
















LEGEND

TORQUE WRENCHES

 Accuracy (%)	 Ratchet	 Digital Display
 Single Scale	 Torque Handle	 IP Rated
 Dual Scale	 Fixed	 Case Included
 Multi Scale	 Calibration Certificate	
 Adjustment Lock	 Torque & Angle	








MANUAL TORQUE MULTIPLIERS

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

POWERED TORQUE MULTIPLIERS

 Accuracy (%)	 Air Consumption - litres/sec	 Adjustable Reaction
 Dual Scale	 Lifting Attachment	 Torque & Angle
 Multi Scale	 2 Speed	 Calibration Certificate
 Digital Display	 Bi-Directional	 IP Rated
 Bluetooth Connection	 Case Included	








TORQUE MEASUREMENT INSTRUMENTS

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






HYDRAULIC TOOL CALIBRATION FIXTURES

 Accuracy (%)		
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HARSH ENVIRONMENT INSTRUMENTS

 Accuracy (%)	 UKAS 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 Certification	 Case Included	
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INTRODUCTION



GLOBAL SERVICE

We are the worlds foremost 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 North America, Australia, Singapore, China and India. In addition, we have distributors of our torque control products in more than 60 countries around the world.

A FAMILY BUSINESS

The Brodey family has owned Norbar since Bill Brodey 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.

At Norbar we are determined to bring our customers advanced new products and this year we are excited to be launching our ClickTronic torque wrench in this product list. This new product combines the proven mechanism from our Professional torque wrench family with a digital scale making one of the most accurate and easy to use torque wrenches on the market.

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 top left to bottom right:
Catherine Rohll (Commercial Director),
Philip Brodey (Sales & Marketing Director),
Neill Brodey (Managing Director),
Craig Brodey (Director)*

HANDTORQUE® TORQUE MULTIPLIERS

Norbar gearboxes are built to an extremely high standard of precision. All gears rotate on needle roller bearings about hardened and ground journal pins. As a result, Norbar HandTorques can be relied upon to have a torque multiplication accuracy of $\pm 4\%$, throughout the operating range, taking the uncertainty out of high torque tightening. No gearbox is 100% efficient and so the velocity ratio (the number of turns that the input has to make to achieve one revolution of the output) is not the same as the torque multiplication ratio. Norbar multipliers are engineered such that each gear stage has a velocity ratio of typically 5.45:1 which results in a true torque multiplication factor of 5:1.

Torque output calculations are therefore a matter of simple arithmetic with little risk of incorrect bolt loading due to conversion errors. Other manufacturers' multipliers often require graphs or formulae to calculate the input torque to achieve a particular output.

The Norbar HandTorque® is the most comprehensive multiplier range available. Standard products are available up to 47,500 N·m (35,000 lbf·ft) and 'specials' to 300,000 N·m (220,000 lbf·ft). A range of 'nose extensions' for reaching difficult to access bolts and full range of torque transducers for highly accurate torque monitoring are available.

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HANDTORQUE® HT3 SERIES



- 5:1 torque multiplication, accuracy $\pm 4\%$
- Supplied with two reaction bar styles for maximum versatility
- Robust construction means minimal maintenance and long life
- Supplied in a carry case, the Highwayman is ideal for inclusion in the heavy vehicle tool kit
- 1300 N·m version has a spare $\frac{3}{4}$ " output square included in the kit
- Multiplier head only (no reaction bars or plastic box) also available 1300 N·m version, part no. 17218.
2700 N·m version, part no. 17219

2	HT3 SERIES
17220	HT3 1300 N·m Kit $\frac{1}{2}$ " input x $\frac{3}{4}$ " output
17221	HT3 2700 N·m Kit $\frac{3}{4}$ " input x 1" output

Kits are supplied in a carrying case with a reaction bar and a reaction foot (17220 also contains a spare $\frac{3}{4}$ " sq. dr.)



HANDTORQUE® HT4 SERIES



- Robust construction means minimal maintenance and long life
- True 15.5:1 (3000 N·m) or 26:1 (4500 N·m) torque multiplication, accuracy $\pm 4\%$.
- High ratios allow the use of a small torque wrench
- Supplied in carrying case with replacement square drive
- Anti Wind-Up Ratchet fitted to allow safer and more practical operation
- Angle protractor for easy torque and angle tightening

4	HT4 SERIES
17022	HT4 3000 N·m ½" in 1" out AWUR
17021	HT4 4500 N·m ½" in 1" out AWUR



HANDTORQUE® STANDARD SERIES



- Torque multiplication accuracy $\pm 4\%$
- High ratios allow the use of a small torque wrench, multipliers can be used where access is limited
- Anti Wind-Up Ratchet available on models of 25:1 ratio and above
- Other reaction styles can be designed to suit specific applications
- Electronic torque transducers can be fitted for precise torque monitoring, see page 49
- Other models available up to 300,000 N·m

4	STANDARD SERIES
16010	HT 1/5 1700 N·m ½" in ¾" out
16012.HD	HT 2/5 1700 N·m ¾" in 1" out
16034.HD	HT 2/25 1700 N·m ½" in 1" out
16089.HD	HT 2/25 1700 N·m ½" in 1" out AWUR
16014	HT 5/5 3400 N·m ¾" in 1" out
16028	HT 5/25 3400 N·m ½" in 1" out
16090	HT 5/25 3400 N·m ½" in 1" out AWUR
16016	HT 6/5 3400 N·m ¾" in 1½" out
16024	HT 6/25 3400 N·m ½" in 1½" out
16092	HT 6/25 3400 N·m ½" in 1½" out AWUR
16093	HT 6/125 3400 N·m ½" in 1½" out AWUR
16067	HT 7/5 6000 N·m ¾" in 1½" out
16018	HT 7/25 6000 N·m ½" in 1½" out
16065	HT 7/25 6000 N·m ½" in 1½" out AWUR
16068	HT 7/125 6000 N·m ½" in 1½" out AWUR
16059	HT 9/25 9500 N·m ¾" in 1½" out
16070	HT 9/25 9500 N·m ¾" in 1½" out AWUR
16071	HT 9/125 9500 N·m ½" in 1½" out AWUR
16082	HT 11/25 20000 N·m ¾" in 2½" out
16049	HT 11/125 20000 N·m ½" in 2½" out AWUR
18085	HT 12/87.5 34000 N·m ¾" in 2½" out AWUR
16053	HT 13/125 47500 N·m ¾" in 2½" out AWUR

Other gear ratios may be available upon request.
 If AWUR is not required please enquire for part number.
 HT 13/125 fitted with Weld Prepared Reaction Ring as standard.
 AWUR = Anti Wind Up Ratchet.

For Spares Kits for Norbar Multipliers, please see page 66.



HANDTORQUE® COMPACT SERIES



SpinNor included
Part No. 19253

- Compact dimensions allow excellent access to applications and easy, safe handling
- Lightweight for torque capacity
- Supplied as standard with an aluminium reaction arm. Other options are available on request, including customised reactions
- Torque multiplication accuracy $\pm 4\%$
- Robust, 48 tooth Anti Wind-Up Ratchet (AWUR) contains the forces generated during tightening for safe and easy operation
- Each multiplier is supplied with its own unique calibration certificate allowing the accurate calculation of input torque for critical applications

Multiplier & Torque Wrench Kits

For convenience, it is now possible to purchase a torque multiplier from the 'Compact Series' packaged with the appropriate torque wrench, up to 4000 N·m. This allows the operator to arrive at the bolting application with everything needed in one robust carry case. Space has also been allowed in the carry case for accessories such as sockets.

The torque wrench and torque multiplier are each supplied with their own unique calibration certificate, allowing accurate calculation of input torque to the multiplier for critical applications.

