Data sheet Torque Transfer Wrench Series Dm-TS

Nominal Torque

2 N·m - 3000 N·m

Applications | Key Facts

- For measuring static torques with shear force
- Precise calibration of torque calibration devices
- In accordance with DKD-R-3-7: Transfer standards of classes 0.1 and 0.2 for maximum precision
- Nominal torque: 2 N·m to 3000 N·m
- High measurement quality: extremely insensitive to changes in lever arm length and shear forces
- Easy to integrate: standardized connection dimensions, easy adaptation, no additional support required
- Robust in use: moisture-protected and temperature-compensated

Optionen | Zubehör

- Temperature measurement with PT100 temperature sensor
- High-quality, double-shielded measuring cable with different connector types or free cable ends in various lengths as separate accessories

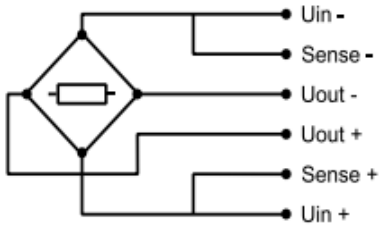
Technical Data|Class 0,1| 2-3000 N·m

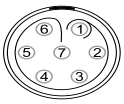
	Rated Torque	M_{nom}	N·m	2	5	10	20	25	50	100	200	500	1000	1500 2000	3000
Metrological Data	Torque measurement range		%	20 - 100											
	Interpolation error	f_c	%	0.05											
	Reversibility error	v	%	0.125											
	Reproducibility (in various mounting positions)	b	%	0.1											
	Repeatability (in one mounting position)	b'	%	0.05											
	Zero error	f_0	%	0.025											
	Creep		%	0.01											
	Temperature effect on characteristic value per 10 K	TK_C	%/10 K	0.05											
	Temperature effect on zero signal per 10 K	TK_0	%/10 K	0.05											
Electrical Data	Rated characteristic value	C_{nom}	mV/V	2											
	Input resistance	R_e	Ω	1100								700-800			
	Output resistance	R_a	Ω	850-1000								1700-2000			
	Insulation resistance	R_{is}	Ω	>2x10^9											
	Operating range of excitation voltage	$B_{U,G}$	V	5 - 12											
	Protection (DIN EN 60529)			IP 60											
Limits	Mass	m	kg	0.3					0.9		1.5	2.5	3.2	4	30
	Torque limit		%	120											
	Breaking torque		%	200											
	Lateral force limit	N	%	24	60	120	240	300		480	690	1200	2400		2900
	Rated temperature range	$B_{T,nom}$	°C	-10 - +70											
	Operating temperature range	$B_{T,G}$	°C	-20 - +85											

Technical Data|Class 0,2| 2-3000 N·m

	Rated Torque	M_{nom}	N·m	2	5	10	20	25	50	100	200	500	1000	1500 2000	3000
Metrological Data	Torque measurement range		%	20 - 100											
	Interpolation error	f_c	%	0.1											
	Reversibility error	v	%	0.25											
	Reproducibility (in various mounting positions)	b	%	0.2											
	Repeatability (in one mounting position)	b'	%	0.1											
	Zero error	f_0	%	0.05											
	Creep		%	0.02											
	Temperature effect on characteristic value per 10 K	TK_C	%/10 K	0.05											
	Temperature effect on zero signal per 10 K	TK_0	%/10 K	0.05											
Electrical Data	Rated characteristic value	C_{nom}	mV/V	2											
	Input resistance	R_e	Ω	1100								700-800			
	Output resistance	R_a	Ω	850-1000								1700-2000			
	Insulation resistance	R_{is}	Ω	>2x10^9											
	Operating range of excitation voltage	$B_{U,G}$	V	5 - 12											
	Protection (DIN EN 60529)			IP 60											
Limits	Mass	m	kg	0.3					0.9		1.2	2.5	3.2	4	30
	Torque limit		%	120											
	Breaking torque		%	200											
	Lateral force limit	N	%	24	60	120	240	300		480	690	1200	2400		2900
	Rated temperature range	$B_{T,nom}$	°C	-10 - +70											
	Operating temperature range	$B_{T,G}$	°C	-20 - +85											

