TTi Wrench
Models 20 N.m and 50 N.m (180 lbf.in and 35 lbf.ft)

Durability has been a primary development goal – both in terms of the lifetime of components and longevity of calibration accuracy. Cycle testing of wrenches at full torque was a key element of the development process and, in total, several million tightening cycles were accumulated. The result is a product that you can use with complete confidence that you have the best tool for the job.

- Accuracy: ±3% of reading exceeds all international standards for torque wrenches. Each wrench is supplied with a traceable calibration certificate.
- Micrometer scale for simple and error free setting. (On dual scale wrenches, the micrometer increment applies to the N.m scale.)
- Quick and light adjustment: adjustment over the entire scale can be achieved with minimal effort in approximately ten complete turns (exact number varies by model).
- Adjustment lock: all models feature a lock to prevent accidental adjustment of the set torque.
- Comfortable, durable handle: the handle is constructed using two materials: a base material for strength overlaid with a soft feel grip for comfort and slip resistance. The handle material and lens resist chemicals in common usage in the automotive, aviation and industrial environments.
- Versatile ratchets: the tough ratchets are reversible and have a narrow engagement angle of 5° to allow easy positioning of the tool in the tight confines of today's vehicles and machines.
- Can also be supplied as Fixed Head (TTf) and Female ended Torque Handles (TTfth), for further details see page 15.

Norbar Non-Magnetic torque wrenches are designed primarily for the medical MRI scanner market. However, they will prove invaluable where ever a torque wrench has to be used in the presence of a strong magnetic field. There are currently four models:
1 - 20 N.m, 3/8" sq. dr. Part No. 13292
1 - 20 N.m, 1/2" sq. dr. Part No. 13585
8 - 50 N.m, 3/8" sq. dr. Part No. 13294
8 - 50 N.m, 1/2" sq. dr. Part No. 13295

Ratchet Adjustables - Dual Scale

Model	Square Drive	Part No.	Range		Resolution	Ratchet Diameter	Engagements per revolution	Length	Weight
	in		N.m	lbf.ft	N.m	mm		mm	Kg
TTi20	¼	13285	1 – 20	10 – 180*	0.05	30	72	230	0.4
TTi20	⅜	13640	1 – 20	10 – 180*	0.05	30	72	230	0.4
TTi50	⅜	13658	8 – 50	6 – 35	0.1	30	72	329	0.6
TTi50	½	13659	8 – 50	6 – 35	0.1	30	72	329	0.6

* *lbf.in* N.m only and lbf.ft only versions are available, contact Norbar for details.

TTi Wrench

Models 60 N.m to 300 N.m (45 lbf.ft to 220 lbf.ft)

In engineering this range, Norbar has paid close attention to accuracy, ease of setting and comfort in use.

Durability has been a primary development goal – both in terms of the lifetime of components and longevity of calibration accuracy. Cycle testing of wrenches at full torque was a key element of the development process and, in total, several million tightening cycles were accumulated. The result is a product that you can use with complete confidence that you have the best tool for the job.

- Accuracy: ±3% of reading exceeds all international standards for torque wrenches. Each wrench is supplied with a traceable calibration certificate.
- Micrometer scale for simple and error free setting. (On dual scale wrenches, the micrometer increment applies to the N.m scale.)
- Quick and light adjustment: adjustment over the entire scale can be achieved with minimal effort in approximately ten complete turns (exact number varies by model).
- Adjustment lock: all models feature a lock to prevent accidental adjustment of the set torque.
- Versatile ratchets: the tough ratchets have a narrow engagement angle of between 5° and 7.5° across the range, allowing easy positioning of the tool in the tight confines of today's vehicles and machines.
- Bi-directional torque: the ratchets are 'push through' meaning that these wrenches will provide torque control in both the clockwise and anticlockwise directions.
- Comfortable, durable handle: the handle is constructed using two materials: a base material for strength overlaid with a soft feel grip for comfort and slip resistance. The handle material and lens resist chemicals in common usage in the automotive, aviation and industrial environments.

Adjustment is achieved by rotating the end knob. The centre ring provides the lock feature.

