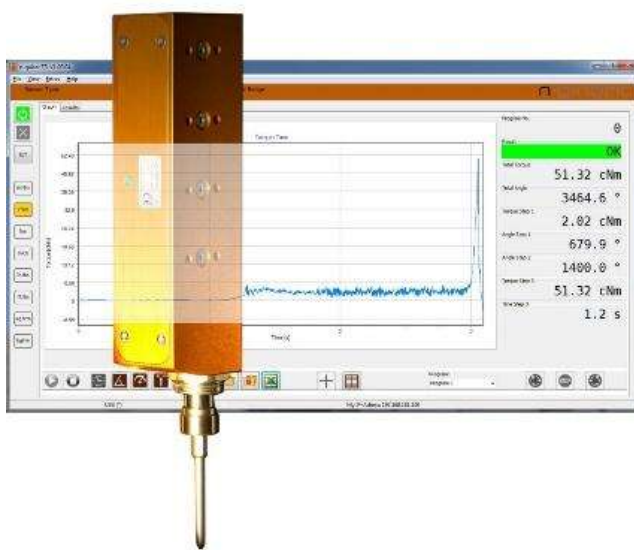


5.5 Stationary Sensor Torque Drivers ng-μTDS

- Components integrated in the handpiece:
 - Static strain-gage based torque sensor
 - Incremental angle encoder
 - Brushless DC Motor
 - Planetary gearbox
- PCB-Assembly providing the following functions:
 - Torque measurement signal conditioning and 24-bit analog to digital conversion
 - Encoder readout
- Parameterization, visualization and data archiving with Software n-quirer TD



Torque Driver Nomenclature:

ng-μTDS

- └─ **ng** = n-gineric Product
- └─ **μTD** = μ Torque Driver
- └─ **S** = Stationary
- └─ **Torque Range in cNm**
- └─ **c** = cylindric bore for bit holder attachment
- └─ **i** = with ng-TDC Interface

Stationary Sensor Torque Drivers ng-μTDS05-ci



Article Number	01-01-00678-01
Torque Range	5 to 50 mNm
Torque Measurement Accuracy	3 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 bis 1,000 min ⁻¹
Bit Drive	5.0 mm cylindric
Handpiece Dimensions	192 x 55 x 25 mm
Handpiece Weight	0.3 kg
Interface	Digital to ng-TDC

Scope of Supply

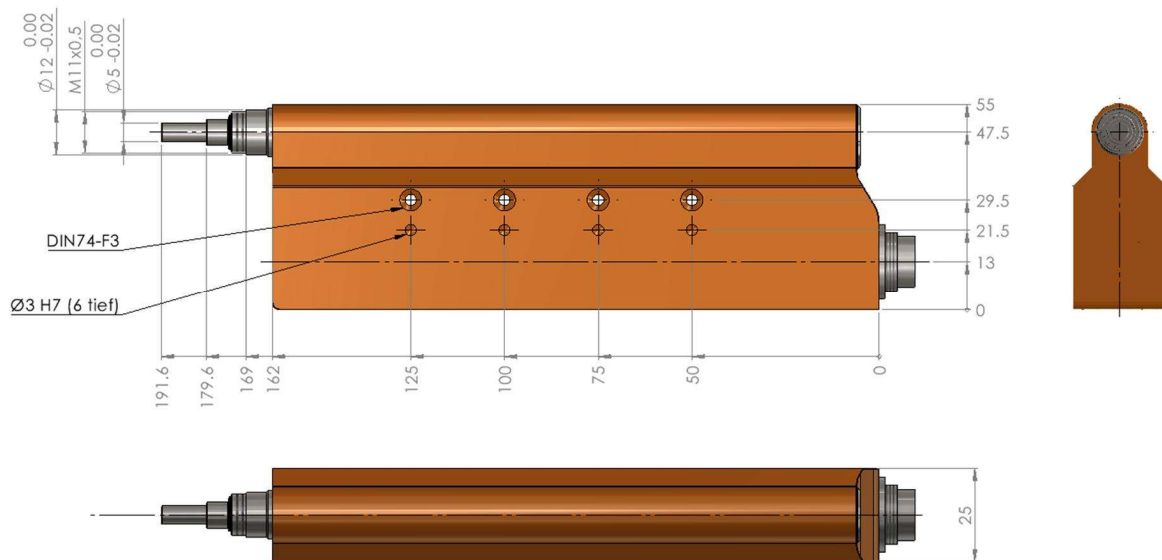
Type	Description	Article Number
ng-μTDH05-ci Spindle	Torque Driver Handpiece	01-01-00677-01
ng-TD-PS-36/600	Power Supply Unit	01-91-00004-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
ng-TD- Cable 3.0 m	Driver Cable 3 meters	01-90-00014-01
ng-TD- Cable 2.0 m	Driver Cable 2 meters	01-90-00011-01
Cable USB-A/USB-Mini-B 1.8 m	USB- Cable	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

Stationary Sensor Torque Drivers ng-μTDS08-ci

Article Number	01-01-00691-01
Torque Range	8 to 80 mNm
Torque Measurement Accuracy	3 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 bis 1,000 min ⁻¹
Bit Drive	5.0 mm cylindric
Handpiece Dimensions	192 x 55 x 25 mm
Handpiece Weight	0.3 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-μTDH08-ci Spindle	Torque Driver Handpiece	01-01-00690-01
ng-TD-PS-36/600	Power Supply Unit	01-91-00004-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
ng-TD- Cable 3.0 m	Driver Cable 3 meters	01-90-00014-01
ng-TD- Cable 2.0 m	Driver Cable 2 meters	01-90-00011-01
Cable USB-A/USB-Mini-B 1.8 m	USB- Cable	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

