



DATASHEET

HEX-E/H QC

v1.3

1. Datasheet

1.1. HEX-E QC

General Properties	6-Axis Force/Torque Sensor				Unit
	Fxy	Fz	Txy	Tz	
Nominal Capacity (N.C)	200	200	10	6.5	[N] [Nm]
Single axis deformation at N.C (typical)	± 1.7 ± 0.067	± 0.3 ± 0.011	± 2.5 ± 2.5	± 5 ± 5	[mm] [°] [inch] [°]
Single axis overload	500	500	500	500	[%]
Signal noise* (typical)	0.035	0.15	0.002	0.001	[N] [Nm]
Noise-free resolution (typical)	0.2	0.8	0.01	0.002	[N] [Nm]
Full scale nonlinearity	< 2	< 2	< 2	< 2	[%]
Hysteresis (measured on Fz axis , typical)	< 2	< 2	< 2	< 2	[%]
Crosstalk (typical)	< 5	< 5	< 5	< 5	[%]
IP Classification	67				
Dimensions (H x W x L)	50 x 71 x 93 1.97 x 2.79 x 3.66				[mm] [inch]
Weight (with built-in adapter plates)	0.347 0.76				[kg] [lb]

* Signal noise is defined as the standard deviation (1 σ) of a typical one second no-load signal.

Operating Conditions	Minimum	Typical	Maximum	Unit
Power supply	7	-	24	[V]
Power consumption	-	-	0.8	[W]
Operating temperature	0 32	- -	55 131	[°C] [°F]
Relative humidity (non-condensing)	0	-	95	[%]
Calculated operation life	30 000	-	-	[Hours]
Re-calibration period*	-	15 000**	-	[Hours]

*Notification is provided when factory re-calibration is recommended.

**Based on energized hours.

Best practice for maintaining your calibrated device:

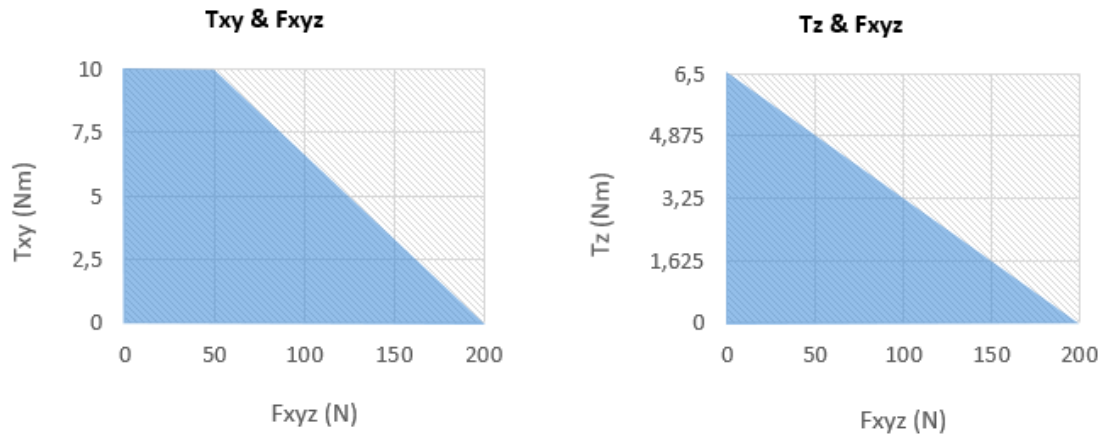
- Turn off the HEX sensor when not in use for a longer period.
- Offload the HEX sensor when not used for a longer period.
- The Auto-calibration software feature is recommended every 2-3 month or when needed.

Complex Loading

During single-axis loading, the sensor can be operated up to its nominal capacity. Above the nominal capacity the reading is inaccurate and invalid.

During complex loading (when more than one axis is loaded) the nominal capacities are reduced. The following diagrams show the complex loading scenarios.

The sensor cannot be operated outside of the Normal Operating Area (marked with blue on the diagrams below).



1.2. HEX-H QC

General Properties	6-Axis Force/Torque Sensor				Unit
	Fxy	Fz	Txy	Tz	
Nominal Capacity (N.C)	200	200	20	13	[N] [Nm]
Single axis deformation at N.C (typical)	± 0.6 ± 0.023	± 0.25 ± 0.009	± 2 ± 2	± 3.5 ± 3.5	[mm] [°] [inch] [°]
Single axis overload	500	400	300	300	[%]
Signal noise* (typical)	0.1	0.2	0.006	0.002	[N] [Nm]
Noise-free resolution (typical)	0.5	1	0.036	0.008	[N] [Nm]
Full scale nonlinearity	< 2	< 2	< 2	< 2	[%]
Hysteresis (measured on Fz axis , typical)	< 2	< 2	< 2	< 2	[%]
Crosstalk (typical)	< 5	< 5	< 5	< 5	[%]
IP Classification	67				
Dimensions (H x W x L)	50 x 71 x 93 1.97 x 2.79 x 3.66				[mm] [inch]
Weight (with built-in adapter plates)	0.35 0.77				[kg] [lb]

* Signal noise is defined as the standard deviation (1 σ) of a typical one second no-load signal.