Cable Connection | 2-3000 N·m



Connection		Permanent connection end connected[1) 3) 4)] 7-pin LEMO Series 1 Female[3)]	Connection pluggable[1) 2) 5)] 7-pin LEMO Series 0 Female: - Male:
			
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) Available up to Size 25 N·m
4) Cable lenght 0,5 m
5) Available from Size 50 N·m

▶ Pluggable cable connection

All torque transfer wrenches in the Dm-TS series can be equipped with a plug-in LEMO socket. Suitable measuring cables S-CAB / C-CAB are available as accessories.

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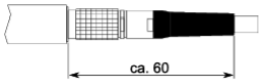
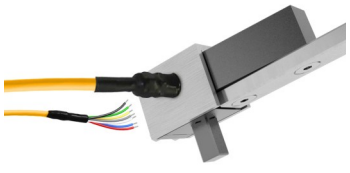


▶ Plug-in cable connection with shielded measuring cable type DMC (S-CAB-DMC-L-5M-F)

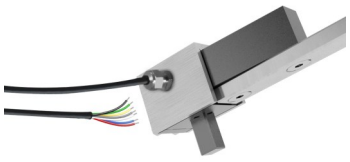
▶ Outward-facing connection socket up to size 25 N·m

▶ Fixed measuring cable

All torque transfer wrenches in the Dm-TS series can be equipped with permanently mounted measuring cables, e.g., with 5/10 m double-shielded measuring cable type DMC (Ø 6.5 mm, from 50 N·m). Up to 25 N·m, type FMC measuring cables (Ø 2.7 mm) are used. The cable ends can be left open or equipped with various plugs for strain gauge measuring amplifier connections.

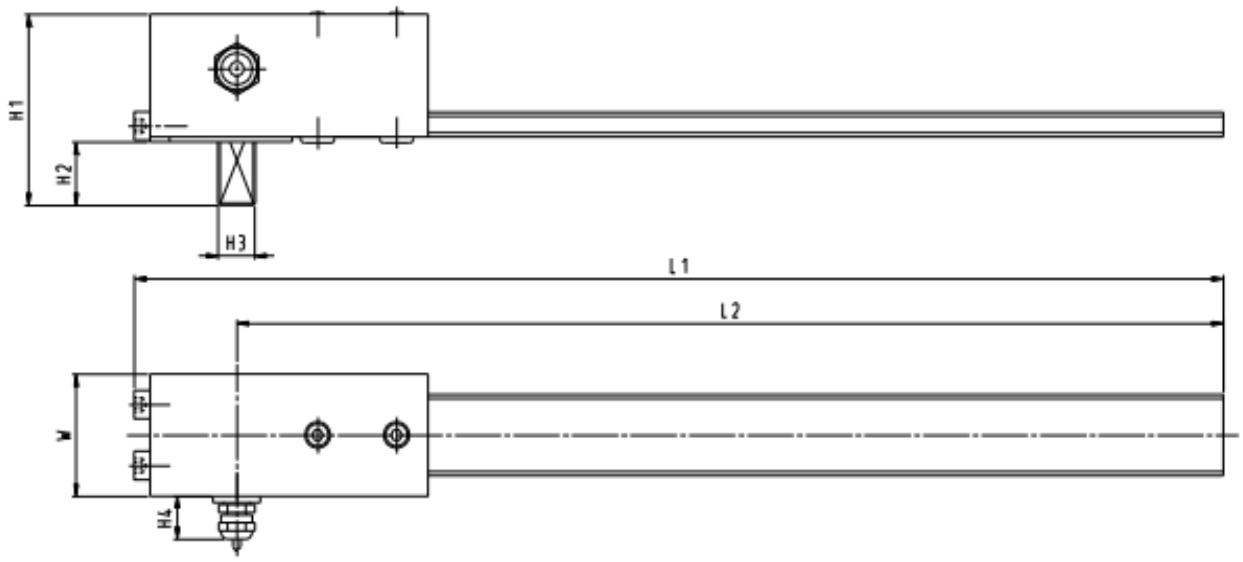


▶ Fixed cable connection with double-shielded measuring cable type DMC and open cable ends | from 50 N·m