- All kits include a 'SpinNor' which aids fast reaction location
- All models include an Anti Wind-up Ratchet on the Multiplier

4	COMPACT SERIES
180200	HT-52/4.5 1000 N·m ½" in ¾" out
180201	HT-52/22 1000 N·m ¾" in ¾" out
180202	HT-52/22 1000 N·m ½" in ¾" out
180203	HT-52/22 1000 N·m ¾" in ¾" out AWUR
180204	HT-52/22 1000 N·m ½" in ¾" out AWUR
180205	HT-52/22 1000 N·m ¾" in 1" out AWUR
180206	HT-52/22 1000 N·m ½" in 1" out AWUR
180208	HT-72/5 1500 N·m ½" in 1" out
180209	HT-72/5 1000 N·m ¾" in ¾" out
180210	HT-72/5 2000 N·m ¾" in 1" out
180212	HT-72/27 2000 N·m ½" in 1" out
180214	HT-72/27 2000 N·m ½" in 1" out AWUR
180215	HT-92/25 4000 N·m ½" in 1" out AWUR
180216	HT-119/25 7000 N·m ½" in 1½" out AWUR

4	HT COMPACT SERIES & TORQUE WRENCH KITS
18186	HT52 1000 N·m ¾" out + TTi60 ½"
18185	HT52 1000 N·m ¾" out + TTi60 ½" N·m only
18184	HT52 1000 N·m ¾" out + TTi45 ½" lbf·ft only
18189	HT52 1000 N·m 1" out + TTi60 ½"
18188	HT52 1000 N·m 1" out + TTi60 ½" N·m only
18187	HT52 1000 N·m 1" out + TTi45 ½" lbf·ft only
18192	HT72 2000 N·m 1" out + TTi100 ½"
18191	HT72 2000 N·m 1" out + TTi100 ½" N·m only
18190	HT72 2000 N·m 1" out + TTi75 ½" lbf·ft only
18195	HT92 4000 N·m 1" out + TTi200 ½"
18194	HT92 4000 N·m 1" out + TTi200 ½" N·m only
19253	½" SpinNor

HANDTORQUE® HTM-72 WITH INTEGRAL TRANSDUCER



- A UKAS accredited certificate of calibration is supplied with each multiplier as standard
- When the calibration is performed with a T-Box XL™, TTT, TST, Pro-Log or TTL-HE display the multiplier can be interchanged between similar displays without affecting the validity of the calibration
- Compact dimensions allow easy access and handling
- Anti Wind-Up Ratchet (AWUR) keeps the multiplier loaded for easier and safe operation
- Integrated transducer for accurate torque application; separate torque display required
- Environmentally sealed to IP55 rating

TRS-65

- Battery Life - 45 hours
- Display - 5 digit LCD 8.8mm high
- Handheld and lightweight
- Ranges of N·m and lbf·ft (as standard)
- Peak and Trough hold
- Environmentally sealed to IP65 rating



4	HTM AND TRS-65
18183	HTM-72/25 2000 N·m with Integral TD, ½" in 1" out
18183.TRS	HTM-72/25 2000 N·m Kit, TRS-65 Display, Lead and Case, ½" in 1" out

18183 supplied with UKAS accredited calibration certificate (20%-100%)

HANDTORQUE® SMALL DIAMETER SERIES



- HandTorque® models HT30 and 60 have a higher torque output for a given gearbox diameter than the Standard Series
- Reduced diameter enables better access, particularly on pipe flanges
- Reaction taken from high strength spline
- Reaction foot can slide on the spline to allow sockets of various lengths
- Anti Wind-Up Ratchet available on all models (except 5:1 ratios), allowing safer and more practical operation

4	SMALL DIAMETER SERIES
18003	HT 30/5 3000 N·m ¾" in 1" out
18004	HT 30/15 3000 N·m ½" in 1" out AWUR
18006	HT 30/25 3000 N·m ½" in 1" out AWUR
18008	HT 60/25 6000 N·m ½" in 1½" out AWUR

HT30s and 60s are supplied with a cranked reaction foot. Most small diameter gearboxes are available without AWUR. Please enquire for part numbers.

UKAS ACCREDITED CALIBRATION

The part numbers shown below are for 'As Found', for new Manual Torque Multiplying Gearboxes up to the maximum capacity shown.

12	ONE DIRECTION
HTCC2.CW	Up to 6000 N·m/5000 lbf·ft
12	TWO DIRECTIONS
HTCC2.CW+CCW	Up to 6000 N·m/5000 lbf·ft

POWERED TORQUE MULTIPLIERS

The EvoTorque® is an electronic torque tool designed for applying torque to threaded fasteners. The unique 'Intelligent Joint Sensing' technology will accurately tighten to the correct torque without the risk of excess overshoot or undershoot that is common in other electric tools.

EvoTorque® utilises patent pending motor technology to give unprecedented joint control from hard through to soft joints. Water and dust sealed to IP44 the tool has third party sound verification (L_{pA}) that does not exceed 72.3 dB(A) and a vibration level of 0.304m/s² for smooth and quiet delivery.

Models are available from 1000 N·m to 6000 N·m in both 110V and 230V.

PneuTorque® operation is quiet - less than 85dB(A) with absolutely no impacting. These two factors make PneuTorques comfortable for the operator to use, reducing fatigue and consequently increasing safety.

PneuTorques provide accurate torque control - on a given joint they will stall repeatably to within $\pm 5\%$. Using electronic shut off, this repeatability can be improved to $\pm 2\%$.

The PneuTorque® consists of a robust air motor driving a Norbar multiplier with three or more stages of epicyclic gearing.

Torque control is achieved by adjustment of the air pressure. An air pressure versus torque graph and a calibration certificate is supplied with each tool and allows specific torque values to be set. For more critical applications, PneuTorques can be fitted with a torque transducer and the precise torque output displayed. The tool can then be shut off at the desired torque either manually or automatically using suitable control circuitry.

Models are available up to 300,000 N·m (220,000 lbf·ft).

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EVOTORQUE®





Standard Box

Optional Peli Case
Part No. 26969 or 26971

ET-72



ET-92



ET-119

Utilising patent pending motor technology EvoTorque® is the most accurate, robust and user friendly electronic torque tool, and offers unprecedented joint control.

- Intelligent joint sensing detects hard and soft joints and responds accordingly
- Clear Go/No-Go Joint completion feature
- Certified Torque and Angle calibration and control
- Backlit LCD mono display
- 200 N·m – 6000 N·m range capability in five models
- 110V and 230V models
- IP44 protection against dust and water ingress
- Tried and tested gearbox
- Supplied in cardboard box as standard

The EvoTorque® is supplied in a cardboard box as standard, if a sturdier case is required Norbar can provide a Peli Case (at an additional charge). Please quote one of the following part numbers when ordering: 26969 (up to 2000 N·m tool) or 26971 (4000 & 6000 N·m tool). For more EvoTorque® reactions see pages 40-41

II	EVOTORQUE® - 110 V
18165.B06	ET-72-1000-110 ¾" sq. dr., 200 - 1000 N·m
18166.B06	ET-72-1350-110 ¾" sq. dr., 270 - 1350 N·m
18167.B08	ET-72-2000-110 1" sq. dr., 400 - 2000 N·m
18169.B08	ET-92-4000-110 1" sq. dr., 800 - 4000 N·m
18171.B12	ET-119-6000-110 1½" sq. dr., 1200 - 6000 N·m

II	EVOTORQUE® - 230 V
18151.B06	ET-72-1000-230 ¾" sq. dr., 200 - 1000 N·m
18152.B06	ET-72-1350-230 ¾" sq. dr., 270 - 1350 N·m
18153.B08	ET-72-2000-230 1" sq. dr., 400 - 2000 N·m
18155.B08	ET-92-4000-230 1" sq. dr., 800 - 4000 N·m
18157.B12	ET-119-6000-230 1½" sq. dr., 1200 - 6000 N·m