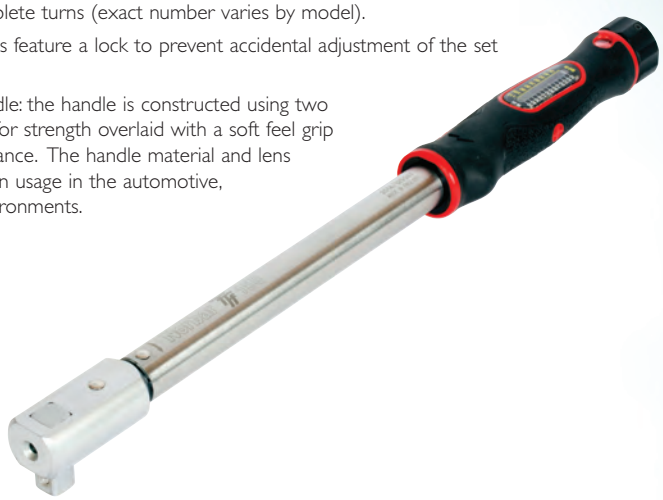
Ratchet Adjustables - Dual Scale

Model	Square Drive	Part No.	Range		Resolution	Ratchet Diameter	Engagements per revolution	Length	Weight
	in		N.m	lbf.ft	N.m	mm		mm	Kg
TTi60	⅜	13679	12 – 60	10 – 45	0.25	38	48	348	0.9
TTi60	½	13680	12 – 60	10 – 45	0.25	38	48	348	0.9
TTi100	⅜	13440	20 – 100	15 – 75	0.5	38	48	405	1.0
TTi100	½	13441	20 – 100	15 – 75	0.5	38	48	405	1.0
TTi150	½	13442	30 – 150	20 – 110	0.5	38	48	455	1.1
TTi200	½	13443	40 – 200	30 – 150	1.0	46	48	505	1.2
TTi250	½	13444	50 – 250	40 – 185	1.0	46	60	560	1.4
TTi300	½	13445	60 – 300	45 – 220	1.0	46	60	610	1.6

N.m only and lbf.ft only versions are available, contact Norbar for details.

TTf and TTfth Wrenches

- Accuracy: ±3% of reading exceeds all international standards for torque wrenches. Each wrench is supplied with a traceable calibration certificate.
- Micrometer scale for simple and error free setting. (On dual scale wrenches, the micrometer increment applies to the N.m scale.)
- Quick and light adjustment: adjustment over the entire scale can be achieved with minimal effort in approximately ten complete turns (exact number varies by model).
- Adjustment lock: all models feature a lock to prevent accidental adjustment of the set torque.
- Comfortable, durable handle: the handle is constructed using two materials: a base material for strength overlaid with a soft feel grip for comfort and slip resistance. The handle material and lens resist chemicals in common usage in the automotive, aviation and industrial environments.



Fixed Head Adjustables - Dual Scale

Model	Square Drive	Part No.	Range		Resolution	Length	Weight
	in		N.m	lbf.ft	N.m	mm	Kg
TTf20	⅜	13550	1 - 20	10 - 180*	0.05	224	0.4
TTf60	⅜	13685	12 – 60	10 – 45	0.25	337	0.8
TTf100	⅜	13552	20 - 100	15 - 75	0.5	388	1
TTf100	½	13553	20 – 100	15 – 75	0.5	388	1
TTf150	½	13554	30 – 150	20 – 110	0.5	440	1
TTf200	½	13555	40 – 200	30 – 150	1.0	490	1.1
TTf250	½	13556	50 – 250	40 – 185	1.0	540	1.2
TTf300	½	13557	60 – 300	45 – 220	1.0	590	1.4

*lbf.in N.m only and lbf.ft only versions are available, contact Norbar for details.

Fixed Head (TTf)

Female Ended Adjustables - Dual Scale

Model	End Fitting	Part No.	Range		Resolution	Length	Weight
	mm		N.m	lbf.ft	N.m	mm	Kg
TTfth20	9 x 12	13600	1 - 20	10 - 180*	0.05	214	0.4
TTfth50	9 x 12	13666	10 - 50	8 - 35	0.1	310	0.6
TTfth60	9 x 12	13667	12 – 60	10 – 45	0.25	322	1
TTfth100	9 x 12	13603	20 – 100	15 – 75	0.5	386	1
TTfth150	9 x 12	13604	30 – 150	20 – 110	0.5	440	1
TTfth200	9 x 12	13605	40 – 200	30 – 150	1.0	490	1.1
TTfth200	14 x 18	13606	40 - 200	30 - 150	1.0	490	1.1
TTfth250	14 x 18	13607	50 – 250	40 – 185	1.0	540	1.2
TTfth300	14 x 18	13608	60 – 300	45 – 220	1.0	590	1.4

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Female Torque Handle (TTfth)