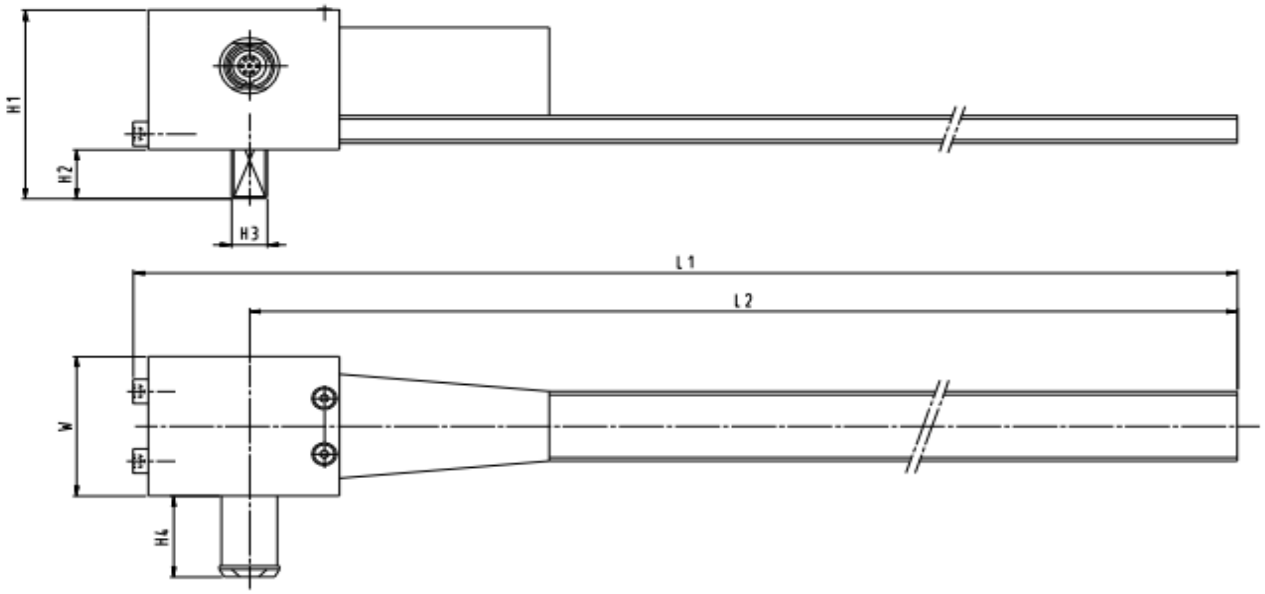
▶ Fixed cable connection with shielded measuring cable type FMC and open cable ends | up to 25 N·m

Dimensions| 2 N·m – 25 N·m



Rated Torque	M_{nom}	N·m	2	5	10	20	25
Height	H_1	mm			47		
Height	H_2	mm			15.5		
Height	H_3	mm			3/8"		
Height	H_4	mm			11		
Lenght	L_1	mm			276		
Lenght	L_2	mm			250		
Width	W	mm			30		

