

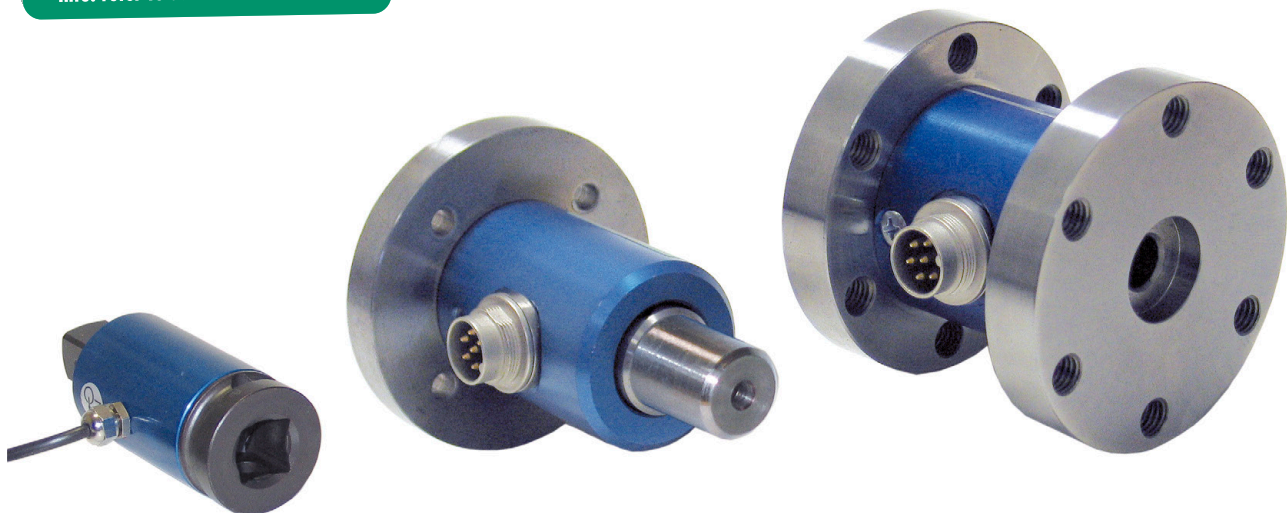
Torque Sensor

For non-rotary applications

Models 8627, 8628 and 8632

Code:	8627 EN
Delivery:	4 weeks
Warranty:	24 months

CAD data 2D/3D for this sensor:
Download directly at www.traceparts.com
Info: refer to data sheet 80-CAD-EN



- Measurement range from 0 ... 2 Nm to 0 ... 5000 Nm
- High linearity 0.1 % F.S.
- Reliable and durable
- Simple handling and assembly
- Output signal standardized
- Different mechanical versions
- Special versions and higher measurement ranges on request
- Optional linearity 0.05 % F.S.

Application

These torque sensors are qualified for static and dynamic measurements on non-rotary applications.

Further the measurement of reaction torques on rotating machine parts is possible. Especially the torque sensors with flanges are preferred. They are mounted between motor and stator, e.g. in agitator drives. This enables a maintenance-free torque measurement. Another range of application is the testing of screw driving units and torque wrenches.

For individual measuring tasks the design of our torque sensors can be adapted to the customer's installation conditions.

More application examples:

- ▶ Test structures in the field of precision mechanics
- ▶ Determination of friction torques
- ▶ Acquisition of breakage moments on screw caps

Description

The design has been optimized regarding overall length, weight and volume, so that axial forces up to relatively high limit values and bending moments of up to 20 % of the measuring range have only a small effect to the influence of the measuring element. Four metal film strain gauges are mounted on the measuring element and connected to form a full bridge. When applying AC or DC voltage on the bridge, the mechanical value torque is converted into electrical voltage. The necessary amplifier either delivers a norm signal (0 ... 10 V, 0/4 ... 20 mA) or – with indicator module – a torque signal truly corresponding to the measured variable.

The sensor output signal is standardized, so that an exchange of the sensor (spare part) does not require any new adjustment of the measuring chain.

General Technical Data

Electrical values

Resistor bridge (full bridge): foil strain gauge 350 Ω, nominal*
 * Deviations from the indicated values are possible.
 Excitation voltage: 2 ... 12 V
 recommended 10 V
 Nominal value: standard, 1 mV/V
 model 8627-5010: 0.5 mV/V

Utility moment: 130 % of nominal value
 Max. utility moment (static): 150 % of nominal value
 Overload moment (static): > 300 % of nominal value
 Dynamic load: recommended ≤ 70 % of nominal value
 Twist angle by nominal load: approx. 0,2 °

Environmental conditions

Operating temperature range: - 15 °C ... + 55 °C
 Nominal temperature of operating range: - 5 °C ... + 45 °C
 Sensitivity of temperature effect:
 at zero ± 0.01 % F.S./K
 on span: ± 0.003 % Rdg./K

Material: steel, 1.2826 res. 1.2738
 Degree of protection: acc. EN 60529 IP50

Mechanical values

Non-linearity:
 model 8627 ± 0.1 % F.S.
 models 8628/8632 ± 0.2 % F.S.
 Hysteresis:
 model 8627 ± 0.1 % F.S.
 models 8628/8632 ± 0.2 % F.S.
 Repeatability: ± 0.1 % F.S.

