ENGINEER TO ORDER
SPECIAL PROJECT INFORMATION SHEET

Norbar Torque Tools

Project Description	**Low Range Torque Wrench Tester Kit**		
Date created	**14 March 2011**	**Project Number**	**Q1254**

INTRODUCTION & APPLICATION

Testing kit required for 'low range' i.e. up to 25 N.m torque tools

SOLUTION

Kit containing: -

- Torque screwdriver tester TST2, 0.04 – 2 N.m, part # 43212
- Flange mounted transducer FMT25, 1.25 – 25 N.m, part # 50673.LOG
- Adaptors & drive set
- Case with custom foam insert

Adaptor set

TECHNICAL SPECIFICATION / DATA HIGHLIGHTS

Other combinations of standard and special parts can be configured into kits as required

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SPECIAL PROJECT INFORMATION SHEET

Norbar Torque Tools

Project Description	**Transducer Calibration Transfer Rig**		
Date created	**3 February 2012**	**Project Number**	**Q2180**

INTRODUCTION & APPLICATION

Transducer calibration rig is required for a range of static and annular transducers up to 50,000 N.m

SOLUTION

Calibration transfer rig that applies a controllable torque through the test transducer and uses a master transducer for comparative calibration.

TECHNICAL SPECIFICATION / DATA HIGHLIGHTS

Electric motor and worm gearbox drive with joystick type control.
Designed for use with 50,000 or 100,000 N.m specially calibrated master annular transducer.
For use with a suitable instrument such as Norbar TTT or T-Box.
Adaptors for static and annular transducers in the range 2,500 to 50,000 N.m comprising: -

Static transducers: -
- 1 ½" Male x 1 ½" Male square drive
- 1 ½" Male x 1 ½" Female square drive
- 2 ½" Male x 2 ½" Male square drive
- 2 ½" Male x 2 ½" Female square drive
- 3 ½" Male x 3 ½" Male sq. drive (40,000 N.m)

Annular transducers: -
- No 7 with 1 ½" square drive
- No 9 with 1 ½" square drive
- No 11 with 2 ½" square drive
- No 12 with 2 ½" square drive
- No 13 with 2 ½" square drive

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SPECIAL PROJECT INFORMATION SHEET

Norbar Torque Tools

Project Description	**Special Tool Controller for 2 Tools**		
Date created	**15 September 2010**	**Project Number**	**Q1553**

INTRODUCTION & APPLICATION

Fastener tightening application requiring a tool controller to independently control two Pneutorque shut-off tools with annular transducers.

SOLUTION

Tool controller having two TTT instruments and PLC in a common housing for wall mounting.

TECHNICAL SPECIFICATION / DATA HIGHLIGHTS

Both tools can be operated independently of each other.
The controller monitors torque and shuts-off the tool via an external solenoid valve when the required torque is reached.
Pass / fail indicator lights and reset button for each tool.
External solenoid valve, solenoid lead and transducer lead are required.

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SPECIAL PROJECT INFORMATION SHEET

Project Description	**Ball Valve Testing Kit with Torque & Turns Monitoring**		
Date created	**14 February 2011**	**Project Number**	**Q1961**

INTRODUCTION & APPLICATION

Oil & gas industry requirement for testing ball valves with torque & angle monitoring and data capture.

SOLUTION

Ball valve testing kit comprising Pneutorque PT 13 remote fitted with angle encoder, 50,000 N.m annular transducer, special portable T-Box based tool controller, solenoid valve, transducer and solenoid leads.

The PT 13 rotates the valve through 90° whilst the controller monitors torque and angle readings at 1° intervals, taken from the transducer and angle encoder respectively.
At 90° the PT 13 is shut-off via the controller sig nalling to the solenoid valve.
The tool is then manually re-started, reversed and returned to 0°.

TECHNICAL SPECIFICATION / DATA HIGHLIGHTS

Torque versus angle data is recorded every degree and stored in the T-Box for later transfer to a PC via a USB memory stick. Norbar TDMS software loaded to customer PC can be used to manipulate the data.

