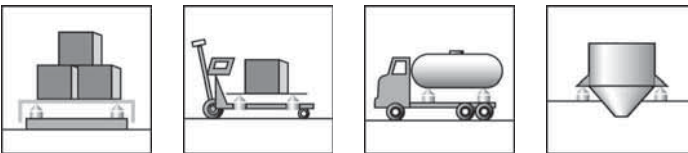


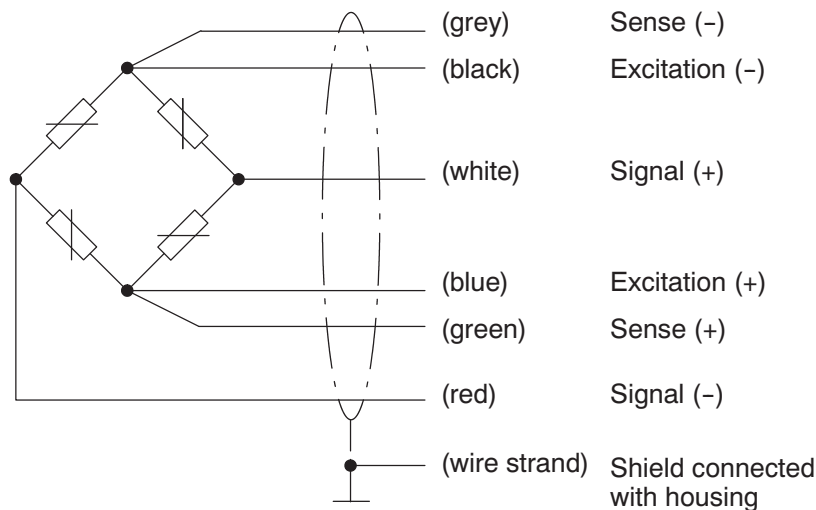
Load cells

Special features

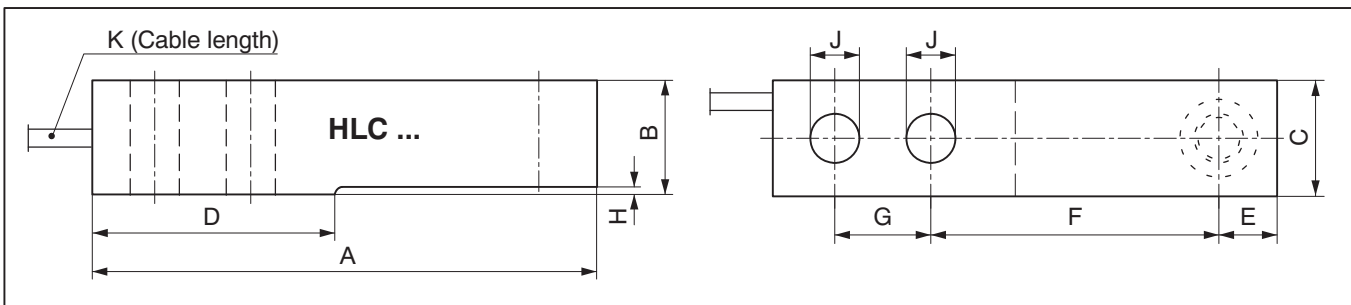
- Hermetically sealed (IP68)
- Max. capacities: 220 kg ... 10 t
- Stainless steel
- Low overall height
- Meets EMC/ESD requirements according to EN 45 501
- Complies with OIML R60 regulations up to 6000d
- Explosion-proof versions according to ATEX 95 optional



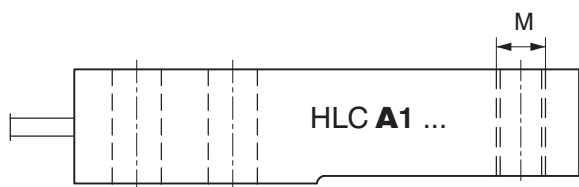
Wiring code (6-wire circuit)



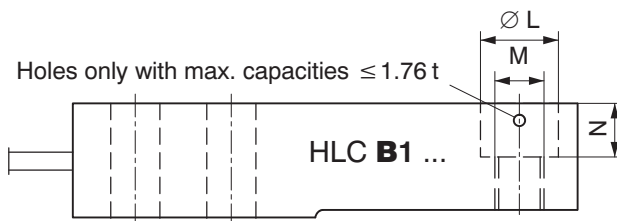
**Dimensions** (in mm; 1 mm = 0.03937 inches)