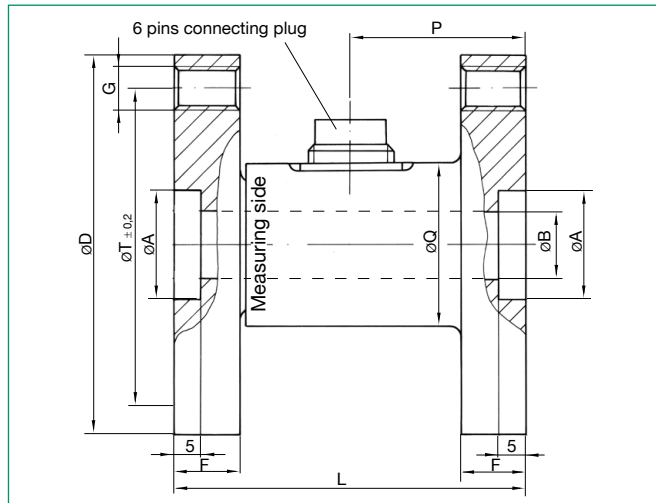
	6 pole plug		7 pole plug (option at model 8632)	
excitation -	1		1	
excitation +	2		2	
shield	3 (open)		3 (open)	
signal +	4		4	
signal GND	5		5	
100 % control (option)	6		6	
NC	-		7	

Model 8627, torque sensor for static and dynamic applications, non-rotary

Order Code	Measurement Range	Dimensions [mm]								Number of Bore Holes T	P
		øA	øB	øD	F	G	L	øT	øQ		
8627-5010	0 ... ± 10 Nm	20 ^{H7}	10	70	12	M8	65	58	45	6x60°	33
8627-5020	0 ... ± 20 Nm	20 ^{H7}	10	70	12	M8	65	58	45	6x60°	33
8627-5050	0 ... ± 50 Nm	20 ^{H7}	10	70	12	M8	65	58	45	6x60°	33
8627-5100	0 ... ± 100 Nm	20 ^{H7}	10	70	12	M8	65	58	45	6x60°	33
8627-5200	0 ... ± 200 Nm	20 ^{H7}	10	70	12	M8	65	58	45	6x60°	33
8627-5500	0 ... ± 500 Nm	20 ^{H7}	18	100	15	M10	80	82	60	8x45°	39.5
8627-6001	0 ... ± 1000 Nm	20 ^{H7}	18	100	15	M10	80	82	60	8x45°	39.5
8627-6002	0 ... ± 2000 Nm	75 ^{H7}	20	130	20	M12	100	100	80	12x30°	45
8627-6005	0 ... ± 5000 Nm	75 ^{H7}	-	130	20	M12	100	100	80	12x30°	45

Higher measuring ranges upon request.

Dimension drawing model 8627



Mechanical connection: both ends with flag
 Electrical connection: 6 pins plug connection
 Mating connector (cable coupling): 6 pole model 9953
 (one included in scope of delivery)
 Nominal value: measurement range 0 ... 10 Nm 0,5 mV/V
 measurement range from 0 ... 20 Nm 1,0 mV/V

Order Information

Torque sensor, non-rotary, both ends with flags, measurement ±100 Nm **Model 8627-5100**

Options

Linearity error 0.05 % F.S. **-V501**

Model 8628, torque sensor for static and dynamic applications, non-rotary

Order Code	Measurement Range	Dimensions [mm]								Number of Bore Holes T	P	Weight [Kg]
		A	øB	øD	øF	L	øT	øW	øQ			
8628-5005	0 ... ± 5 Nm	15	5,5	70	10	70	50	12	40	4x90°	36	0.5
8628-5010	0 ... ± 10 Nm	15	5,5	70	10	70	50	12	40	4x90°	36	0.5
8628-5020	0 ... ± 20 Nm	15	5,5	70	10	70	50	12	40	4x90°	36	0.6
8628-5050	0 ... ± 50 Nm	28	6,6	80	12	90	60	18	45	4x90°	41	0.8
8628-5100	0 ... ± 100 Nm	28	6,6	80	12	90	60	18	45	4x90°	41	0.8
8628-5200	0 ... ± 200 Nm	50	9	100	15	120	80	30	58	6x60°	43	1.2
8628-5500	0 ... ± 500 Nm	50	9	100	15	120	80	30	58	6x60°	43	1.2
8628-6001	0 ... ± 1000 Nm	70	11	120	15	140	100	40	65	6x60°	41	1.8