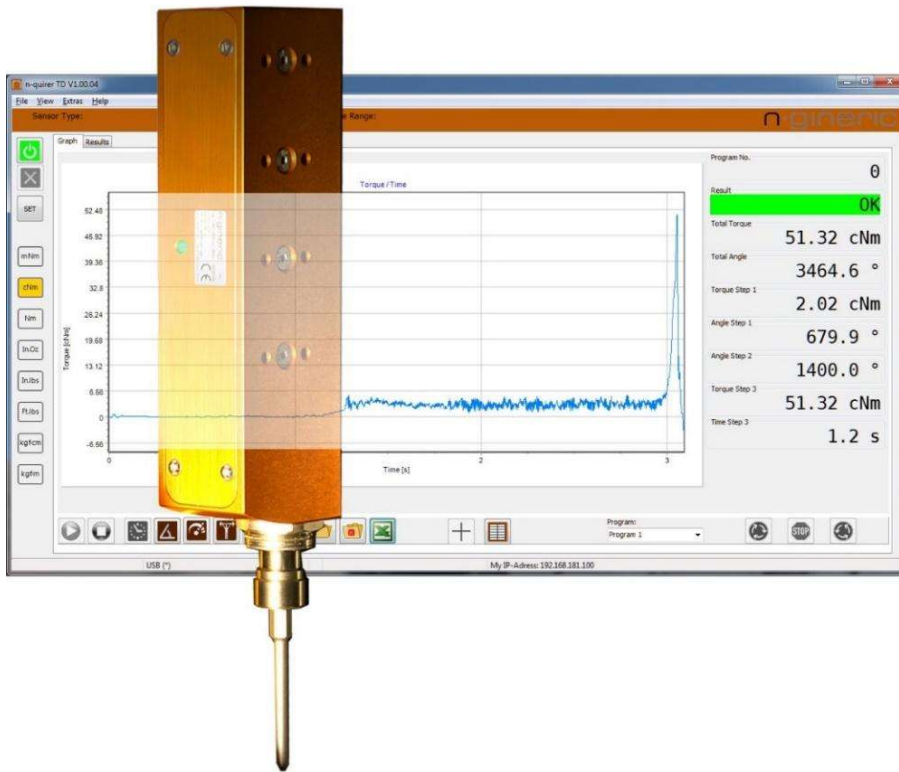


ng-μTDS05-ci

ng-μTDS08-ci

Weight: 0,3 kg

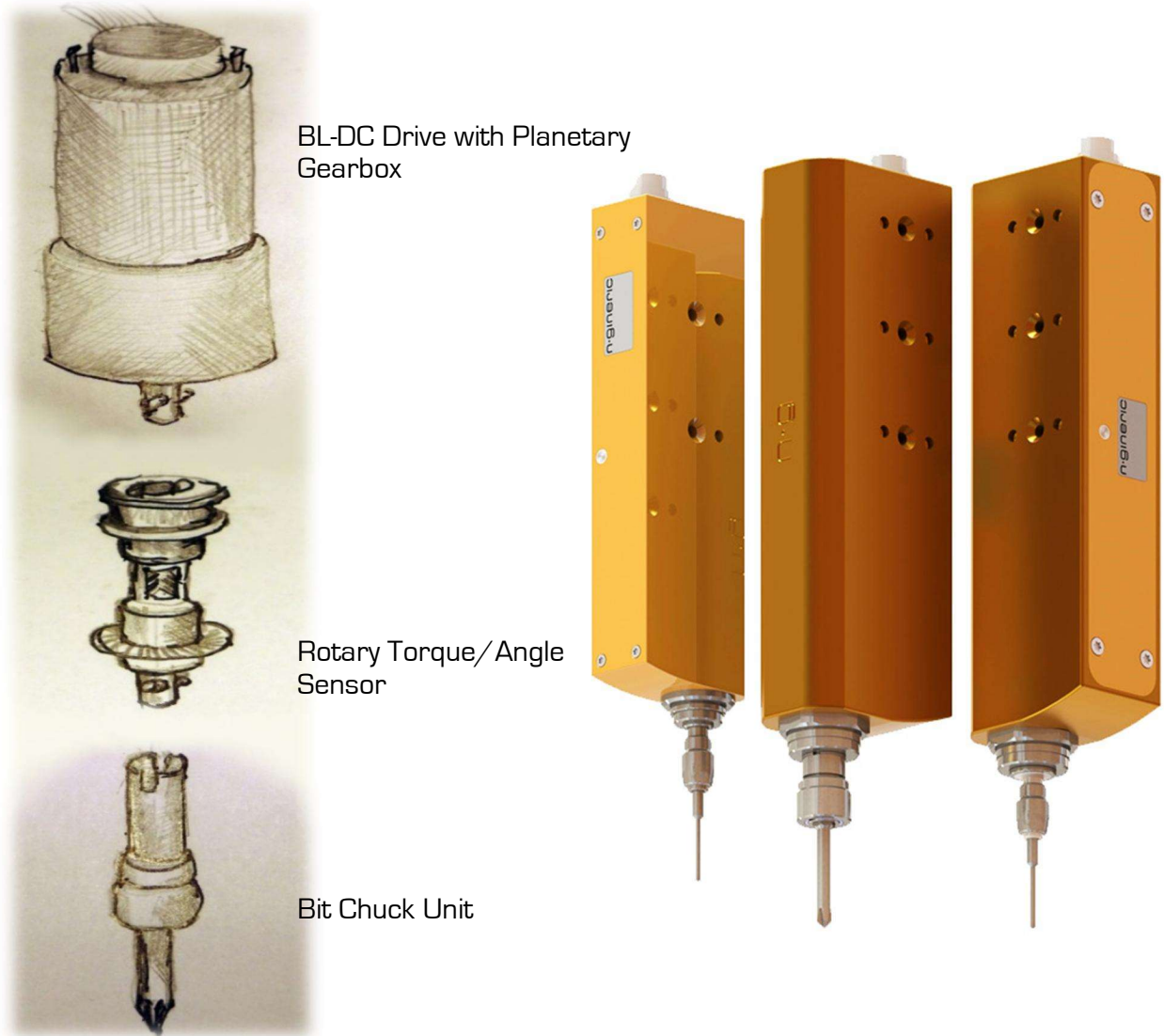
5.6 Stationary Sensor Torque Drivers ng-TDS