ENGINEER TO ORDER
SPECIAL PROJECT INFORMATION SHEET

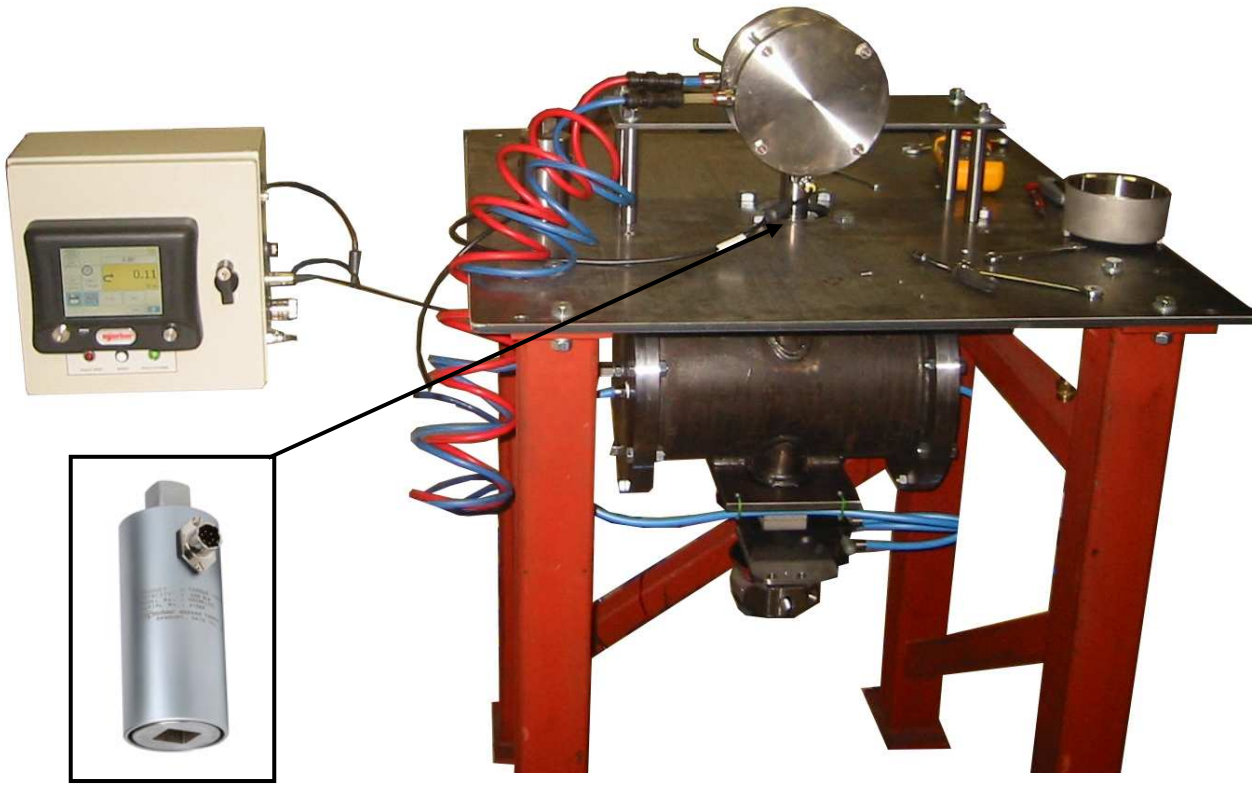
Project Description	**Actuator Testing Controller & Transducer Kit**		
Date created	**19 January 2011**	**Project Number**	**Q2108**

INTRODUCTION & APPLICATION

Valve actuator test rig requiring torque measuring equipment to capture torque vs. angle between the master actuator and the actuator under test.

SOLUTION

500 N.m & 100 N.m static torque transducers to fit between the customer's master and test transducers.
Special controller incorporating a T-Box & PLC to capture the transducer torque reading vs. the angle reading from customer's angle transmitter in clockwise & counter-clockwise directions.
The test is run in a continuous manner so that the actuator is cycled between closed at 0° and open at 90°



TECHNICAL SPECIFICATION/DATA HIGHLIGHTS

Controller torque vs. angle output data can be downloaded to a PC with Excel via Norbar TDMS software and configured in graphical format.

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SPECIAL PROJECT INFORMATION SHEET

Norbar Torque Tools

Project Description	**HT45/26 with Special Reaction & Hexagonal Output Drive**		
Date created	**16 March 2011**	**Project Number**	**Q1880**

INTRODUCTION & APPLICATION

Automotive 5,000 tonne press application for torque tightening equipment where access is restricted.

SOLUTION

Handtorque HT45/26 fitted with: -

- special curved torque reaction that locates alternate bolt head
- special 36mm A/F hexagon output drive

TECHNICAL SPECIFICATION/DATA HIGHLIGHTS

M48 socket head cap screws having 36mm A/F hexagon, tightened to 3,782 N.m torque.
16 –off equi-spaced on a 560mm PCD
Final torque tightening of pre-fastened bolts ensures sufficient hexagon drive engagement.