Mechanical connection:	one end with flag, and one end with keyway shaft end acc. DIN 6885, page 1 (keyway included in scope of delivery)
Electrical connection:	6 pins plug connection
Mating connector (cable coupling):	6 pole model 9953 (one included in scope of delivery)
Nominal value:	1 mV/V

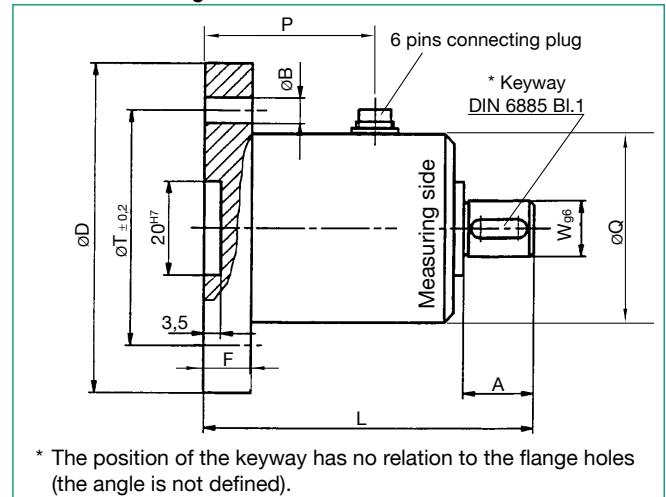
Order Information

Torque sensor for non-rotary applications one end with flag, one end with shaft, measurement range ± 1000 Nm **Model 8628-6001**

Options

Internal square instead of shaft	-V003
External square instead of shaft	-V301
Internal hexagon instead of shaft	-V302
Changes in dimension of square or hexagonal version	data sheet on request
Linearity error ± 0.1 % F.S.	-V503

Dimension drawing model 8628



Model 8632, torque sensor for static and dynamic applications, non-rotary

Order Code	Measuring Range	Dimensions [mm]			Square V	P	Q	R	Weight [Kg]
		A	0D	L					
8632-5002	0 ... \pm 2 Nm	7.2	15	64	1/4"	22.7	10	10	0.1
8632-5005	0 ... \pm 5 Nm	7.2	15	64	1/4"	22.7	10	10	0.1
8632-5012	0 ... \pm 12 Nm	7.2	15	64	1/4"	22.7	10	10	0.1
8632-5025	0 ... \pm 25 Nm	10.4	30	71	3/8"	34.6	15	10	0.2
8632-5063	0 ... \pm 63 Nm	10.4	30	71	3/8"	34.6	15	10	0.2
8632-5100	0 ... \pm 100 Nm	15.1	30	76	1/2"	35.1	15	10	0.25
8632-5160	0 ... \pm 160 Nm	15.1	30	76	1/2"	35.1	15	10	0.25
8632-5200	0 ... \pm 200 Nm	22.6	49	100	3/4"	46	15	10	0.8
8632-5500	0 ... \pm 500 Nm	22.6	49	100	3/4"	46	15	10	0.8
8632-6001	0 ... \pm 1000 Nm	27.4	49	132	1"	60	15	10	1.6

Higher measuring ranges upon request.

Mechanical connections:	external square and square drive acc. to DIN 3121 e.g. for the linkage to screwdriver tools
Electrical connection:	shielded PVC cable, 3 m PVC cable is not suitable for too many bending cycles trailing capable upon request

Order Information

Torque sensor for non-rotary applications, with internal and external square ends, measurement range ± 12 Nm **Model 8632-5012**

Options

Miniature plug instead of integrated cable, starting from measurement range 0 ... 25 Nm	-V201
Linearity ± 0.1 % F.S.	-V503