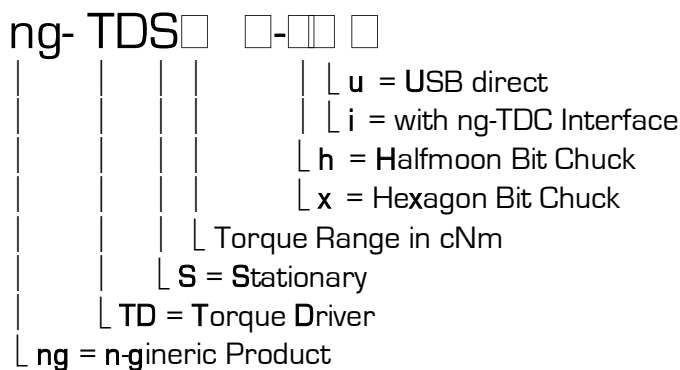
- Torque Range:
 - 0.005 – 0.05 Nm
 - 0.01 – 0.1 Nm
 - 0.02 – 0.2 Nm
 - 0.05 – 0.5 Nm
 - 0.10 – 1.0 Nm
 - 0.20 – 2.0 Nm
 - 0.40 – 4.0 Nm
 - 0.50 – 5.0 Nm
 - 0.60 – 6.0 Nm
 - 1.00 – 10.0 Nm
- Ultimate Torque/Angle Measurement Precision:
 - Strain Gage based Rotary Torque Sensor integrated at the Bit Chuck
 - 24 bits A/D Converter Resolution of the Torque Measurement at the Rotary Part
 - Brushless Digital Signal Transmission from the Rotary to the Stationary Part
 - 0.1 Degrees Resolution of the Angle Measurement directly at the Bit Chuck
- Massive Aluminum Housing
- Brushless DC Motor Technology
- Adaptive Screw Tightening Strategies
- All Controls integrated
- Industry-4.0-compliant
- Precise in measurement and highly productive

The **Adaptive Screw Tightening Strategy** provides the detection of the snug torque during the rundown of the screw. Depending on the snug torque, an additional constant or proportionate amount of torque can be applied to the screw joint to achieve repeatable clamping force.

Inner Structure:



Torque Driver Nomenclature:



ng-TDS05-hu Sensor Torque Driver System

Article Number	01-01-00659-01
Torque Range	0.5 to 5 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 1,000 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	181 x 48 x 24 mm
Weight	0.47 kg
Interface	USB

Scope of Supply

Type	Description	Article Number
ng-TDS05-hu Spindle	Torque Driver Spindle	01-01-00658-01
ng-TD-PS-24-80	Power Supply Unit	01-91-00006-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
USB Cable	Cable USB-A /USB Mini 1.8m	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

ng-TDS05-hi Sensor Torque Driver System

Article Number	01-01-00490-01
Torque Range	0.5 to 5 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 1,000 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	181 x 48 x 24 mm
Weight	0.47 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDS05-hi Spindle	Torque Driver Spindle	01-01-00491-01
ng-TD-PS-24-80	Power Supply Unit	01-91-00006-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01

ng-TDS10-hu Sensor Torque Driver System

Article Number	01-01-00241-01
Torque Range	1 to 10 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 1,000 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	181 x 48 x 24 mm
Weight	0.47 kg
Interface	USB

Scope of Supply

Type	Description	Article Number
ng-TDS10-hu Spindle	Torque Driver Spindle	01-01-00232-01
ng-TD-PS-24-80	Power Supply Unit	01-91-00006-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
USB Cable	Cable USB-A /USB Mini 1.8m	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

ng-TDS10-hi Sensor Torque Driver System

Article Number	01-01-00243-01
Torque Range	1 to 10 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 1,000 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	181 x 48 x 24 mm
Weight	0.47 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDS10-hi Spindle	Torque Driver Spindle	01-01-00230-01
ng-TD-PS-24-80	Power Supply Unit	01-91-00006-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01

ng-TDS20-hu Sensor Torque Driver System

Article Number	01-01-00233-01
Torque Range	2 to 20 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 1,000 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	181 x 48 x 24 mm
Weight	0.47 kg
Interface	USB

Scope of Supply

Type	Description	Article Number
ng-TDS20-hu Spindle	Torque Driver Spindle	01-01-00218-01
ng-TD-PS-24-80	Power Supply Unit	01-91-00006-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

ng-TDS20-hi Sensor Torque Driver System

Article Number	01-01-00239-01
Torque Range	2 to 20 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 1,000 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	181 x 48 x 24 mm
Weight	0.47 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDS20-hi Spindle	Torque Driver Spindle	01-01-00219-01
ng-TD-PS-24-80	Power Supply Unit	01-91-00006-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01

ng-TDS50-hu Sensor Torque Driver System

Article Number	01-01-00352-02
Torque Range	5 to 50 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 1,000 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	181 x 48 x 24 mm
Weight	0.47 kg
Interface	USB

Scope of Supply

Type	Description	Article Number
ng-TDS50-hu Spindle	Torque Driver Spindle	01-01-00351-02
ng-TD-PS-24-80	Power Supply Unit	01-91-00006-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
USB Cable	Cable USB-A /USB Mini 1.8m	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

ng-TDS50-hi Sensor Torque Driver System

Article Number	01-01-00297-02
Torque Range	5 to 50 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 1,000 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	181 x 48 x 24 mm
Weight	0.47 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDS50-hi Spindle	Torque Driver Spindle	01-01-00298-02
ng-TD-PS-24-80	Power Supply Unit	01-91-00006-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01

ng-TDS100-hu Sensor Torque Driver System

Article Number	01-01-00231-01
Torque Range	10 to 100 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 1,300 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	USB

