Diaphragmless Ring-Torsion Load Cells RT

- **PTB & OIML approved as suitable for trade use (up to 6000 d and 7500 d in case of multi-divisional scales)**
- **High accuracy, even for very small utilisation rates (down to 15 % in case of trade use according to OIML)**
- **High output signal and, thus, high-resolution useful signal range**
- **Low power consumption enables multi-scale systems to be configured with simple evaluation electronics**
- **Protection to EEx ib IIC T 6 in case of use in hazardous areas**
- **Protection class IP 68**

Application

The load cell is the most important part within the measuring chain of an electronic scale. As a measured value transducer, it converts the mechanical input signal, in the form of load, proportionally into the electrical output voltage.

The diaphragmless load cell variant offers additional advantages:

- Insensitive against damage during transport and mounting.
- Low headroom enables a simple mounting under narrow installation conditions or in case of an upgrade.
- Excellent operation under difficult environmental conditions.

Construction

- Hermetically sealed, due to laser welding, protection class IP 68.
- Integral overload protection in measuring direction.
- Tangential cable connection.
- High corrosion protection due to the use of electrolytically polished stainless steel.

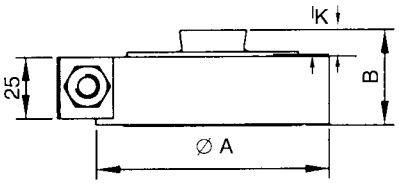
Functions

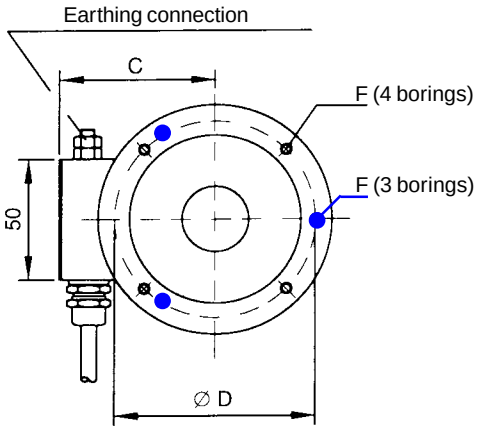
- High measuring sensitivity
- High repeatability
- High long-term stability and, thus, continuing and consistently high accuracy
- Minimum effect on accuracy by side forces
- High reliability and availability, even in case of unavoidable shock loads, reactive forces or electrical interferences
- Integral excessive voltage protection
- Moment-free load input/output due to direct, vertical force flow

Rated Capacities: 0.33 t - 0.68 t

Dimensions

Type	Dimensions (mm)					
RT	A	B	C	D	F	K
0.33 0.47 0.68	75	35	61	66	3xM4/120°	7





Technical Data

Type RT	Rated capacity E_{max} t	Limit load L_l with/without overload protection t		Rupture load L_d with/without overload protection t		Nominal displacement h_n mm	Dead weight kg
0.33	0.33	3	0.5	5	1.0	0.14	
0.47	0.47	3	0.7	5	1.4	0.11	1
0.68	0.68	3	1.0	5	2.0	0.10	

Admissible static side load $L_q = 0.5 (E_{max} - 0.8 L_z)$, but no higher than $L_{qmax} = 0.3 E_{max}$; E_{max} = rated capacity;
L_z = load in measuring direction

Technical Data (as per VDI/VDE 2637 and OIML R60)

Rated capacity	E_{max}	0.33 t - 0.68 t						
Type		RTW	RTV	RTK	RT4K	RTMK	RT6K	Reference
Accuracy class		0.1 %	0.04 %	C3	C4	C3MI 7.5	C6	
Nominal characteristic value	C_n	2.85mV/V ±8.5µV/V	2.85 mV/V ± 2.85 µV/V					E_{max}
Combined error	F_{comb}	0.1 %	0.04 %	0.02 %	0.013 %		0.01 %	C_n
Zero signal return after loading (30 min)	F_{dr}	± 0.025 %	± 0.02 %	± 0.016 %	± 0.012 %	± 0.006 %	± 0.008 %	C_n
Creep error during stress (30 min)	F_{cr}	± 0.03 %	± 0.026 %	± 0.024 %	± 0.018 %	± 0.009 %	± 0.012 %	C_n
Temperature coefficient of zero signal	TK_o	± 0.1 % / 10 K ± 0.1 % / 10 K	± 0.03 % / 10 K ± 0.05 % / 10 K	± 0.007 % / 10 K ± 0.02 % / 10 K	± 0.006 % / 10 K ± 0.02 % / 10 K		± 0.0058 % / 10 K ± 0.02 % / 10 K	C_n in B_{tn} C_n in B_{tu}
Temperature coefficient of characteristic value	TK_c	± 0.1 % / 10 K ± 0.1 % / 10 K	± 0.05 % / 10 K ± 0.07 % / 10 K	± 0.008 % / 10 K ± 0.02 % / 10 K	± 0.007 % / 10 K ± 0.02 % / 10 K		± 0.005 % / 10 K ± 0.02 % / 10 K	C_n in B_{tn} C_n in B_{tu}
Max. admissible number of digits for certified applications	n_{LC}	-	-	3000	4000	3000	6000	
for multi-divisional scales:	Z					7500		
Min. utilisation rate	B_{amin}	-	-	15 %	17 %	12.8%(3000d) 32%(7500d)	25 %	E_{max}
Max. utilisation	B_{amax}	$B_{amax} = E_{max}$ (B_{amax} = 0,7 E_{max} for RT4K, RTMK, RT6K for 0,33 t - 0,68 t)						
Input resistance	R_e	4480 Ω ± 50 Ω						t_r
Output resistace	R_a	4010 Ω ± 10 Ω	4010 Ω ± 0,5 Ω					t_r
Zero signal	S_o	± 2 %	± 1 %					C_n
Max. supply voltage	U_{smax}	100 V	60 V					
Nominal temperature range	B_{tn}	-10°C to +40°C						
Service temperature range	B_{tu}	-30°C to +80°C, Option to +100°C						
Reference temperature	t_r	22°C						
Storage temperature range	B_{ts}	-50°C to +85°C						
Protection class		IP68						
Cable specification		Special silicone RAL 7000 (grey), ∅ 6.5 x 5m, -30°C to +150°C						
Colour code		black : input + / blue : input - red : output + / white : output - green-yellow : screening						
Corrosion protection		Stainless steel						

Variants and Order No.

Rated Capacity	Order No.	Order No.	Order No.	Order No.	Order No.	Order No.
t	RTW	RTV	RTK	RT4K	RTMK	RT6K
0.33	D 703642.03	D 703642.02	D 703642.01	D 703642.05	D 703642.05	D 703642.04
0.47	D 703647.03	D 703647.02	D 703647.01	D 703647.05	D 703647.05	D 703647.04*)
0.68	D 703650.03	D 703650.02	D 703650.01	D 703650.05	D 703650.05	D 703650.04

*) Delivery time upon request

Accessories

Elastomer mounts and Compact mounts

Option:

- Protection to EEx ib IIC T 6 ”intrinsically safe” for use in hazardous areas, upon request

  Order No. D 990001.07
- Variant for service temperature range of up to 100°C

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