Operating Conditions	Minimum	Typical	Maximum	Unit
Power supply	7	-	24	[V]
Power consumption	-	-	0.8	[W]
Operating temperature	0 32	- -	55 131	[°C] [°F]
Relative humidity (non-condensing)	0	-	95	[%]
Calculated operation life	30 000	-	-	[Hours]
Re-calibration period*	-	7 500**	-	[Hours]

*Notification is provided when factory re-calibration is recommended.

**Based on energized hours.

Best practice for maintaining your calibrated device:

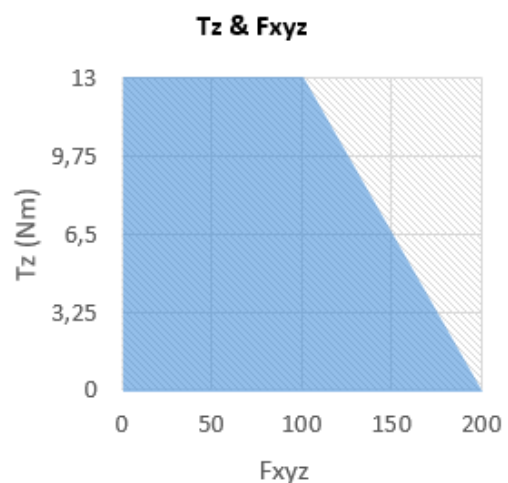
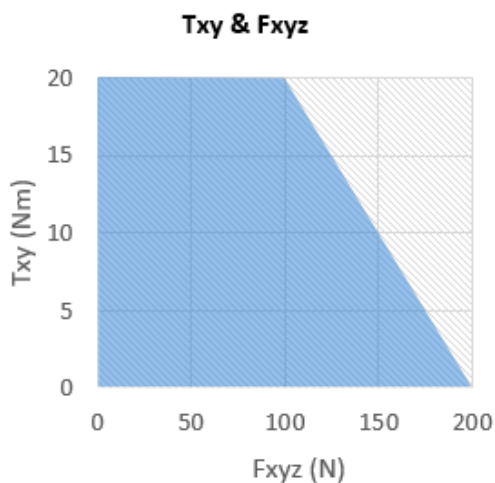
- Turn off the HEX sensor when not in use for a longer period.
- Offload the HEX sensor when not used for a longer period.
- The Auto-calibration software feature is recommended every 2-3 month or when needed.

Complex Loading

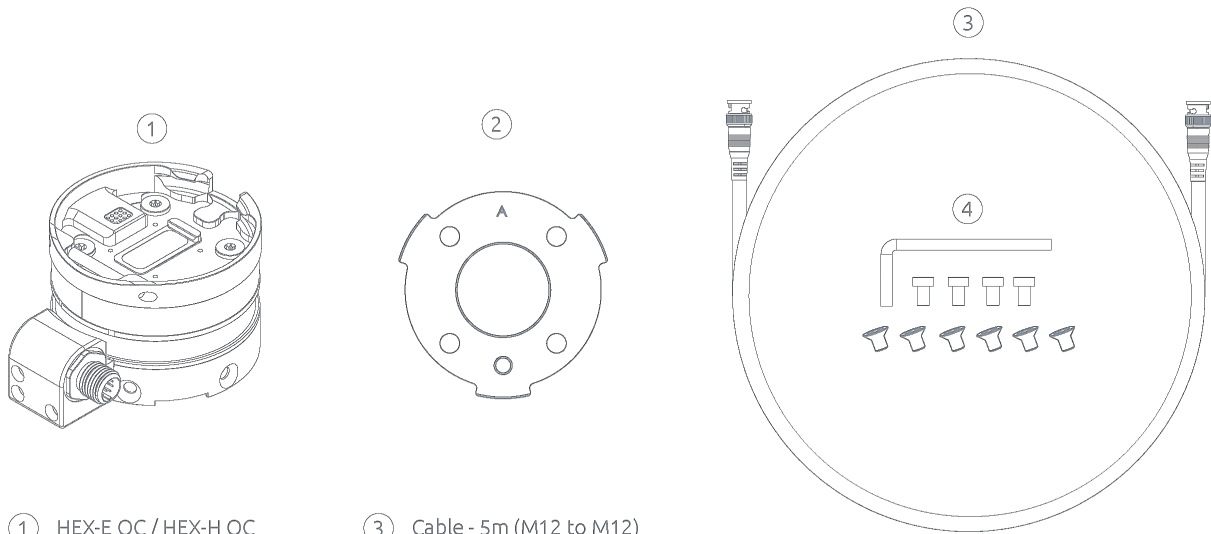
During single-axis loading, the sensor can be operated up to its nominal capacity. Above the nominal capacity the reading is inaccurate and invalid.

During complex loading (when more than one axis is loaded) the nominal capacities are reduced. The following diagrams show the complex loading scenarios.

The sensor cannot be operated outside of the Normal Operating Area (marked with blue on the diagrams below).



1.3. HEX-E/H QC box content



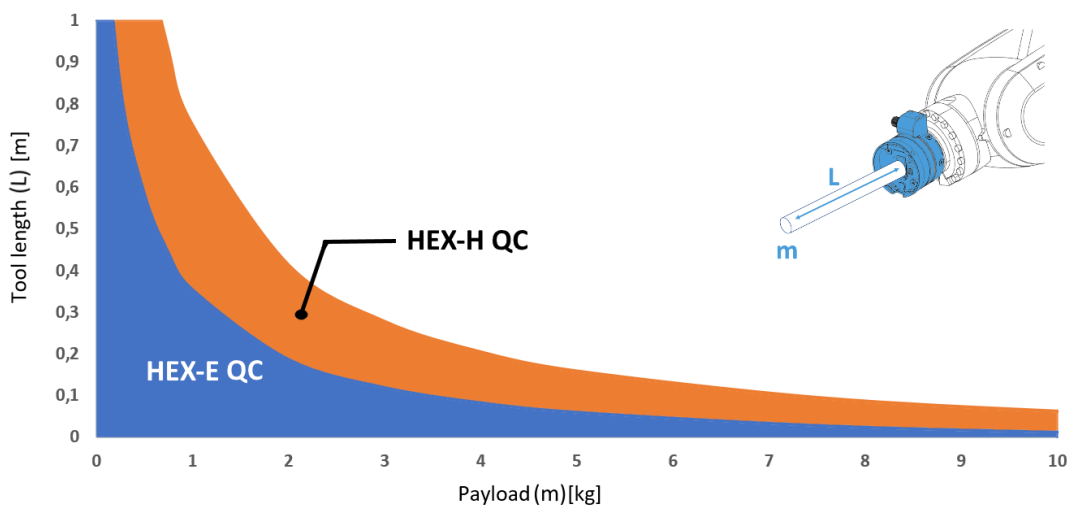
- ① HEX-E QC / HEX-H QC
- ② Mounting Adapter Plate
- ③ Cable - 5m (M12 to M12)
- ④ Mounting Screws and Torx 20 Key

1.4. HEX-E QC and HEX-H QC Comparison

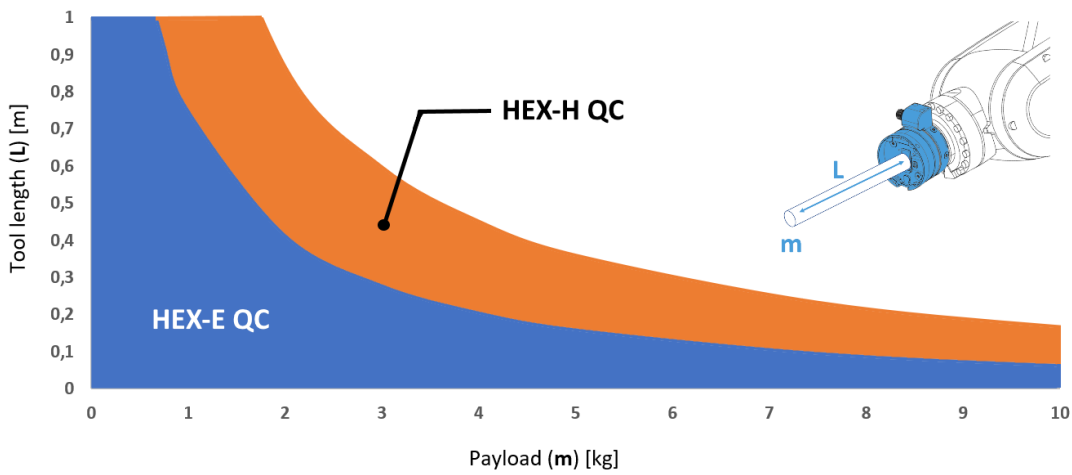
When the sensor is used in applications where higher sensitivity is needed HEX-E QC is recommended, where higher payload or tool length is needed HEX-H QC is recommended.

