

# Data sheet

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## Torque Transfer Standard Series Dm-TN

(1 N·m – 20000 N·m)



### Benefits/Application

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- Class VN (better class 0.05 acc. DIN 51309)
- For highest precision requirements
- Easy adaption
- For static moments
- Insensitive against parasitic forces and moments
- Standardised connection dimensions

### Options/Accessories

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- Bending moment circuits
- Temperature measurement with PT 100

Rated Torque		$M_{nom}$	N·m	50 100	200	500	1000	2000	3000	5000	10000	20000
Metrological Data	Torque measurement range		%	40 - 100								
	Interpolation error	$f_c$	%	± 0,025								
	Reversibility error	$v$	%	0,063								
	Reproducibility error in different mounting positions	$b, b_{rv}$	%	0,01								
	Repeatability error in unchanged mounting position	$b, b_{rg}$	%	0,005								
	Zero error	$f_0$	%	0,006								
	Creep		%	0,004								
	Temperature effect on characteristic value per 10 K	$TK_C$	%/10 K	0,01								
	Temperature effect on zero signal per 10 K	$TK_0$	%/10 K	0,008								
	Electrical Data	Rated characteristic value	$C_{nom}$	mV/V	2							
Input resistance		$R_e$	Ω	> 350								
Output resistance		$R_a$	Ω	> 300								
Insulation resistance		$R_{is}$	Ω	> 10 <sup>9</sup>								
Operating range of excitation voltage		$B_{U,G}$	V	5 - 12 V								
Protection (DIN EN 60529)				54								
Limits	Mass	$m$	kg	0,4	1,2	4,6	15,8		36,5	37		
	Torque limit		%	110								
	Rated temperature range	$B_{T,nom}$	°C	17 - 27								
	Operating temperature range	$B_{T,G}$	°C	10 - 35								

# Technical data

Class 0,05

Rated Torque		$M_{nom}$	N·m	1	2	5	10	20	50	100	200	500	1000	2000	3000	5000	10000	20000	
Metrological Data	Torque measurement range		%	20 - 100															
	Interpolation error	$f_c$	%	± 0,025															
	Reversibility error	$v$	%	0,063															
	Reproducibility error in different mounting positions	$b', brv$	%	0,05															
	Repeatability error in unchanged mounting position	$b, b_{rg}$	%	0,025															
	Zero error	$f_0$	%	0,0125															
	Creep		%	0,008															
	Temperature effect on characteristic value per 10 K	$TK_C$	%/10 K	0,01															
	Temperature effect on zero signal per 10 K	$TK_0$	%/10 K	0,008															
	Electrical Data	Rated characteristic value	$C_{nom}$	mV/V	1)	2													
Input resistance		$R_e$	Ω	> 350															
Output resistance		$R_a$	Ω	> 300															
Insulation resistance		$R_{is}$	Ω	> 10 <sup>9</sup>															
Operating range of excitation voltage		$B_{U,G}$	V	5 - 12 V															
Protection (DIN EN 60529)				54															
Limits	Mass	$m$	kg	0,3	0,4	1,2	4,6	15,8	36,5	37									
	Torque limit		%	110															
	Rated temperature range	$B_{T,nom}$	°C	17 - 27															
	Operating temperature range	$B_{T,G}$	°C	10 - 35															

1) Size 1 ... 5 N·m: ca. 1,8 mV/V; nominal value is specified on the type label.  
Size 10 N·m: 2 mV/V

# Technical data

Class 0,1

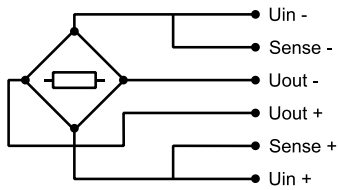
Rated Torque		$M_{nom}$	N·m	1	2	5	10	20	50	100	200	500	1000	2000	3000	5000	10000	20000	
Metrological Data	Torque measurement range		%	20 - 100															
	Interpolation error	$f_c$	%	± 0,05															
	Reversibility error	$v$	%	0,125															
	Reproducibility error in different mounting positions	$b', b_{rv}$	%	0,1															
	Repeatability error in unchanged mounting position	$b, b_{rg}$	%	0,05															
	Zero error	$f_0$	%	0,025															
	Creep		%	0,01															
	Temperature effect on characteristic value per 10 K	$TK_C$	%/10 K	0,01															
	Temperature effect on zero signal per 10 K	$TK_0$	%/10 K	0,01															
	Electrical Data	Rated characteristic value	$C_{nom}$	mV/V	1)	2													
Input resistance		$R_e$	Ω	> 350															
Output resistance		$R_a$	Ω	> 300															
Insulation resistance		$R_{is}$	Ω	> 10 <sup>9</sup>															
Operating range of excitation voltage		$B_{U, G}$	V	5 - 12 V															
Protection (DIN EN 60529)				54															
Limits	Mass	$m$	kg	0,3	0,4	1,2	4,6	15,8	36,5	37									
	Torque limit		%	110															
	Rated temperature range	$B_{T, nom}$	°C	17 - 27															
	Operating temperature range	$B_{T, G}$	°C	10 - 35															