Accessories for all models

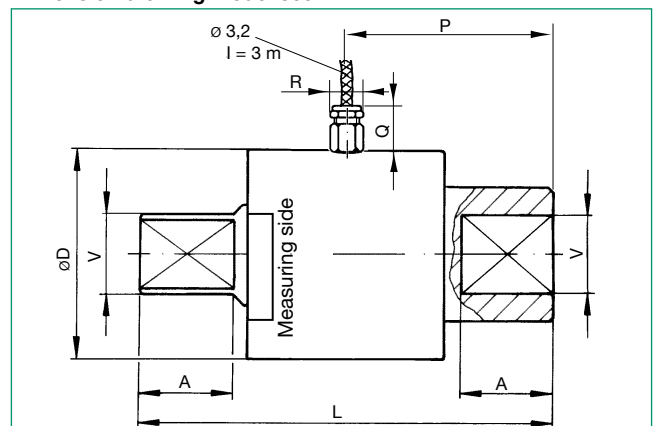
for sensors with 6 pins plug

Mating connector, 6 pole cable coupling	Model 9953
Mating connector, 6 pole, 90° - phase shift	Model 9900-V589
Connection cable with one end free, length 3 m, with connector model 9953	Model 99553-000A-0110030
Connection cable, length 3 m	
- for burster desktop instruments	Model 99141-553A-0150030
- for model 9235, model 9310 and model 7281	Model 99209-553A-0110030

for model 8632 with integrated cable (standard)

Mating connector	
- 12 pole for burster desktop instruments not for model 9163	Model 9941
- 9 pole for model 9163-V3..., model 9235, model 9310 and model 7281	Model 9900-V209
Mounting of a connector to the sensor cable	Order code 99004
only for connection of sensors to SENSORMASTER model 9163 desktop version	Order Code 99002

Dimension drawing model 8632



The CAD drawing (3D/2D) for this sensor can be imported online directly into your CAD system.

Download via www.burster.com or directly at www.traceparts.com. For further information about the burster traceparts cooperation refer to data sheet 80-CAD-EN.

for model 8632 with 7 pole connector (see option)

Mating connector, 7 pole	Model 9900-V594
Mating connector, 7 pole, 90° - phase shift	Model 9900-V596
Connection cable one end free, length 3 m, with 9900-V594	Model 99594-000A-0150030
Connection cable, length 3 m, for burster desktop instruments	Model 99141-594A-0150030

Amplifier, process indicators, digital displays
see section 9 of the catalog.

Manufacturer Calibration Certificate (WKS)

Special calibration for clockwise or/and counter clockwise direction torque, in 20 % steps of range up and down.



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Applications

Control of engine torque

Model 8627, with its two flanges on both ends, enables the user to seize reaction torques without any problems and maintenance-free.

The arrangement showed on the left is especially suitable for the measurement of torque on agitators.

Quality test and calibration of torque wrenches

As different as the application field of torque wrenches are, as different are their environmental conditions: heat, cold, humidity, pressure and vibrations have to be resisted while they are expected to function precisely anyway.

Therefore it is strongly recommended to calibrate a torque wrench once a year.

burster for this purpose presents its **torque sensor model 8628** on request with an external and internal square. This sensor offers a very high linearity of 0.2 % F.S., optionally also 0.1 % F.S. is available. Upon request the user further obtains a mating sensor carrier, in order to avoid pull-out torques in advance.

Torque sensor model 8628 and TRANS CAL 7281 together represent a mobile reference measurement chain to verify and calibrate torque wrenches. You can record your measurement results by using the software DigiCal in a very simple way.

Serial No.	Unit	Target value	Actual value	Measurement error [%]	Test result	Evaluation
10.140	0.00000	4.00000	4.01000	0.25000	OK	0.20000
20.210	100.00000	9.00000	9.01000	0.11111	OK	0.10000
30.280	100.00000	9.00000	9.02000	0.22222	OK	0.10000
40.400	100.00000	9.00000	9.03000	0.33333	OK	0.14000
50.480	200.00000	18.00000	18.03000	0.16667	OK	0.10000
60.580	200.00000	18.00000	18.04000	0.22222	OK	0.10000
70.640	300.00000	18.00000	18.05000	0.27778	OK	0.16000
80.720	300.00000	18.00000	18.06000	0.33333	OK	0.10000
90.800	400.00000	18.00000	18.07000	0.38889	OK	0.16000
100.880	400.00000	18.00000	18.08000	0.44444	OK	0.16000
110.960	500.00000	18.00000	18.09000	0.50000	OK	0.16000
121.040	500.00000	18.00000	18.10000	0.55556	OK	0.16000
131.120	600.00000	18.00000	18.11000	0.61111	OK	0.16000
141.200	600.00000	18.00000	18.12000	0.66667	OK	0.16000
151.280	700.00000	18.00000	18.13000	0.72222	OK	0.16000
161.360	700.00000	18.00000	18.14000	0.77778	OK	0.16000
171.440	800.00000	18.00000	18.15000	0.83333	OK	0.16000
181.520	800.00000	18.00000	18.16000	0.88889	OK	0.16000
191.600	900.00000	18.00000	18.17000	0.94444	OK	0.16000
201.680	900.00000	18.00000	18.18000	1.00000	OK	0.16000
211.760	1000.00000	18.00000	18.19000	1.05556	OK	0.16000