Scope of Supply

Type	Description	Article Number
ng-TDS100-hu Spindle	Torque Driver Spindle	01-01-00223-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
USB Cable	Cable USB-A /USB Mini 1.8m	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

ng-TDS100-hi Sensor Torque Driver System

Article Number	01-01-00237-01
Torque Range	10 to 100 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 1,300 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDS100-hi Spindle	Torque Driver Spindle	01-01-00217-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01

ng-TDS200-xu Sensor Torque Driver System

Article Number	01-01-00279-01
Torque Range	20 to 200 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 1000 min ⁻¹
Bit Drive	1/4" Hexagon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	USB

Scope of Supply

Type	Description	Article Number
ng-TDS200-xu Spindle	Torque Driver Spindle	01-01-00285-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

ng-TDS200-xi Sensor Torque Driver System

Article Number	01-01-00280-01
Torque Range	20 to 200 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 1000 min ⁻¹
Bit Drive	1/4" Hexagon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDS200-xi Spindle	Torque Driver Spindle	01-01-00286-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01

ng-TDS400-xu Sensor Torque Driver System

Article Number	01-01-00235-01
Torque Range	40 to 400 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 800 min ⁻¹
Bit Drive	1/4" Hexagon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	USB

Scope of Supply

Type	Description	Article Number
ng-TDS400-xu Spindle	Torque Driver Spindle	01-01-00164-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

ng-TDS400-xi Sensor Torque Driver System

Article Number	01-01-00238-01
Torque Range	40 to 400 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 800 min ⁻¹
Bit Drive	1/4" Hexagon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDS400-xi Spindle	Torque Driver Spindle	01-01-00216-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01

ng-TDS500-xu Sensor Torque Driver System

Article Number	01-01-00274-01
Torque Range	50 to 500 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 600 min ⁻¹
Bit Drive	1/4" Hexagon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	USB

Scope of Supply

Type	Description	Article Number
ng-TDS500-xu Spindle	Torque Driver Spindle	01-01-00276-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

ng-TDS500-xi Sensor Torque Driver System

Article Number	01-01-00275-01
Torque Range	50 to 500 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 600 min ⁻¹
Bit Drive	1/4" Hexagon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDS500-xi Spindle	Torque Driver Spindle	01-01-00277-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01

ng-TDS600-xi Sensor Torque Driver System

Article Number	01-01-00430-01
Torque Range	60 to 600 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	50 - 500 min ⁻¹
Bit Drive	¼" Hexagon
Dimensions	231 x 58 x 36 mm
Weight	1.15 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDS600-xi Spindle	Torque Driver Spindle	01-01-00431-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01

ng-TDS1000-xi Sensor Torque Driver System

Article Number	01-01-00410-01
Torque Range	100 to 1,000 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	50 - 400 min ⁻¹
Bit Drive	¼" Hexagon
Dimensions	253 x 64 x 42 mm
Weight	1.75 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDS1000-xi Spindle	Torque Driver Spindle	01-01-00409-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01

5.7 Stationary Sensor Measurement Drivers ng-TDSQ

These systems are designed for precise detection of torque and angle of rotation at low speed and are therefore ideal for measurement and adjustment processes. They are otherwise functionally identical to the **ng-TDS** systems.

ng-TDSQ10-hu Sensor Measurement Driver System

Article Number	01-01-00244-01
Torque Range	1 to 10 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	5 to 300 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	181 x 48 x 24 mm
Weight	0.47 kg
Interface	USB

Scope of Supply

Type	Description	Article Number
ng-TDSQ10-hu Spindle	Torque Driver Spindle	01-01-00364-01
ng-TD-PS-24-80	Power Supply Unit	01-91-00006-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
USB Cable	Cable USB-A /USB Mini 1.8m	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

ng-TDSQ10-hi Sensor Measurement Driver System

Article Number	01-01-00245-01
Torque Range	1 to 10 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	5 to 300 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	181 x 48 x 24 mm
Weight	0.47 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDSQ10-hi Spindle	Torque Driver Spindle	01-01-00363-01
ng-TD-PS-24-80	Power Supply Unit	01-91-00006-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01

ng-TDSQ20-hu Sensor Measurement Driver System

Article Number	01-01-00229-01
Torque Range	2 to 20 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	5 to 300 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	181 x 48 x 24 mm
Weight	0.47 kg
Interface	USB

Scope of Supply

Type	Description	Article Number
ng-TDSQ20-hu Spindle	Torque Driver Spindle	01-01-00362-01
ng-TD-PS-24-80	Power Supply Unit	01-91-00006-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

ng-TDSQ20-hi Sensor Measurement Driver System

Article Number	01-01-00246-01
Torque Range	2 to 20 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	5 to 300 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	181 x 48 x 24 mm
Weight	0.47 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDSQ20-hi Spindle	Torque Driver Spindle	01-01-00361-01
ng-TD-PS-24-80	Power Supply Unit	01-91-00006-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01

ng-TDSQ50-hu Sensor Measurement Driver System

Article Number	01-01-00365-01
Torque Range	5 to 50 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	5 to 300 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	USB

Scope of Supply

Type	Description	Article Number
ng-TDSQ50-hu Spindle	Torque Driver Spindle	01-01-00353-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

ng-TDSQ50-hi Sensor Measurement Driver System

Article Number	01-01-00307-01
Torque Range	5 to 50 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	5 to 300 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDSQ50-hi Spindle	Torque Driver Spindle	01-01-00306-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01

ng-TDSQ100-hu Sensor Measurement Driver System

Article Number	01-01-00227-01
Torque Range	10 to 100 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	5 to 300 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	USB