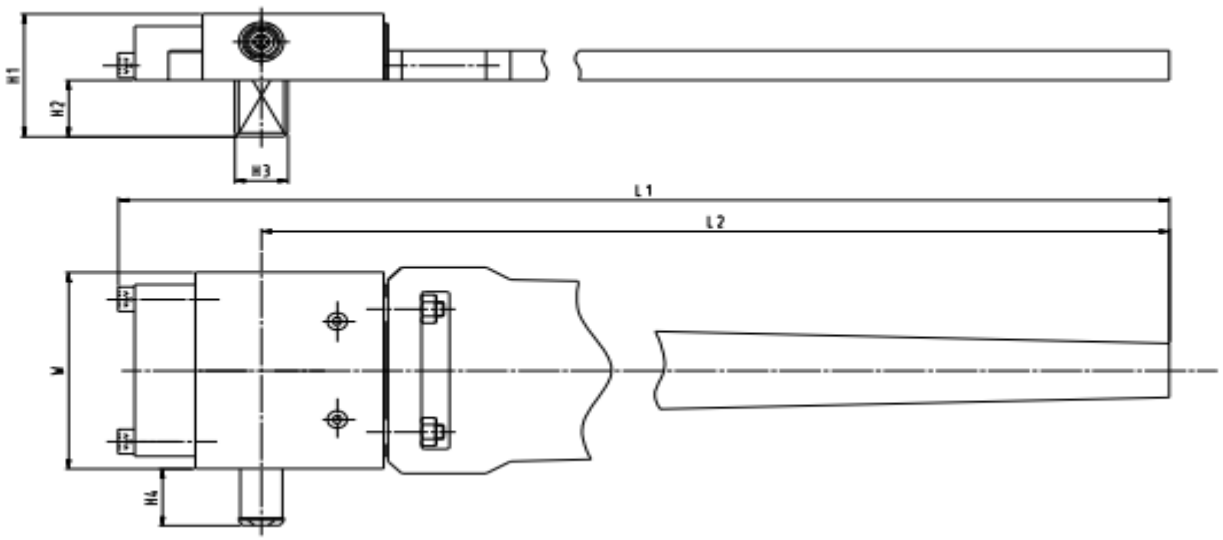
Dimensions| 50 N·m – 200 N·m



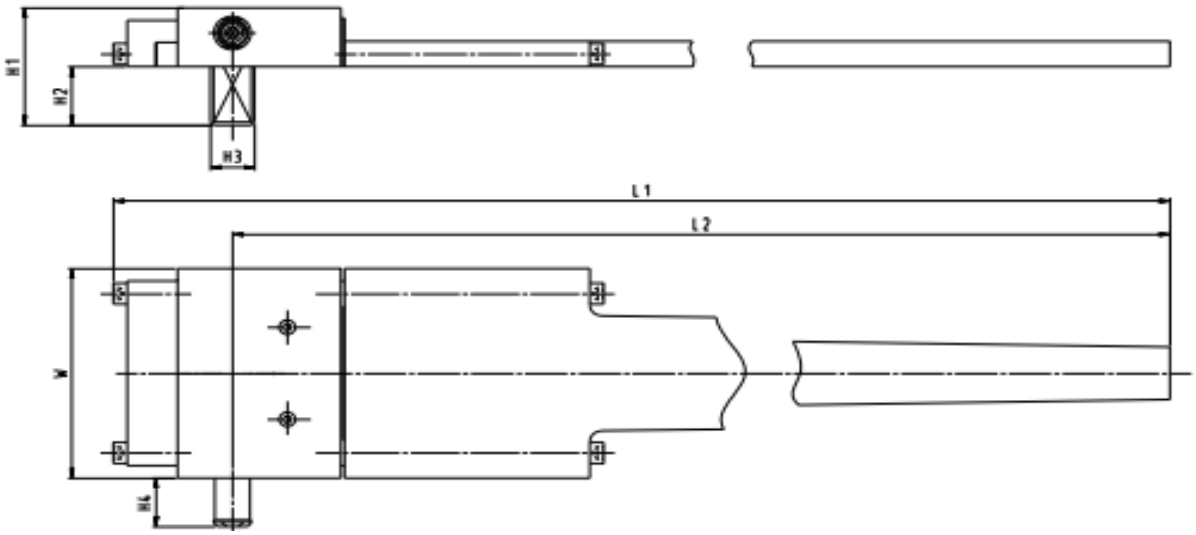
Rated Torque	M_{nom}	N·m	50	100	200
Height	H_1	mm	54	63.5	28
Height	H_2	mm	14	23.5	20
Height	H_3	mm	3/8"		1/2"
Height	H_4	mm	23		
Lenght	L_1	mm	481	582	799
Lenght	L_2	mm	450	550	756
Width	W	mm	40		60