1) Size 1 ... 5 N·m: ca. 1,8 mV/V; nominal value is specified on the type label.  
Size 10 N·m: 2 mV/V

Rated Torque		$M_{nom}$	N·m	1	2	5	10	20	50	100	200	500	1000	2000	3000	5000	10000	20000	
Metrological Data	Torque measurement range		%	20 - 100															
	Interpolation error	$f_c$	%	± 0,1															
	Reversibility error	$v$	%	0,25															
	Reproducibility error in different mounting positions	$b', brv$	%	0,2															
	Repeatability error in unchanged mounting position	$b, b_{rg}$	%	0,1															
	Zero error	$f_0$	%	0,05															
	Creep		%	0,02															
	Temperature effect on characteristic value per 10 K	$TK_C$	%/10 K	0,02															
	Temperature effect on zero signal per 10 K	$TK_0$	%/10 K	0,02															
	Electrical Data	Rated characteristic value	$C_{nom}$	mV/V	1)	2													
Input resistance		$R_e$	Ω	> 350															
Output resistance		$R_a$	Ω	> 300															
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	Torque limit		%	110															
	Rated temperature range	$B_{T,nom}$	°C	17 - 27															
	Operating temperature range	$B_{T,G}$	°C	10 - 35															

1) Size 1 ... 5 N·m: ca. 1,8 mV/V; nominal value is specified on the type label.  
Size 10 N·m: 2 mV/V

# Cable connection



Permanent connection  
end connected<sup>1)3)4)</sup>

7-pin LEMO Series 1  
Female<sup>3)</sup>



Steckbarer  
Kabelanschluss<sup>1)2)5)</sup>

7-pin LEMO Series 0  
Female: - Male:



Connection		Pin	Pin
Supply voltage (+)	$U_{in+}$	3	3
Supply voltage (-)	$U_{in-}$	2	2
Measurement signal (+)	$U_{out+}$	1	1
Measurement signal (-)	$U_{out-}$	4	4
Sense (+)	Sense+	5	5
Sense (-)	Sense-	6	6
Shielding		Housing	Housing

1) View to welding side

2) Female LEMO S.A. Typ: EGG.1B.307.CLL; Male: FGG.1B.307.CLA.D72

3) Starting from size 10 N · m

4) Cable length: 0.5 m

5) Starting from size 20 N · m available



*Permanent connection  
End permanent connected  
(up to size 10 N·m)*



*Plugable connection*

- Available types of connectors for the cable: D-Sub 9 pol; D-Sub 15pol; M-S 7pol; LEMO Series1 7pol

- Configuration with customer defined connection is possible

# Option: Bending moment

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Rated torque	$M_{nom}$	N·m	500 - 20000
Temperature effect on characteristic value per 10 K	$TK_C$	%/10 K	0,2
Temperature effect on zero signal per 10 K	$TK_0$	%/10 K	0,2

- The bending moment circuits may be advantageously used for the adjustment of the force introduction
- More information is available on request.

# Options: Temperature sensor

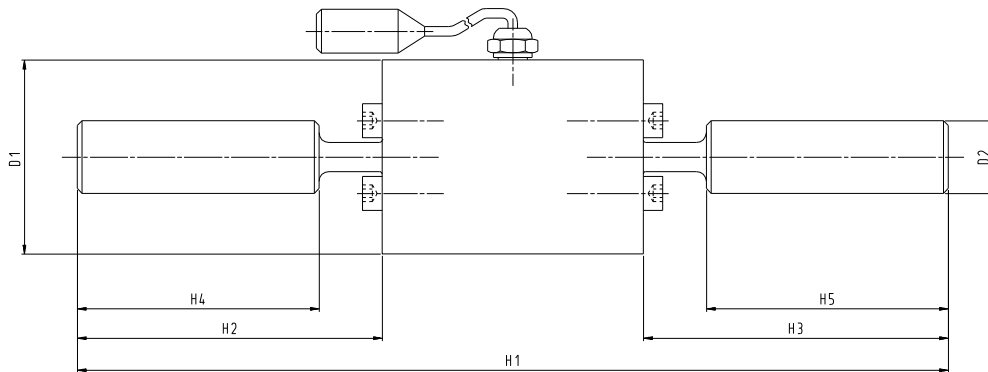
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- Temperature sensors types: PT 100