Scope of Supply

Type	Description	Article Number
ng-TDSQ100-hu Spindle	Torque Driver Spindle	01-01-00360-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

ng-TDSQ100-hi Sensor Measurement Driver System

Article Number	01-01-00247-01
Torque Range	10 to 100 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	5 to 300 min ⁻¹
Bit Drive	4 mm Halfmoon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDSQ100-hi Spindle	Torque Driver Spindle	01-01-00251-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01

ng-TDSQ200-xu Sensor Measurement Driver System

Article Number	01-01-00369-01
Torque Range	20 to 200 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	5 to 300 min ⁻¹
Bit Drive	¼" Hexagon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	USB

Scope of Supply

Type	Description	Article Number
ng-TDSQ200-xu Spindle	Torque Driver Spindle	01-01-00359-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

ng-TDSQ200-xi Sensor Measurement Driver System

Article Number	01-01-00368-01
Torque Range	20 to 200 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	5 to 300 min ⁻¹
Bit Drive	¼" Hexagon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDSQ200-xi Spindle	Torque Driver Spindle	01-01-00358-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8m	01-90-00002-01

ng-TDSQ400-xu Sensor Measurement Driver System

Article Number	01-01-00228-01
Torque Range	40 to 400 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	5 to 300 min ⁻¹
Bit Drive	¼" Hexagon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	USB

Scope of Supply

Type	Description	Article Number
ng-TDSQ400-xu Spindle	Torque Driver Spindle	01-01-00357-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

ng-TDSQ400-xi Sensor Measurement Driver System

Article Number	01-01-00248-01
Torque Range	40 to 400 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	5 to 300 min ⁻¹
Bit Drive	¼" Hexagon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDSQ400-xi Spindle	Torque Driver Spindle	01-01-00356-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8m	01-90-00002-01

ng-TDSQ500-xu Sensor Measurement Driver System

Article Number	01-01-00367-01
Torque Range	50 to 500 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	5 to 300 min ⁻¹
Bit Drive	¼" Hexagon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	USB

Scope of Supply

Type	Description	Article Number
ng-TDSQ500-xu Spindle	Torque Driver Spindle	01-01-00355-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01
n-quirer TD	Torque Driver System Software	01-01-00215-01

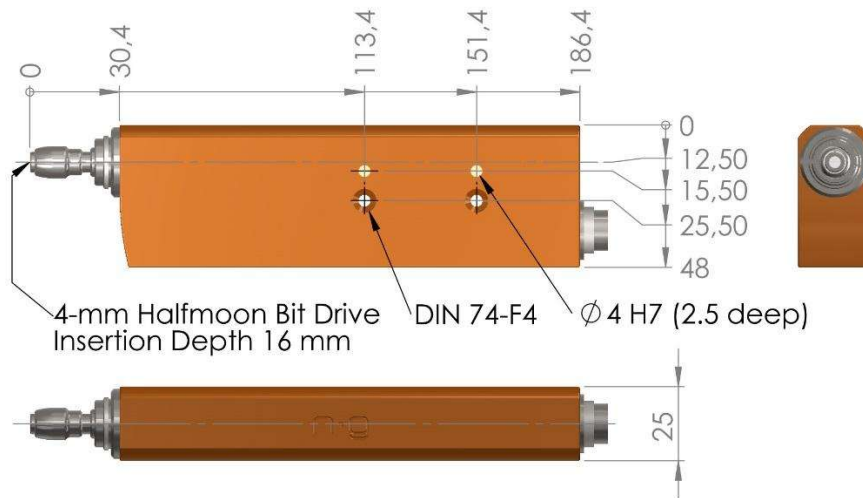
ng-TDSQ500-xi Sensor Measurement Driver System

Article Number	01-01-00366-01
Torque Range	50 to 500 cNm
Torque Measurement Accuracy	1 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	5 to 300 min ⁻¹
Bit Drive	¼" Hexagon
Dimensions	212 x 58 x 35 mm
Weight	0.98 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-TDSQ500-xi Spindle	Torque Driver Spindle	01-01-00354-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A /USB Mini 1.8 m	01-90-00002-01

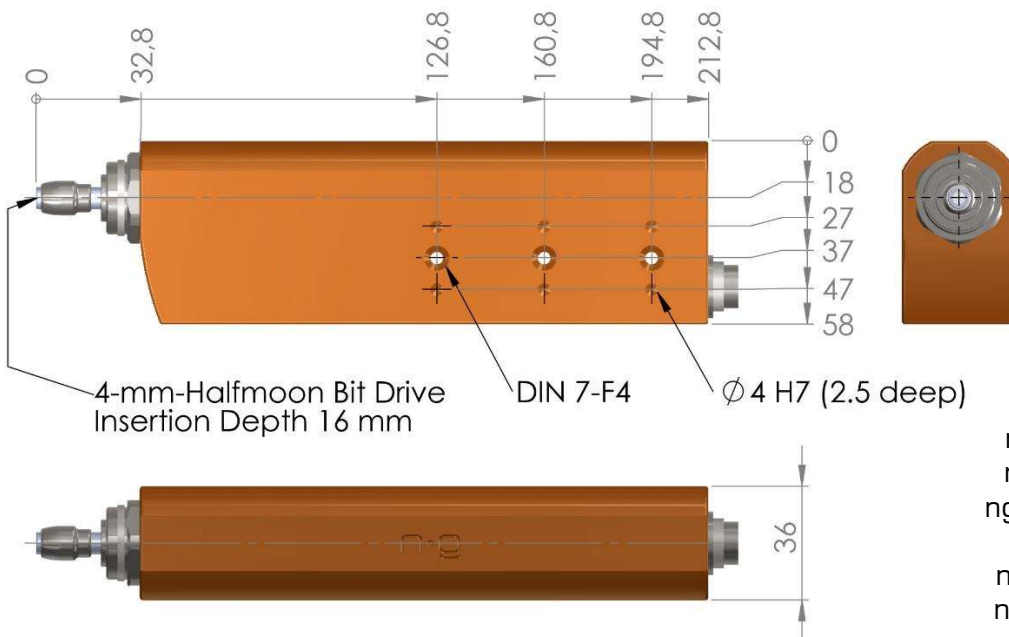
Dimensions and Weigth:



ng-TDS05-hi
 ng-TDS10-hi
 ng-TDS20-hi
 ng-TDS50-hi
 ng-TDSQ10-hi
 ng-TDSQ20-hi

ng-TDS05-hu
 ng-TDS10-hu
 ng-TDS20-hu
 ng-TDS50-hu
 ng-TDSQ10-hu
 ng-TDSQ20-hu

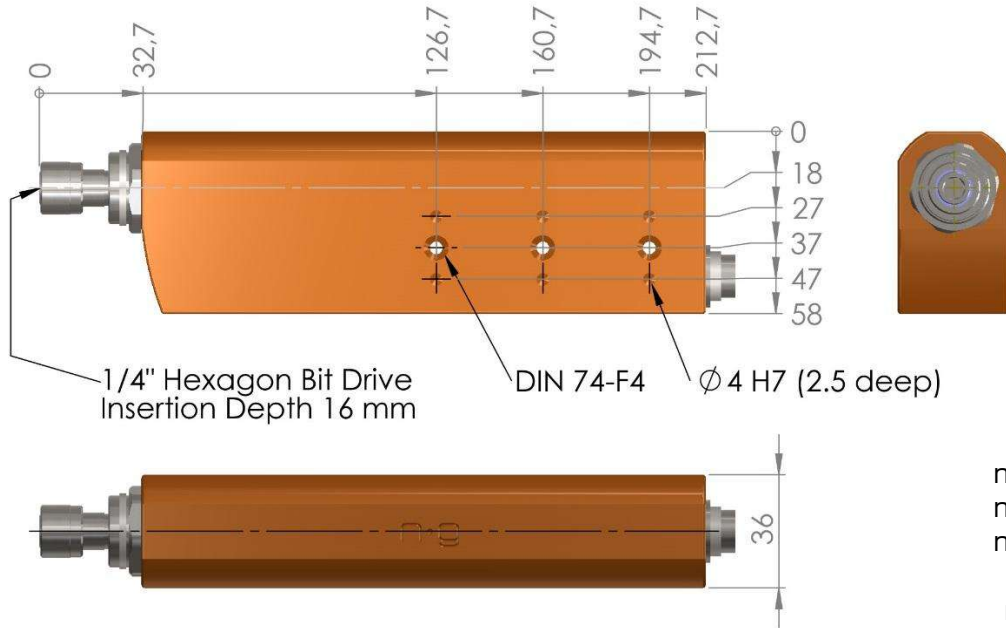
Weight: 0,47 kg



ng-TDS100-hi
 ng-TDSQ50-hi
 ng-TDSQ100-hi

ng-TDS100-hu
 ng-TDSQ50-hu
 ng-TDSQ100-hu

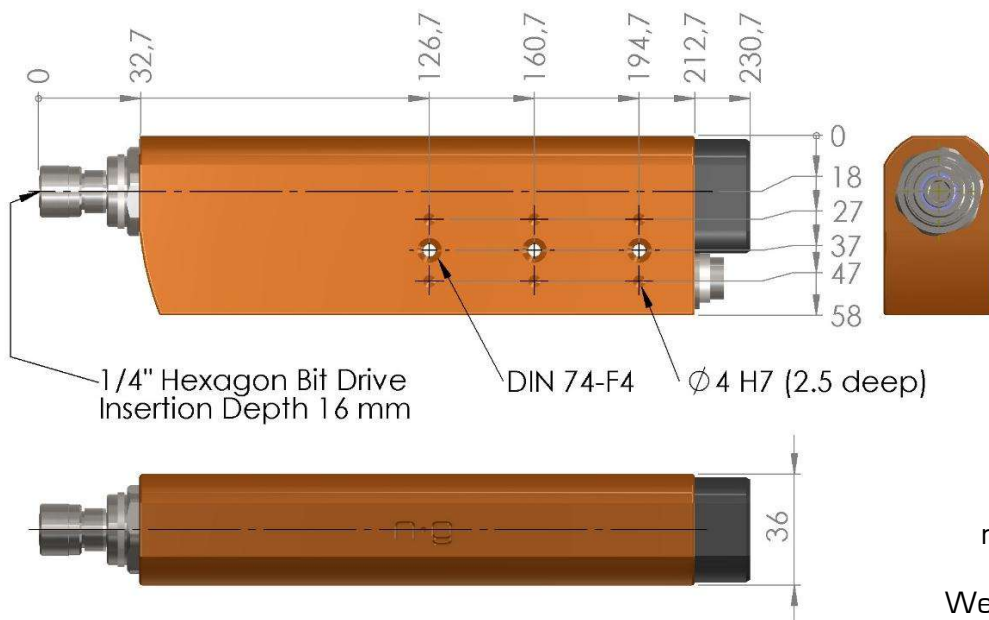
Weight: 0,98 kg



ng-TDS200-xi
 ng-TDS400-xi
 ng-TDS500-xi
 ng-TDSQ200-xi
 ng-TDSQ400-xi
 ng-TDSQ500-xi

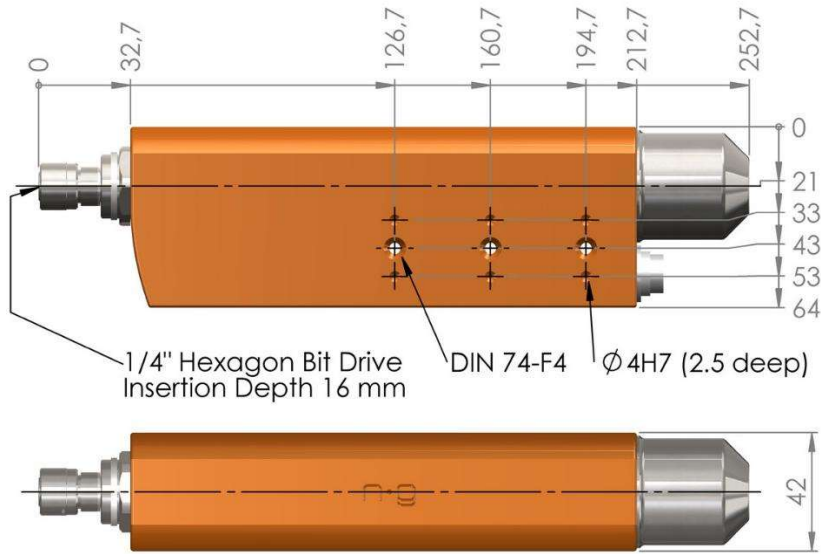
ng-TDS200-xu
 ng-TDS400-xu
 ng-TDS500-xu
 ng-TDSQ200-xu
 ng-TDSQ400-xu
 ng-TDSQ500-xu

Weight: 0,98 kg



ng-TDS600-xi

Weight: 1,15 kg



ng-TDS1000-xi

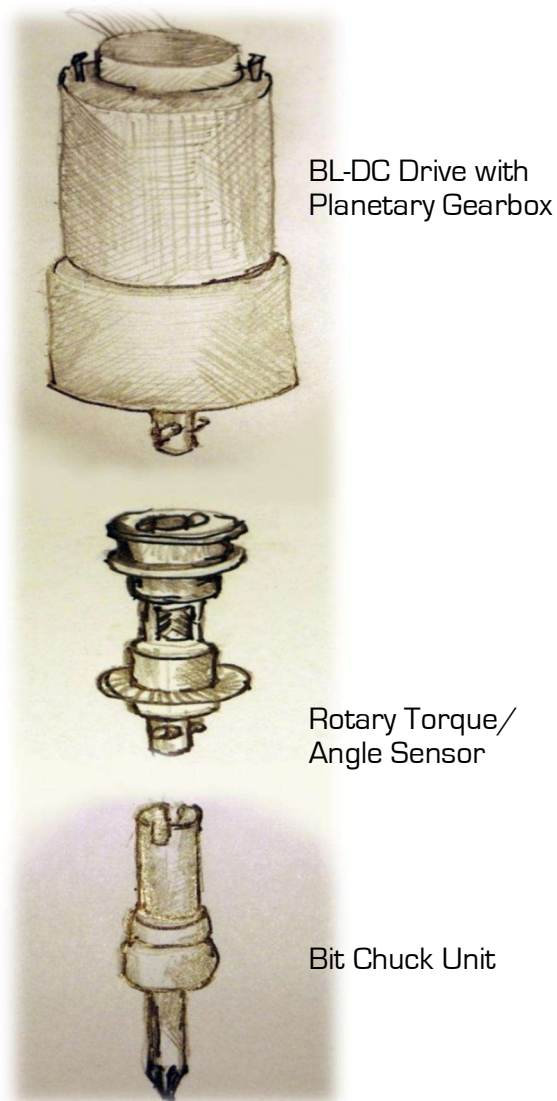
Weight: 1,75 kg

5.8 Stationary Sensor Torque Drivers ng-eTDS

- Torque Range:
 - 0.10 – 1.0 Nm
 - 0.20 – 2.0 Nm
 - 0.40 – 4.0 Nm
 - 0.50 – 5.0 Nm
- Ultimate Torque/Angle Measurement Precision:
 - Strain Gage based Rotary Torque Sensor integrated at the Bit Chuck
 - 24 bits A/D Converter Resolution of the Torque Measurement at the Rotary Part
 - Brushless Digital Signal Transmission from the Rotary to the Stationary Part
 - 0.1 Degrees Resolution of the Angle Measurement directly at the Bit Chuck
- Massive Aluminum Housing
- Brushless DC Motor Technology
- Adaptive Screw Tightening Strategies
- All Controls integrated
- Industry-4.0-compliant
- Precise in measurement and highly productive

The **Adaptive Screw Tightening Strategy** provides the detection of the snug torque during the rundown of the screw. Depending on the snug torque, an additional constant or proportionate amount of torque can be applied to the screw joint to achieve repeatable clamping force.

Inner Structure:



Torque Driver Nomenclature:

ng-eTDS -

- | = ng-TDC Interface
- | = Halfmoon Bit Chuck
- | = Hexagon Bit Chuck
- | | Torque Range in cNm
- | | S = Stationary
- | | eTD = Torque Driver (Screwdriver system, Economy-Version)
- | ng = n-gineric Product

ng-eTDS100-xi Sensor Torque Driver System

Article Number	01-01-00628-01
Torque Range	10 to 100 cNm
Torque Measurement Accuracy	2 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 1,300 min ⁻¹
Bit Drive	1/4" Hexagon
Dimensions	Ø 42 x 279 mm
Weight	0.88 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-eTDS100-xi Spindle	Torque Driver Handpiece	01-01-00627-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A / USB Mini 1.8 m	01-90-00002-01

ng-eTDS200-xi Sensor Torque Driver System

Article Number	01-01-00589-01
Torque Range	20 to 200 cNm
Torque Measurement Accuracy	2 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 800 min ⁻¹
Bit Drive	1/4" Hexagon
Dimensions	Ø 42 x 279 mm
Weight	0.88 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-eTDS200-xi Spindle	Torque Driver Handpiece	01-01-00588-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A / USB Mini 1.8 m	01-90-00002-01

ng-eTDS400-xi Sensor Torque Driver System

Article Number	01-01-00630-01
Torque Range	40 to 400 cNm
Torque Measurement Accuracy	2 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 800 min ⁻¹
Bit Drive	¼" Hexagon
Dimensions	Ø 42 x 279 mm
Weight	0.88 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-eTDS400-xi Spindle	Torque Driver Handpiece	01-01-00629-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A / USB Mini 1.8 m	01-90-00002-01