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SPECIAL PROJECT INFORMATION SHEET

Norbar Torque Tools

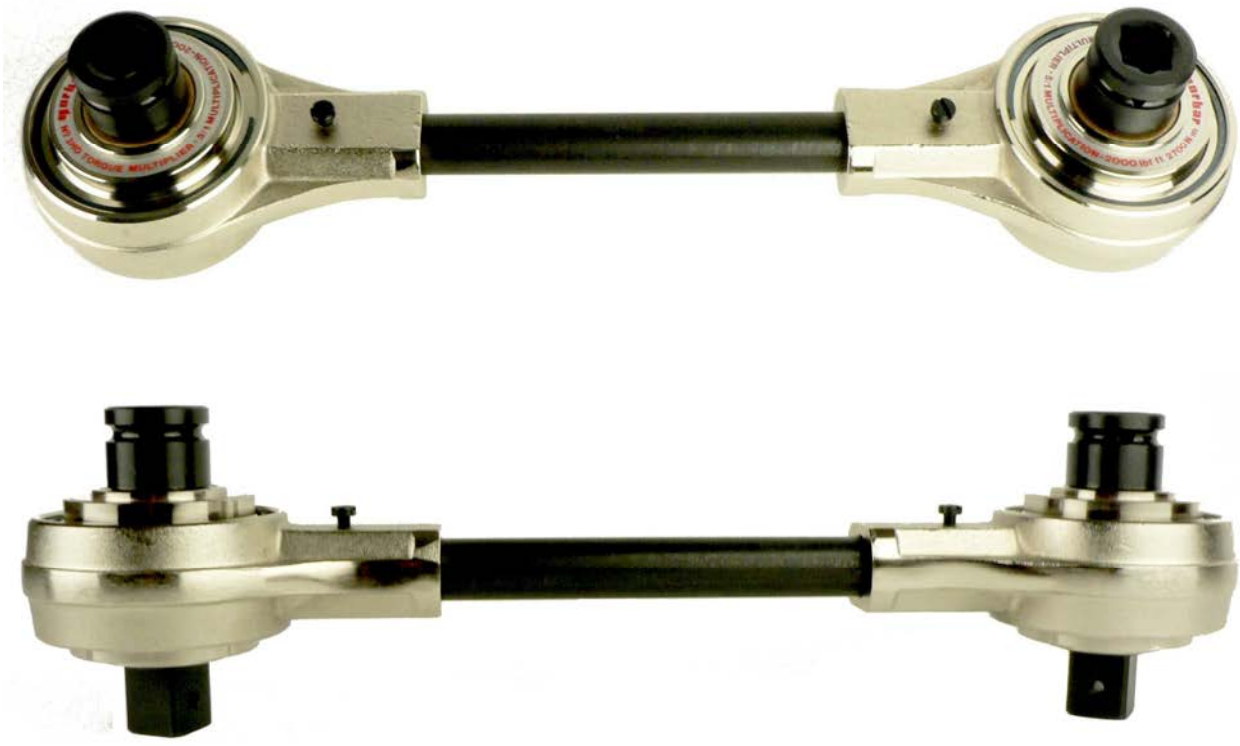
Project Description	**Twin Linked Handtorque HT3 Assembly**		
Date created	**3 February 2012**	**Project Number**	**Q2406**

INTRODUCTION & APPLICATION

Railway industry requirement for two linked torque multipliers set at 390mm centres for 1,750 lbf.ft torque.

SOLUTION

Two Handtorque HT3 – 2,000 lbf.ft with special linking reaction bar.



TECHNICAL SPECIFICATION / DATA HIGHLIGHTS

Torque multiplication ratio: 5:1
Input: ¾” female square drive
Output: 1” male square drive

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SPECIAL PROJECT INFORMATION SHEET

Norbar Torque Tools

Project Description	**PT17 with Special Torque Reaction & 6” Square Drive**		
Date created	**1 February 2012**	**Project Number**	**Q2054**

INTRODUCTION & APPLICATION

Power generation industry requirement to dis-assemble hydro-electric turbine M160 x 4 nuts.
Restricted access and 200,000 N.m minimum torque required.

SOLUTION

Pneutorque PT 17 - 250,000 N.m manual 2-speed with special torque reaction and 6” male square drive.

TECHNICAL SPECIFICATION / DATA HIGHLIGHTS

- PT 17 # 18088.MTS, 250,000 N.m maximum torque & maximum body diameter 410mm.
- Output drive 6” male square # 19032.
- Special torque reaction # Q2054.100.
- Also available; single speed PT17 # 18088 and remote model on request.