Dimensions| 500 N·m – 3000 N·m

Size 500 N·m



Size 1000 –3000 N·m



Rated Torque	M_{nom}	N·m	500	1000	1500 2000	3000[1)]
Height	H_1	mm	50	56	62	83.5
Height	H_2	mm	23	28		33.5
Height	H_3	mm	3/4"	1"		1 ½"
Height	H_4	mm	25			
Lenght	L_1	mm	1113	1115	1124	2587
Lenght	L_2	mm	1062	1064		2500
Width	W	mm	80	100	132	197

Torque Transfer Wrench| Square reducers

▶ Size: 2 N·m - 3000 N·m

▶ The square-drive reducer allows the torque transfer wrench to be used in smaller measuring ranges while maintaining full measuring functionality. A reduction square adapter is always included in the scope of delivery of the Dm-TS. The table below shows the possible square-drive reductions for each nominal torque.

▶ Torque Transfer Wrench: Square-Drive

Nominal Torque [N·m]	*Example Square Drive Reducer (inch)*	Mt max [N·m]
2	*3/8" → 1/4"*	2
5	*3/8" → 1/4"*	5
10	*3/8" → 1/4"*	10
20	*3/8" → 1/4"*	20
50	*1/2" → 3/8"*	50
100	*1/2" → 3/8"*	100
200	*1/2" → 3/8"*	100
500	*3/4" → 1/2"*	200
1000	*1" → 3/4"*	500
1500	*1" → 3/4"*	1000
2000	*1" → 3/4"*	1000
3000	*1 1/2" → 1"*	1500

Order Numbers | Configurable Variants

▶ Torque Transfer Wrench Serie Dm-TS | configuarbale variants

Item	Code	Description
Torque Transfer Wrench Series Dm-TS	C-DMTS	Configurable Torque Transfer Wrench Series Dm-TS
Nominal torque	K002	2 N·m
	K005	5 N·m
	K010	10 N·m
	K020	20 N·m
	K025	25 N·m
	K050	50 N·m
	K100	100 N·m
	K200	200 N·m
	K500	500 N·m
	1K00	1000 N·m
	1K50	1500 N·m
	2K00	2000 N·m
	3K00	3000 N·m
Accuracy class	01	class 0.1 | 20 - 100 %
	02	class 0.2 | 20 - 100 %
Temperature range	S	Standard temperature range | -10 ... +70°
Electrical transducer connection (for all	P	LEMO female plug(s) selected | 7-pole | push-pull
	A	1 x 5 m | permanently mounted double shielded measuring cables type DMC (from 50 N·m) | ≤ 25 N·m type FMC
	B	1 x 10 m | permanently mounted double shielded measuring cables type DMC (from 50 N·m) | ≤ 25 N·m type FMC
Cable connection type (for all selected	P	LEMO female plug(s) selected | no permanently mounted measuring cable
	F	Free cable ends | on one permanently mounted measuring cable
	C	MS 7-pol | on one permanently mounted measuring cable
	D	HD-Sub-15 pol | on one permanently mounted measuring cable

▶ The standard scope of delivery of the Dm-TS includes a square adapter, a square reduction adapter, and a transport case.

Order-Example

C	-	DM TS	-	K100	-	01	-	S	-	P	-	P
				100 N·m		DKD-R-3-7 | class 01		standard temperature range		LEMO socket(s)		LEMO socket(s)

