tensionpro
THE BOLT TENSIONER EXPERTS

DATASHEET DS-3002

SERIES: InterBolt™ Intelligent Bolt Load Monitoring

Product Request Form

Refer to product request instructions for more details on the below sections.

Please supply any existing engineering drawings and/or part numbers with this form.

Overview

Application/Industry	
Environment	
Free-Issue bolts	
Bolt quantity	

Bolt information

Bolt Head Type	
Bolt Dimension Standard	
Nominal Bolt Diameter (d)	
Head Across Flats (s)	
Thread Pitch	
Bolt Length (l)	
Nominal Thread Length (b)	
Material Specification	
Material Grade/ Class	
Finish/ Coating	

Application information

Installation Method	
Target Load	
Bolted Joint Type	
Grip Length	

Monitoring infrastructure

Remote Monitoring	
Local Monitoring	

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Product Request Form - EXAMPLE

Refer to product request instructions for more details on the below sections.

Please supply any existing engineering drawings and/or part numbers with this form.

Overview

Application/Industry	WTG blade to bearing bolt / Offshore Wind
Environment	High corrosion
Free-Issue bolts	No
Bolt quantity	96

Bolt information

Bolt Head Type	Hex head
Bolt Dimension Standard	DIN 931
Nominal Bolt Diameter (d)	M36
Head Across Flats (s)	55 mm
Thread Pitch	4.0mm
Bolt Length (l)	140 mm
Nominal Thread Length (b)	84 mm
Material Specification	ISO 898-1
Material Grade/ Class	Class 10.9
Finish/ Coating	Zinc Flake

Application information

Installation Method	Torque - 750Nm - molykote lubrication
Target Load	320 kN
Bolted Joint Type	Blind
Grip Length	60 mm

Monitoring infrastructure

Remote Monitoring	Yes - 4 user logins, 1 gateway, cellular comms (4G) available
Local Monitoring	Yes - 1 tablet

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Product Request Form - INSTRUCTIONS

Overview

Application/Industry	
Environment	
Free-Issue bolts	
Bolt quantity	

1. **Application/ industry**
   Specify the industry and application the product is intended to be used in?
2. **Environment**
   Specify any environmental factors which could present a challenge? For example: extremes of temperature, high vibration or shock, high probability of impacts, high corrosion environment, etc..
3. **Free-issue bolts**
   Are the bolts free-issue or are they to be supplied?
4. **Bolt quantity**
   Specify the number of bolts requested.

Bolt information

Bolt Head Type	
Bolt Dimension Standard	
Nominal Bolt Diameter (d)	
Head Across Flats (s)	
Thread Pitch	
Bolt Length (l)	
Nominal Thread Length (b)	
Material Specification	
Material Grade/ Class	
Finish/ Coating	

For measurements d, s, l and b, refer to Figure 1.

1. **Bolt head type**
   Specify the bolt head type? For example: hex head, hex flange, heavy hex head, 12-point flange, stud bolt.
2. **Bolt dimension standard**
   State whether bolt dimensions conform to a standard.
   For example: ISO4014/ DIN931, ISO4017/ DIN933, DIN961, ASTM A325M.
   If the bolt dimensions conform to a standard, ignore sections 4-7.

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Product Request Form - INSTRUCTIONS

3. **Nominal bolt diameter (d)**
   Specify bolt diameter - standard size of the unthreaded body or major diameter of the threads.
4. **Head across flats (s)**
   Specify drive size – across flats width of bolt head.
5. **Thread pitch**
   Specify thread pitch - the distance between two successive thread crests or roots. Use pitch for metric fasteners of threads per inch for imperial fasteners.
6. **Bolt length (l)**
   Specify bolt length as measured from the underside of the head.
7. **Nominal thread length**
   For partially threaded bolts, specify the nominal thread length.
8. **Material specification**
   State whether material confirms to a standard. For example: ASTM A193, ISO 898-1.
9. **Material grade/ class**
   Specify material grade of class. For example: B5, B6, B7, grade 8, class 8.8, class 10.9, class 12.9.
10. **Finish/ coating**
    Specify finish. For example: plain (bare metal or black oxide finish), zinc plating, hot dip galvanising, delta, xylan, etc..