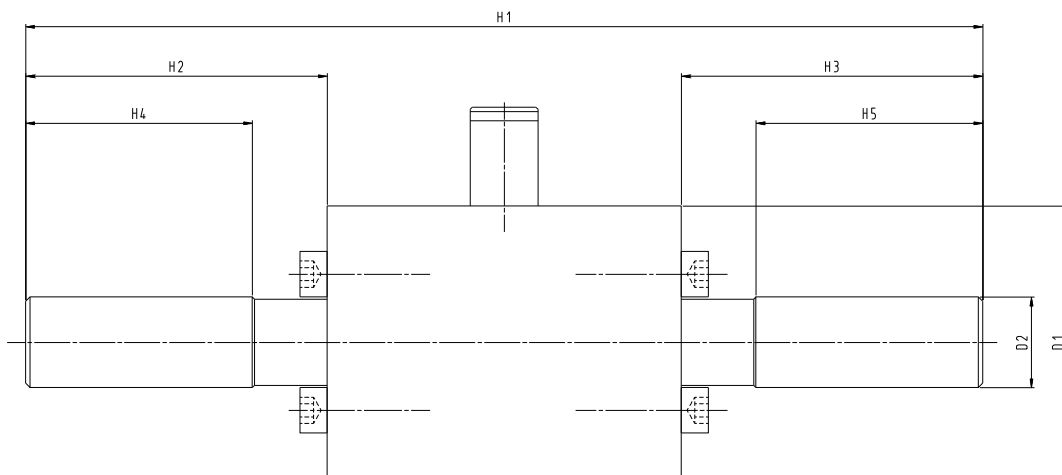
# Mating dimensions

up to 100 N·m

Type: 1 N·m - 10 N·m



Type: 20 N·m - 100 N·m



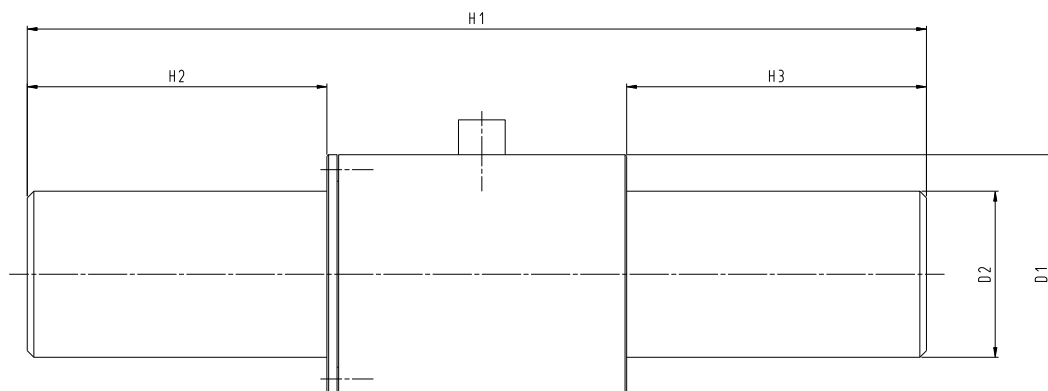
Rated Torque	$M_{nom}$	N·m	1	20
			2	50
			5	100
			10	
Diameter	$\varnothing D_1$	mm	40	60
Diameter	$\varnothing D_2$	mm	15 <sub>h7</sub>	20 <sub>h7</sub>
Height	$H_1$	mm	180	211
Height	$H_2$	mm	63	66,5
Height	$H_3$	mm	63	66,5
Height	$H_4$	mm	50	50
Height	$H_5$	mm	50	50



# Mating dimensions

up to 20000 N·m

Type: 200 N·m - 20000 N·m



Rated Torque	$M_{nom}$	N·m	200	500 1000	2000 3000 5000	10000 20000
Diameter	$\varnothing D_1$	mm	51	72	92	150
Diameter	$\varnothing D_2$	mm	30 <sub>h7</sub>	50 <sub>h7</sub>	70 <sub>h7</sub>	110 <sub>h7</sub>
Height	$H_1$	mm	200	270	320	530
Height	$H_2$	mm	60	90	115	155
Height	$H_3$	mm	60	90	115	155

Änderungen vorbehalten. Alle Angaben beschreiben unsere Produkte in allgemeiner Form. Sie stellen keine vereinbarte Beschaffenheit im Sinne des § 434 Abs. 1 BGB dar.

**GTM**  
DEFINING PRECISION

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