HLCB2…

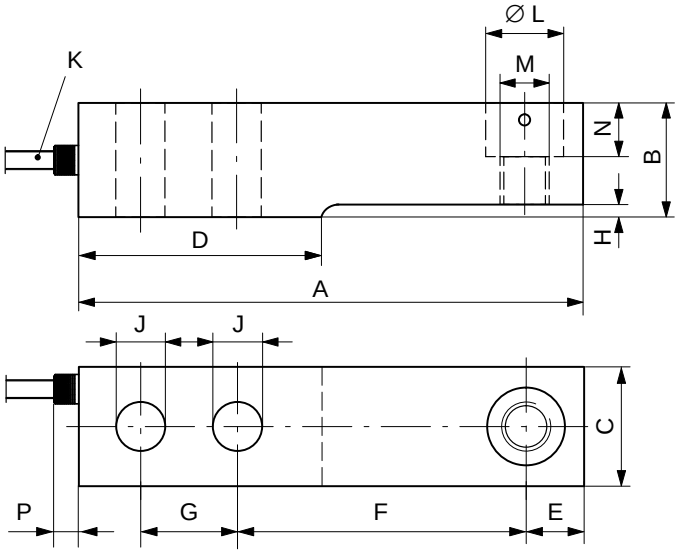
Load cells

Data sheet

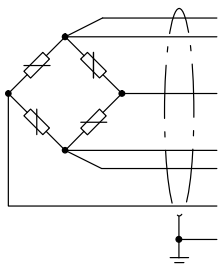
Special features

- **Hermetically encapsulated (IP68, IP69K)**
- **Maximum capacities: 110 kg to 4.4 t**
- **Rust-resistant materials**
- **Low height of construction**
- **Six-wire configuration**
- **Optimized for parallel connection**
- **Meets EMC requirements in accordance with EN 45 501:2015**
- **Legal for trade per OIML R60 to 6000 divisions**
- **Options:**
  Explosion-proof versions per ATEX and IECEx, FM and EAEU

Dimensions (in mm; 1 mm = 0.03937 inches)



Cable assignment (six-wire configuration)



(gray)	Sensing element (−)
(black)	Excitation (−)
(white)	Signal (+)
(blue)	Excitation (+)
(green)	Sensing element (+)
(red)	Signal (−)
(stranded wire)	Cable shield connected to enclosure ground

Cable:
Ø 5,4 mm (standard)
Ø 6,4 mm with option metal braiding (3R, 6R, 12R)

Maximum capacity (E_{max})	A	B	C	D	E	F	G	H	J	K	∅ L	M	N	P
110 kg; 220 kg; 550 kg; 1.1 t	133,4	30,2	30,7	57,7	15,4	76,2	25,4	1,7	13	3 m	20,6	M12	14,2	12
1.76 t	133,4	30,2	30,7	51,7	15,4	76,2	25,4	1,7	13	3 m	20,6	M12	14,2	12
2.2 t	171,5	36,5	36,8	76,2	19,1	95,3	38,1	2,5	20,5	6 m	30,2	M20	17,0	12
4.4 t	171,5	42,9	42,9	76,2	19,1	95,3	38,1	2,5	20,5	6 m	30,2	M20	20,1	12

Specifications

Type			HLCB2		
Accuracy class [1]			**C3**	**C4**	**C6**
Number of load cell verification intervals	n_{LC}		3000	4000	6000
Maximum capacity	E_{max}		110 kg; 220 kg; 550 kg; 1.1 t; 1.76 t, 2.2 t, 4.4 t	220 kg; 550 kg; 1.1 t	
Minimum load cell verification interval	v_{min}	% of E_{max}	0.0100 (220 kg; 1.76 t; 2.2 t; 4.4 t) 0.0090 (110 kg; 550 kg; + 1.1 t)		
Nominal (rated) sensitivity	C_n	mV/V	1.94		
Sensitivity tolerance		%	± 0.1		
Temperature effect of zero signal [2]	TK_0	% of C_n / 10 K	± 0.0140 (220 kg; 1.76 t; 2.2 t; 4.4 t) ± 0.0127 (110 kg; 550 kg; + 1.1 t)		
Temperature coefficient of sensitivity [2]	TK_C		± 0.0140	± 0.0105	± 0.0070
Relative reversibility error [2]	d_{hy}	% of C_n	± 0.0166	± 0.0125	± 0.0083
Non-linearity [2]	d_{lin}		± 0.0170	± 0.0166	
Creep upon loading over 30 min.	d_{cr}		± 0.0166		± 0.0122
Minimum dead load output return	*MDLOR*		± 0.0166	± 0.0125	± 0.0083
Input resistance	R_{LC}	Ω	350 … 480		
Output resistance	R_0		350 ± 2	350 ± 0.12	
Reference excitation voltage	U_{ref}	V	5		
Nominal (rated) range of the excitation voltage	B_U		0.5 … 15 (Ex versions max. 12 V)		
Insulation resistance	R_{is}	GΩ	> 5		
Nominal (rated) ambient temperature range	B_T	°C	-10 … +40		
Operating temperature range	B_{tu}		-30 … +70		
Storage temperature range	B_{tl}		-50 … +85		
Limit load	E_L	% of E_{max}	150 (1.76 t = 171)		
Limit lateral loading	E_{lq}		100		
Breaking load	E_d		300		
Relative permissible oscillatory stress (oscillation width per DIN 50100)	F_{srel}		70 (1.76 t = 600 kg - 2 t)		
Nominal (rated) displacement at E_{max}, approx.	s_{nom}	mm	0.5 (1.76 t = 1.4 mm)		
Weight, approx.	*G*	kg	0.9 (110 kg … 1.76 t); 1.6 (2.2 t); 2.2 (4.4 t)		
Degree of protection per EN 60 529 (IEC 529)			IP 68 / IP 69K		
Material: Measuring body			Stainless steel [3]		
Cable entry			Stainless steel [3] (seal: Viton®)		
Cable sheath			TPE		
Measuring point protection			Hermetically welded		

[1] Per OIML R60 with P_{LC} = 0.7.

[2] The values for non-linearity (d_{lin}), relative reversibility error (d_{hy}) and temperature coefficient of sensitivity (TK_C) are recommended values. The sum of these values is within the cumulated error limit laid down by OIML R60.

[3] Per EN 10 088-1.

Accessories (see separate data sheet "HLC... load cells"):

To minimize error effects from load application, HBM offers different tried and tested load application elements for this type of load cell, according to the mounting conditions:

HLCB/ZFP/...T Oscillating loading foot

HLCB/PCX/1.76T Oscillating loading foot (height adjustable)

HLCB/...T/ZEL Elastomer bearing

HLCB/ZDP/...T Elastomer bearing ***Easy Top***

HLC/ZPU/...T Mounting base / mounting kit

Options

HLCB2 load cells, optional versions

Order no.
K-HLCB2

Code	Option 1: Design
S	Standard (= degree of protection IP 69K)

Code	Option 2: Accuracy	
C3	C3 (OIML)	
C4	C4 (OIML)	[only with Option 3 = 220 / 550 / 1100 + Option 5 = S3]
C6	C6 (OIML)	[only with Option 3 = 220 / 550 / 1100 + Option 5 = S3]

Code	Option 3: Maximum capacity	
110	110 kg	[only with Option 4 = N/(AI2/21)]
220	220 kg	
550	550 kg	
1100	1,1 t	
1760	1,76 t	
2200	2,2 t	
4400	4,4 t	

Code	Option 4: Explosion protection	
N	No Explosion protection	
AI1/21	IECEx-ATEX zone 1/21 and FM	[not with Option 3 = 110]
AI2/21	IECEx-ATEX zone 2/22	
R1/21	EAEU zone 1/21	
R2/21	EAEU zone 2/21	

Code	Option 5: Cable length	
S3	3 m (standard)	[only with Option 3 = 110/220/550/1100/1760]
S6	6 m (standard)	[only with Option 3 = 2200/4400]
6	6 m	[only with Option 3 = 110/220/550/1100/1760
12	12 m	
20	20 m	
3R	3 m metal braiding	[only with Option 3 = 110/220/550/1100/1760]
6R	6 m metal braiding	
12R	12 m metal braiding	

K-HLCB2 - S - ☐☐ - ☐☐☐☐ - ☐☐☐☐☐☐ - ☐☐☐

Not all codes can be combined with one another. Take note of the conditions in square brackets!

Options

Explosion protection versions per IECEx, ATEX, FM and EAEU

AI1/21 IECEx+ATEX zone 1/21 + FM intrinsically safe, II 2G Ex ia IIC T6/T4 Gb, II 2D Ex ia IIIC T125°C Db *
AI2/21** IECEx+ATEX zone 2/21 non intrinsically safe, II 3G Ex nA IIC T6/T4 Gc, II 2D Ex tb IIIC T125°C Db*

* with EU type examination certificate (BVS13ATEX E 108 X) and IECEx Certificate of Conformity (IECEx BVS 13.0109 X)

** IECEx zone 2/21 includes the ATEX2/22 option and offers the added customer benefit of usage with conductive dust as well.

Ex protection versions per EAC (Eurasian economic union with the member states: Russia, Belarus, Kazakhstan, …)

R1/21 EAEU zone 1/21 TR ZU 012/2011 Ex certificate, 1 Ex ia IIC T6/T4 Gb X / Ex ia IIIC T125°C Db X***
R2/21 EAEU zone 2/21 TR ZU 012/2011 Ex certificate, 2 Ex ia IIC T6/T4 Gc X / Ex tb IIIC T125°C Db X***

*** with certificate “СЕРТИФИКАТ СООТВЕТСТВИЯ № ТС RU C-DE.ГБ08.В.01138”

Subject to modifications.
All product descriptions are for general information only. They are not to be understood as a guarantee of quality or durability.

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