EVOTORQUE® 2



Colour OLED display shows torque and angle values



Display can be powered up independently of tool for data transfer (via USB)



Built in Bluetooth® for wireless data transfer



Communication between tool and PC either wirelessly using Bluetooth® 4.0 or wired using supplied USB cable





Standard Box



Optional Peli Case
Part No. 26969 for tools up to 2000 N·m
Part No. 26971 for 4000 N·m and
6000 N·m tools

The EvoTorque® 2 is an electronic torque tool designed for accurately applying torque to threaded fasteners. Tools are factory calibrated to $\pm 3\%$ of reading. The unique 'intelligent joint sensing' technology continually measures the joint during tightening and, when necessary, employs dynamic braking to avoid torque over-shoot due to motor inertia. Consequently, EvoTorque® can apply torque accurately over a wide range of joint rates from hard (high torque rate) through to soft (low torque rate). All EvoTorque® tools are highly tolerant of supply voltage and frequency variation. When the tool runs, it will run accurately. If the supply voltage is outside of tolerance then, as a safety feature, the tool will be prevented from starting.

The EvoTorque® 2 has the ability to memorise multiple targets, work IDs, user IDs and readings. A work sequence (flow) can be performed on the EvoTorque® 2, taking the user through a pre-defined tightening sequence. The tool has three modes of operation: Torque, Torque and Angle and Torque Audit. The unique Audit Mode is a sophisticated feature for testing pre-tightened bolts with minimal impact on the original fastening torque and can provide quality control data for monitoring joint performance over time. EvoTorque® 2 builds on the original tool with these additional features:

- Backlit OLED colour display, clearly visible even in poor lighting
- Display and on-board storage of final torque or torque and angle values
- 3000 reading memory, time and date stamped
- USB and Bluetooth® 4.0 data transfer (also called Bluetooth® Smart)
- Complementary PC software 'EvoLog' for data management and tool configuration
- 12 user IDs can be downloaded to the tool and results can be stored against individual users
- Capacity for setting 20 stand-alone targets plus 1 work sequence target on the tool
- Results can be uploaded in real time
- Results can be output in CSV (comma-separated values) format for users not able to use EvoLog
- Calibrated from 20% to 100% of tool range. In Torque Mode, targets from 20% of tool maximum can be set
- In Torque and Angle Mode and Audit Mode, torque can be set from 10% of tool maximum

For more EvoTorque® 2 reactions see pages 40-41.

II	EVOTORQUE® 2 - 110 V
180230	ET2-72-1000-110 ¾" sq. dr., 200 - 1000 N·m
180231	ET2-72-1350-110 ¾" sq. dr., 270 - 1350 N·m
180232	ET2-72-2000-110 1" sq. dr., 400 - 2000 N·m
180233	ET2-72-2700-110 1" sq. dr., 540 - 2700 N·m
180234	ET2-92-4000-110 1" sq. dr., 800 - 4000 N·m
180235	ET2-119-6000-110 1½" sq. dr., 1200 - 6000 N·m

II	EVOTORQUE® 2 - 230 V
180220	ET2-72-1000-230 ¾" sq. dr., 200 - 1000 N·m
180221	ET2-72-1350-230 ¾" sq. dr., 270 - 1350 N·m
180222	ET2-72-2000-230 1" sq. dr., 400 - 2000 N·m
180223	ET2-72-2700-230 1" sq. dr., 540 - 2700 N·m
180224	ET2-92-4000-230 1" sq. dr., 800 - 4000 N·m
180225	ET2-119-6000-230 1½" sq. dr., 1200 - 6000 N·m

PNEUTORQUE® PTM SERIES

Using twin motor technology, the PTM series of PneuTorques is engineered to be amongst the lightest and fastest on the market. For example, the 800 N·m version has a gearbox diameter of just 52mm, allowing excellent bolt access, and has a maximum free running speed of 224 rpm. Torque control is normally achieved by adjustment of air pressure. An air pressure versus torque graph and a calibration certificate is supplied with each tool.

PTM-52, PTM-72 and PTME-72 also offer the option of electronic torque control in two versions. Both versions incorporate a torque transducer on the output of the tool. Internal Control (IC) tools have a torque display, user interface and a solenoid valve to shut-off the air supply at a pre-determined torque. External Control (EC) tools incorporate a solenoid valve and three coloured LEDs for the indication of low, within tolerance or high results. However, all control functions and torque display are housed in an external controller unit (purchased separately). External controllers can give a much greater range of functionality than is possible on the (IC) version of the tools.



Internal Control (IC) Panel



External Control (EC) Panel

PNEUTORQUE® PTM-52 SERIES



For light weight and high speed

- Exceptionally compact 52mm gearboxes result in light, well balanced tools
- Fast operation for rapid bolt run-down – 500 N·m version has a free speed of 224 rpm
- Internal Control (IC) versions incorporate torque transducer; torque setting and display panel and solenoid valve to shut off the air supply at the desired torque
- External Control (EC) versions incorporate torque transducer and output for an external controller. Ideal for production lines
- IC and EC tools have an accuracy of $\pm 2\%$

TRUKTORQUE™



The TrukTorque™ pneumatic torque multiplier features a special curved reaction arm designed to handle bolt tightening on the front and rear wheels of trucks and buses. The design easily accommodates wheel trims and deeply recessed wheel bolts.

II TRUKTORQUE™ - STALL TOOLS

- | | |
|------------------|---|
| 18162.B06 | ¾" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft |
| 18162.B08 | 1" sq.dr. 200-1000 N·m, 147 - 738 lbf·ft |

Stall tools are supplied in a carry case.

II PTM-52 SERIES - STALL TOOLS - BI-DIRECTIONAL

- | | |
|------------------|--|
| 18100.B06 | ¾" sq. dr. 100-500 N·m, 74 - 370 lbf·ft |
| 18101.B06 | ¾" sq. dr. 160-800 N·m, 118 - 590 lbf·ft |

Stall tools are also available as Forward Only tools, replace B with F when ordering.

II PTM-52 SERIES - SHUT-OFF TOOLS - BI-DIRECTIONAL - INTERNAL*

- | | |
|------------------|--|
| 18110.B06 | ¾" sq. dr. 100-500 N·m, 74 - 370 lbf·ft |
| 18111.B06 | ¾" sq. dr. 160-800 N·m, 118 - 590 lbf·ft |

II PTM-52 SERIES - SHUT-OFF TOOLS - BI-DIRECTIONAL - EXTERNAL (Requires Tool Controller, see page 38)*

- | | |
|------------------|--|
| 18120.B06 | ¾" sq. dr. 100-500 N·m, 74 - 370 lbf·ft |
| 18121.B06 | ¾" sq. dr. 160-800 N·m, 118 - 590 lbf·ft |

II PTM-52 SERIES WITH ANGLE CONTROL

- | | | |
|------------------|--|------|
| 18125.B06 | ¾" sq. dr. 100-500 N·m, 74 - 370 lbf·ft | (IC) |
| 18126.B06 | ¾" sq. dr. 160-800 N·m, 118 - 590 lbf·ft | (IC) |
| 18136.B06 | ¾" sq. dr. 160-800 N·m, 118 - 590 lbf·ft | (EC) |

All the above are supplied with a ¾" square drive (Part No. 18544).