The following graphs show the extent of the payload and the tool length that you can use together with the HEX-E and the HEX-H sensors in case of applications requiring high or moderate precision.

Applications requiring high precision (e.g.: force control based applications like Sanding and Pin Insertion)

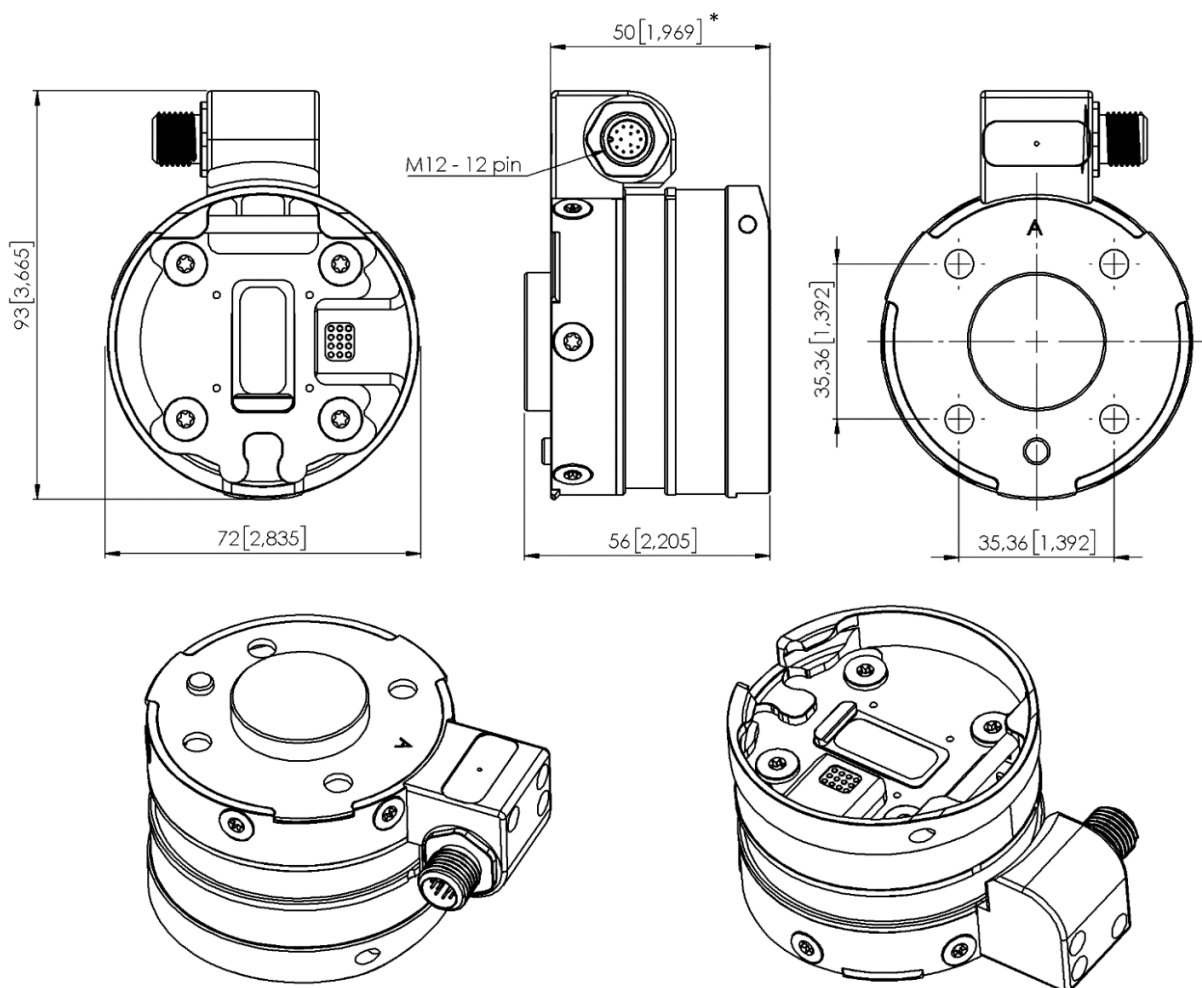


Other applications (e.g.: part detection, force monitoring)



In the blue region it is recommended to use only the HEX-E QC.

1.5. HEX-E/H QC



* Distance from Robot flange interface to OnRobot tool

All dimensions are in mm and [inches].