



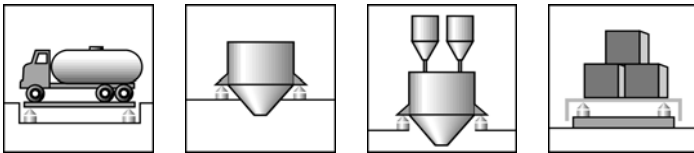
# RTN...

## Load cells



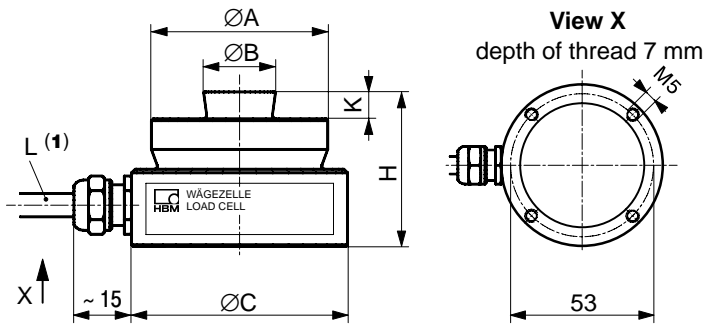
### Special features

- Low construction
- Max. capacities: 1 t ... 470 t
- Legal for trade according to OIML and NTEP
- Stainless steel
- Protection class IP 68
- High output signal of 2.85 mV/V
- Input resistance  $\geq 4350 \Omega$
- Explosion proof versions according to ATEX (Option)

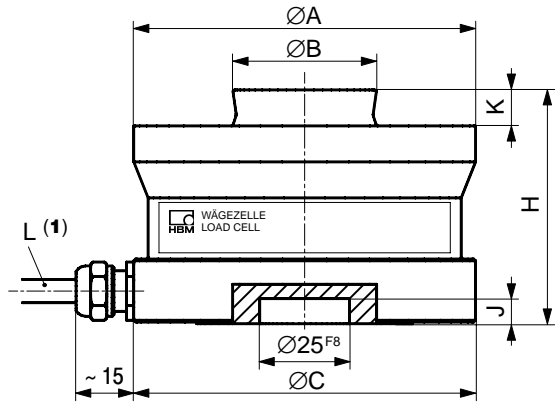


Dimensions (in mm; 1 mm= 0.03937 inches)

#### RTN... / $\leq 4,7 t$



#### RTN... / 10 t ... 470 t



RTN...	1 t	2.2 t	4.7 t	10 t	15 t	22 t	33 t	47 t	68 t	100 t	150 t	220 t	330 t	470 t
ØA	49	49	49	74	75	75	95	130	130	150	150	225	225	270
ØB	20	20	20	30	30	30	40	60	60	70	70	100	100	120
ØC	60	60	60	75	75	75	95	130	130	150	150	225	225	270
H	43	43	43	50	50	50	65	75	85	90	100	130	145	170
J	-	-	-	7	7	7	7	7	7	7	7	10	10	10
K	7.5	7.5	7.5	6.5	6.5	6.5	10	14	14	16	16	24	24	28
L	5 m	5 m	5 m	5 m	5 m	12 m	15 m	12 m	12 m	12 m	5 m	5 m	5 m	5 m