II ACCESSORIES

- | | |
|--------------|---------------------------------|
| 18545 | 1" square drive for above tools |
|--------------|---------------------------------|

*IC and EC tools are not supplied in a carry case

NOTE: Contact Norbar for more information on PTM-52 200 models



PNEUTORQUE® PTM-72 SERIES



For light weight and high speed

- Exceptionally compact 72mm gearboxes result in light, well balanced tools
- Fast operation for rapid bolt run-down – 1000 N·m version has a free speed of 122 rpm
- Internal Control (IC) versions incorporate torque transducer, torque setting and display panel and solenoid valve to shut off the air supply at the desired torque
- External Control (EC) versions incorporate torque transducer and output for an external controller. Ideal for production lines
- IC and EC tools have an accuracy of $\pm 2\%$

II PTM-72 SERIES - STALL TOOLS - BI-DIRECTIONAL

18102.B06	¾" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18103.B08	1" sq. dr. 270-1350 N·m, 200 - 1000 lbf·ft
18104.B08	1" sq. dr. 400-2000 N·m, 295 - 1475 lbf·ft

Stall tools are also available as Forward Only tools, replace B with F when ordering.

II PTM-72 SERIES - SHUT-OFF TOOLS - BI DIRECTIONAL - INTERNAL*

18112.B06	¾" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18113.B08	1" sq. dr. 270-1350 N·m, 200 - 1000 lbf·ft
18114.B08	1" sq. dr. 400-2000 N·m, 295 - 1475 lbf·ft

II PTM-72 SERIES - SHUT-OFF TOOLS - BI-DIRECTIONAL - EXTERNAL (Requires tool controller, see page 38)*

18122.B06	¾" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18123.B08	1" sq. dr. 270-1350 N·m, 200 - 1000 lbf·ft
18124.B08	1" sq. dr. 400-2000 N·m, 295 - 1475 lbf·ft

II PTM-72 SERIES WITH ANGLE CONTROL*

18127.B06	¾" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18128.B08	1" sq. dr. 270-1350 N·m, 200 - 1000 lbf·ft
18129.B08	1" sq. dr. 400-2000 N·m, 295 - 1475 lbf·ft
18138.B08	1" sq. dr. 270-1350 N·m, 200 - 1000 lbf·ft

*IC and EC tools are not supplied in a carry case

PNEUTORQUE® PTME-72 SERIES



Designed to meet the needs of the commercial vehicle market, the integrated reaction foot of the PTME-72 series of tools reaches recessed wheel bolts whilst the 72mm diameter gearbox handles the high frequency of use demanded by busy tyre shops.

- IC and EC tools have an accuracy of $\pm 2\%$

II PTME-72 SERIES - STALL TOOLS - BI-DIRECTIONAL

18140.B06	¾" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18149.B08	1" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18141.B08	1" sq. dr. 400-2000 N·m, 295 - 1475 lbf·ft

Stall tools are also available as Forward Only tools, replace B with F when ordering.

II PTME-72 SERIES - SHUT-OFF TOOLS - BI-DIRECTIONAL - INTERNAL*

18142.B06	¾" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18143.B08	1" sq. dr. 400-2000 N·m, 295 - 1475 lbf·ft

II PTME-72 SERIES - SHUT-OFF TOOLS - BI-DIRECTIONAL - EXTERNAL (Requires Tool Controller, see page 38)*

18144.B06	¾" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18145.B08	1" sq. dr. 400-2000 N·m, 295 - 1475 lbf·ft

*IC and EC tools are not supplied in a carry case



PNEUTORQUE® PTM-92 AND PTM-119 SERIES



The PTM-92 and PTM-119 tools bring the speed advantage of the twin motor handle to higher capacity PneuTorque® models. These models deliver an ideal balance between robustness, speed and weight.

- Fast - 2700 N·m version has a free speed of 46 rpm for rapid bolt run-down time
- Light weight - PTM-92-2700 weighs just 8.5kg and fitted with a light robust aluminium reaction plate as standard
- Other reaction plates are available for maximum versatility
- Quiet - less than 85 dB(A) when under load

II PTM-92 SERIES - STALL TOOLS - BI-DIRECTIONAL

18106.B08 1" sq. dr. 540-2700 N·m, 400 - 2000 lbf·ft

18119.B08 1" sq. dr. 800-4000 N·m, 590-2950 lbf·ft

18119.B12 1½" sq. dr. 800-4000 N·m, 590-2950 lbf·ft

Also available as Forward Only tools, replace B with F when ordering. Stall tools are supplied in a carry case.

II PTM-119 SERIES - STALL TOOLS - BI-DIRECTIONAL

18108.B12 1½" sq. dr. 900-4500 N·m, 660-3300 lbf·ft

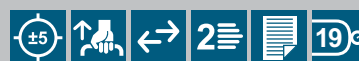
18109.B12 1½" sq. dr. 1200-6000 N·m, 885-4500 lbf·ft

Also available as Forward Only tools, replace B with F when ordering. Stall tools are supplied in a carry case.



PTM-52 with Internal Control (IC) Panel

PNEUTORQUE® PTM DUAL TRIGGER



- A second trigger located on the back plate requires the operator to use both hands to operate the tool and so reduces the risk of the operators' hands getting trapped between the reaction bar and reaction point
- Fast operation for rapid bolt rundown
- Non impacting – low vibration levels make these tools comfortable and safe to use
- Quiet – less than 85 dB(A) when under load
- For safety, gearbox can rotate independently from the handle so that reaction forces are not transmitted back to the operator.

II PTM DUAL TRIGGER - BI-DIRECTIONAL

18100.B06.DT PTM-52 ¾" sq. dr.
100-500 N·m, 74-370 lbf·ft

18101.B06.DT PTM-52 ¾" sq. dr.
160-800 N·m, 118-590 lbf·ft

18102.B06.DT PTM-72 ¾" sq. dr.
200-1000 N·m, 147-738 lbf·ft

18103.B08.DT PTM-72 1" sq. dr.
270-1350 N·m, 200-1000 lbf·ft

18104.B08.DT PTM-72 1" sq. dr.
400-2000 N·m, 295-1475 lbf·ft

18106.B08.DT PTM-92 1" sq. dr.
540-2700 N·m, 400-2000 lbf·ft

18119.B08.DT PTM-92 1½" sq. dr.
800-4000 N·m, 590-2950 lbf·ft

18119.B12.DT PTM-92 1½" sq. dr.
800-4000 N·m, 590-2950 lbf·ft

18108.B12.DT PTM-119 1½" sq. dr.
900-4500 N·m, 660-3300 lbf·ft

18109.B12.DT PTM-119 1½" sq. dr.
1200-6000 N·m, 885-4500 lbf·ft



PNEUTORQUE® PT-72 SERIES



- 72mm gearbox diameter allows excellent access
- Powerful - up to 2000 N·m output
- Switchable forward and reverse operation
- Quiet - less than 81 dB(A), and non-impacting for minimum operator fatigue
- 'Soft Start' trigger control aids socket location and allows gradual and safe reaction take-up
- For safety, gearbox can turn independently from the handle. Torque reaction is never transmitted back to the operator

II	PT-72 SERIES
18023	¾" sq. dr. 90-500 N·m, 66-370 lbf·ft
18023.AUT	¾" sq. dr. Auto 2SP 203-500 N·m, 150-370 lbf·ft
18022	¾" sq. dr. 190-1000 N·m, 140-740 lbf·ft
18022.AUT	¾" sq. dr. Auto 2SP 488-1000 N·m, 360-740 lbf·ft
18026	1" sq. dr. 190-1000 N·m, 140-740 lbf·ft
18026.AUT	1" sq. dr. Auto 2SP 488-1000 N·m, 360-740 lbf·ft
18021	1" sq. dr. 300-1500 N·m, 220-1110 lbf·ft
18021.AUT	1" sq. dr. Auto 2SP 760-1500 N·m, 560-1110 lbf·ft
18033	1" sq. dr. 400-2000 N·m, 300-1450 lbf·ft
18033.AUT	1" sq. dr. Auto 2SP 1000-2000 N·m, 750-1450 lbf·ft

PNEUTORQUE® PT-72 REMOTE CONTROL SERIES



Remote control versions have no direction control on the tool but rely on external pneumatic circuitry to provide this function. This opens up numerous application possibilities for the PneuTorque® ranging from simple stall shut-off in a hazardous working environment to sophisticated, multi-spindle torque and angle shut-off systems.