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SPECIAL PROJECT INFORMATION SHEET

Norbar Torque Tools

Project Description	**PT 72/1500 Remote based Torque & Turns Kit**		
Date created	**2 February 2012**	**Project Number**	**Q2314**

INTRODUCTION & APPLICATION

Torque and turns data display and storage required from a remote operated tool in forward and reverse directions with 300 - 1500 N.m torque range.

SOLUTION

PT 72/1500 remote based kit containing annular transducer, turns sensor, T-Box instrument and special interface / power supply unit & cables.

TECHNICAL SPECIFICATION / DATA HIGHLIGHTS

Torque and turns data is transmitted from the annular transducer and turns sensor via the interface unit to the T-Box for display and storage. The calibrated & tested kit contains: -

- PT 72/1500 remote control tool having 300 – 1,500 N.m range # 18029
- Annular transducer # 50667.LOG with CW & CCW calibration # TD.CCW
- Turns sensor # Q2314.01 having 36° resolution and for use in forward and reverse directions *(see separate special project sheet Q2314.01 for more details)*
- Interface unit / cables # Q2314.02 provide turns sensor power supply & converts input signals from the transducer and turns sensor for output via a single cable to the T-Box.
- T-Box # 43236
- Tool controller, pneumatic valves, pipes and fittings can also be supplied if required

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SPECIAL PROJECT INFORMATION SHEET

Norbar Torque Tools

Project Description	**PTM-52-800-B-IC with Bluetooth transmitter**		
Date created	**5 April 2011**	**Project Number**	**Q2175**

INTRODUCTION & APPLICATION

Bolt tightening application where applied torque data requires collecting on a PC by wireless means.

SOLUTION

PTM-52-800-B-IC with Bluetooth transmitter to output applied torque readings by wireless means.
The tool can be paired with customer's Bluetooth enabled PC and data collected via Microsoft 'Hyper Terminal' software.

TECHNICAL SPECIFICATION/DATA HIGHLIGHTS

Other sizes of Pneutorque PTM-IC (Shut-off Internal) can be fitted with the Bluetooth transmitter.

ENGINEER TO ORDER
SPECIAL PROJECT INFORMATION SHEET

Norbar Torque Tools

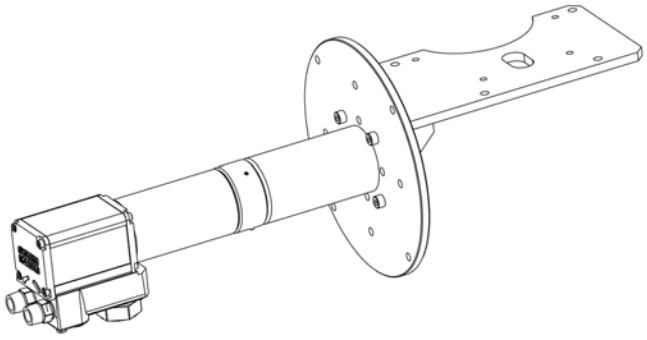
Project Description	**Ball Valve Actuator Torque Testing Equipment**		
Date created	**10 December 2010**	**Project Number**	**Q2036**

INTRODUCTION & APPLICATION

Oil & gas ball valve manufacturer required torque actuating / testing equipment to check the operation of a range of valve actuation reduction gearboxes.

SOLUTION

Pneutorque PT 500 remote # 18031 with special adaptor / torque reaction to fit the range of valve actuator input shafts and bodies. The Pneutorque is fitted with an annular torque transducer # 50666.IND that is connected via a transducer lead to a TTT torque instrument.
The valve actuator is driven from stop to stop by the Pneutorque and the torque required is monitored via the TTT instrument.



TECHNICAL SPECIFICATION / DATA HIGHLIGHTS

The special adaptor input has a serrated bore to suit the Pneutorque standard reaction mounting, and the output has multiple mounting holes for bolting to the family of actuators. An angle bracket is used for fixing to actuators that only have mounting bolts on the top face. Tool torque range 90 – 500 N.m.

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SPECIAL PROJECT INFORMATION SHEET

Norbar Torque Tools

Project Description	**Handtorque HT 6 / 5 fitted with extended sliding reaction**		
Date created	**9 March 2011**	**Project Number**	**Q2169**

INTRODUCTION & APPLICATION

Nuclear industry application for a torque multiplier where the torque reaction distance range from the tool axis is greater than standard.

SOLUTION

Handtorque HT 6 / 5 fitted with a special extended torque reaction having sliding range of 86 – 400mm.