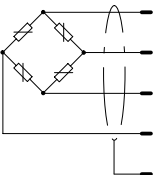
(1) L = Cable length

## Specifications

Type		RTN 0,05	RTN C3
Nominal (rated) load ( $E_{max}$ )		1 t ... 470 t	
Accuracy class		0.05	C3 (OIML R60) III M (NTEP)
Maximum number of load cell intervals ( $n_{LC}$ )		–	3000 (OIML R60) 7500 (NTEP III M; 2,2 ... 100 t)
Minimum LC verification interval ( $v_{min}$ )	% of $E_{max}$	–	0,005 (OIML R60) 0,0048 (NTEP III M)
Sensitivity ( $C_n$ )	mV/V	2.85 ± 0.1 %	
Temperature effect on sensitivity ( $TK_C$ )	% of $C_n$	± 0.05	± 0.008 <sup>1)</sup>
Temperature effect on zero balance ( $TK_0$ )	/ 10 K	± 0.03	± 0.007
Hysteresis error ( $d_{hy}$ )		± 0.05	± 0.02 <sup>1)</sup>
Non-linearity ( $d_{lin}$ )	% of $C_n$	± 0.05	± 0.02 <sup>1)</sup>
Creep ( $d_{cr}$ ) over 30 min.		± 0.03	± 0.017
Dead load output return (DR), 30 min.	% v. $C_n$	± 0,03	± 0,0167 (OIML R60) ± 0,0111 (NTEP III M)
Input resistance ( $R_{LC}$ )	$\Omega$	4450 ± 100	
Output resistance ( $R_0$ )		4010 ± 2	4010 ± 0.5
Reference excitation voltage ( $U_{ref}$ )	V	5	
Nominal range of excitation voltage ( $B_U$ )		5 ... 30 (max. 60)	
Carrier frequency of the excitation voltage	Hz	< 600	
Insulation resistance ( $R_{is}$ )	G $\Omega$	> 20	
Nominal temperature range ( $B_T$ )		–10 ... +40 [+14 ... +104]	
Service temperature range ( $B_{tu}$ )	°C [°F]	–30 ... +80 [–22 ... +176] (Option: up to +110 °C / +230 °F)	
• Load cell RTN		–30 ... +80 [–22 ... +176]	
• Accessory: VEN VPN		–30 ... +110 [–22 ... +230]	
Storage temperature range ( $B_{tl}$ )		–50 ... +85 [–58 ... +185]	

Nominal (rated) load ( $E_{max}$ )	t	1	2.2	4.7	10	15	22	33	47	68	100	150	220	330	470
Weight (G), approx.	kg	0.6	0.6	0.7	1.2	1.3	1.3	2.1	4.3	4.8	7.0	8.6	22	29	50
Safe load limit ( $E_L$ )	t	1.7	3.8	8	17	25	38	56	80	115	170	250	380	500	700
Breaking load ( $E_d$ )		4	9	19	40	60	88	130	190	270	400	600	770	1100	1500
Permissible static side load ( $L_q$ )		0.5 ( $E_{max} - 0.8 L_z$ ), but no higher than $L_{q max} = 0.3 E_{max}$ $E_{max}$ = Nominal (rated) load; $L_z$ = load in measuring direction													
Permissible dynamic load ( $F_{srel}$ ) (vibration amplitude accor. to DIN 50100)	% of $E_{max}$	70													
Deflection at $E_{max}$ ( $s_{nom}$ ), approx.	mm	0.13	0.12	0.12	0.17	0.18	0.21	0.25	0.33	0.35	0.45	0.57	0.67	0.85	1.00
Protection class to EN60529 (IEC529)		IP 68 (test conditions 100 h at 1 m water column)													
Material: Measuring element Cable fitting Cable-sheath		Stainless steel Brass, nickel plated / Sealing: CR/NBR Thermoplastic elastomer, RAL 7000 (grey), $\varnothing$ 6.5 mm													

<sup>1)</sup> The data for Non-linearity ( $d_{lin}$ ), Hysteresis error ( $d_{hy}$ ) and Temperature effect on sensitivity ( $TK_C$ ) are typical values. The sum of these data meets the requirements according to OIML R60.

Wiring code RTN...		
		(black) Excitation (+)
		(red) Signal (+)
		(blue) Excitation (–)
		(white) Signal (–)
		(green–yellow) Shield

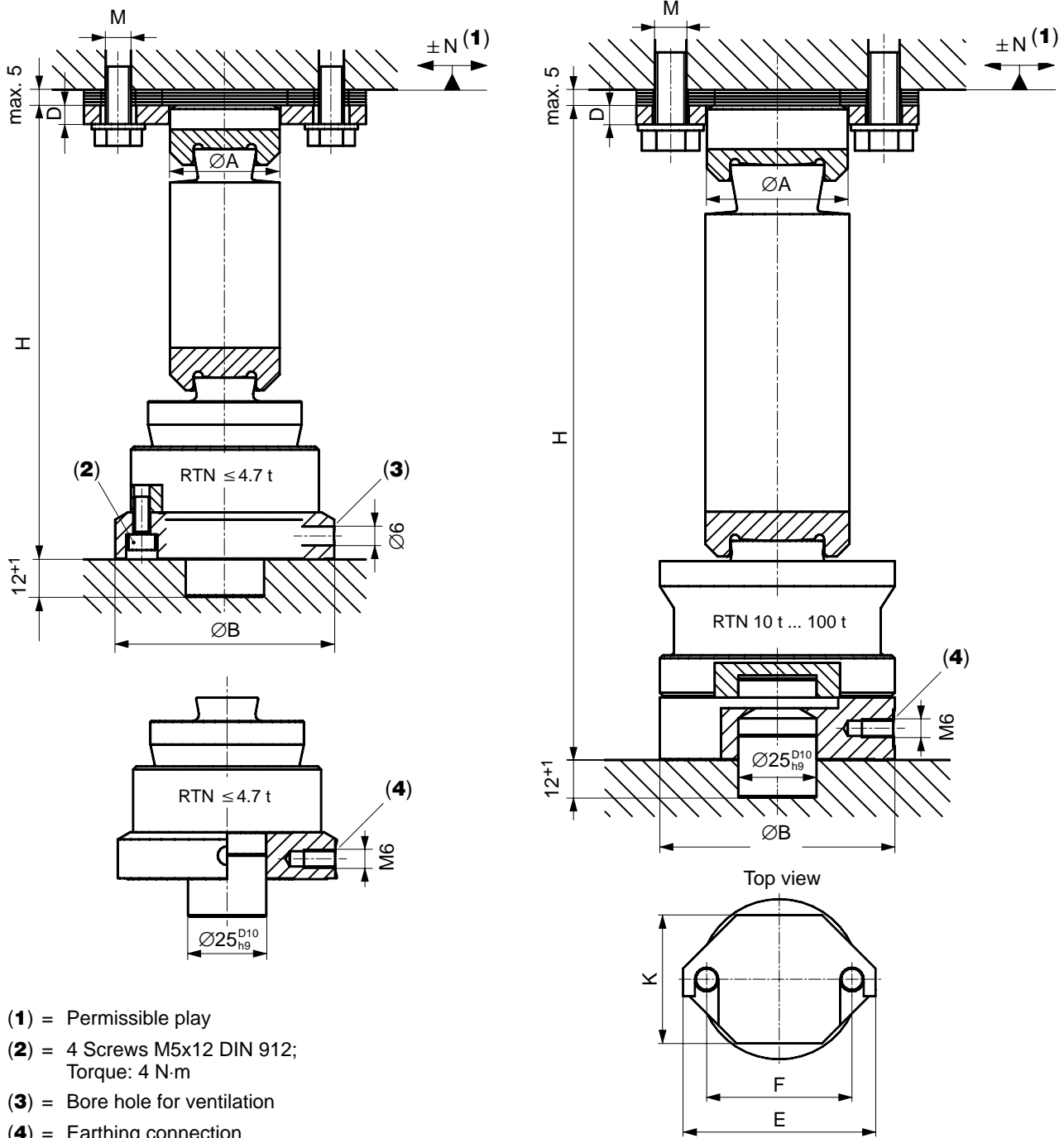
### Available Options:

- **Explosion-proof versions according to ATEX:** Ex II 2G EEx ia IIC T4 resp. T6 (Zone 1) \*)  
Ex II 2D Ex tD A21 IP68 T 80 °C (Zone 21) \*)  
\*) with EC-Type Examination Certificate  
Ex II 3G EEx nA II T6 (Zone 2)  
Ex II 3D IP68 T 80 °C (Zone 22 for non-conductive dust)
- **Service temperature range up to +110 °C** (not possible in connection with ATEX and / or Elastomer mounts VEN)

**Accessory: Pendulum mounts VPN** (Dimensions in mm; 1 mm = 0.03937 inches)

**RTN...T/VPN** (Pendulum mounts for Load cells RTN... / 1 t ... 100 t)

Material: Stainless steel



- (1) = Permissible play
- (2) = 4 Screws M5x12 DIN 912;  
Torque: 4 N·m
- (3) = Bore hole for ventilation
- (4) = Earthing connection

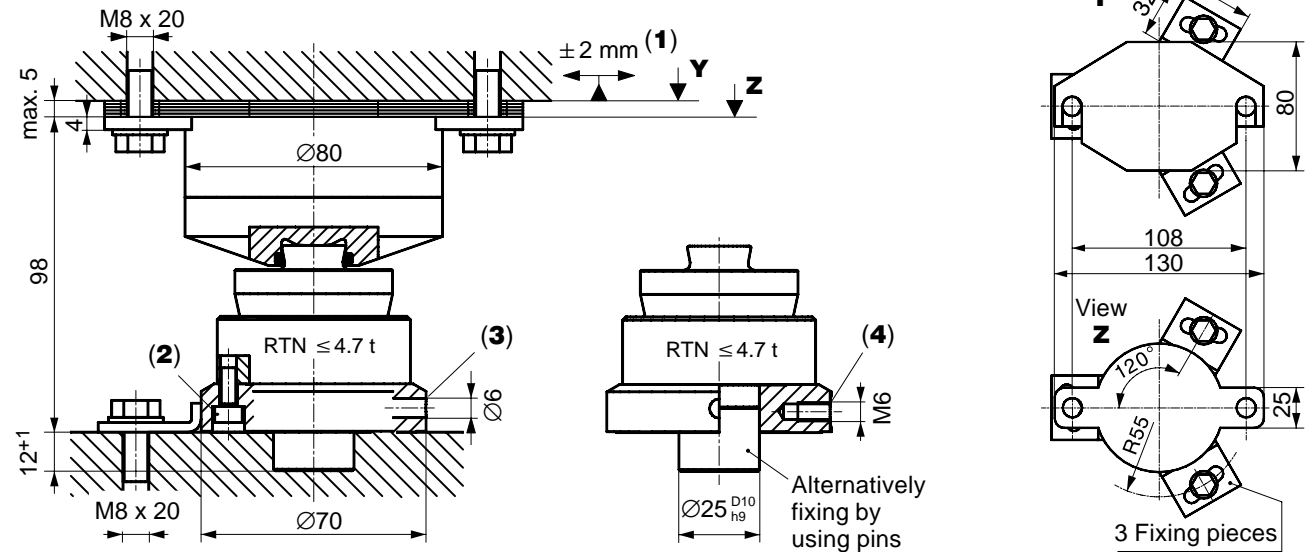
Type ( $E_{max}$ Load cell)	ØA	ØB	D	E	F	H	K	M	N
RTN/2.2T/VPN (1 t + 2.2 t)	35	70	6	90	68	128	60	M8 x 20	3.5
RTN/4.7T/VPN (4.7 t)	35	70	6	90	68	145	60	M8 x 20	3.5
RTN/10T/VPN (10 t)	45	75	6	90	68	165	60	M10 x 25	3.5
RTN/15T/VPN (15 t)	45	75	6	90	68	175	60	M10 x 25	4
RTN/22T/VPN (22 t)	45	75	6	90	68	229	60	M10 x 25	7
RTN/33T/VPN (33 t)	58	95	6	120	90	272	80	M12 x 25	7
RTN/47T/VPN (47 t)	85	130	10	170	130	295	110	M16 x 30	6
RTN/68T/VPN (68 t)	85	130	10	170	130	337	110	M16 x 30	7
RTN/100T/VPN (100 t)	100	150	10	180	140	371	130	M16 x 30	8