- Stall control gives repeatability of $\pm 5\%$ on a given joint
- Torque transducers and angle encoders available for all models (These form the basis of sophisticated control systems giving repeatability of $\pm 2\%$)
- Automatic Two Speed gearbox reduces run-down times
- Each gearbox supplied with a standard reaction device or, on request, one designed specifically to suit the application

II	PT-72 REMOTE SERIES
18031	¾" sq. dr. 90-500 N·m, 66-370 lbf·ft
18031.AUT	¾" sq. dr. Auto 2SP 203-500 N·m, 150-370 lbf·ft
18030	¾" sq. dr. 190-1000 N·m, 140-740 lbf·ft
18030.AUT	¾" sq. dr. Auto 2SP 488-1000 N·m, 360-740 lbf·ft
18032	1" sq. dr. 190-1000 N·m, 140-740 lbf·ft
18032.AUT	1" sq. dr. Auto 2SP 488-1000 N·m, 360-740 lbf·ft
18029	1" sq. dr. 300-1500 N·m, 220-1110 lbf·ft
18029.AUT	1" sq. dr. Auto 2SP 760-1500 N·m, 560-1110 lbf·ft
18034	1" sq. dr. 400-2000 N·m, 300-1450 lbf·ft
18034.AUT	1" sq. dr. Auto 2SP 1000-2000 N·m, 750-1450 lbf·ft



8	LIFTING HANDLE ASSEMBLY
18344.148	To fit PT 72 Single Speed
18344.220	To fit PT 72 Auto Two Speed (and transducer tools)

PNEUTORQUE® STANDARD SERIES



Based on the original PneuTorque®, the 'Standard Series' range is a direct result of over 50 years of refinement and development necessary to keep pace with the requirements of industry today. In use in many thousands of applications worldwide PneuTorque® Wrenches continue to represent the foundation of Norbar's powered tool range. Two speed models offer all the advantages of single speed versions but with the additional benefit of a run-down speed five times greater than the final torque speed.

- Models available for almost every bolting and torque application, up to 300,000 N·m
- Forward and reverse operation
- Quiet, non-impacting or pulsing operation - low operator fatigue
- Stall control gives repeatability of $\pm 5\%$ on a given joint
- Other reaction styles can be designed to suit specific applications
- Electronic torque transducers can be fitted for precise torque monitoring

II	TO 3400 N·m - SINGLE SPEED
16031	PT 1 3/4" sq. dr. 160-680 N·m, 120-500 lbf·ft
16011	PT 1 1" sq. dr. 160-680 N·m, 120-500 lbf·ft
16098	PT 1A 3/4" sq. dr. 270-1200 N·m, 200-900 lbf·ft
16097	PT 1A 1" sq. dr. 270-1200 N·m, 200-900 lbf·ft
16013	PT 2 1" sq. dr. 515-1700 N·m, 380-1250 lbf·ft
16015	PT 5 1" sq. dr. 880-3400 N·m, 650-2500 lbf·ft
16017	PT 6 1 1/2" sq. dr. 880-3400 N·m, 650-2500 lbf·ft

II	TO 3400 N·m - AUTOMATIC TWO SPEED
16031.AUT	PT 1 3/4" sq. dr. Auto 2SP 160-680 N·m, 120-500 lbf·ft
16011.AUT	PT 1 1" sq. dr. Auto 2SP 160-680 N·m, 120-500 lbf·ft
16098.AUT	PT 1A 3/4" sq. dr. Auto 2SP 400-1200 N·m, 295-900 lbf·ft
16097.AUT	PT 1A 1" sq. dr. Auto 2SP 400-1200 N·m, 295-900 lbf·ft
16013.AUT	PT 2 1" sq. dr. Auto 2SP 700-1700 N·m, 515-1250 lbf·ft
16015.AUT	PT 5 1" sq. dr. Auto 2SP 880-3400 N·m, 650-2500 lbf·ft
16017.AUT	PT 6 1 1/2" sq. dr. Auto 2SP 880-3400 N·m, 650-2500 lbf·ft

II	TO 3400 N·m - MANUAL TWO SPEED
16031.MTS	PT 1 3/4" sq. dr. MTS 160-680 N·m, 120-500 lbf·ft
16011.MTS	PT 1 1" sq. dr. MTS 160-680 N·m, 120-500 lbf·ft
16098.MTS	PT 1A 3/4" sq. dr. MTS 270-1200 N·m, 200-900 lbf·ft
16097.MTS	PT 1A 1" sq. dr. MTS 270-1200 N·m, 200-900 lbf·ft
16013.MTS	PT 2 1" sq. dr. MTS 515-1700 N·m, 380-1250 lbf·ft
16015.MTS	PT 5 1" sq. dr. MTS 880-3400 N·m, 650-2500 lbf·ft
16017.MTS	PT 6 1 1/2" sq. dr. MTS 880-3400 N·m, 650-2500 lbf·ft

II	TO 100000 N·m - SINGLE SPEED
16066	PT 7 1 1/2" sq. dr. 1762-6000 N·m, 1300-4500 lbf·ft
16072	PT 9 1 1/2" sq. dr. 2710-9500 N·m, 2000-7000 lbf·ft
16046	PT 11 2 1/2" sq. dr. 4400-20000 N·m, 3250-14700 lbf·ft
18086	PT 12 2 1/2" sq. dr. 9500-34000 N·m, 7000-25000 lbf·ft
16052	PT 13 2 1/2" sq. dr. 13550-47000 N·m, 10000-35000 lbf·ft
16045	PT 14 3 1/2" sq. dr. 22375-100000 N·m, 16500-73500 lbf·ft



PNEUTORQUE® STANDARD SERIES



II TO 100000 N·m - AUTOMATIC TWO SPEED

I6066.AUT	PT 7 1½" sq. dr. Auto 2SP 2200-6000 N·m, 1620-4400 lbf·ft
I6072.AUT	PT 9 1½" sq. dr. Auto 2SP 3100-9500 N·m, 2300-7000 lbf·ft

II TO 300000 N·m - MANUAL TWO SPEED

I6066.MTS	PT 7 1½" sq. dr. 1762-6000 N·m, 1300-4500 lbf·ft
I6072.MTS	PT 9 1½" sq. dr. 2710-9500 N·m, 2000-7000 lbf·ft
I6046.MTS	PT 11 2½" sq. dr. 4400-20000 N·m, 3250-14700 lbf·ft
I8086.MTS	PT 12 2½" sq. dr. 9500-34000 N·m, 7000-25000 lbf·ft
I6052.MTS	PT 13 2½" sq. dr. 13550-47000 N·m, 10000-35000 lbf·ft
I6045.MTS	PT 14 3½" sq. dr. 22375-100000 N·m, 16500-73500 lbf·ft
I8089.MTS	PT 15 MTS 40000-150000 N·m, 29500-111000 lbf·ft
I8090.MTS	PT 16 MTS 55000-200000 N·m, 40500-147500 lbf·ft
I8088.MTS	PT 17 MTS 70000-250000 N·m, 51500-184500 lbf·ft
I6054.MTS	PT 18 MTS 85000-300000 N·m, 62500- 221500 lbf·ft
I6490	Lifting Bracket for Standard Series (up to PT7)



MTS = Manual Two Speed. Auto 2SP = Automatic Two Speed.
Angle Encoders are available for standard series PTs please contact Norbar for further details.
NB: PneuTorque® PT 11 - PT 18 are supplied with a LUBRO CONTROL UNIT as standard equipment. PneuTorques PT 12, 13 and 14 are also supplied with a Weld Prepared Reaction Ring as standard. PTs 13 and 14 are also supplied with a Transporting Trolley. PTs 15 - 18 do not include output drive or reaction. These components will be engineered uniquely for each application. Remote PT Part Numbers are designated with an .X e.g. PT 1 remote is I6031.X
e.g. PT 1 remote auto is I6031.XAUT

LUBRO CONTROL UNITS



I6074



I6075



60290

Norbar's standard filter, regulator, lubricator unit I6074 features a large, 100mm diameter gauge for easy and accurate setting of air pressure. It is supplied with 3 metres of robust, steel braided air hose with fittings to connect to PneuTorque® wrenches.

