

Rotating Torque Measuring Flange DR-2554 (contactless) with Rated Torque from 50 ... 1000 N·m



This sensor has a contactless and digital signal transmission from rotor to stator without signal falsification of the measurement data. It is therefore highly accurate and maintenance-free.

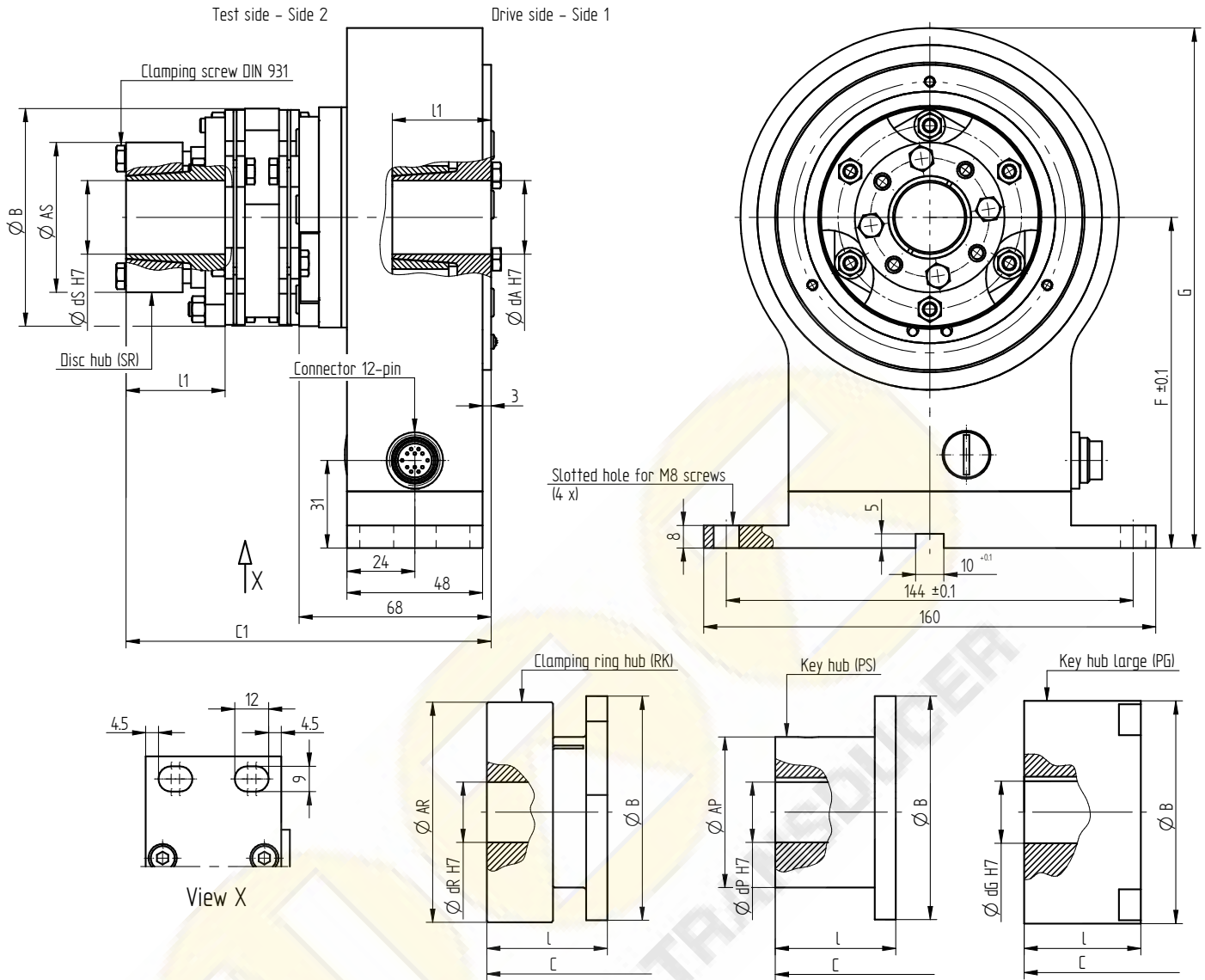
Performance Features

- Bearingless torque sensor for e.g. test bench applications
- High accuracy
- Active output $\pm 5V$ (optional $\pm 10V$; $10kHz \pm 5kHz$; $60kHz \pm 30kHz$)
- Integrated speed measurement optional
- Speed up to 13600 min^{-1}
- Very short axial length
- High torsional stiffness
- Simple handling and assembly
- No additional adapter required due to integrated torsionally stiff multi-plate coupling
- Special versions on request