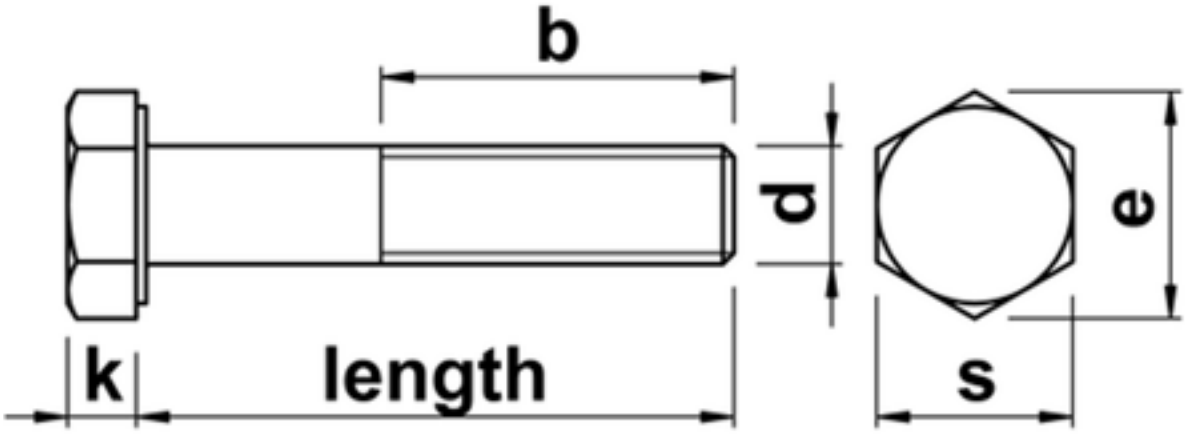

Figure 1. Bolt dimensions

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Application information

Installation Method	Torque - 750Nm - molykote lubrication
Target Load	320 kN
Bolted Joint Type	Blind
Grip Length	60 mm

1. **Installation method**
   State how bolts are currently installed. Include details on torque settings and whether lubrication is used.
2. **Target load**
   Specify target load (in kN) if known.
3. **Bolted joint type**
   Specify bolted joint type: through bolting or blind hole. See Figure 2
4. **Grip length**
   Specify grip length: the distance from a fastener's load bearing surface to plane of thread engagement.

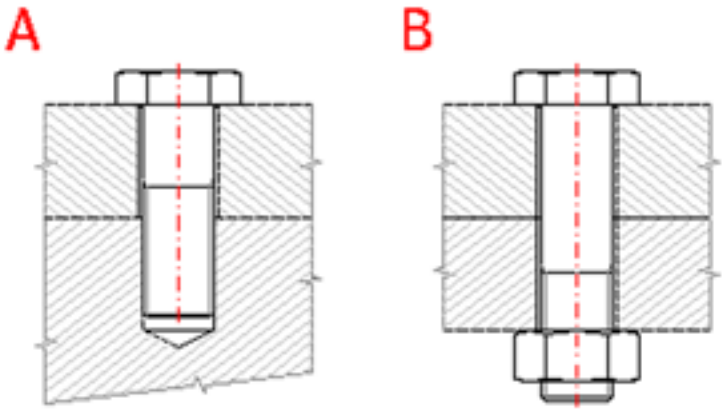

Figure 2. Bolted joint type. A - blind hole, B - through hole.

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Product Request Form - INSTRUCTIONS

Monitoring infrastructure

Remote Monitoring	Yes - 4 user logins, 1 gateway, cellular comms (4G) available
Local Monitoring	Yes - 1 tablet

1. **Remote monitoring**
   State whether remote access of InterBolt data is required and the number of user logins. The remote monitoring solution is used to have remote access to InterBolt data and consists of:
   - **Wireless Gateway**: a gateway located on the asset to transfer InterBolt data to the cloud solution.
   - **Cloud**: used to store, analyse and display InterBolt data.

Figure 3. Remote monitoring ecosystem.

