

DRBK

with Speed Measurement



Features

- Very short
- Broad input voltage range
- Current output and voltage output
- Measurement accuracy: $\leq 0.5\%$ of full scale
- Torque ranges from 0,5 to 1,000 Nm
- Contactless transfer of measurement signal
- Proven strain gage technology
- Integrated signal amplifier
- Optional speed measurement
- Single power supply
- Low-Cost Torque transducer

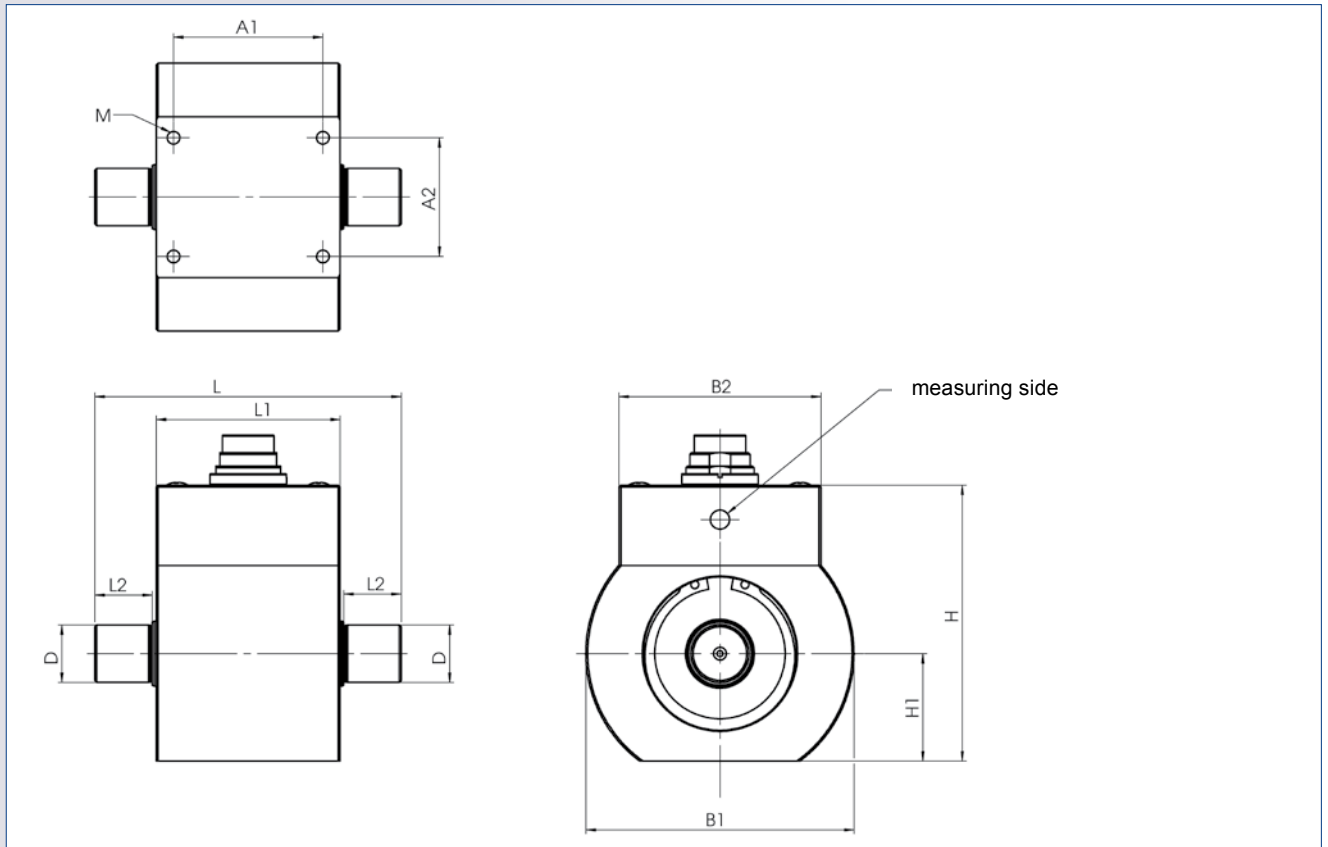
Description

Series DRBK torque transducers are suitable for lab and industrial applications because of their small size and multiple mounting options. As supply voltage and output signal are transmitted without contact, the device can operate continuously with low wear and no maintenance.

These transducers are also available with speed measurement for a host of applications.

The integrated signal amplifier runs on 11.5 to 30 V DC; it outputs an analog signal of 0 to ± 5 V and a current signal of $10 \text{ mA} \pm 8 \text{ mA}$. Due to its large supply voltage range the transducer can be operated directly from a PLC. The device should be used only with couplings designed specially for it.