Application

- Research and development
- Process measuring and control technology
- Fully automated machining centres
- Measuring and control devices
- Tool engineering
- Special mechanical engineering

Dimensions of DR-2554 in mm



Size	Dimensions [mm]															Weight [kg]
	$\varnothing AS$	$\varnothing AR$	$\varnothing AP$	$\varnothing B$	C	$C1$	$\varnothing dA$	$\varnothing dS$	$\varnothing dR$	$\varnothing dP$	$\varnothing dG$	F	G	I	$l1$	
16	53	73	50	77	134.2	129.2	14 - 26	14 - 26	20 - 35	16 - 32	30 - 45	117	184	40	35	4.5 - 4.6
25	64	84	60	89	139.4	134.4	20 - 36	20 - 36	22 - 40	20 - 40	35 - 55	122.5	195	45	40	4.8 - 5.1
40	74	97	70	104	153.8	143.8	25 - 45	25 - 45	25 - 45	25 - 50	45 - 65	130.5	211	55	45	7.0 - 7.5
64	84	115	80	123	170.2	155.2	30 - 45	30 - 45	28 - 55	30 - 55	55 - 75	140	230	65	50	8.6 - 11.1
100	104	135	100	143	181	161	35 - 55	35 - 55	32 - 68	35 - 70	65 - 95	150	250	75	55	13.0 - 14.7

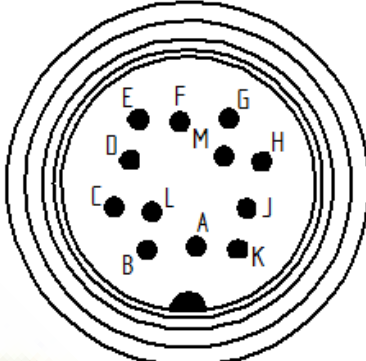
d-dimensions are min. dimension - max. dimension.

With an additional feather key on side 1 of the sensor the max $\varnothing dA$ will reduce, see options.

Notice

Please note that an admissible assembly displacement from rotor to stator may be axial ± 1 mm and radial ± 0.5 mm.

Connection Assignment

12-pin	DR-2554		Series 581
Pin A	NC	-	
Pin B	NC	-	
Pin C	Signal (+)	$\pm 5V (\pm 10V)$	
Pin D	Signal (GND)	0V	
Pin E	Supply (GND)	0V	
Pin F	Supply (+)	12 ... 28VDC	
Pin G	Signal speed (option)	5V TTL	
Pin H	NC	-	
Pin J	RS422 (option)	RS422 (B)	
Pin K	NC	-	
Pin L	RS422 (option)	RS422 (A)	
Pin M	Shield		

Technical Data acc. to VDI/VDE/DKD 2639

Torque Measuring Flange DR-2554		
Rated torque M_{nom}	N·m	50 ... 1000
Accuracy class	% M_{nom}	0.1
Relative repeatability error in unchanged mounting position b'	% M_{nom}	± 0.02
Rated range of supply voltage	VDC	12 ... 28
Current consumption	mA	≤ 50
Output signal	V	± 5
Electrical connection		12-pin series 581 ¹
Reference temperature T_{ref}	°C	23
Rated temperature range	°C	5 ... 45
Operating temperature range	°C	0 ... 60
Storage temperature range	°C	-10 ... 70
Temperature effect on zero signal TK_0	% $M_{nom}/10 K$	± 0.2
Temperature effect on characteristic value TK_C	% $M_{nom}/10 K$	± 0.1
Maximum operating torque M_G (static)	% M_{nom}	130
Torque limit M_{max} (static)	% M_{nom}	200
Breaking torque M_B (static)	% M_{nom}	>300
Permissible oscillation stress when subjected to torque M_{df}	% M_{nom}	70 (peak-to-peak)
Balancing grade (DIN ISO 1940)	Q	6.3
Level of protection		IP54