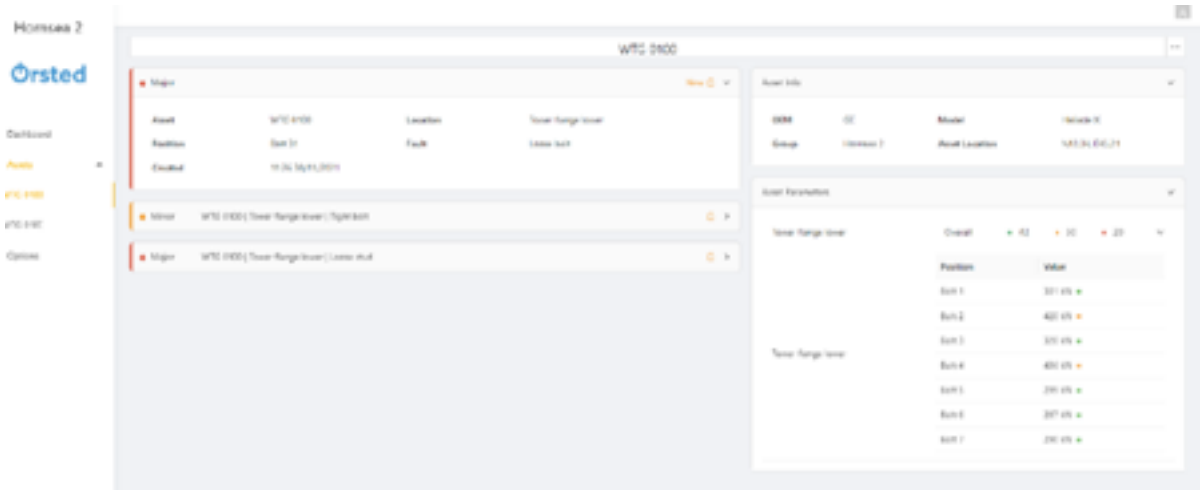

Figure 4. Cloud asset page screenshot.

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Product Request Form - INSTRUCTIONS

2. **Local monitoring**
   State whether local access of InterBolt data is required.
   The local monitoring solution is used to acquire and visualise InterBolt data onsite and consists of a ruggedised tablet with inbuilt wireless bridge.

Figure 5. Local monitoring ecosystem.

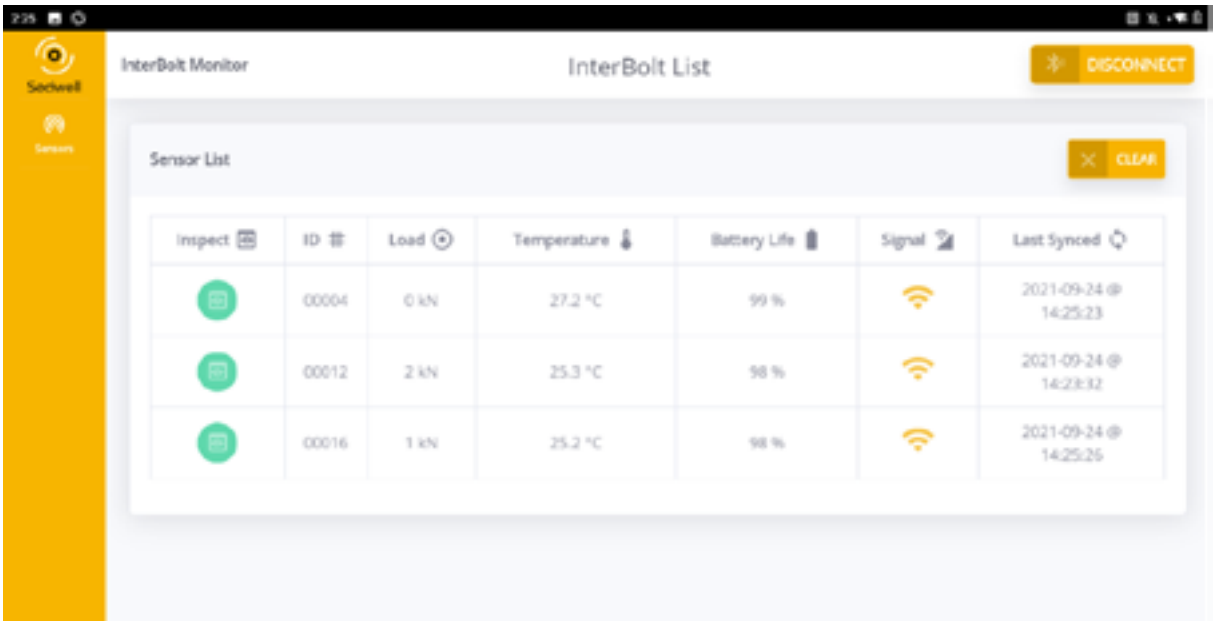

Figure 6. Local monitoring screenshot.

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