Mechanical Dimensions:



Sizes:

Sizes	0	I	II	III
Torque Ranges: (Nm)	0,5/1/2	5/10/20	50/100/200	500/1000
Dimensions:				
L (mm)	66	80	90	120
∅ B1 (mm)	45	70	75	105
B2 (mm)	45	53	53	76
H (mm)	56	72	77,5	97,5
H1 ± 0,05 (mm)	18	28	30	40
∅ D g6 (mm)	6	15	24	40
L1 (mm)	42	48	52	65
L2 (mm)	10	15	18	26
A1 (mm)	33	39	42	50
A2 (mm)	20	31	35	55
M	M3 x 5 deep	M4 x 6 deep	M4 x 6 deep	M5 x 10 deep
	General tolerances DIN 2768 - m			
Weight ca.: (g)	230	350	600	2000
Speed max.(1/min)	20000	18000	16000	9000

Technical Data:

Supply voltage:	11,5 bis 30V DC
Current consumption:	ca. 200 mA
Rise time 10-90 %:	1 ms
Limit frequency –3dB:	1 kHz
Voltage output:	0 bis ± 5 V
Internal resistance:	100 Ω
Current output:	10 ± 8 mA Burden max 500 Ω
Ripple:	< 100 mVss
Nonlinearity:	< 0,3 %
Hysteresis:	< 0,3 %
Deviation at zero point:	≤ ± 100 mV / ± 200 μA
Max. Measuerment fault:	0,5 % (of full scale)
Operating temperature:	0 - 60 °C
Compensated temperature:	5 - 45 °C
Temperature fault:	
Zero point:	0,05 % / K
Sensitivity:	0,02 % / K
Mechanical overload:	100 %
Internal protection::	IP 40 DIN 40050
Connection::	12pin- Connector

EMc Immunity from interference (DIN EN 61326-1 / EN 61000-6) *1

Enclosure	Severity	Crit.
HF line interference 150 kHz - 80 MHz (AM)	3 V	A
(ESD) Electrostatic discharge	Air 8 kV	A
	Contact 4 kV	A
Enclosure Electromagnetic Field		
80 MHz - 1000 MHz (AM)	10 V/m	A
80 MHz - 2700 MHz (AM)	10 V/m	A
Leads - Connection Cable		
Burst (fast transients)	2 kV	A
Surge voltage (Surge)	1 kV	B
Interference Emission (EN 61326-1 / EN 55011)		
Disturbance Voltage (Electromagnetic Disturbances)	-	Class B (150 kHz - 30 MHz)
Radiated Emission (Electromagnetic Disruption axis)	-	Class B (30 MHz - 1000 MHz)

Option Speed (n)

Speed:	til 10 000 min ⁻¹ *2
Output:	Open-Collector
Internal Pull Up:	4,7 kΩ (5 V level)
External Pull Up:	24 V max / 20 mA
Pulses / Rotation:	60

*1 Severity / Criterion: industrial environment;
Cable lenght ≤ 30m.

Application not outside buildings.

*2 by proper external connections til speed max.

Technical Data:

Torsion Shaft Type	Measuring range (Nm)	spring constant C (Nm/rad)	Mass Moment of Inertia J (g•cm ²)			Permitted Axial Load (N)	Permitted Radial Load (N)
			Total	Drive side	Measuring side		
DRBK-0.5	0,5	144	15	14,5	0,5	190	30
DRBK-1	1	144	15	14,5	0,5	190	30
DRBK-2	2	287	15	14,5	0,5	190	60
DRBK-5	5	1100	130	115	15	930	25
DRBK-10	10	2700	130	115	15	930	45
DRBK-20	20	5400	130	115	15	930	90
DRBK-50	50	20 x 10 ³	400	300	100	1580	210
DRBK-100	100	36 x 10 ³	400	300	100	1580	420
DRBK-200	200	52 x 10 ³	400	300	100	1580	845
DRBK-500	500	290 x 10 ³	3300	1900	1400	3920	1420
DRBK-1000	1000	420 x 10 ³	3500	2000	1500	3920	2875

The values for axial and radial load refer to the non-fixed housings

Features:

- Supply is protected against overvoltage max 60 V DC (permanent)
- The outputs are short-circuit proof
- Contact for „Tranducer ready“ 100 mA 30 V DC

Available Accessories:

Cable, Analyzers, Couplings

Compatible Couplings:

for size 0 MK2/20/40/6/x
 for size I BKE/20/15/x
 for size II BKE/200/24/x
 for size III BKE/1000/40/x

Ordering example:

DRBK-10-n
 Torque Transducer DRBK
 Measuring Range 10 Nm
 Option Speed Measurement