¹ Female cable connector in scope of delivery at first delivery

Technical Data acc. to VDI/VDE/DKD 2639 (continued)

Coupling Size	Rated Torque [N·m]	Limit Speed [min ⁻¹]	Springrate [N·m/rad]	Mass Moment of Inertia [kg·m ^{2,3}]		Limit Thrust Load [N]	Max. Axial Displacement [mm]	Max. Angular Displacement [°]	Max. Radial Displacement [mm]
				Drive Side	Test Side				
16	50	13600 (9500) ⁴	4.9E+04	2.9E-03	1.2E-03	150	0.25	0.4° (0.2° per disc pack)	0.05
	100		6.2E+04						
	150		6.2E+04						
20	150	11800 (8200)	1.2E+05	4.3E-03	2.1E-03	190	0.25		0.05
	200		1.2E+05						
	250		1.2E+05						
40	200	10100 (7000)	1.3E+05	7.3E-03	4.2E-03	250	0.3		0.06
	300		1.3E+05						
	400		1.3E+05						
64	400	8500 (6000)	3.1E+05	1.2E-02	1.0E-02	450	0.3		0.06
	500		3.1E+05						
	600		3.1E+05						
100	600	7300 (5100)	4.8E+05	2.2E-02	2.0E-02	600	0.45	0.07	
	750		4.8E+05						
	1000		4.8E+05						

Variant Combinations

DR-2554 with Double Jointed Coupling and Disk Hub (SR)

Article-No.	Type	Size	Rated Torque [N·m]
108737	DR-2554-16/SR/dA../dS..	16	50
108738	DR-2554-16/SR/dA../dS..		100
108739	DR-2554-16/SR/dA../dS..		150
108740	DR-2554-25/SR/dA../dS..	25	150
108741	DR-2554-25/SR/dA../dS..		200
108742	DR-2554-25/SR/dA../dS..		250
108743	DR-2554-40/SR/dA../dS..	40	200
108744	DR-2554-40/SR/dA../dS..		300
108745	DR-2554-40/SR/dA../dS..		400
108746	DR-2554-64/SR/dA../dS..	64	400
108747	DR-2554-64/SR/dA../dS..		500
108748	DR-2554-64/SR/dA../dS..		600
108749	DR-2554-100/SR/dA../dS..	100	600
108750	DR-2554-100/SR/dA../dS..		750
108751	DR-2554-100/SR/dA../dS..		1000

Please specify requested bore ØdA and ØdS at order.

² Mass moments of inertia apply for clamping ring hub at largest bore

³ Without option speed measurement

⁴ Limit speed at clamping ring hub

Variant Combinations (continued)

DR-2554 with Double Jointed Coupling and Clamping Ring Hub (RK)

Article-No.	Type	Size	Rated Torque [N·m]
108752	DR-2554-16/RK/dA../dR..	16	50
108753	DR-2554-16/RK/dA../dR..		100
108754	DR-2554-16/RK/dA../dR..		150
108755	DR-2554-25/RK/dA../dR..	25	150
108756	DR-2554-25/RK/dA../dR..		200
108757	DR-2554-25/RK/dA../dR..		250
108758	DR-2554-40/RK/dA../dR..	40	200
108759	DR-2554-40/RK/dA../dR..		300
108760	DR-2554-40/RK/dA../dR..		400
108761	DR-2554-64/RK/dA../dR..	64	400
108762	DR-2554-64/RK/dA../dR..		500
109492	DR-2554-64/RK/dA../dR..		600
108764	DR-2554-100/RK/dA../dR..	100	600
108765	DR-2554-100/RK/dA../dR..		750
108766	DR-2554-100/RK/dA../dR..		1000

Please specify requested bore \varnothing dA and \varnothing dR at order.