Twin Regulator Lubro Control Unit, part number I6075

The 'Twin Lubro' has the same features as Norbar's standard filter, regulator, lubricator unit but has the benefit of two regulators and a switch that allows quick selection between two air pressure settings. A typical application for this would be a PneuTorque® user wishing to quickly select between two applications requiring different torque settings. For example, this might be controlled torque in the forward direction and maximum torque allowed by the tool in the reverse direction.

Multi Channel Lubro, part number 60290

The Multi Channel Lubro is for users who wish to run their pneumatic tools at multiple air pressure settings, without having to make time consuming adjustments to an air regulator. The Multi Channel Lubro can be programmed for up to 15 air pressure settings and these settings can be locked by the removal of the programming key. A typical application would be a tyre shop servicing various vehicles, each vehicle having a different wheel nut torque. Settings can be recorded on a write-on label situated on the front of the Lubro Control. The Multi Channel Lubro is battery powered with a battery life of approximately 16 hours under normal use.

II LUBRO CONTROL UNITS

I6074	Lubro Control Unit F/W 3m hose
I6075	Twin Lubro Control Unit
60290	Multi Channel Lubro

See Page 66 for Lubro Control Unit spares.



TOOL CONTROLLERS



The Tool Controller shut-off system is supplied in a wall box for 'External Control' versions of the Norbar PTM series of tools. This can give a much greater range of functionality than is possible on the 'Internal Control' version of the tool.



*Example of T-Box XL based Tool Controller
Part No. 60302*

II	TOOL CONTROLLER (TTT based)
60244	Shut-off system in wall box
60254	Shut-off system in wall box with printer
Tool Controllers are supplied without leads	
61127.600	Lead for PTM Series Tool
61126.600	Transducer Lead for PT Series Tool
61128.600	Solenoid Lead for PT Series Tool (for single valve)
Both 61126.600 and 61128.600 are required to control a PT Series tool with a tool controller.	

II	TOOL CONTROLLER (T-BOX XL based)
60302	Shut-off system in wall box for PTM tools
Tool Controllers are supplied without leads	
61135.600	Transducer Lead for PTM-EC and Angle Series Tools
61135.1000	Transducer Lead for PTM-EC and Angle Series Tools

NOSE EXTENSIONS

Special nose extension reaction devices are available for use in situations where the tool access is restricted. A typical application is the rear wheel nuts on heavy vehicles.



II	NOSE EXTENSIONS FOR PTM-52 SERIES
18601.006	6" long, F/M 3/4" sq. dr.
18601.009	9" long, F/M 3/4" sq. dr.
18601.012	12" long, F/M 3/4" sq. dr.
18594.006	6" long F/M 3/4" sq. dr. for pre May 2009 PTM-52
18594.009	9" long F/M 3/4" sq. dr. for pre May 2009 PTM-52
18594.012	12" long F/M 3/4" sq. dr. for pre May 2009 PTM-52

II	NOSE EXTENSIONS FOR PTM-72 SERIES
19007.006	6" long, SPM/M 1" sq. dr.
19007.009	9" long, SPM/M 1" sq. dr.
19007.012	12" long, SPM/M 1" sq. dr.
18755.006	6" long SPM/M 1" sq. dr. for pre May 2009 PTM-72
18755.009	9" long SPM/M 1" sq. dr. for pre May 2009 PTM-72
18755.012	12" long SPM/M 1" sq. dr. for pre May 2009 PTM-72
SPM/M = Spline Male/Male Square	



II	SPLINED NOSE EXTENSIONS FOR PTM-52 SERIES
19045.006	6" long
19045.009	9" long
19045.012	12" long

II	SPLINED NOSE EXTENSIONS FOR PTM-72 SERIES 3/4" DRIVE
19046.006	6" long, 3/4" sq.dr.
19046.009	9" long, 3/4" sq.dr.
19046.012	12" long, 3/4" sq.dr.

II	SPLINED NOSE EXTENSIONS FOR PTM-72/92 SERIES 1" DRIVE
19285.006	PTM-72 6" long, 1" sq.dr.
19285.009	PTM-72 9" long, 1" sq.dr.
19285.012	PTM-72 12" long, 1" sq.dr.
19047.006	PTM-92 6" long, 1" sq.dr.
19047.009	PTM-92 9" long, 1" sq.dr.
19047.012	PTM-92 12" long, 1" sq.dr.



Example of Remote 108 Operating Valve Assembly fitted to a 108 Remote Motor Part No. 60301

This assembly includes two 3 way shut-off valves Part No. 28930

8 3 WAY SHUT-OFF VALVE

28930	3 Way Shut-off Valve 7 BAR Maximum Air Pressure
28938	3 Way Shut-off Valve 10 BAR Maximum Air Pressure

The models above are a sample of the Controllers that Norbar produce.
Please contact Norbar for your special requirements.

8 TWIN SOLENOID VALVE ASSEMBLY

60301	Twin Solenoid Valve Assembly for 108 Remote Tools
60305	Twin Solenoid Valve Assembly for 72 Remote Tools

4	TRANSDUCER LEADS
60216.200	PRO-LOG, TST, TTT & T-Box XL™ to 10 Way Transducer for use with Norbar Rotary Transducers
60217.200	PRO-LOG, TST, TTT & T-Box XL™ to 6 Way Transducer for use with Norbar Static & Annular Transducers
60223.200	PRO-LOG, TST, TTT & T-Box XL™ to no connector
60224.200	10 Way Transducer to no connector
60225.200	6 Way Transducer to no connector
51067.225	ETS to Transducer (Pre 1994) + 5 way (60055)
60152.225	ETS to Transducer (Post 1994) + 5 way (60163)
60308.400	PRO-LOG, TST, TTT & T-Box XL™ to Torque & Angle Annular Transducer
60308.600	PRO-LOG, TST, TTT & T-Box XL™ to Torque & Angle Annular Transducer
60308.1000	PRO-LOG, TST, TTT & T-Box XL™ to Torque & Angle Annular Transducer

Note: The system should be calibrated with the increased length lead, as calibration may be effected.

Note: The maximum permissible cable length is 15m for TST or TTT, 7m for T-Box XL™. Contact Norbar for further details.



11 NOSE EXTENSIONS FOR TRUCK AND BUS WHEELS (Fits PTM-72)

19087.009	1000 N·m 9" long, ¾" sq. dr
19087.012	1000 N·m 12" long, ¾" sq. dr
19089.009	1000 N·m 9" long, 1" sq. dr
19089.012	1000 N·m 12" long, 1" sq. dr



11 NOSE EXTENSIONS FOR 72 SERIES (For PTM Series see left)

18349.006	6" long, SPM/SPF
18349.009	9" long, SPM/SPF
18349.012	12" long, SPM/SPF
18349.015	15" long, SPM/SPF
18349.018	18" long, SPM/SPF
18330.50	Telescopic Nose Assembly

The nose extensions shown above can also be used with HT72s. Note: Square drive fitted from existing tool, SPM = Spline Male, SPF = Spline Female.