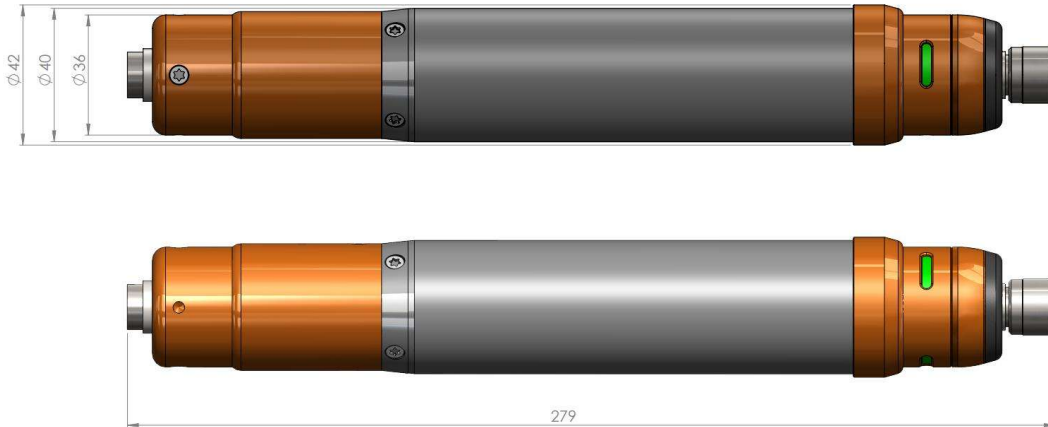
ng-eTDS500-xi Sensor Torque Driver System

Article Number	01-01-00632-01
Torque Range	50 to 500 cNm
Torque Measurement Accuracy	2 % of the F.S.R.
Angle Measurement Resolution	0.1 Degrees
RPM Range	100 to 600 min ⁻¹
Bit Drive	¼" Hexagon
Dimensions	Ø 42 x 279 mm
Weight	0.88 kg
Interface	Digital to ng-TDC

Scope of Supply

Type	Description	Article Number
ng-eTDS500-xi Spindle	Torque Driver Handpiece	01-01-00631-01
ng-TD-PS-36-600	Power Supply Unit	01-91-00004-01
ng-TD-Cable 3 m	Driver Cable 3 meters	01-90-00014-01
ng-TD-Cable 2 m	Driver Cable 2 meters	01-90-00011-01
ng-TDC	Torque Driver Controller Interface	01-01-00220-01
n-quirer TD	Torque Driver System Software	01-01-00215-01
USB Cable	Cable USB-A / USB Mini 1.8 m	01-90-00002-01

Dimensions and Weigth:



ng-eTDS100-xi
ng-eTDS200-xi
ng-eTDS400-xi
ng-eTDS500-xi

Weight: 0,88 kg

6 Systems and Components for Automated Assembly

6.1 Blow Feeding Module ng-BF400



The blow feeding module is designed for highly effective automated screw tightening applications. It is built of the following components:

- Fixture unit, prepared for mounting of the module at a robot (e. g. a SCARA or Cartesian Robot)
- Pneumatic precision slide for the driver stroke
- Mouthpiece Assembly with bracket set

The screws are blown from the screw feeder unit through a tube into the mouthpiece. They are stopped by the spring balanced brackets in alignment with the screw driver spindle. The tightening process begins, when the spindle moves downwards pushing the screw through the brackets towards the workpiece while rotating slowly.

The mouthpiece and the brackets sets are designed and manufactured in accordance with the geometric requirements of the parts and screws.

The module is prepared to carry the torque driver types

- ng-TDS50-hi
- ng-TDS100-hi
- ng-TDS200-xi
- ng-TDS400-xi
- ng-TDS500-xi
- ng-TDS600-xi

The total weight of the unit, including the torque driver spindle is approximately 2.0 kg.

The modules are based on a standard design. Most of the time, customization of application specific parts is necessary. It can be done on request after a profound technical clarification.

6.2 „Flying Handling“ Module ng-FLH400



The Pick-&Place feeding module is designed for highly effective automated screw tightening applications. It is built of the following components:

- Fixture Plate, prepared for mounting of the module at (e. g.) a Cartesian robot
- Pneumatic precision slide for the driver stroke
- Screw handling assembly with vertical / horizontal movements via pneumatic precision slides

While the screw is being tightened, the next screw can be blown into a little dome mounted in the screw handling. When the screw driver spindle has moved back into the upper position, the handling brings the screw to the vacuum nozzle, then it moves back into the loading position. This can happen while the robot moves to the next screw joint position. The process time is significantly shorter than with the normal Pick-&Place.

The vacuum adapter assembly with the nozzle is attached to the torque driver spindle.

The module is prepared to carry the torque driver types

- ng-TDS50-hi
- ng-TDS100-hi
- ng-TDS200-xi
- ng-TDS400-xi
- ng-TDS500-xi
- ng-TDS600-xi

The screw spindle is equipped with a vacuum adapter (see 6.8) for sucking the screw.

The total weight of the unit, including the torque driver spindle is approximately 3.4 kg.

The modules are based on a standard design. Most of the time, customization of application specific parts is necessary. It can be done on request after a profound technical clarification.