DR-2554 with Double Jointed Coupling and Key Hub (PS)

Article-No.	Type	Size	Rated Torque [N·m]
108767	DR2554-16/PS/dA../dP..	16	50
108768	DR2554-16/PS/dA../dP..		100
108769	DR2554-16/PS/dA../dP..		150
108770	DR2554-25/PS/dA../dP..	25	150
108771	DR2554-25/PS/dA../dP..		200
108772	DR2554-25/PS/dA../dP..		250
108773	DR2554-40/PS/dA../dP..	40	200
108774	DR2554-40/PS/dA../dP..		300
108775	DR2554-40/PS/dA../dP..		400
108776	DR2554-64/PS/dA../dP..	64	400
108777	DR2554-64/PS/dA../dP..		500
108778	DR2554-64/PS/dA../dP..		600
108779	DR2554-100/PS/dA../dP..	100	600
108780	DR2554-100/PS/dA../dP..		750
108781	DR2554-100/PS/dA../dP..		1000

Please specify requested diameter \varnothing dA and \varnothing dP at order.

Variant Combinations (continued)

DR-2554 with Double Jointed Coupling and Key Hub Large (PG)

Article-No.	Type	Size	Rated Torque [N·m]
108782	DR2554-16/PG/dA../dG..	16	50
108783	DR2554-16/PG/dA../dG..		100
108784	DR2554-16/PG/dA../dG..		150
108785	DR2554-25/PG/dA../dG..	25	150
108786	DR2554-25/PG/dA../dG..		200
108787	DR2554-25/PG/dA../dG..		250
108788	DR2554-40/PG/dA../dG..	40	200
108789	DR2554-40/PG/dA../dG..		300
108790	DR2554-40/PG/dA../dG..		400
108791	DR2554-64/PG/dA../dG..	64	400
108792	DR2554-64/PG/dA../dG..		500
108793	DR2554-64/PG/dA../dG..		600
108794	DR2554-100/PG/dA../dG..	100	600
108795	DR2554-100/PG/dA../dG..		750
108796	DR2554-100/PG/dA../dG..		1000

Please specify requested diameter \varnothing dA and \varnothing dG at order.

Options

Article-No.	Size	Description	
108807	16	Speed measurement, 1 x 30 impulses	5V TTL
108808	25		
108809	40		
108810	64		
108811	100		
108812	16	Max. \varnothing dA with additional feather key (side 1 of the sensor)	20 mm
108813	25	Max. \varnothing dA with additional feather key (side 1 of the sensor)	28 mm
108814	40	Max. \varnothing dA with additional feather key (side 1 of the sensor)	38 mm
108815	64	Max. \varnothing dA with additional feather key (side 1 of the sensor)	40 mm
108816	100	Max. \varnothing dA with additional feather key (side 1 of the sensor)	50 mm
108817		Output signal	\pm 10V
118110		Output signal	10kHz \pm 5kHz (RS422)
118080		Output signal	60kHz \pm 30kHz (RS422)

Calibrations

Article-No.	Description	
400676	Linearity diagram in accordance to factory standard	25 % steps
400664	Linearity diagram in accordance to factory standard	10 % steps
400961	Proprietary calibration acc. to VDI/VDE 2646	3 steps
400700	Proprietary calibration acc. to VDI/VDE 2646	5 steps
400688	Proprietary calibration acc. to VDI/VDE 2646	8 steps
	DAkkS-Calibration/ Standard on request	

Accessories

Electrical Connection

Article-No.	Description
41382	Female cable connector 12-pin series 581
45598	Female angled connector 12-pin series 682
10270	Connection cable, 3 m, with 12-pin female cable connector series 581 and free strands
10345	Connection cable angled, 3 m, with 12-pin female angled connector series 682 and free strands

Amplifiers

Examples of suitable amplifiers for the torque measuring flange DR-2554:

