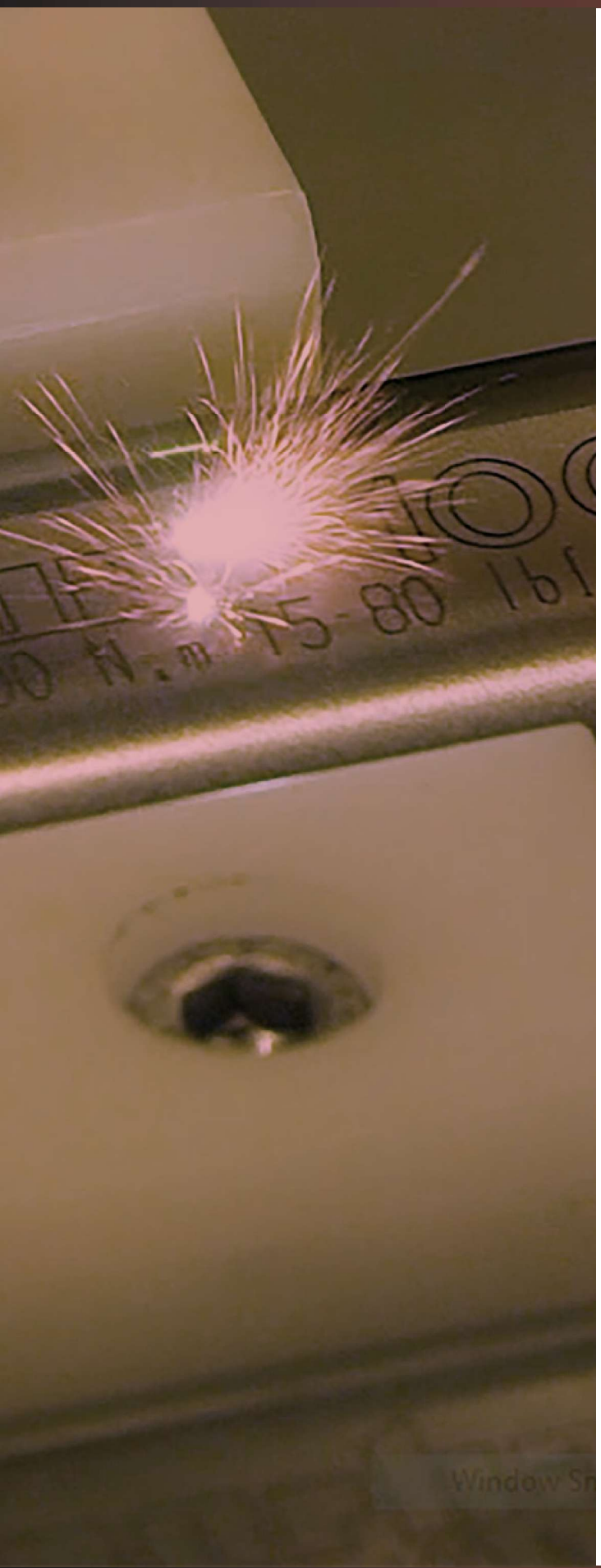




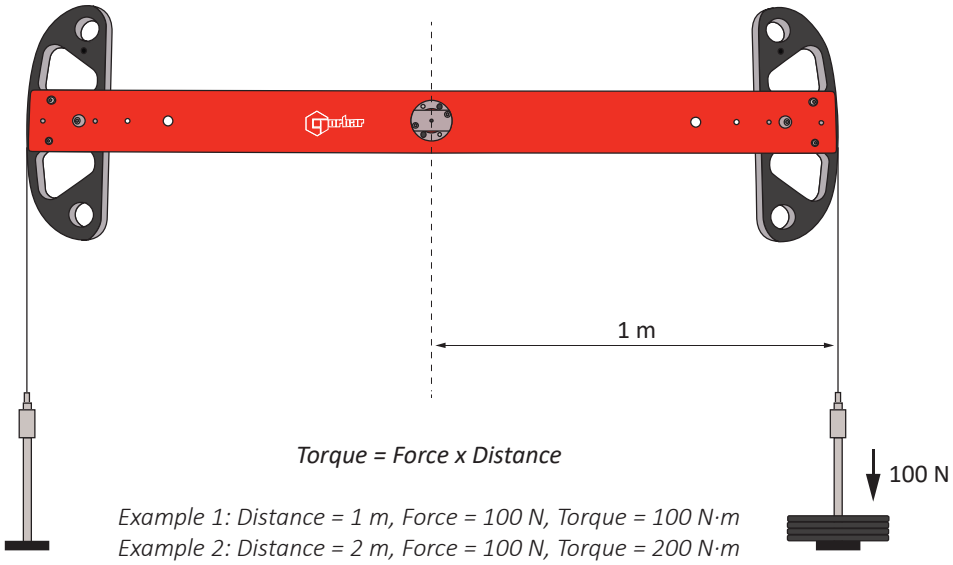
What is Torque?

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.



Torque = Force x Distance

Example 1: Distance = 1 m, Force = 100 N, Torque = 100 N·m
Example 2: Distance = 2 m, Force = 100 N, Torque = 200 N·m
Example 3: Distance = 1 ft, Force = 100 lbf, Torque = 100 lbf·ft

The Importance of Torque Control

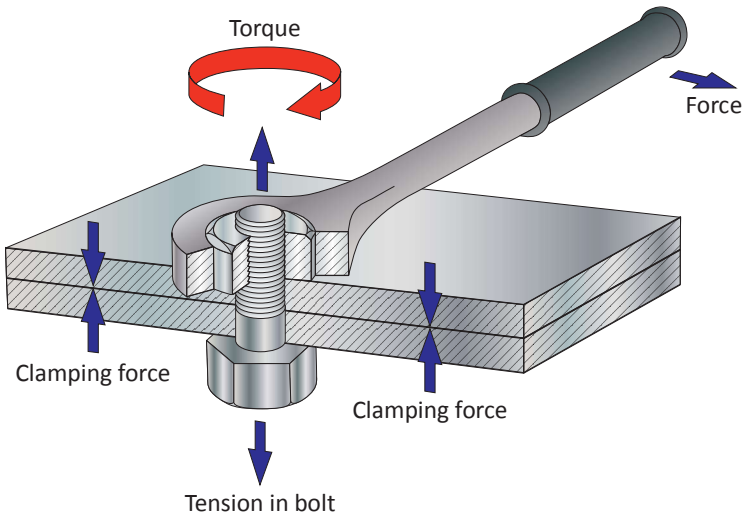
Although many methods exist to join two or more parts together, the ease of assembly and disassembly provided by threaded fasteners make them the ideal choice for many applications.

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

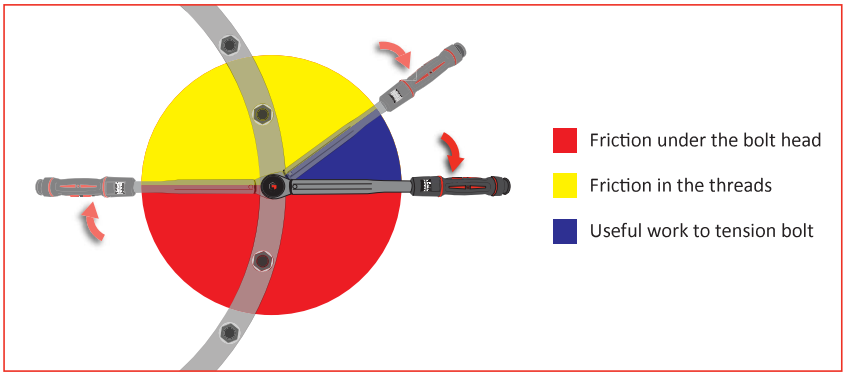
When an assembly is clamped by tightening a nut and bolt, the induced tension causes the bolt to stretch. An equal force acts to compress the parts which are thus clamped.

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.



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

Tightening to Yield

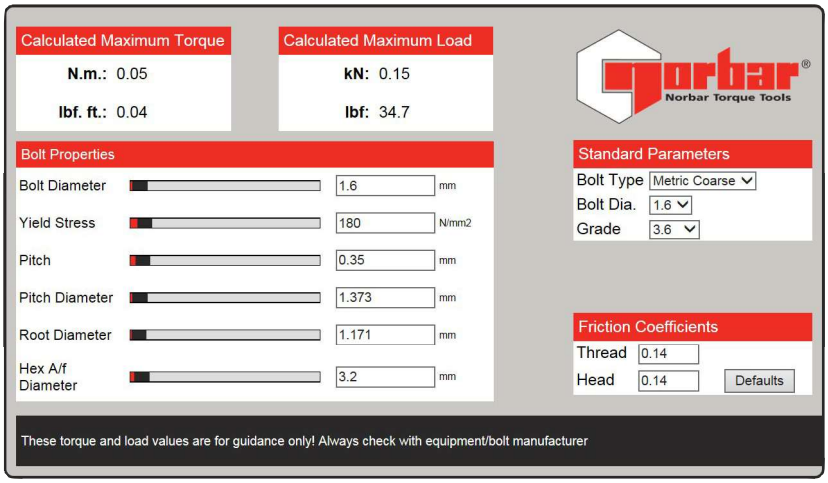
Bolts tightened to yield provide consistently higher preloads from smaller diameter bolts. The reduced fastener stiffness reduces the fatigue loading to which the bolt is subjected under repeated external load reversals, e.g. cylinder heads and connecting rods.

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

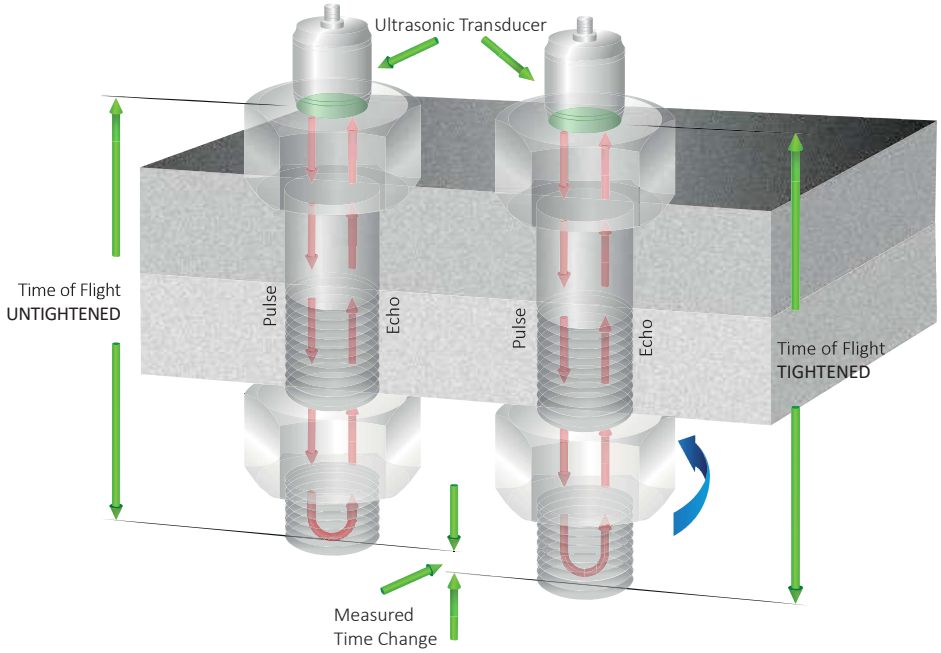
For further information and guidance on establishing the correct tightening torque for a fastener, see Norbar's web based calculator, www.norbar.com/Support/Calculators/Torque-Tension-Calculator



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.



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 9. Alternatively, use the Torque/Tension Calculator on the Norbar website (shown on page 10) 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

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
lbf x 4.45 = N
N x 0.225 = lbf

FLOW
l/s x 2.119 = cu·ft/min
cu·ft/min x 0·472 = l/s

PRESSURE
lbf/in^2 x 0.069 = bar
bar x 14.504 = lbf/in^2

POWER
hp x 0.746 = kW

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

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 x L1/L2

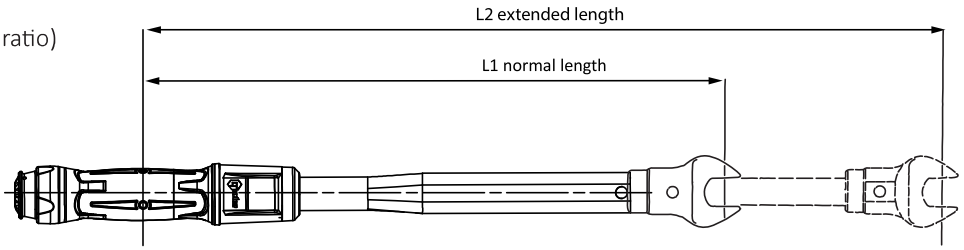
Where L1 is the normal length and L2 is the extended length, M1 is the set torque and M2 the actual torque applied to the nut.

Example

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

L1 = 500 L2 = 650
(units of length not important, this is ratio)

M1 = 130 x 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 SCREWDRIVERS 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.

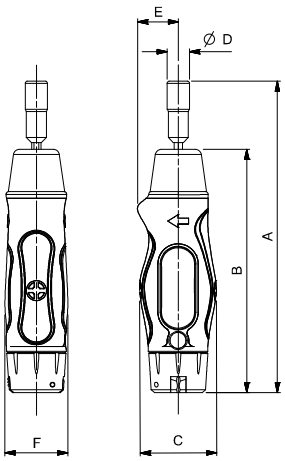
In addition to the normal 'adjustable' torque wrenches, Norbar offer Production 'P' Type versions which can be pre-set and dedicated to a particular application. This setting system is designed to discourage unauthorised alteration.

TORQUE SCREWDRIVERS

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

- Accuracy to ±6% meets the requirements of ISO 6789-1:2017
- Supplied with ¼" hexagon bit holder
- Single scale, either N·m or lbf·in

NOTE: Bit set is only sold separately or as part of kit - see website for bit set details



MODEL		ALL MODELS
Dimensions (mm)	A	155
	B	121
	C	38
	ØD	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

PROFESSIONAL TORQUE WRENCHES MODEL 5

The Model 5 is a unique torque wrench that offers the convenience of interchangeable ¼" hexagon bits. (ISO 1173:2001 Form C drive bits).

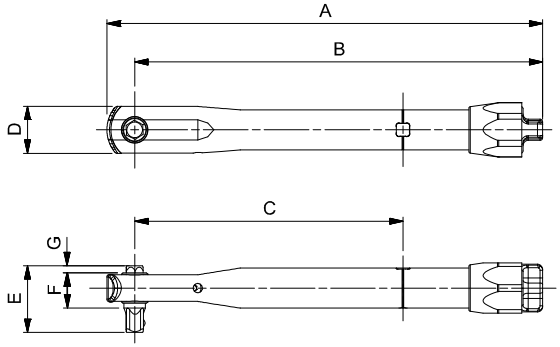
- Accuracy meets the requirements of ISO 6789-1:2017
- Non-length dependent. The Model 5 remains accurate regardless of hand position
- Supplied in a storage case. The case allows space for the storage of additional drive bits

2	ADJUSTABLE
13001	Pro 5, ¼" female hex, 1 - 5 N·m
13002	Pro 5, ¼" female hex, 10 - 50 lbf·in
13003	Pro 5, ¼" female hex, 10 - 50 kgf·cm

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, ¼" female hex, 1 - 5 N·m
13005	Pro 5, ¼" female hex, 10 - 50 lbf·in
13006	Pro 5, ¼" female hex, 10 - 50 kgf·cm

8	MODEL 5 SPARES
28900	¼" Hex to ¼" male square drive



Model 5 'P' Type in storage case

Model		Adjustable	'P' Type
Part Number		13001 13002 13003	13004 13005 13006
Dimensions (mm)	A	165	157
	B	155	147
	C	102	102
	D	18	18
	E	25	25
	F	13	13
	G	2.8	2.8
Weight (kg)		0.1	0.1

SLIMLINE™ TORQUE WRENCHES

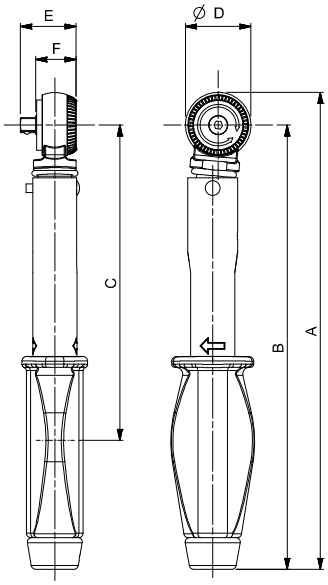
- Accurate to ±3% of reading which meets the requirements of ISO 6789-1:2017
- Unmistakable signal when set torque is reached
- High quality 72 tooth ratchet allows use in confined spaces
- Fixed head version has a push-through square for left and right handed torque tightening
- Moulded grip aids correct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

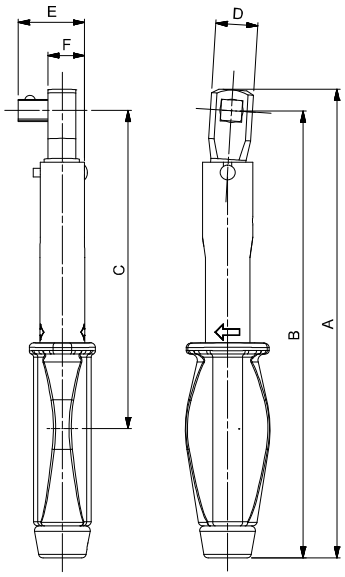
2	ADJUSTABLE RATCHET - DUAL SCALE
11123	SL0, ¼", 4 - 20 N·m, 40 - 180 lbf·in
11087	SL0, ⅜", 4 - 20 N·m, 40 - 180 lbf·in

2	ADJUSTABLE - FIXED HEAD- DUAL SCALE
11125	SL0, ⅜" fixed head, 4 - 20 N·m, 40 - 180 lbf·in

SL0 Ratchet

Model		SL0 ¼"	SL0 ⅜"
Part Number		11123 11085	11087 11086
Dimensions (mm)	A	219	219
	B	204	204
	C	146	146
	ØD	30	30
	E	26	26
	F	19	19
Weight (kg)		0.4	0.4





SL0 Fixed Head

Model		SL0 ⅜" Fixed Head
Part Number		11125 11089
Dimensions (mm)	A	213
	B	203
	C	145
	D	19
	E	30
	F	17
Weight (kg)		0.4

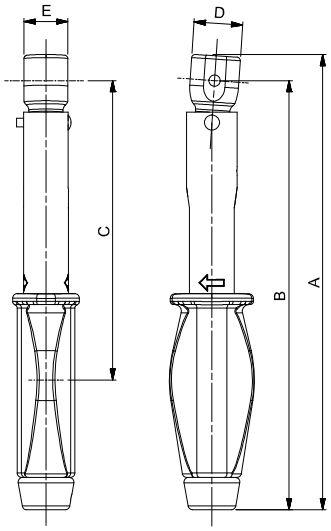
2	TORQUE HANDLE ADJUSTABLE - DUAL SCALE
11126	SL0 16 mm spigot, 4 - 20 N·m, 40 - 180 lbf·in
11122	SL0 9 x 12 mm female, 4 - 20 N·m, 40 - 180 lbf·in

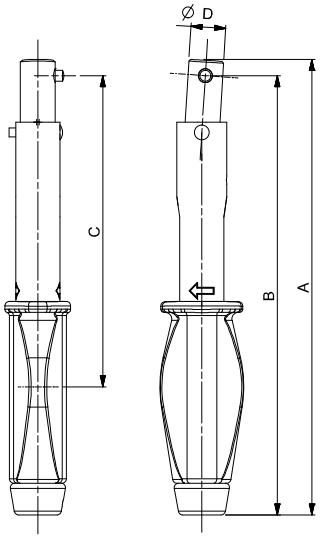
Production 'P' type versions are designed to discourage unauthorised alteration. They have no scale and so must be set against a torque measuring device such as Norbar's TruCheck™ 2 - see page 81.

2	PRODUCTION 'P' TYPE (Must be set using a Torque Tester, see pages 81-88)
11089	SL0, ⅜" fixed head, 4 - 20 N·m, 40 - 180 lbf·in
11085	SL0, ¼", 4 - 20 N·m, 40 - 180 lbf·in
11086	SL0, ⅜", 4 - 20 N·m, 40 - 180 lbf·in
11090	SL0, 16 mm spigot, 4 - 20 N·m, 40 - 180 lbf·in
11088	SL0, 9 x 12 mm female, 4 - 20 N·m, 40 - 180 lbf·in
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)

SL0 Female Torque Handle

Model		SL0 FTH
Part Number		11122 11088
Dimensions (mm)	A	205
	B	194
	C	135
	D	22
	E	20
Weight (kg)		0.4





SL0 Spigot Torque Handle

Model		SL0 Spigot
Part Number		11126 11090
Dimensions (mm)	A	206
	B	199
	C	143
	ØD	16
Weight (kg)		0.4

TT TORQUE WRENCHES

For no-nonsense torqueing - 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

TTfth Torque Handle

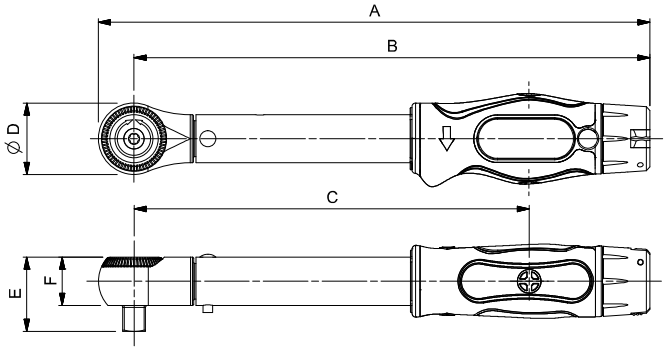
Model		TT Torque Wrenches / Non-Magnetic			
		TTi20 TTi15	TTi50 TTi35	TTfth20	TTfth50
Part Number		13830, 13831, 13832, 13833, 13900, 13901, 130503, 130504	13841, 13842, 13843, 13844, 13902, 13903, 13906, 13907	13839 13840	13847 13848
Dimensions (mm)	A	232	328	214	310
	B	217	313	204	300
	C	166	263	153	250
	ØD	30	30	22	22
	E	31	31	17	17
	F	20	20	N/A	N/A
Weight (kg)		0.5	0.7	0.4	0.6

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

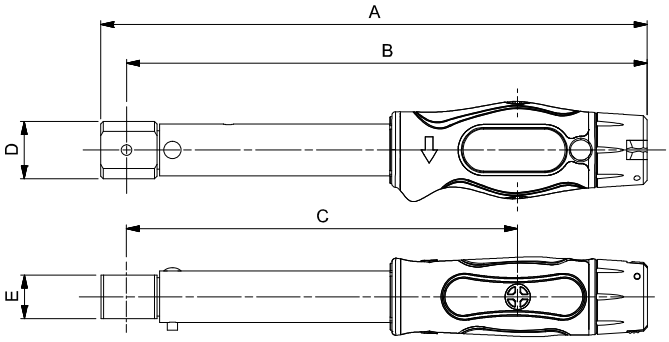
2	RATCHET ADJUSTABLE - N·m ONLY
13832	TTi20, ¼", 4 - 20 N·m
13833	TTi20, ⅜", 4 - 20 N·m
13843	TTi50, ⅜", 10 - 50 N·m
13844	TTi50, ½", 10 - 50 N·m

2	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)

TTi Ratchet / Non-Magnetic



TTfth Female Torque Handle



TTI NON-MAGNETIC TORQUE WRENCHES

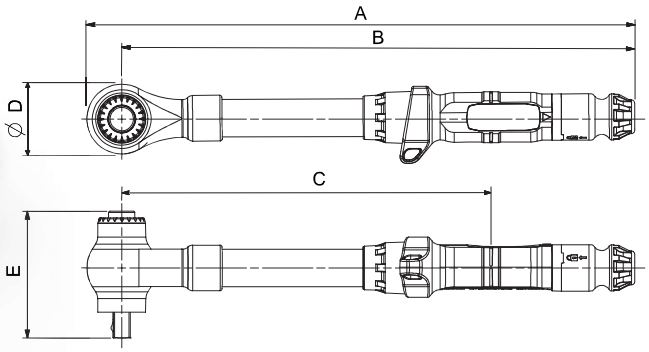
Carefully selected and tested materials replace the ferrous components present in standard torque wrenches, thereby giving an extremely low magnetic footprint. Being based on the TT range of torque wrenches means that they also retain the high standards of Norbar's other torque wrenches. Perfect for 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
130503	TTi20, ⅜" Non-Mag, 4 - 20 N·m
130504	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

INSULATED TORQUE WRENCHES

Fully insulated high precision torque wrench, IEC 60900:2018 compliant, for working on live or close to live parts at nominal voltages up to 1,000 V AC and 1,500 V DC



2	ADJUSTABLE - DUAL SCALE
130537	20, ⅜", 4 - 20 N·m, 3 - 15 lbf·ft
130505	50, ⅜", 10 - 50 N·m, 7.5 - 37.5 lbf·ft
130506	50, ½", 10 - 50 N·m, 7.5 - 37.5 lbf·ft
130507	100, ⅜", 20 - 100 N·m, 15 - 75 lbf·ft
130508	100, ½", 20 - 100 N·m, 15 - 75 lbf·ft
130509	200, ½", 40 - 200 N·m, 30 - 150 lbf·ft

Model		Insulated Torque Wrenches					
		Model 20	Model 50 ⅜"	Model 50 ½"	Model 100 ⅜"	Model 100 ½"	Model 200
Part Number		130537	130505	130506	130507	130508	130509
Dimensions (mm)	A	294	365	369	404	409	491
	B	272	343	343	382	383	465
	C	164.5	236	235	275	275	357
	ØD	44	44	52	44	52	52
	E	80	80	92	80	92	92
Weight (kg)		0.7	0.8	0.8	1	1	1.4

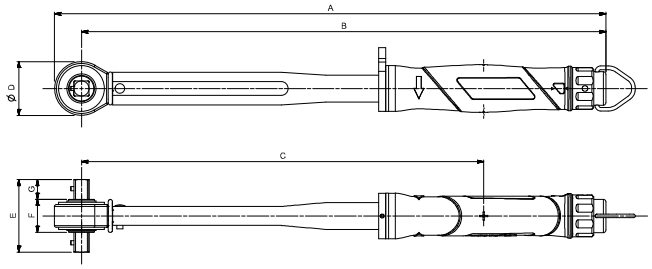
NORTORQUE® TETHERED TORQUE WRENCHES - FOR WORKING AT HEIGHT

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

Model		NorTorque Tethered Torque Wrenches	
		Model 100	Model 200
Part Number		130178	130179
Dimensions (mm)	A	375	459
	B	354	437
	C	252	335
	ØD	42	45
	E	53	59
	F	22	28
	G	16	16
Weight (kg)		0.9	1.1

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
- Accurate to ±3% of reading which meets the requirements of ISO 6789-1:2017
- Light and fast adjustment saves operator time and effort
- Micrometer scale for simple and error free setting
- Lock feature helps prevent accidental adjustment of the set torque
- Convenient hanger feature for tool storage also aids wrench unlocking and adjustment



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 ±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
- Tethered versions are available for working at height (see page 17)

Left to Right: Torque Handle, Ratchet & Female Torque Handle

Primary Scale

Micrometer Scale

On dual scale wrenches, the micrometer scale refers to the N·m value only

NORTORQUE®

2	RATCHET ADJUSTABLE - DUAL SCALE
130101⁺	Model 60, ⅜", 12 - 60 N·m, 10 - 45 lbf·ft
130103⁻	Model 100, ½", 20 - 100 N·m, 20 - 80 lbf·ft
130104	Model 200, ½", 40 - 200 N·m, 30 - 150 lbf·ft
130105	Model 300, ½", 60 - 300 N·m, 45 - 220 lbf·ft
130106	Model 340, ½", 60 - 340 N·m, 45 - 250 lbf·ft

⁺ Supplied with ½" sq. dr. adaptor

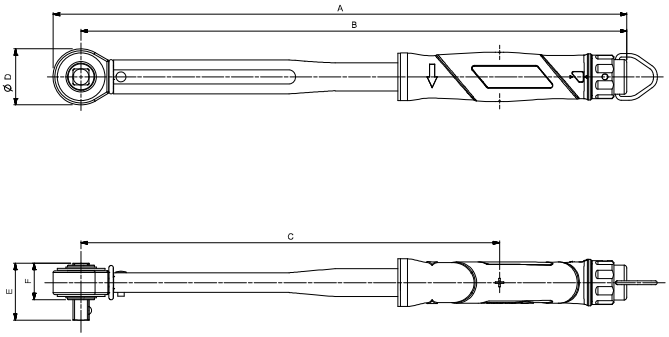
⁻ Supplied with ⅜" sq. dr. adaptor

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	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

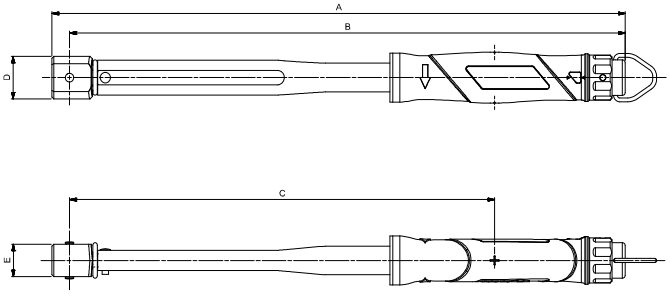
Ratchet Adjustable

Model		NorTorque 60	NorTorque 100	NorTorque 200	NorTorque 300	NorTorque 340
Part Number		130101	130103	130104	130105	130106
Dimensions (mm)	A	328	375	459	587	679
	B	310	354	437	562	654
	C	209	252	335	460	552
	ØD	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



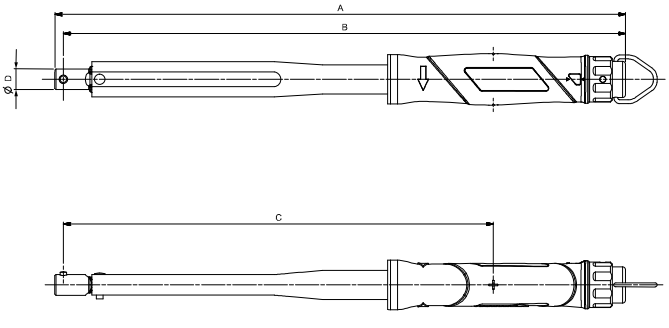
Female Torque Handle Adjustable

Model		NorTorque 60 9 x 12 mm	NorTorque 100 9 x 12 mm	NorTorque 200 9 x 12 mm	NorTorque 200 14 x 18 mm	NorTorque 300 14 x 18 mm	NorTorque 340 14 x 18 mm
Part Number		130121	130123	130125	130126	130127	130128
Dimensions (mm)	A	319	360	437	446	566	658
	B	308	348	426	430	550	642
	C	206	247	324	329	448	540
	D	22	22	24	33	36	36
	E	20	20	20	25	28	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	130142	130143	130144
Dimensions (mm)	A	317	357	439	564
	B	310	350	433	557
	C	208	248	331	455
	ØD	16	16	16	16
Weight (kg)		0.6	0.7	0.8	1.1



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 81-88).

- 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

Colour-coded adjustment seals

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

2	PRODUCTION 'P' TYPE - INDUSTRIAL RATCHET (Push-through square)
13051	Pro 60, ⅜", 12 - 60 N·m, 5 - 45 lbf·ft
13052	Pro 60, ½", 12 - 60 N·m, 5 - 45 lbf·ft
13053	Pro 100, ⅜", 20 - 100 N·m, 15 - 75 lbf·ft
13054	Pro 100, ½", 20 - 100 N·m, 15 - 75 lbf·ft
13055	Pro 200, ½", 40 - 200 N·m, 30 - 150 lbf·ft
13057	Pro 300, ½", 60 - 300 N·m, 45 - 220 lbf·ft
13056	Pro 400, ¾", 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)

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)

- Reversible, 72 tooth ratchet

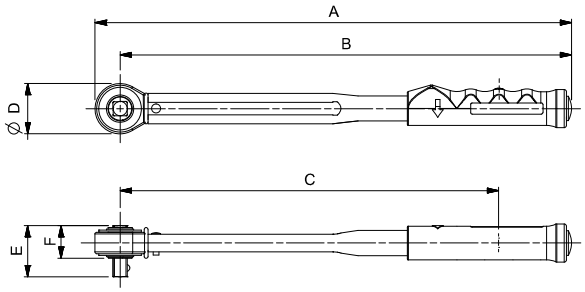
2	PRODUCTION 'P' TYPE AUTOMOTIVE RATCHET (Reversible)
11164	Pro 60, ⅜", 12 - 60 N·m, 5 - 45 lbf·ft
11171	Pro 60, ½", 12 - 60 N·m, 5 - 45 lbf·ft
11138	Pro 100, ⅜", 20 - 100 N·m, 15 - 75 lbf·ft
11139	Pro 100, ½", 20 - 100 N·m, 15 - 75 lbf·ft
11140	Pro 200, ½", 40 - 200 N·m, 30 - 150 lbf·ft
SQ2222	Pre-set, 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

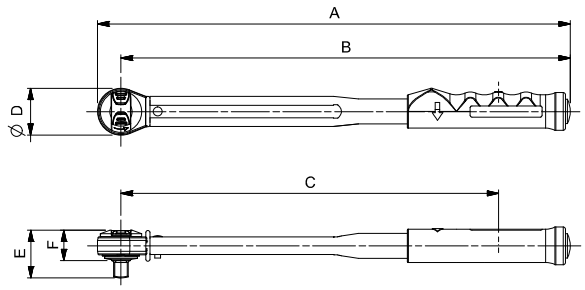
Industrial Ratchet

Model		Pro 60, ⅜"	Pro 60, ½"	Pro 100, ⅜"	Pro 100, ½"	Pro 200	Pro 300	Pro 400
Part Number		13051	13052	13053	13054	13055	13057	13056
Dimensions (mm)	A	295	301	335	342	425	668	675
	B	277	281	317	321	403	641	649
	C	212	216	252	256	338	577	584
	ØD	36	42	36	42	45	54	52
	E	34	38	34	38	46	46	51
	F	21	23	21	22	29	29	28
Weight (kg)		0.6	0.7	0.7	0.7	1.0	1.2	2.0



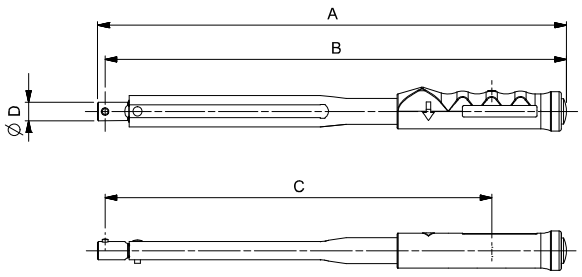
Automotive Ratchet

Model		Pro 60, ⅜"	Pro 60, ½"	Pro 100, ⅜"	Pro 100, ½"	Pro 200
Part Number		11164	11171	11138	11139	11140
Dimensions (mm)	A	289	289	351	351	447
	B	274	274	314	314	404
	C	209	209	249	249	339
	ØD	30	30	30	30	42
	E	33	38	33	38	43
	F	22	22	22	22	27
Weight (kg)		0.6	0.6	0.7	0.7	1



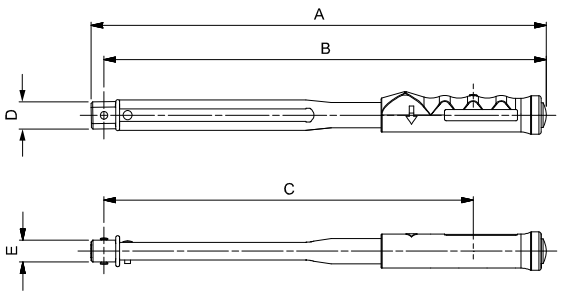
Spigot Torque Handle

Model		Pro 60	Pro 100	Pro 200	Pro 300
Part Number		11167	11143	11144	11117
Dimensions (mm)	A	283	324	405	665
	B	277	317	399	637
	C	212	252	334	572
	ØD	16	16	16	16
Weight (kg)		0.6	0.6	0.8	1.1



Female Torque Handle

Model		Pro 60 9 x 12 mm	Pro 100 9 x 12 mm	Pro 200, 9 x 12 mm	Pro 200, 14 x 18 mm	Pro 300 14 x 18 mm	Pro 400 14 x 18 mm
Part Number		11170	11150	11151	11152	11153	13068
Dimensions (mm)	A	286	326	403	414	534	652
	B	274	314	392	400	518	637
	C	210	250	327	336	453	573
	D	22	22	25	34	36	32
	E	20	20	20	26	28	24
Weight (kg)		0.6	0.6	0.8	0.8	1.1	1.8



PROFESSIONAL TORQUE WRENCHES

Since its original, award winning launch in 1984, 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 ±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

- Imperial scale only models available, contact Norbar

Pro 15 & 25 Automotive Ratchets

Unlocked

Locked

Female Torque Handle

16 mm Spigot End

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.

PROFESSIONAL TORQUE WRENCHES

There will be a phased change to the 'Industrial Ratchet' on our Professional range of torque wrenches. Norbar will be moving from the 'Mushroom' square drive to a captive 'push-through' square drive

2	INDUSTRIAL RATCHET - DUAL SCALE
15002⁺	Pro 50, ⅜", 10 - 50 N·m, 7.5 - 37.5 lbf·ft
15003⁻	Pro 100, ½", 20 - 100 N·m, 15 - 75 lbf·ft
15004	Pro 200, ½", 40 - 200 N·m, 30 - 150 lbf·ft
15005	Pro 300, ½", 60 - 300 N·m, 44 - 222 lbf·ft
15006	Pro 340, ½", 60 - 340 N·m, 44 - 250 lbf·ft
15007*	Pro 400, ¾", 80 - 400 N·m, 60 - 300 lbf·ft

2	INDUSTRIAL RATCHET - N·m ONLY
15042⁺	Pro 50, ⅜", 10 - 50 N·m
15043⁻	Pro 100, ½", 20 - 100 N·m
15044	Pro 200, ½", 40 - 200 N·m
15045	Pro 300, ½", 60 - 300 N·m
15046	Pro 340, ½", 60 - 340 N·m
15047*	Pro 400, ¾", 80 - 400 N·m

2	INDUSTRIAL RATCHET - lbf·ft ONLY
15172⁺	Pro 50, ⅜", 7.5 - 37.5 lbf·ft
15173⁻	Pro 100, ½", 15 - 75 lbf·ft
15174	Pro 200, ½", 30 - 150 lbf·ft
15175	Pro 300, ½", 44 - 220 lbf·ft
15176	Pro 340, ½", 45 - 250 lbf·ft
15177*	Pro 400, ¾", 60 - 300 lbf·ft

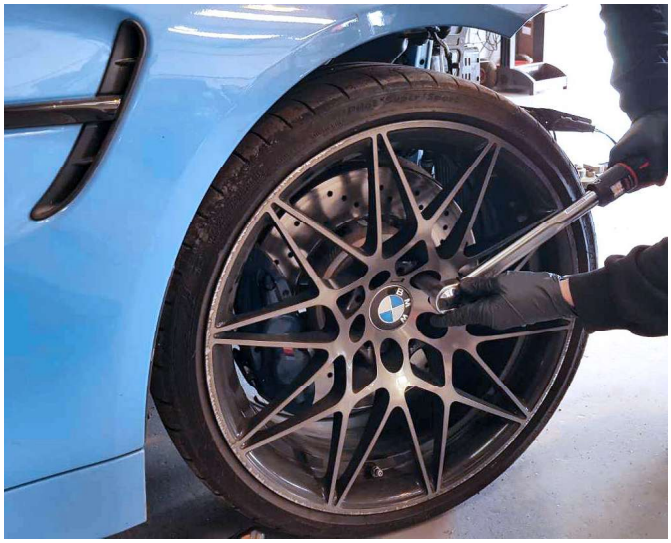
⁺ Supplied with ½" sq. dr. adaptor

⁻ Supplied with ⅜" sq. dr. adaptor

* Model 400 supplied with a Stepped Square

2	AUTOMOTIVE RATCHET (Reversible) - DUAL SCALE
15220	Pro 15, ¼", 3 - 15 N·m, 27 - 132 lbf·in
15221	Pro 15, ⅜", 3 - 15 N·m, 27 - 132 lbf·in
15222	Pro 25, ¼", 5 - 25 N·m, 44 - 220 lbf·in
15223	Pro 25, ⅜", 5 - 25 N·m, 44 - 220 lbf·in
15012	Pro 50, ⅜", 10 - 50 N·m, 7.5 - 37.5 lbf·ft
15013	Pro 50, ½", 10 - 50 N·m, 7.5 - 37.5 lbf·ft
15014	Pro 100, ⅜", 20 - 100 N·m, 15 - 75 lbf·ft
15015	Pro 100, ½", 20 - 100 N·m, 15 - 75 lbf·ft

2	AUTOMOTIVE RATCHET (Reversible) - N·m ONLY
15224	Pro 15, ¼", 3 - 15 N·m
15225	Pro 15, ⅜", 3 - 15 N·m
15226	Pro 25, ¼", 5 - 25 N·m
15227	Pro 25, ⅜", 5 - 25 N·m
15022	Pro 50, ⅜", 10 - 50 N·m
15023	Pro 50, ½", 10 - 50 N·m
15024	Pro 100, ⅜", 20 - 100 N·m
15025	Pro 100, ½", 20 - 100 N·m



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	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

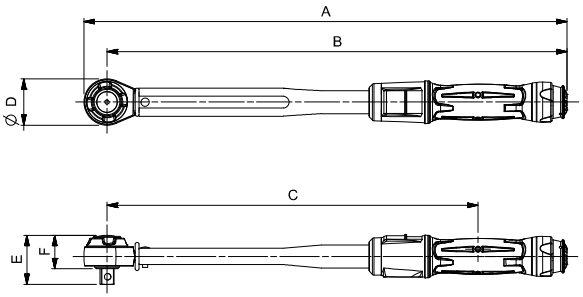
Pro 25 Torque Handle

Pro 25 Female Torque Handle

PROFESSIONAL TORQUE WRENCHES

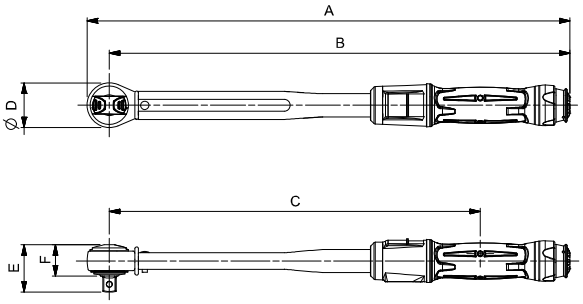
Industrial Ratchet

Model		Pro 50	Pro 100	Pro 200	Pro 300	Pro 340	Pro 400
Part Number		15002 15042 15172	15003 15043 15173	15004 15044 15174	15005 15045 15175	15006 15046 15176	15007 15047 15177
Dimensions (mm)	A	335	387	470	593	685	686
	B	317	364	447	567	659	661
	C	231	278	361	480	572	574
	ØD	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



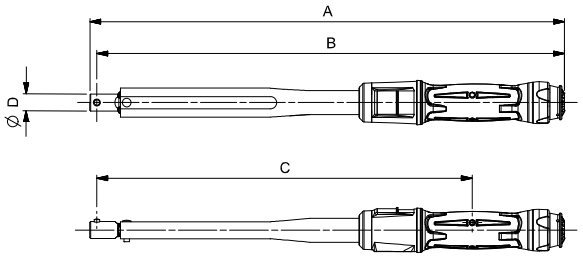
Automotive Ratchet

Model		Pro 15 Pro 25	Pro 50 ⅜"	Pro 50 ½"	Pro 100 ⅜"	Pro 100 ½"
Part Number		15220, 15221, 15222, 15223, 15224, 15225, 15226, 15227	15012 15022	15013 15023	15014 15024	15015 15025
Dimensions (mm)	A	221	327	327	367	367
	B	209	312	312	352	352
	C	140	226	226	266	266
	ØD	25	30	30	30	30
	E	25	33	38	33	38
	F	18	22	22	22	22
Weight (kg)		0.3	0.7	0.7	0.8	0.8



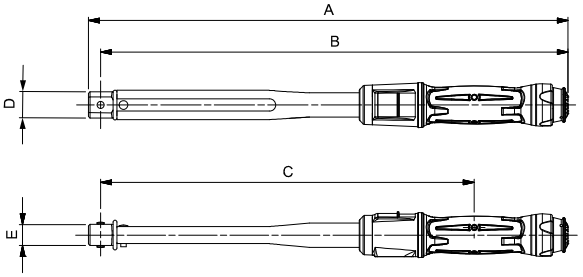
Spigot Torque Handle

Model		Pro 15 Pro 25	Pro 50	Pro 100	Pro 200	Pro 300
Part Number		15060 15061 15070 15071	15062 15072	15063 15073	15064 15074	15065 15075
Dimensions (mm)	A	223	322	363	445	569
	B	216	316	356	438	563
	C	148	229	269	351	476
	ØD	16	16	16	16	16
Weight (kg)		0.3	0.6	0.7	0.9	1.2

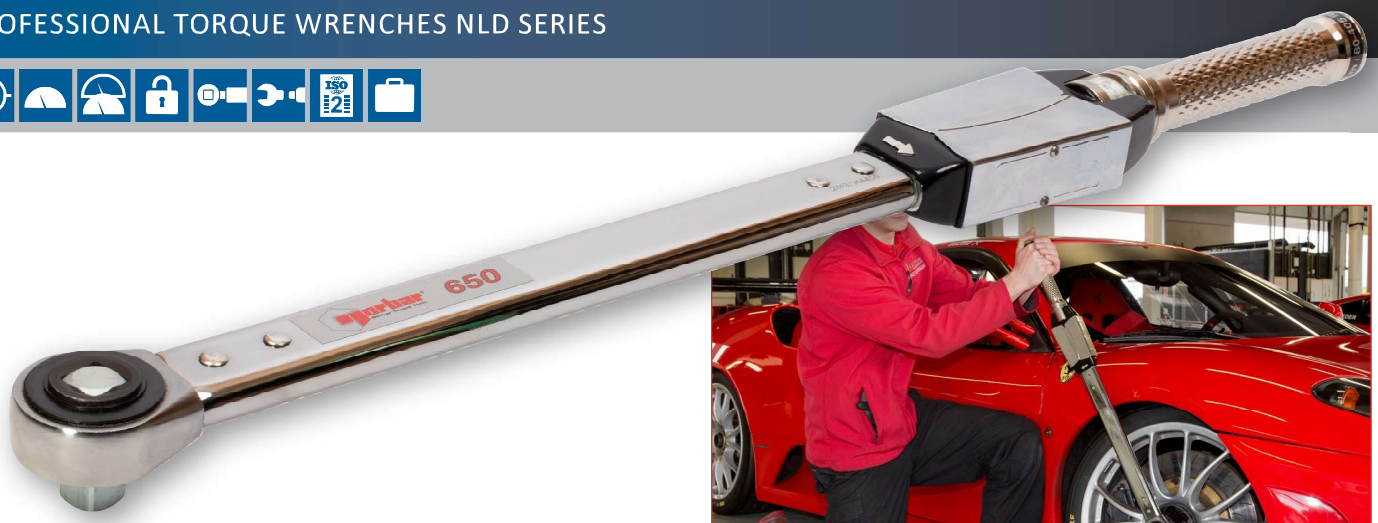


Female Torque Handle

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	15102 15112	15103 15113	15104 15114	15105 15115	15106 15116	15107 15117	15108 15118
Dimensions (mm)	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 TORQUE WRENCHES NLD SERIES



For precision applications up to 1,500 N·m

- Exceptionally clear torque signal from unique mechanism
- Non-length dependent (NLD) 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 ±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, ¾", 130 - 650 N·m, 100 - 480 lbf·ft
14015	Pro 800, ¾", 200 - 800 N·m, 150 - 600 lbf·ft
14016	Pro 800, 1", 200 - 800 N·m, 150 - 600 lbf·ft
14002	Pro 1000, ¾", 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, ¾", 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, ¾", 130 - 650 N·m
14024	Pro 800, ¾", 200 - 800 N·m
14025	Pro 800, 1", 200 - 800 N·m
14026	Pro 1000, ¾", 300 - 1,000 N·m
14027	Pro 1000, 1", 300 - 1,000 N·m
14028	Pro 1500, ¾", 500 - 1,500 N·m
14029	Pro 1500, 1", 500 - 1,500 N·m

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 81-88)
14039	Pro 650, ¾", 130 - 650 N·m, 100 - 480 lbf·ft
14017	Pro 800, ¾", 200 - 800 N·m, 150 - 600 lbf·ft
14018	Pro 800, 1", 200 - 800 N·m, 150 - 600 lbf·ft
14007	Pro 1000, ¾", 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, ¾", 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)

2	TORQUE HANDLE PRODUCTION 'P' TYPE (Must be set using a Torque Tester, see pages 81-88)
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 81-88)
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)

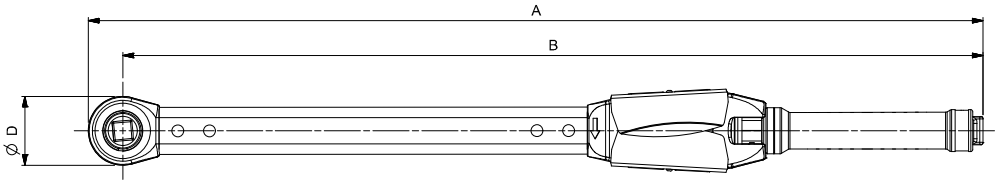
8	PRO 650 - 1500 ACCESSORY
14142	Extension Handle (included with Pro 800 - 1500 as standard)

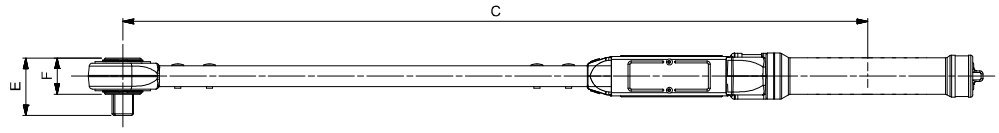
All models supplied in carry case

PROFESSIONAL TORQUE WRENCHES NLD SERIES

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

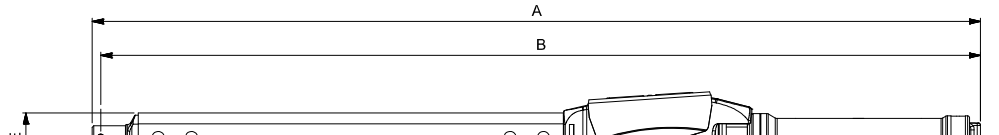
Female Torque Handle (left)
Spigot Torque Handle (right)

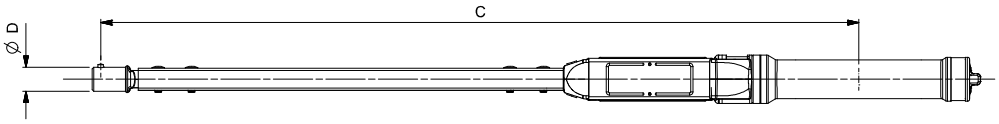




Spigot Torque Handle

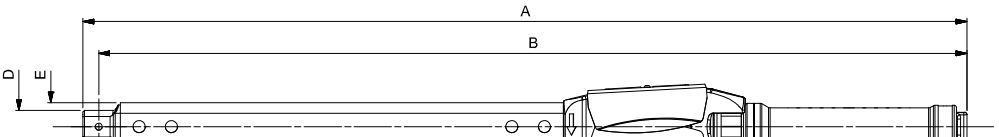
Model		Pro 650	Pro 650 'P' Type
Part Number		14040	14042
Dimensions (mm)	A	807	800
	B	799	792
	C	688	689
	ØD	22	22
	E	45	45
Weight (kg)		3.6	3.6

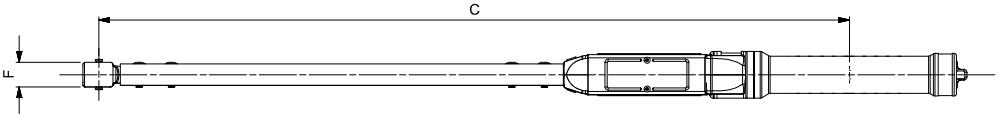




Female Torque Handle

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 TORQUE WRENCHES ADJUSTABLE & 'P' TYPE - NEW GENERATION

A long-time customer favourite for their unmistakable signal and robustness but now simple to accurately set and split for ease of storage and transportation.

- Unique profiled cam and reaction plate - gives clear torque break point reducing the possibility of over-torqueing
- 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 torqueing (Not available for 6R-N models)
- 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, ¾", 120 - 600 N·m, 100 - 450 lbf·ft
120101.01	3AR-N, 1", 120 - 600 N·m, 100 - 450 lbf·ft
120110	4AR-N, ¾", 200 - 800 N·m, 150 - 600 lbf·ft
120110.01	4AR-N, 1", 200 - 800 N·m, 150 - 600 lbf·ft
120115	5R-N, ¾", 300 - 1,000 N·m, 200 - 750 lbf·ft
120115.01	5R-N, 1", 300 - 1,000 N·m, 200 - 750 lbf·ft
120118	5AR-N, ¾", 700 - 1,500 N·m, 500 - 1,000 lbf·ft
120118.01	5AR-N, 1", 700 - 1,500 N·m, 500 - 1,000 lbf·ft
120120	6R-N, 1", 900 - 2,000 N·m, 700 - 1,500 lbf·ft

2	RATCHET ADJUSTABLE - N·m ONLY
120107	3AR-N, ¾", 120 - 600 N·m
120107.01	3AR-N, 1", 120 - 600 N·m
120114	4AR-N, ¾", 200 - 800 N·m
120114.01	4AR-N, 1", 200 - 800 N·m
120117	5R-N, ¾", 300 - 1,000 N·m
120117.01	5R-N, 1", 300 - 1,000 N·m
120119	5AR-N, ¾", 700 - 1,500 N·m
120119.01	5AR-N, 1", 700 - 1,500 N·m
120121	6R-N, 1", 900 - 2,000 N·m

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

2	TORQUE HANDLE ADJUSTABLE - N·m ONLY
120108	3AR-N, 22 mm spigot, 120 - 600 N·m

2	RATCHET PRODUCTION 'P' TYPE (Must be set using a Torque Tester, see pages 81-88)
120104	3AR-N, ¾", 120 - 600 N·m, 100 - 450 lbf·ft
120104.01	3AR-N, 1", 120 - 600 N·m, 100 - 450 lbf·ft
120111	4AR-N, ¾", 200 - 800 N·m, 150 - 600 lbf·ft
120111.01	4AR-N, 1", 200 - 800 N·m, 150 - 600 lbf·ft
120116	5R-N, ¾", 300 - 1,000 N·m, 200 - 750 lbf·ft
120116.01	5R-N, 1", 300 - 1,000 N·m, 200 - 750 lbf·ft
120130	5AR-N, ¾", 700 - 1,500 N·m, 500 - 1,000 lbf·ft
120130.01	5AR-N, 1", 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 PRODUCTION 'P' TYPE (Must be set using a Torque Tester, see pages 81-88)
120105	3AR-N, 22 mm spigot, 120 - 600 N·m, 100 - 450 lbf·ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)

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

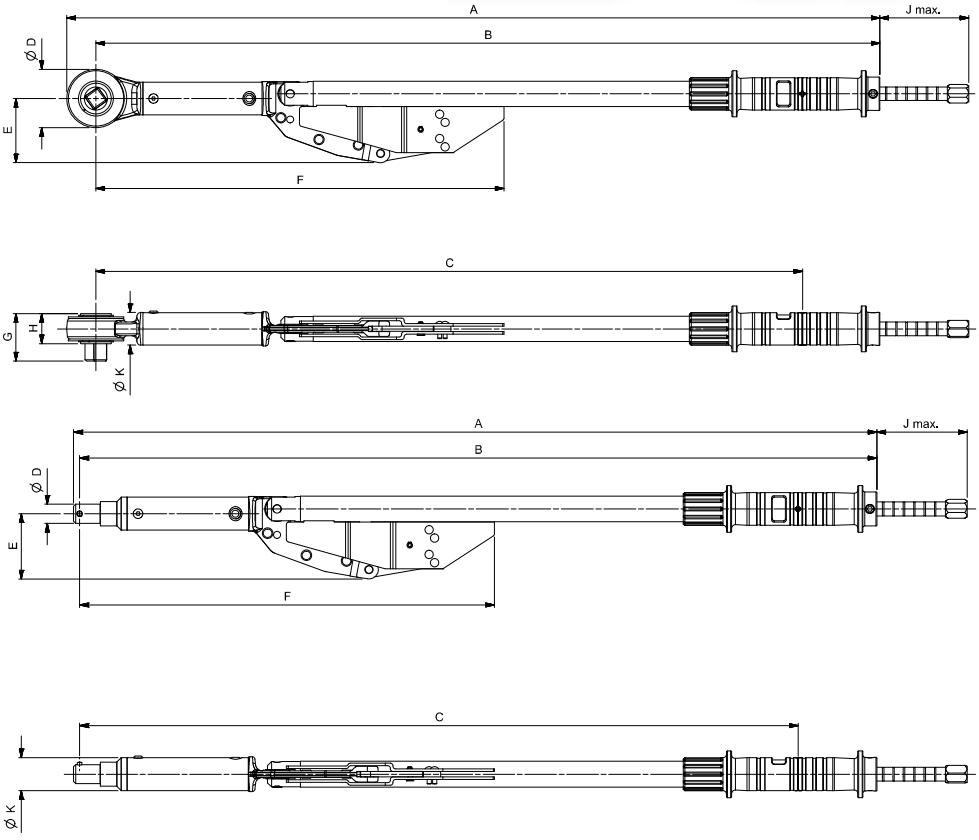
Industrial Push-Through Ratchets

Model		3AR-N	3AR-N 'P' Type	4AR-N	4AR-N 'P' Type	5R-N	5R-N 'P' Type	5AR-N	5AR-N 'P' Type	6R-N
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	120118 120118.01 120119 120119.01	120130 120130.01	120120 120121
Dimensions (mm)	A	954	954	1,214	1,214	1,449	1,449	1,764	1,764	1,855
	B	920	920	1,180	1,180	1,415	1,224	1,730	1,730	1,820
	C	829	829	1,089	1,089	1,324	1,324	1,608	1,608	1,773
	ØD	69	69	69	69	69	69	69	69	69
	E	75	75	75	75	75	75	75	75	75
	F	479	479	738	738	974	974	1,379	1,379	1,379
	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	¾" = 55 1" = 63	¾" = 55 1" = 63	63
	H	35	35	35	35	35	35	35	35	35
	J max.	105	18	105	18	105	18	105	18	85
	ØK	38	38	38	38	38	38	38	38	38
Weight (kg)		6.0	6.0	6.7	6.7	7.4	7.4	9.6	9.6	12.75

5AR-N adjusting nut (left) alongside the double-barrelled 6R-N adjusting nuts

Packed dimensions: (L x W x H)
3AR-N to 5R-N: 970 x 260 x 95 mm
5AR-N & 6R-N: 1,172 x 243 x 91 mm

4AR-N shown split in case



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
	J max.	105	18
	ØK	38	38
Weight (kg)		6.0	5.3

Design Nos. 182086 and 182087 (Canada); Design Nos. 004671063-0001 and 004671063-0002 (EU); Design Nos. D863904 and D871870 (USA)

INDUSTRIAL TORQUE WRENCH - BI-SQUARE

The 1 11/16" 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 11/16" Bi-Square, 300 - 1,000 N·m, 200 - 750 lbf·ft

ELECTRODE WRENCHES

For torque tightening of Electrode Wrenches

The correct torque tightening of electrodes is known to increase the energy efficiency of electric arc furnaces and helps prevent electrode sections being lost in the furnace.

Standard torque settings are shown. These are pre-set wrenches and the torque setting is not adjustable by the customer. The torque setting will be supplied at the value shown on this page unless a different torque setting is advised at the time of ordering by the customer (in which case add part number SQ2222 and the required torque value).

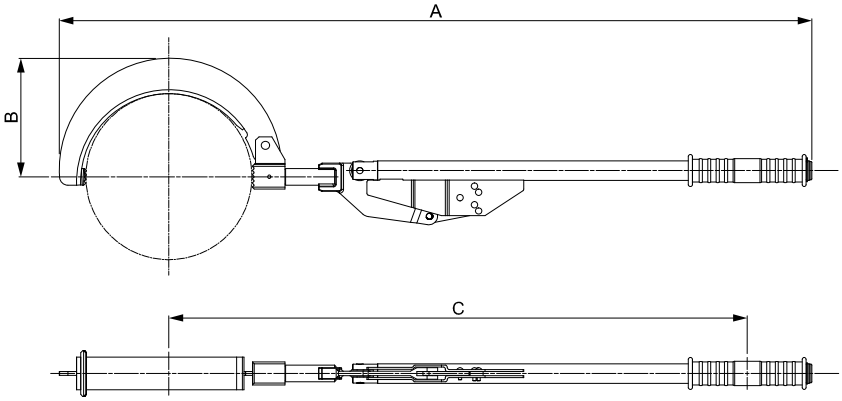
The 8" diameter electrode wrench uses the Professional torque handle as the control mechanism. Above 8" the Industrial wrench is used as the control mechanism.

9	LOW RANGE
12506	8" (200 mm) 312 N·m
12530	10" (250 mm) 542 N·m
12531	12" (300 mm) 780 N·m
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)

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
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)

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)
Part Number		12506	12530	12531	12532	12533	12535	12536	12537	12538
Dimensions (mm)	A	897	1,150	1,286	1,764	1,825	1,727	2,211	2,571	2,069
	B	159	194	239	288	299	336	386	398	424
	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



ELECTRONIC SCREWDRIVER AND TORQUE WRENCHES

Norbar Torque Tools offers a range of high-precision electronic torque tools including a screwdriver and an extensive selection of torque wrenches to cover torque values from 0.45 to 800 N·m.

Many of the options in this section have the capability to connect to software that more easily manages data and configures settings. These highly accurate electronic torque and angle tools are the perfect solution for applications that require precision and control.

DRILCO

PROTRONIC® ELECTRONIC TORQUE WRENCHES

The ProTronic® is a high precision electronic torque wrench with a large backlit LCD display, that measures accurate and consistent torque readings. It also features an audible buzzer when pre-set torque/angle value is reached.

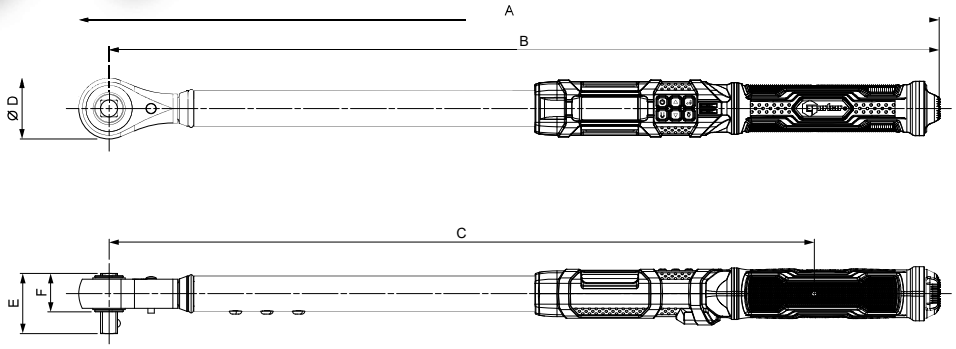
- Dual progressive LEDs positioned both sides of the wrench provide an easy visual representation of torque progress allowing the user to more easily anticipate torque target
- Large LCD screen with bright backlight; numbers become larger and bolder during active torque for optimal viewing
- Four alert modes (LCD, progressive LED, audible, vibration) provide excellent feedback in all working conditions
- 5 easily selectable torque units: N·m, lbf·ft, lbf·in, dN·m, kg·cm and kg·m (200 N·m and above)
- The ability to programme up to 10 pre-sets in the tool saves time in setting up frequently occurring applications
- A wide range of advanced features (cycle counter, customisable sleep timer, language selection, auto torque calculation for torque adaptors, calibration alerts, battery level indication, and numerous alert mode customisations) allow the user to tailor the tool to their work preferences
- Torque THEN Angle mode gives the user the ability to conveniently apply an angle to a fastener directly after achieving a torque target without the need to remove the torque wrench from the application
- Settings allow for operation in either English, Spanish, French, German, Italian, Dutch or Portuguese
- Power interruption technology helps to prevent loss of work and continuity if the wrench is impacted
- Patent pending built-in calibration factor feature allows different head lengths to be easily accommodated
- Supplied with a traceable 'Calibration Certificate' conforming with ISO 6789-2:2017, allowing end users to adhere to more stringent quality control processes

4	PROTRONIC
130517	ProTronic 100, ⅜", 5 - 100 N·m
130518	ProTronic 100, ½", 5 - 100 N·m
130519	ProTronic 200, ½", 10 - 200 N·m
130520	ProTronic 340, ½", 17 - 340 N·m

ProTronic Standard Range

Model		ProTronic 100 ⅜"	ProTronic 100 ½"	ProTronic 200 ½"	ProTronic 340 ½"
Part Number		130517	130518	130519	130520
Dimensions (mm)	A	458	462	650	749
	B	439	439	627	723
	C	344	344	533	629
	ØD	38	46	46	52
	E	34	45	45	45
	F	21	29	29	29
Weight (kg)		1.15	1.30	1.65	1.85

- Accuracy of ±2% when operating between 20% to 100% of tool capacity
- Angle accuracy of ±1% of reading, ±1° @ Angular Velocity >10°/Sec < 180°/Sec, ±1° for test fixture



PROTRONIC® PLUS ELECTRONIC TORQUE WRENCHES

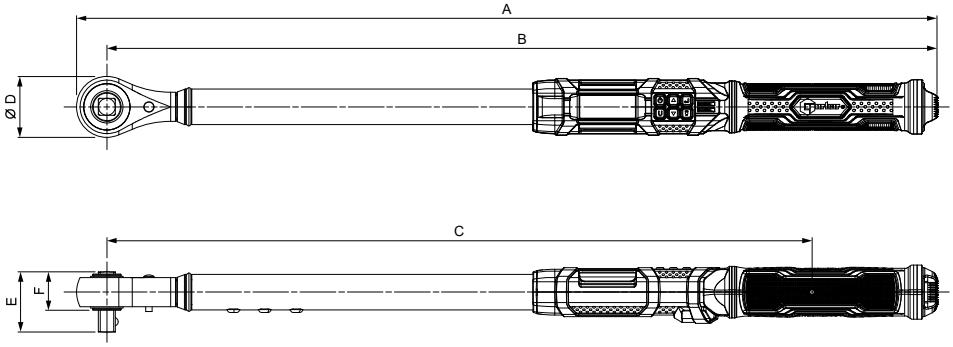
The ProTronic® Plus retains all the features available in the ProTronic® standard versions and then adds more. Equipped with Bluetooth®, the ProTronic® Plus works alongside a specially created app that allows uploading of wrench configurations and logging of streamed torque and angle readings.

- Patent pending Torque AND Angle combo modes allow the user to monitor torque and angle simultaneously
- Works alongside newly developed TorqApp™ designed for live streaming of readings as they are taken
- Dual progressive LEDs have additional settings allowing customisation to user preference
- Up to 50 pre-sets can be programmed into the tool. Preset lock feature allows the tool to be set-up with only these pre-sets available to the operator
- Sequence programming and job modes allows the user to chain together pre-sets in a particular sequence
- UKAS accredited torque calibration in both clockwise and counter-clockwise direction

4	PROTRONIC PLUS
130512	ProTronic Plus 100, ⅜", 5 - 100 N·m
130513	ProTronic Plus 100, ½", 5 - 100 N·m
130514	ProTronic Plus 200, ½", 10 - 200 N·m
130515	ProTronic Plus 340, ½", 17 - 340 N·m
130516	ProTronic Plus 800, ¾", 40 - 800 N·m

- Accuracy of ±2% when operating between 20% to 100% of tool capacity.
- Accuracy of ±4% when operating between 5% to 19% of tool capacity, except for ProTronic® Plus 9, 10 and 30 where the counter clockwise accuracy between 5% to 19% will be 6%.
- Angle accuracy of ±1% of reading, ±1° @ Angular Velocity >10°/Sec < 180°/Sec, ±1° for test fixture

Model		ProTronic Plus 100 ⅜"	ProTronic Plus 100 ½"	ProTronic Plus 200 ½"	ProTronic Plus 340 ½"	ProTronic Plus 800 ¾"
Part Number		130512	130513	130514	130515	130516
Dimensions (mm)	A	458	462	650	749	1,264
	B	439	439	627	723	1,233
	C	344	344	533	629	1,138
	ØD	38	46	46	52	63
	E	34	45	45	45	55
	F	21	29	29	29	32
Weight (kg)		1.15	1.30	1.65	1.85	4.95



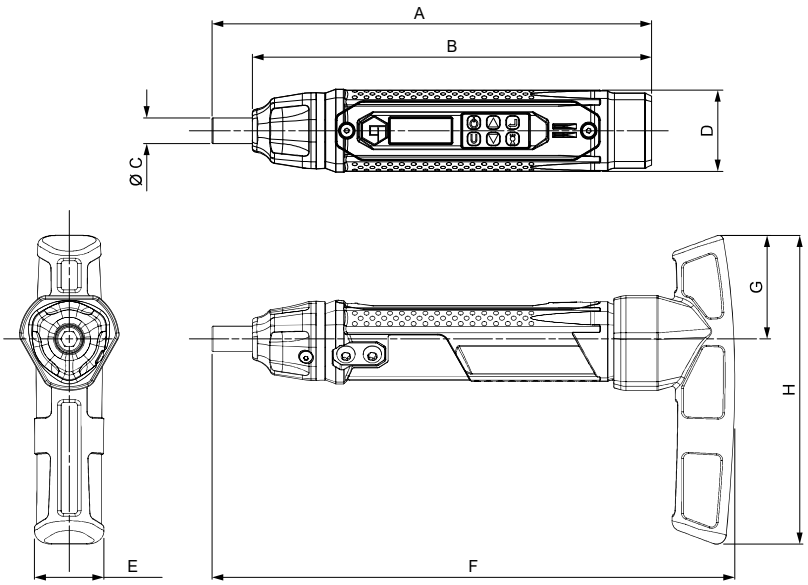
ProTronic Plus Torque Wrench Range

PROTRONIC® PLUS ELECTRONIC TORQUE SCREWDRIVER

Calibration details

4	PROTRONIC PLUS
130524	ProTronic Plus 9, ¼" Female Hex, 0.45 - 9 N·m

The ProTronic® Plus Screwdriver retains all the features of the ProTronic® standard and Plus Wrench in a smaller tool with flush fitted buttons to avoid accidental activation during use.



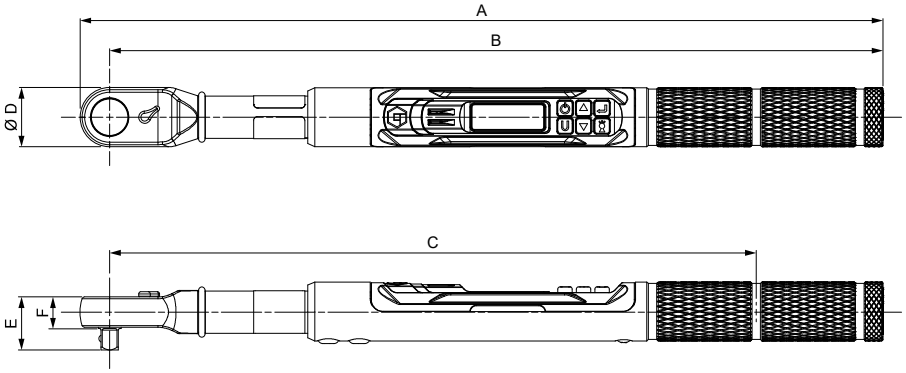
Model		ProTronic Plus 9 ¼"
Part Number		130524
Dimensions (mm)	A	190
	B	173
	Ø C	11
	D	35
	E	30
	F	226
	G	44
	H	131
Weight (kg) without Handle		0.21
Weight (kg) with handle		0.33

PROTRONIC® PLUS MODEL 10 AND MODEL 30

Calibration details

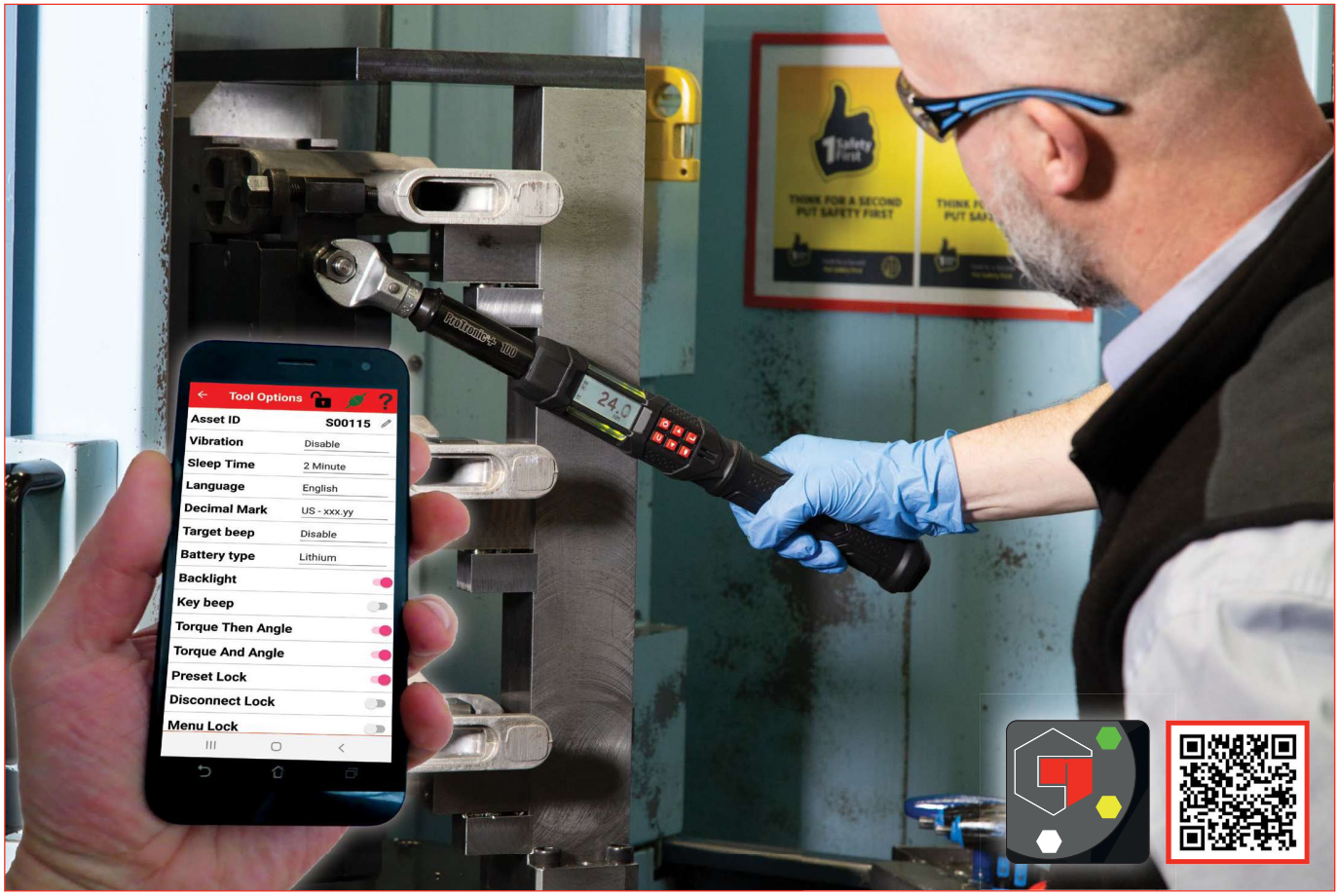
The ProTronic® Plus Model 10 and Model 30 retain all the features of the ProTronic® standard and Plus Wrench in a more compact design allowing for lower torque and access to more space limited applications.

4	PROTRONIC PLUS
130522	ProTronic Plus 10, ¼", 0.5 - 10 N·m
130523	ProTronic Plus 30, ¼", 1.5 - 30 N·m



Model		ProTronic Plus 10 ¼"	ProTronic Plus 30 ¼"
Part Number		130522	130523
Dimensions (mm)	A	282	298
	B	271	287
	C	234	240
	ØD	22	22
	E	20	20
	F	12	12
Weight (kg)		0.39	0.42

PROTRONIC® PLUS TORQAPP™



TorqApp™ is a free, mobile application that connects to ProTronic® Plus, allowing the user to intuitively change tool settings and download results.

- Intuitively change tool settings with ease directly from your device
- Instantly receive individually-completed results, with the ability to email these in .csv format quickly
- Monitor application data and progress in real time aiding the operator in keeping a track of bolting progress, particularly useful for sequenced/linked jobs
- Revisiting failed results when in sequence is easy
- Easily view, download or upload application and tool information for past results helping to keep a comprehensive record for traceability purposes

TorqApp™ can connect to any of these products 1 at a time

SPANNER END FITTINGS FOR 16 mm TORQUE HANDLES

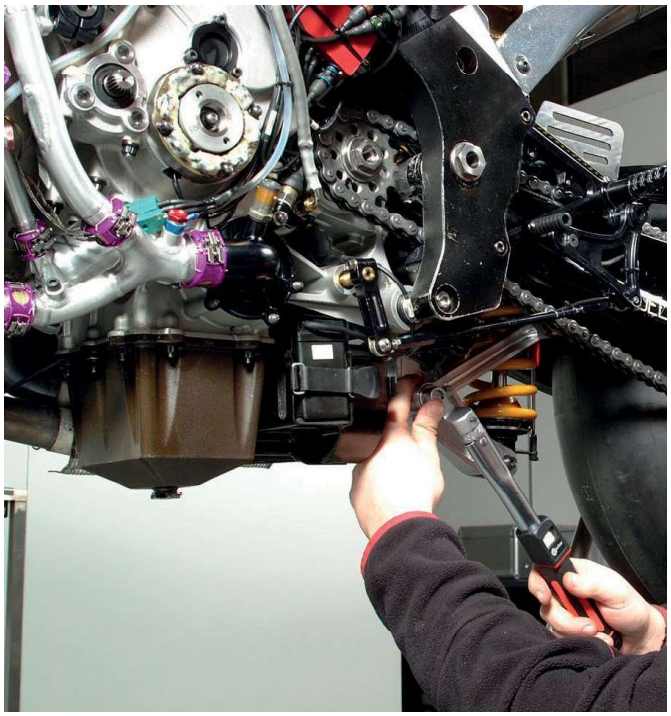
See below for explanation of part numbers. Other sizes available on request – including bespoke ETO solutions.

2	OPEN ENDS METRIC
297102.M07	7 mm, 9 N·m*
297102.M08	8 mm, 13 N·m*
297102.M09	9 mm, 18 N·m*
297102.M10	10 mm, 24 N·m*
297102.M11	11 mm, 32 N·m*
297102.M12	12 mm, 41 N·m*
297102.M13	13 mm, 51 N·m*
297102.M14	14 mm, 63 N·m*
297102.M15	15 mm, 77 N·m*
297102.M16	16 mm, 92 N·m*
297102.M17	17 mm, 109 N·m*
297102.M18	18 mm, 125 N·m*
297102.M19	19 mm, 145 N·m*
297102.M20	20 mm, 160 N·m*
297102.M21	21 mm, 190 N·m*
297102.M22	22 mm, 220 N·m*
297102.M23	23 mm, 250 N·m*
297102.M24	24 mm, 280 N·m*
297102.M25	25 mm, 320 N·m*
297102.M26	26 mm, 360 N·m*
297102.M27	27 mm, 360 N·m*
297102.M28	28 mm, 360 N·m*
297102.M30	30 mm, 360 N·m*
297102.M32	32 mm, 360 N·m*
297102.M36	36 mm, 360 N·m*

2	OPEN ENDS IMPERIAL
297102.I05	5/16", 34 N·m*
297102.I06	3/8", 45 N·m*
297102.I07	7/16", 72 N·m*
297102.I08	1/2", 51 N·m*
297102.I09	9/16", 77 N·m*
297102.I10	5/8", 92 N·m*
297102.I11	11/16", 109 N·m*
297102.I12	3/4", 145 N·m*
297102.I13	13/16", 190 N·m*
297102.I14	7/8", 220 N·m*
297102.I15	15/16", 280 N·m*
297102.I16	1", 360 N·m*
297102.I17	1 1/16", 360 N·m*
297102.I18	1 1/8", 360 N·m*
297102.I19	1 3/16", 360 N·m*
297102.I20	1 1/4", 360 N·m*

2	RING ENDS METRIC
297103.M07	7 mm, 25 N·m*
297103.M08	8 mm, 34 N·m*
297103.M09	9 mm, 45 N·m*
297103.M10	10 mm, 58 N·m*
297103.M11	11 mm, 72 N·m*
297103.M12	12 mm, 89 N·m*
297103.M13	13 mm, 105 N·m*
297103.M14	14 mm, 125 N·m*
297103.M15	15 mm, 150 N·m*
297103.M16	16 mm, 175 N·m*
297103.M17	17 mm, 200 N·m*
297103.M18	18 mm, 230 N·m*
297103.M19	19 mm, 260 N·m*
297103.M20	20 mm, 290 N·m*
297103.M21	21 mm, 330 N·m*
297103.M22	22 mm, 360 N·m*
297103.M23	23 mm, 360 N·m*
297103.M24	24 mm, 360 N·m*
297103.M26	26 mm, 360 N·m*
297103.M27	27 mm, 360 N·m*