11 NOSE EXTENSIONS FOR STANDARD SERIES GEARBOX

16480.006	PT1 & 2, 6" long, F/M ¾" sq. dr.
16480.009	PT1 & 2, 9" long, F/M ¾" sq. dr.
16480.012	PT1 & 2, 12" long, F/M ¾" sq. dr.
16542.006	PT1 & 2, 6" long, F/M 1" sq. dr.
16542.009	PT1 & 2, 9" long, F/M 1" sq. dr.
16542.012	PT1 & 2, 12" long, F/M 1" sq. dr.
16694.006	PT5 6" long, M/M 1" sq. dr.
16694.009	PT5 9" long, M/M 1" sq. dr.
16694.012	PT5 12" long, M/M 1" sq. dr.

The Nose Extensions shown above can also be used with HT2s and 5s. If required other sizes of Nose Extension are available.

F/M = Female Input Square/Male Output Square

M/M = Male Input Square/Male Output Square



OPTIONAL REACTION PLATES



A variety of steel reaction plates and adaptors, together with ancillary feet, blades and heads to aid their use are available for PneuTorque®, EvoTorque®, EvoTorque® 2 and HandTorque® wrenches.

II	FOR HT/PTM-52 SERIES
18590	Double Sided Reaction Plate
18576	Blank Reaction Plate
18558	Reaction Adaptor
19186	Spline Adaptor
62236	Reaction Plate Spline Adaptor



*Reaction Adaptors
(18290 & 18558)*

II	FOR HT/ET/PT/PTM-72 SERIES
18293	Double Sided Reaction Plate
18292	Straight Reaction Plate
18290	Reaction Adaptor
19186	Spline Adaptor



*Reaction Adaptor (18290)
Double Sided Reaction Plate (18293)
Straight Reaction Plate (18292)*

II	FOR ET/PTM-92 SERIES
18979	Single Sided Straight Reaction Plate
18980	Double Sided Straight Reaction Plate

II	FOR ET/PTM-119 SERIES
16687	Single Sided Straight Reaction Plate
18981	Double Sided Straight Reaction Plate



*Straight Reaction with Peg (18298)
Short Reaction Foot (18241)
Straight Reaction (18291)*

II	ANCILLARY ITEMS FOR USE WITH 18290 OR 18558
18298	Straight Reaction with Peg
18291	Straight Reaction
18241	Short Reaction Foot
18358	Sliding Reaction Blade (to be used with 18291)
18359	Reaction Head (to be used with 18291)

II	FOR HT30/PT2700
16686	Single Sided Straight Reaction Plate



Flat Reaction Plate (18436)

II	FOR HT60/PT4500/PT5500
16687	Single Sided Straight Reaction Plate
18436	Flat Reaction Plate



Reaction Weld Ring

II	REACTION WELD RINGS
18694	For HT/PTM-52
18695	For HT/ET/PTM-72
18696	For HT/ET/PTM-92
18697	For HT/ET/PTM-119



Light Weight Reaction (19214)

II	LIGHT WEIGHT REACTIONS
19214	API Class 4 Light Weight Reaction



OPTIONAL REACTION PLATES

A variety of reaction plates, manufactured in Steel or Aluminium, for EvoTorque®, EvoTorque® 2 and PneuTorque® PTM series tools.

II SPLINED REACTION FOR ET/HT/PTM-72 SERIES

For use with ET/HT/PTM 1000/1350/2000

19289

18494



II SPLINED REACTION FOR ET/HT/PTM-92 SERIES

For use with ET/HT/PTM 2700/4000

19291

18936



II SPLINED REACTION FOR ET/HT/PTM-119 SERIES

For use with ET/HT/PTM 6000

19293

18961



	A	B	C
19289	114 mm	100 mm	167 mm
18494	91 mm	99 mm	166 mm
19291	115 mm	105 mm	175 mm
18936	115 mm	124 mm	205 mm
19293	150 mm	128 mm	210 mm
18961	132 mm	157 mm	199 mm

Norbar offer a range of specific reactions for the Wind Industry.