Order Numbers | Configurable Variants| Glossary

Item	Description
Accuracy class acc. To DKD-R-3-7	Torque transfer wrenches calibrated according to DKD-R-3-7 are classified into different accuracy classes. The highest accuracy class is 0.1, followed by 0.2. A lower class number indicates a more precise torque transfer wrench. GTM torque transfer wrenches that comply with the DKD-R-3-7 accuracy requirements are regarded as reference torque wrenches or transfer standards. We always recommend a GTM internal calibration of the torque transfer wrench. Each torque transfer wrench calibrated in accordance with DKD-R-3-7 comes with a calibration certificate. This certificate includes an evaluation of the sensor characteristics, details of the calibration equipment used, information on traceability and measurement uncertainty, as well as the environmental conditions during calibration. In addition, the certificate provides further technical information, such as the measurement uncertainties of the calibrated torque transfer wrench at the respective load levels.
Measuring range accuracy class	The measuring range specifies the range within which the torque transfer wrench meets the selected accuracy class. Through internal quality assurance processes, we ensure that the specified accuracy class is consistently maintained within the defined measuring range.
Temperature range	The Dm-TS series torque transfer wrench can be used within a nominal temperature range of -10 °C to +70 °C. The nominal temperature range defines the ambient temperature limits within which the transfer wrench complies with its technical specifications and permissible error limits. Note: Please observe the specified ambient conditions and ensure that no significant temperature fluctuations occur. Such fluctuations may affect the metrological performance.
Electrical transducer connection	The Dm-TS series torque transfer wrench can be configured with fixed push-pull connectors or fixed double-shielded measuring cables (type DMC) in different lengths. As fixed measuring cables, only double-shielded cables of type DMC are used. P = LEMO connector(s) | 7-pin | Push-pull A = 5 m | straight, fixed-mounted standard cable type DMC (from 50 N·m) | type FMC up to 25 N·m | available on all measuring circuits B = 10 m | straight, fixed-mounted standard cable type DMC (from 50 N·m) | type FMC up to 25 N·m | available on all measuring circuits Notes: Connector 1.1 Up to 25 N·m, the connector is routed externally with a black measuring cable type FMC | 50 cm | Ø 2.7 mm. Fixed measuring cable 2.1 Up to 25 N·m, a measuring cable type FMC is used. 2.2 From 50 N·m, a measuring cable type DMC is used.
Cable connection type	If the Dm-TS series is configured with fixed double-shielded measuring cables, various connector types for strain gauge (DMS) amplifiers can be selected in addition to open cable ends. The assembly of the selected connectors is carried out by GTM. The torque transfer wrench can then be connected directly to a measuring amplifier. P = LEMO push-pull connector(s) | no fixed measuring cable(s) F = free cable ends | available on all configured measuring circuits A = D-Sub 9-pin | available on all configured measuring circuits B = D-Sub 15-pin | available on all configured measuring circuits C = MS 7-pin | available on all configured measuring circuits D = HD Sub 15-pin | on one fixed-mounted measuring cable M = M12 8-pin | available on all configured measuring circuits Note: Connector 1.1 Up to 25 N·m, the connector is routed externally with a black measuring cable type FMC | 50 cm | Ø 2.7 mm.

Order Numbers | Accessories

Description	Order Number
Measuring Cable	
Double-shielded measuring cable | yellow | 5 m | double shielded and twisted in pairs | cable sheath Ø 6.5 mm | 6-wire technology | transducer connection: straight plug (male) type LEMO 7-pole push-pull (male) | cable end amplifier: open	S-CAB-DMC-L-5M-F
Double-shielded measuring cable | yellow | 5 m | double shielded and twisted in pairs | cable sheath Ø 6.5 mm | 6-wire technology | transducer connection: straight plug (male) type LEMO 7-pole push-pull (male) | cable end amplifier: D-Sub | 9 pol | assembled	S-CAB-DMC-L-5M-DS09
Configurable measuring cable type DMC and others | in different lengths | with different connectors for amplifier connection	C-CAB-DMC-…
Series Dm-TS | Cases	
Case for series DmTS | 2 - 25 N·m	S-TC-DMTS-01
Case for series DmTS | 50 N·m	S-TC-DMTS-02
Case for series DmTS | 100 N·m	S-TC-DMTS-03
Case for series DmTS | 20 N·m	S-TC-DMTS-04
Case for series DmTS | 500 N·m	S-TC-DMTS-05
Case for series DmTS | 1000 N·m	S-TC-DMTS-06
Case for series DmTS | 1500 - 2000 N·m	S-TC-DMTS-07
Case for series DmTS | 3000 N·m	S-TC-DMTS-08

Änderungen vorbehalten. Alle Angaben beschreiben unsere Produkte in allgemeiner Form.
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