2	RING ENDS IMPERIAL
297103.I05	5/16", 34 N·m*
297103.I06	3/8", 58 N·m*
297103.I07	7/16", 89 N·m*
297103.I08	1/2", 105 N·m*
297103.I09	9/16", 125 N·m*
297103.I10	5/8", 125 N·m*
297103.I11	11/16", 125 N·m*
297103.I12	3/4", 260 N·m*
297103.I13	13/16", 290 N·m*
297103.I14	7/8", 360 N·m*
297103.I15	15/16", 360 N·m*
297103.I16	1", 360 N·m*
297103.I17	1 1/16", 360 N·m*
297103.I19	1 3/16", 360 N·m*



2	FLARE ENDS METRIC
297104.M07	7 mm, 6 N·m*
297104.M08	8 mm, 8 N·m*
297104.M09	9 mm, 10 N·m*
297104.M10	10 mm, 12 N·m*
297104.M11	11 mm, 16 N·m*
297104.M12	12 mm, 16 N·m*
297104.M13	13 mm, 28 N·m*
297104.M14	14 mm, 31 N·m*
297104.M15	15 mm, 38 N·m*
297104.M16	16 mm, 46 N·m*
297104.M17	17 mm, 53 N·m*
297104.M18	18 mm, 65 N·m*
297104.M19	19 mm, 74 N·m*
297104.M20	20 mm, 86 N·m*
297104.M21	21 mm, 100 N·m*
297104.M22	22 mm, 115 N·m*
297104.M23	23 mm, 125 N·m*
297104.M24	24 mm, 145 N·m*
297104.M27	27 mm, 160 N·m*

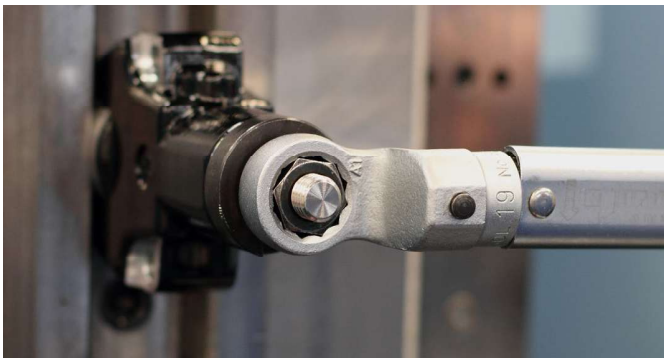
* Max torque values listed are proof torques quoted in BS 192:1982 & BS 3555:1988 (tested on hardened hexagon stud).

SPANNER END FITTINGS FOR 22 mm TORQUE HANDLES

See below for explanation of part numbers. Other sizes available on request – including bespoke ETO solutions.

2	OPEN ENDS METRIC
299600.M22	22 mm Open End, Max 1,200 N·m
299600.M24	24 mm Open End, Max 1,200 N·m
299600.M27	27 mm Open End, Max 1,200 N·m
299600.M30	30 mm Open End, Max 1,200 N·m
299600.M32	32 mm Open End, Max 1,200 N·m
299600.M34	34 mm Open End, Max 1,200 N·m
299600.M36	36 mm Open End, Max 1,200 N·m
299600.M41	41 mm Open End, Max 1,200 N·m
299600.M46	46 mm Open End, Max 1,200 N·m

2	RING ENDS METRIC
299601.M22	22 mm Ring End, Max 1,200 N·m
299601.M24	24 mm Ring End, Max 1,200 N·m
299601.M27	27 mm Ring End, Max 1,200 N·m
299601.M30	30 mm Ring End, Max 1,200 N·m
299601.M32	32 mm Ring End, Max 1,200 N·m
299601.M34	34 mm Ring End, Max 1,200 N·m
299601.M36	36 mm Ring End, Max 1,200 N·m
299601.M41	41 mm Ring End, Max 1,200 N·m
299601.M46	46 mm Ring End, Max 1,200 N·m



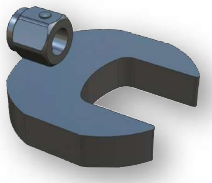
SPIGOT ACCESSORIES

2	16 mm SPIGOT ACCESSORIES
44509	⅜" Ratchet with Push-through square
29825	½" Ratchet with Push-through square
44510	½" Ratchet with Push-through square for NorTronic
29828	⅜" Fixed Square Drive
29827	½" Fixed Square Drive
29829	⅜" Reversible Ratchet Head
29830	½" 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
297105.I04	¼" Square Drive Fixed Head

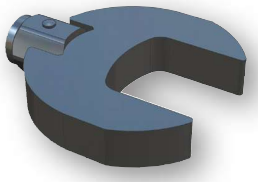
2	22 mm SPIGOT ACCESSORIES
299602.I12	¾" Square Drive Fixed Head
29972	¾" Ratchet with Push-through square
85719	Blank End Fitting for Open End
85720	Blank End Fitting for Ring End

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

See below for explanation of part numbers. Other sizes available on request – including bespoke ETO solutions.

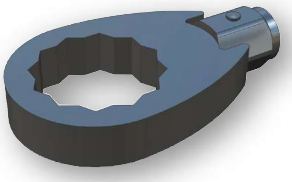


8	OPEN OFFSET METRIC 16 mm		8	OPEN OFFSET IMPERIAL 16 mm	
29218.OO.Mxx	30 - 80 mm		29218.OO.Ixx	1 3⁄16" - 3 1⁄4"	

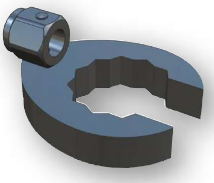


8	OPEN INLINE METRIC 16 mm		8	OPEN INLINE IMPERIAL 16 mm	
29218.OI.Mxx	30 - 80 mm		29218.OI.Ixx	1 3⁄16" - 3 1⁄4"	

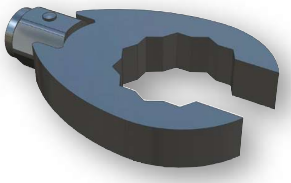
8	RING OFFSET METRIC 16 mm		8	RING OFFSET IMPERIAL 16 mm	
29218.RO.Mxx	30 - 80 mm		29218.RO.Ixx	1 3⁄16" - 3 1⁄4"	



8	RING INLINE METRIC 16 mm		8	RING INLINE IMPERIAL 16 mm	
29218.RI.Mxx	30 - 80 mm		29218.RI.Ixx	1 3⁄16" - 3 1⁄4"	

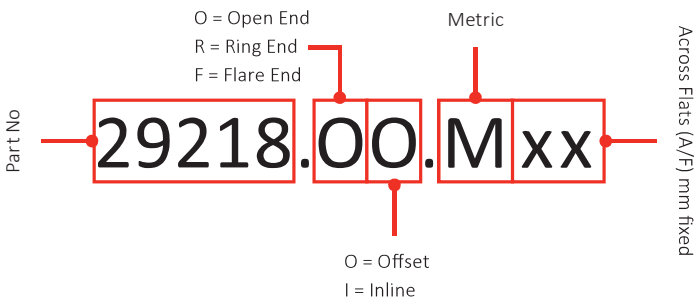


8	FLARE OFFSET METRIC 16 mm		8	FLARE OFFSET IMPERIAL 16 mm	
29218.FO.Mxx	11 - 80 mm		29218.FO.Ixx	1 3⁄16" - 3 1⁄4"	



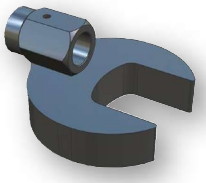
8	FLARE INLINE METRIC 16 mm		8	FLARE INLINE IMPERIAL 16 mm	
29218.FI.Mxx	30 - 80 mm		29218.FI.Ixx	1 3⁄16" - 3 1⁄4"	

METRIC

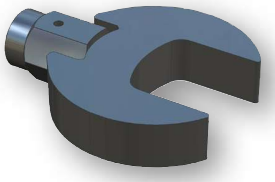


LARGE SPANNER END FITTINGS FOR 22 mm SPIGOT TORQUE HANDLES UP TO 650 N·m

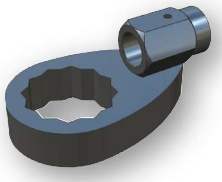
See below for explanation of part numbers. Other sizes available on request – including bespoke ETO solutions.



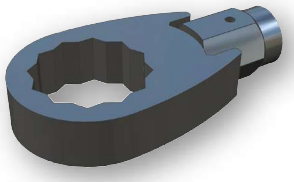
8	OPEN OFFSET METRIC 22 mm		8	OPEN OFFSET IMPERIAL 22 mm	
29219.OO.Mxx	30 - 80 mm		29219.OO.Ixx	1 3⁄16" - 3 1⁄4"	



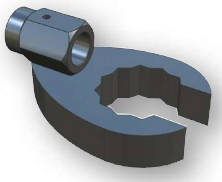
8	OPEN INLINE METRIC 22 mm		8	OPEN INLINE IMPERIAL 22 mm	
29219.OI.Mxx	30 - 80 mm		29219.OI.Ixx	1 3⁄16" - 3 1⁄4"	



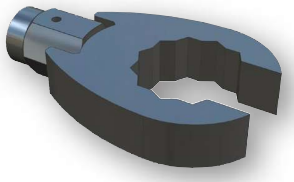
8	RING OFFSET METRIC 22 mm		8	RING OFFSET IMPERIAL 22 mm	
29219.RO.Mxx	30 - 80 mm		29219.RO.Ixx	1 3⁄16" - 3 1⁄4"	



8	RING INLINE METRIC 22 mm		8	RING INLINE IMPERIAL 22 mm	
29219.RI.Mxx	30 - 80 mm		29219.RI.Ixx	1 3⁄16" - 3 1⁄4"	

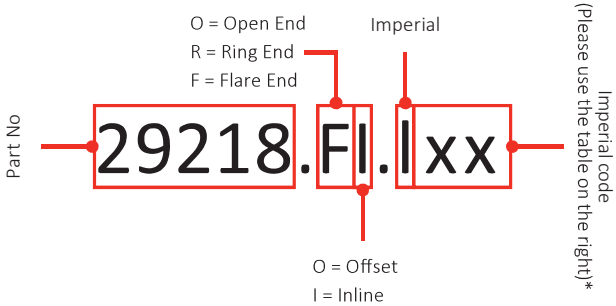


8	FLARE OFFSET METRIC 22 mm		8	FLARE OFFSET IMPERIAL 22 mm	
29219.FO.Mxx	30 - 80 mm		29219.FO.Ixx	1 3⁄16" - 3 1⁄4"	



8	FLARE INLINE METRIC 22 mm		8	FLARE INLINE IMPERIAL 22 mm	
29219.FI.Mxx	30 - 80 mm		29219.FI.Ixx	1 3⁄16" - 3 1⁄4"	

IMPERIAL



IMPERIAL A/F	CODE	IMPERIAL A/F	CODE	IMPERIAL A/F	CODE
1 3⁄16"	19	1 15⁄16"	31	2 11⁄16"	43
1 1⁄4"	20	2"	32	2 3⁄4"	44
1 5⁄16"	21	2 1⁄16"	33	2 13⁄16"	45
1 3⁄8"	22	2 1⁄8"	34	2 7⁄8"	46
1 7⁄16"	23	2 3⁄16"	35	2 15⁄16"	47
1 1⁄2"	24	2 1⁄4"	36	3"	48
1 9⁄16"	25	2 5⁄16"	37	3 1⁄16"	49
1 5⁄8"	26	2 3⁄8"	38	3 1⁄8"	50
1 11⁄16"	27	2 7⁄16"	39	3 3⁄16"	51
1 3⁄4"	28	2 1⁄2"	40	3 1⁄4"	52
1 13⁄16"	29	2 9⁄16"	41		
1 7⁄8"	30	2 5⁄8"	42		

*Example: 1 7⁄8" open end inline for 22 mm spigot = 29219.OI.I30