II SPECIAL SPLINED REACTION FOR ET/HT/PTM-119 SERIES

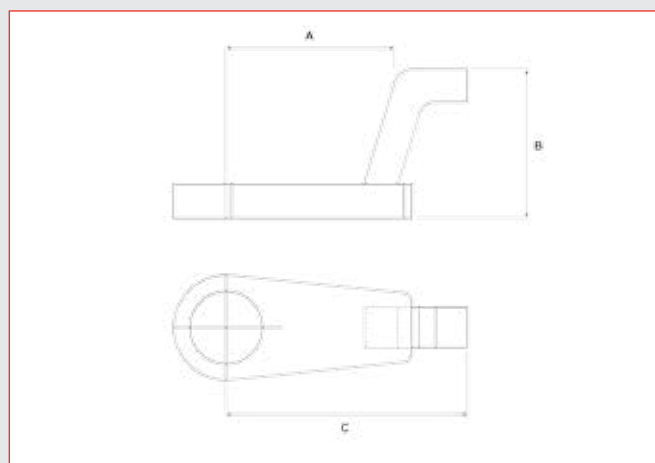
For use with ET/HT/PTM 6000

78027

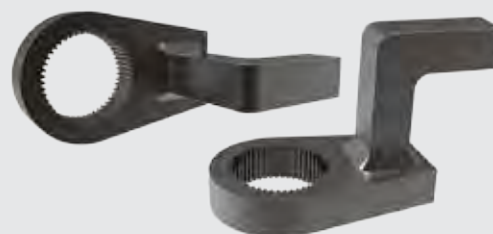
78028



Typical Wind Tower mid-section reaction
Part No. 78027



Typical Wind Tower mid-section reaction
Part No. 78028



	A	B	C
78027	150 mm	130 mm	250 mm
78028	57 mm	115 mm	145 mm

TERMS & CONDITIONS - SUPPLY OF GOODS

1. INTERPRETATION AND APPLICATION OF TERMS

- 1.1 In these conditions the following words have the following meanings:
- | | |
|---------------------------|---|
| "the Buyer" | means the person(s), firm or company who purchases Goods from Norbar; |
| "Norbar" | means Norbar Torque Tools Limited (380480), with a principal place of business at Wildmere Road, Banbury, Oxon, OX16 3JU; |
| "Contract" | means the contract between Norbar and the Buyer for the sale and purchase of the Goods, incorporating these Conditions; |
| "Delivery Point" | means the address within the UK mainland which is notified to Norbar as the place for delivery of the Goods; |
| "Engineer to Order Goods" | means any non-standard Goods specifically designed, modified and/or made for the Buyer or to the Buyer's specification; |
| "Goods" | means any goods agreed in the Contract to be supplied to the Buyer by Norbar (including any part or parts of them). |
- 1.2 Subject to any variation under condition 1.4 the Contract will be on these Conditions to the exclusion of all other terms and conditions. They supersede any previously issued terms and conditions of supply.
- 1.3 No terms or conditions endorsed upon, delivered with or contained in the Buyer's purchase 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 will have no effect unless expressly agreed in writing and signed by an authorised representative of Norbar. The Buyer 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 by the Buyer from Norbar will be deemed to be an offer by the Buyer to purchase Goods subject to these Conditions and no order placed by the Buyer will be deemed to be accepted by Norbar until a written acknowledgement of order is issued by Norbar or Norbar delivers the Goods to the Buyer, whichever occurs first.
- 1.6 Any quotation is given on the basis that no Contract will come into existence until Norbar despatches an acknowledgement of order or delivers the Goods to the Buyer. 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 Engineer to Order Goods, as specified in the relevant quotation.
- 2.2 Norbar reserves the right to make any changes to the specification of the Goods (including Engineer to Order Goods) which are required to conform with any applicable statutory or regulatory requirements or which do not materially affect their quality or performance. The Buyer will not be permitted to reject Goods and Norbar will have no liability to the Buyer in respect of any failure of the Goods to comply with any specification in these circumstances.
- 2.3 The Buyer 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) 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 Buyer 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 within the UK mainland, delivery will take place:
- if the Goods are to be collected, on delivery to the Buyer or to the Buyer'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 Any dates specified by Norbar for delivery of the Goods 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 may be delivered by instalments.
- 3.3 If for any reason the Buyer 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 Buyer has provided appropriate instructions, documents, licenses or authorisations then, without prejudice to any other right or remedy available to Norbar:
- risk in the Goods will pass to the Buyer;
 - the Goods will be deemed to have been delivered; and
 - Norbar may store the Goods until delivery whereupon the Buyer will be liable for all related costs and expenses (including, without limitation, storage and insurance).
- 3.4 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 withing 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 Buyer on delivery unless the Buyer can provide conclusive evidence proving 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 Buyer from the time of delivery.
- 5.2 Ownership of the Goods will not pass to the Buyer 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 Buyer or any account.
- 5.3 Until ownership of the Goods has passed to the Buyer, the Buyer 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 Buyer to deliver up the Goods or any part of them to Norbar and if the Buyer 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 Buyer 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 Buyer 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 Buyer, the Buyer's right to possession of the Goods will terminate immediately if:
- the Buyer is made bankrupt or petitions for his 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 business; or
 - the Buyer fails to observe or perform any of its obligations under the Contract or any other Contract between Norbar and the Buyer or;
 - the Buyer encumbers or in any way charges any of the Goods.
- 5.7 On termination of the Contract for any reason, the Norbar's rights under this condition 5 will remain in effect.

TERMS & CONDITIONS - SUPPLY OF GOODS

6 PRICE AND PAYMENT

- 6.1 Unless otherwise agreed by the Company in writing the price for the Goods will be the price set out in the Company's price list current as at the date of delivery or deemed delivery of the Goods.
- 6.2 The price for the Goods will be exclusive of any value added tax which the Buyer will pay in addition when it is due to pay for the Goods. The price for the Goods includes the cost of delivery if the order (i) is for delivery on Monday to Friday (inclusive) within the UK mainland to the Buyer's usual Delivery Point using the Company's usual delivery method and (ii) has a value of over £100.00 (excluding VAT). In all other cases, the cost of delivery will be charged in addition and will be due for payment at the same time as payment for the Goods is due.
- 6.3 For customers holding an account with the Company, payment of the price for the Goods 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. For customers who do not have an account with the Company, or from whom credit facilities have been withdrawn, payment is due at the time the order is placed and may be tendered by cheque or credit card. In all cases, payment must be in pounds sterling (except where otherwise agreed in writing).
- 6.4 Time for payment will be of the essence.
- 6.5 No payment will be deemed to have been received until the Company has received cleared funds.
- 6.6 All payments payable to the Company 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.
- 6.7 The Buyer will make all payments due under the Contract without any deduction whether by way of set-off, counterclaim, discount, abatement or otherwise unless the Buyer has a valid court order requiring an amount equal to such deduction to be paid by the Company to the Buyer.
- 6.8 If the Buyer fails to pay the Company any sum due pursuant to the Contract the Buyer will be liable to pay interest to the Company 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. LIABILITY OF THE COMPANY

- 7.1 The Company 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 the Company's catalogue or other published specification current at the time that the order for the Goods was accepted by the Company.
- 7.2 The Company will not be liable for a breach of any of the warranties in condition 7.1 unless:
- the Buyer gives written notice of the defect to the Company within 14 days of the time when the Buyer discovers or ought to have discovered the defect; and
 - the Buyer returns the defective Goods properly packed, carriage paid to the Company's premises at the address given in condition 1.1.
- 7.3 The Company will not be liable for a breach of the warranties in condition 7.1 if:
- the Buyer makes any further use of the Goods after giving such notice; or
 - the Goods have been misused, mishandled, overloaded, amended, modified or repaired in any way by the Buyer 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 Buyer or its customer failed to follow the Company's oral or written instructions as to the storage, installation, commissioning, use or maintenance of the Goods or (if there are none) good trade practice.
- 7.4 Subject to conditions 7.2 and 7.3, if any of the Goods do not conform with any of the warranties in condition 7.1, the Company 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.
- 7.5 If the Company complies with condition 7.4, it will have no further liability for a breach of any of the warranties in clause 7.1 in respect of such Goods.
- 7.6 Except as provided in condition 7.1, the Company makes no representation or warranty, whether express or implied, as to the quality or fitness for purpose of the Goods 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.
- 7.7 Nothing in this Contract excludes or limits the liability of the Company for:
- death or personal injury caused by the Company's negligence; or
 - under section 2(3) of the Consumer Protection Act 1987; or
 - for fraud or fraudulent misrepresentation; or
 - for any matter which it would be illegal for the Company to exclude or attempt to exclude its liability.

THE BUYER'S ATTENTION IS IN PARTICULAR DRAWN TO THE PROVISIONS OF CONDITION 7.8**7.8 Subject to 7.7:**

- the Company'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
 - the Company will not in any event be liable to the Buyer for any loss of profit, loss of business or depletion of goodwill, 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 Buyer acknowledges that the price of the Goods has been calculated on the basis that the Company excludes and limits its liability in accordance with condition 7.8.
- 7.10 Where the Goods are sold under a consumer transaction, the statutory rights of the Buyer are not affected by these Conditions.

8. FORCE MAJEURE

The Company reserves the right to defer the date of delivery or to cancel the Contract or reduce the volume of the Goods ordered by the Buyer (without liability to the Buyer) if it is prevented from or delayed in the carrying on of its business due to circumstances beyond the reasonable control of the Company 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 the Company to the address set out in condition 1.1 and in the case of the Buyer to the Delivery Point or such other address or fax number as the Buyer may from time to time notify to the Company for this purpose in accordance with this condition. Notices sent as above will be deemed to have been received 3 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. GENERAL

- 10.1 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 member of the group of companies whose holding company is Norbar Torque Tools Holdings Ltd may directly enforce any term of the Contract.
- 10.2 Each right or remedy of the Company under the Contract is without prejudice to any other right or remedy of the Company whether under the Contract or not.
- 10.3 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.
- 10.4 The Buyer will not be entitled to assign the Contract or any part of it without the prior written consent of the Company. The Company 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.
- 10.5 Failure or delay by the Company 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.
- 10.6 Any waiver by the Company of any breach of, or any default under, any provision of the Contract by the Buyer will not be deemed a waiver of any subsequent breach or default and will in no way affect the other terms of the Contract.
- 10.7 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.



NORBAR PROMOTIONAL MATERIAL

CATALOGUES & LEAFLETS

07426	General Catalogue
07510	Oil & Gas Leaflet
07513	Manufacturing & Assembly Leaflet
07514	Transportation Leaflet
07512	Aerospace Leaflet
07515	Energy Generation Leaflet
07557	Oil & Gas ETO Leaflet
07516	EvoTorque® Leaflet
07554	USM Leaflet
07560	T-Box XL™ Leaflet
07563	New Professional Leaflet
07536	ClickTronic Leaflet

PROMOTIONAL ITEMS

07509	Norbar Oval Logo Sticker (156mm)
07524	'Made in England' window sticker
07525	'Made in England' wall sticker
07533	Promotional Stickers (A4 sheet)
SQ1946	Set of Posters (various)

Distributed by

CUSTOMER RELATIONS

OFFICE OPENING HOURS

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

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