



Data Sheet  
P2590DB-INT  
2022-08

## Measuring Tolerance

Tightening System BD Series



## Components

The tightening system BD Series consists of:

| Controller                        | Transducer<br>in Fixtured Spindle                            |
|-----------------------------------|--------------------------------------------------------------|
| mPro400SG-(...)<br>mPro300GCD-STO | 1BD(U)-(...)<br>2BD(U)-(...)<br>3BD(U)-(...)<br>4BD(U)-(...) |

The static measuring tolerance of the measuring chain consists out of the sum of the measuring tolerance of the individual components:

- Controller (limited due to rounding in the display)
- TS/TUS Tightening Module
- Transducer (resolver)

## Measuring tolerance

### Torque Value

The static measuring tolerance of the torque value at the fastening system is smaller than 1 %.

| Features                                                                                                                            | Data          |
|-------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring tolerance controller<br>limited due to rounding display of the controller<br>2 decimal point behind the comma (at 10 Nm). | ±0,05%        |
| Measuring tolerance of the transducer                                                                                               | ±0,50%        |
| <b>Total</b>                                                                                                                        | <b>±0,55%</b> |

### Angle Value

The angle is determined via a transducer in the sensor after the output or in the offset / angle head. The overall measuring accuracy of the angle value in the fastening system is in the range of the sum ±1.4°.

| Feature                                                                      | Data         |
|------------------------------------------------------------------------------|--------------|
| Measurement Uncertainty System<br>due to incremental converting and rounding | ±0,25°       |
| Absolute angle error of the transducer (resolver)                            | ±1,15°       |
| <b>Total</b>                                                                 | <b>±1,4°</b> |

## Komponenten

Das Schraubsystem BD Serie besteht aus

| Steuerung                         | Messwertaufnehmer<br>im Einbauschrauber                      |
|-----------------------------------|--------------------------------------------------------------|
| mPro400SG-(...)<br>mPro300GCD-STO | 1BD(U)-(...)<br>2BD(U)-(...)<br>3BD(U)-(...)<br>4BD(U)-(...) |

Die statische Messabweichung der Messkette setzt sich aus den einzelnen Messabweichungen der Teilkomponenten zusammen:

- Steuerung (eingeschränkt durch Rundung in der Anzeige)
- TS/TUS Elektronik am Einbauschrauber
- Messwertaufnehmer

## Messabweichungen

### Drehmomentwert

Die statische Messabweichung des Drehmomentwerts beim Schraubsystem ist kleiner 1%.

| Merkmale                                                                                      | Daten         |
|-----------------------------------------------------------------------------------------------|---------------|
| Messabweichung Steuerung<br>durch Rundung Anzeige.<br>2 Stellen hinter dem Komma (bei 10 Nm). | ±0,05%        |
| Messabweichung Messwertaufnehmer                                                              | ±0,50%        |
| <b>Total</b>                                                                                  | <b>±0,55%</b> |

### Winkelwert

Der Winkel wird über einen Encoder im Messwertaufnehmer nach dem Abtrieb bzw. im Offset-/Winkelkopf gemessen. Die gesamte Messgenauigkeit des Winkelwerts beim Schraubsystem liegt im Bereich der Summe ±1,4°.

| Merkmale                                                              | Daten        |
|-----------------------------------------------------------------------|--------------|
| Messunsicherheit System<br>durch inkrementelle Umrechnung und Rundung | ±0,25°       |
| Absoluter Winkelfehler Messwertaufnehmer                              | ±1,15°       |
| <b>Total</b>                                                          | <b>±1,4°</b> |

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