**Accessory: Elastomer mounts VEN (Dimensions in mm; 1 mm = 0.03937 inches)**

**RTN/2.2T/VEN + RTN/4.7T/VEN (Elastomer mounts for Load cells RTN... / ≤ 4.7 t)**

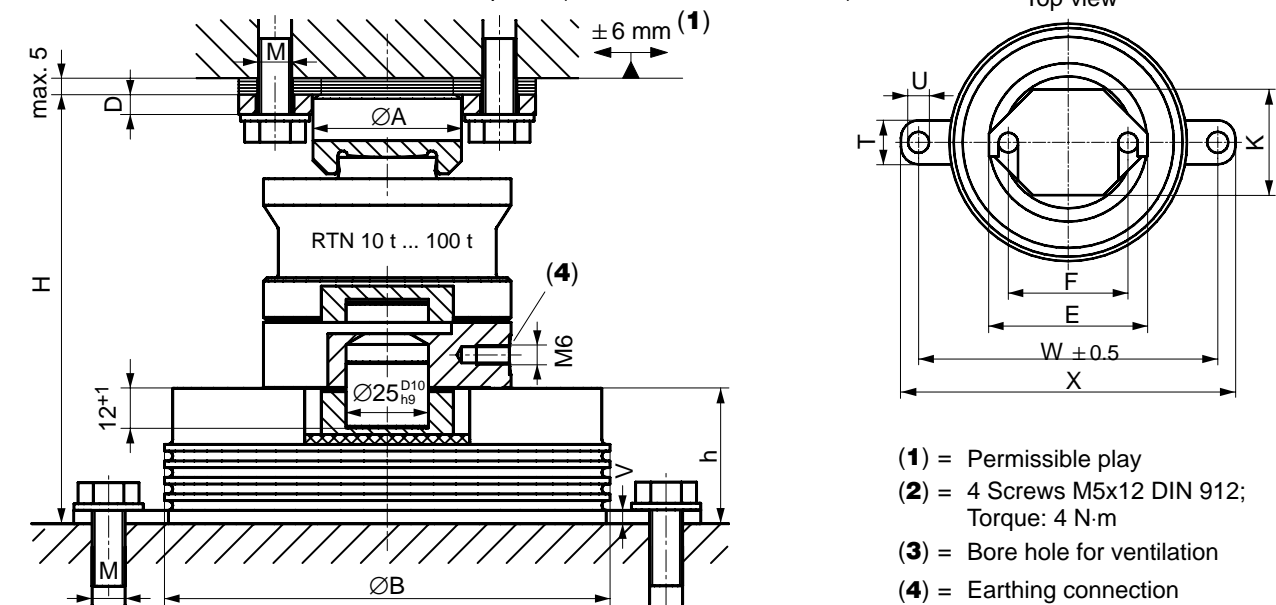
Material: Stainless steel; Elastomer = Neoprene (chlorine butadiene rubber)

Deflection < 0.8 mm (at 4.7 t)



**RTN/...T/VEN (Elastomer mounts for Load cells RTN... / 10 t ... 100 t)\***

Material: Galvanized steel; Elastomer = Neoprene (chlorine butadiene rubber)



- (1) = Permissible play
- (2) = 4 Screws M5x12 DIN 912; Torque: 4 N·m
- (3) = Bore hole for ventilation
- (4) = Earthing connection

Type (E <sub>max</sub> Load cell)	Deflection	ØA	ØB	D	E	F	H	h	K	M	T	ØU	V	W ± 0.5	X
RTN/22T/VENR (10 t ... 22 t) Stainless steel	0.5 (at 22 t)	45	135	6	90	68	130	41	60	M10x25	25	12	4	170	190
RTN/22T/VEN (10 t ... 22 t)	0.5 (at 22 t)	45	135	6	90	68	130	41	60	M10x25	25	12	4	170	190
RTN/33T/VEN (33 t)	0.8	58	175	6	120	90	168	56	80	M12x25	30	17	6	250	280
RTN/47T/VEN (47 t)	0.5	85	250	10	170	130	198	63	110	M16x30	40	21	8	310	350
RTN/68T/VEN (68 t)	0.7	85	250	10	170	130	220	63	110	M16x30	40	21	8	310	350
RTN/100T/VEN (100 t)	0.6	100	300	10	180	140	239	68	130	M16x30	40	21	8	360	400

\* Elastomer mounts VEN for higher capacities on request

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