TECHNICAL SPECIFICATION / DATA HIGHLIGHTS

Q2169 comprises HT 6 / 5 part # 77341 (no standard reaction) fitted with special reaction part # Q1831

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SPECIAL PROJECT INFORMATION SHEET

Project Description	**Hexagon Key Spanner Ends with 16mm Spigot**		
Date created	**20 June 2011**	**Project Number**	**Q2163**

INTRODUCTION & APPLICATION

Torque tightening applications for socket head cap-screws with restricted access.

SOLUTION

Set of five special spanner ends with special shortened hexagon key to 16mm spigot.

TECHNICAL SPECIFICATION/DATA HIGHLIGHTS

Hexagon key is located in a hexagon form receiver for maximum strength.

Hex key A/F	Max torque required
6 mm	40 N.m
8 mm	70 N.m
10 mm	125 N.m
12 mm	125 N.m
14 mm	290 N.m

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SPECIAL PROJECT INFORMATION SHEET

Project Description	**Ratchet with Fixed 1” Square Drive & 22mm Spigot**		
Date created	**3 February 2012**	**Project Number**	**Q2244**

INTRODUCTION & APPLICATION

Railway industry requirement for special 1” fixed square drive ratchets with 22mm spigot for use with insulated torque wrench # Q2150.

SOLUTION

TECHNICAL SPECIFICATION / DATA HIGHLIGHTS

Special project information sheet Q2150 shows details of insulated torque wrench.
Standard ratchet with ¾” push through square drive and 22mm spigot is available, part # 29972.

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SPECIAL PROJECT INFORMATION SHEET

Norbar Torque Tools

Project Description	**20,000 & 50,000 N.m Harsh Environment Annular Transducers**		
Date created	**2 February 2012**	**Project Number**	**Q2277/9.LOG**

INTRODUCTION & APPLICATION

Oil & gas industry harsh environment application requiring non-standard size annular transducers.

SOLUTION

Special size 20,000 N.m & 50,000 N.m harsh environment annular transducers.

TECHNICAL SPECIFICATION / DATA HIGHLIGHTS

50,000 N.m harsh environment annular transducer # Q2277.LOG fitted with 2.5” male square drive
20,000 N.m harsh environment annular transducer # Q2279.LOG fitted with 2.5” male square drive

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SPECIAL PROJECT INFORMATION SHEET

Norbar Torque Tools

Project Description	**Turns Sensor to fit PT 72 series tools**		
Date created	**2 February 2012**	**Project Number**	**Q2314.01**

INTRODUCTION & APPLICATION

Turns sensor required to fit PT 72 series tools to read tool output turns in forward and reverse directions.

SOLUTION

Turns sensor module that fits to PT 72 series tool reaction spline using the standard clip arrangement. The reaction spline is duplicated on the front of the module to allow fitting of standard torque reaction. The standard tool output drive is removed from the tool and re-fitted at the front of the module.

PT 72 remote tool # 18029 fitted with
annular transducer # 50667.LOG
& turns sensor Q2314.01

TECHNICAL SPECIFICATION / DATA HIGHLIGHTS

- Angle resolution 36°
- The module requires a power supply / suitable quadrature signal conversion for turns display & storage on Norbar T-Box instrument. An interface unit such as # Q2314.02 *(see special project sheet # Q2314)* or special tool controller can be used, please consult Norbar.
- The module can be fitted to tools with or without an annular transducer.
- Module to fit PTM-52 series is also available on request.

ENGINEER TO ORDER
SPECIAL PROJECT INFORMATION SHEET

Project Description	**Industrial Model 6R wrench with special double sided square drive**		
Date created	**19 January 2011**	**Project Number**	**Q2165**

INTRODUCTION & APPLICATION

Railway industry requirement for a 2,000 N.m ratchet type torque wrench having a special double sided 1” square drive.

SOLUTION

Model 6R split industrial wrench having special double sided 1” square drive.

TECHNICAL SPECIFICATION / DATA HIGHLIGHTS

Special length drives to suit customer adaptor.
Both drive squares engage in the adaptor for torque tightening.

ENGINEER TO ORDER
SPECIAL PROJECT INFORMATION SHEET

Norbar Torque Tools

Project Description	**Heavy Duty 500mm Electrode Wrench**		
Date created	**3 February 2012**	**Project Number**	**Q2377**

INTRODUCTION & APPLICATION

Heavy duty 500mm electrode torque wrench rated to 2,500 N.m. required for an electric arc furnace application.

SOLUTION

Electrode wrench fitted with special heavy duty ‘C’ head.

TECHNICAL SPECIFICATION / DATA HIGHLIGHTS

Max torque: 2,500 N.m
Electrode: 500mm (20 in.)
Standard 500mm electrode wrench rated at 2,000 N.m is available, part # 12536