**HLC A1...**  
(220 kg; 550 kg; 1.1 t; 1.76 t; 2.2 t; 4.4 t)

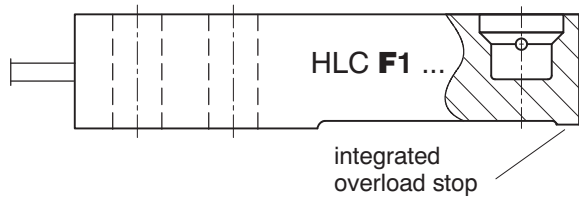


**HLC B1...**  
(220 kg; 550 kg; 1.1 t; 1.76 t; 2.2 t; 4.4 t; 10 t)

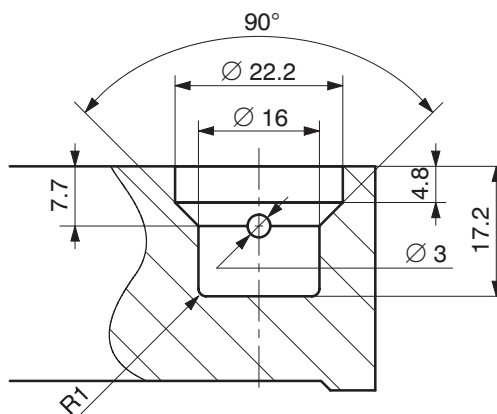


Mounting accessories for HLC **B1** ...: see pages 4 and 5

**HLC F1...**  
(220 kg; 550 kg; 1.1 t; 1.76 t)



Mounting accessories for HLC **F1**...: see page 5



Max. capacity	A	B	C	D	E	F	G	H	J	K	Ø L	M	N
220 kg; 550 kg; 1.1 t; 1.76 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
2.2 t <sup>2)</sup>	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
4.4 t <sup>2)</sup>	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
10 t <sup>1)</sup>	245.1	72.9	60	119.9	30.2	134.9	50 ±0.05	11.2	27	6 m	51 +0.2	Ø 32	20




1) Maximum capacities 2.2 t and 4.4 t: HLC **A1** ... + HLC **B1** ... only

2) Maximum capacity 10 t: HLC **B1 D1** ... only

**Mounting accessories** (to be ordered separately)

In order to minimize error interferences due to load introduction, HBM offers various proven load introductions for the load cell types HLC **B1** ... und HLC **F1** ..., depending on the mounting situation (see pages 4 and 5)

## Technical Data

<b>Type HLC A1 ...</b> Maximum capacity ( $E_{max}$ )  (Load introduction = thread through)	<b>HLC A1 D1 / ... + HLC A1 C3 / ...</b> 220 kg; 550 kg; 1.1 t; 1.76 t; 2.2 t; 4.4 t			
<b>Type HLC B1 ...</b> Maximum capacity ( $E_{max}$ )  (Load introduction = counterbore + thread) <sup>3)</sup>	<b>HLC B1 D1 / ...</b> 220 kg; 550 kg; 1.1 t; 1.76 t; 2.2 t; 4.4 t; 10 t <b>HLC B1 C3 / ...</b> 220 kg; 550 kg; 1.1 t; 1.76 t; 2.2 t; 4.4 t <b>HLC B1 C4 / ... + HLC B1 C6 / ...</b> 220 kg; 550 kg; 1.1 t			
<b>Type HLC F1 ...</b> Maximum capacity ( $E_{max}$ )  (Load introduction = blind hole + integrated overload stop)	<b>HLC F1 D1 / ... + HLC F1 C3 / ...</b> 220 kg; 550 kg; 1.1 t; 1.76 t			
<b>Accuracy class according to OIML R60</b> <b>Maximum number of load cell intervals (<math>n_{LC}</math>)</b>	<b>D1</b>	<b>C3</b>	<b>C4</b> <sup>5)</sup>	<b>C6</b> <sup>5)</sup>
	1000	3000	4000	6000
<b>Minimum LC verification interval (<math>v_{min}</math>)</b>	% of $E_{max}$	0.0100 (220kg; 1.76 t; 2.2 t; 4.4 t) 0.0090 (550 kg + 1.1 t)		
<b>Sensitivity (<math>C_N</math>)</b>	mV/V	1.94 (10 t = 2.00 mV/V)		
<b>Sensitivity tolerance</b>	%	± 0.5	± 0.1	
<b>Temperature effect on zero balance (<math>TK_0</math>)</b>	% of $C_N$ / 10 K	± 0.0400	± 0.0140 (220 kg; 1.76 t; 2.2 t; 4.4 t) ± 0.0126 (550 kg + 1.1 t)	
<b>Temperature effect on sensitivity (<math>TK_C</math>)</b> <sup>4)</sup>		± 0.0420	± 0.0140	± 0.0105
<b>Hysteresis error (<math>d_{hy}</math>)</b> <sup>4)</sup>		± 0.0500	± 0.0166	± 0.0125
<b>Non-linearity (<math>d_{lin}</math>)</b> <sup>4)</sup>		± 0.0500	± 0.0170	± 0.0166
<b>Creep (<math>d_{cr}</math>) over 30 min.</b>	% of $C_N$	± 0.0500	± 0.0166	± 0.0166
<b>Minimum dead load output return (MDLOR)</b>		± 0.0500	± 0.0166	± 0.0125
<b>Input resistance (<math>R_{LC}</math>)</b>	Ω	350 ... 480		
<b>Output resistance (<math>R_0</math>)</b>		350 ± 2	350 ± 0.12	
<b>Reference excitation voltage (<math>U_{ref}</math>)</b>	V	5		
<b>Nominal range of excitation voltage (<math>B_U</math>)</b>		0.5 ... 15 ( Ex-Versions max. 12 V !!! )	5 ... 10	
<b>Insulation resistance (<math>R_{is}</math>)</b>	GΩ	> 5		
<b>Nominal temperature range (<math>B_T</math>)</b>	°C [°F]	-10 ... +40 [+14 ... +104]		
<b>Service temperature range (<math>B_{tu}</math>)</b>		-30 ... +70 [-22 ... +158]		
<b>Storage temperature range (<math>B_{st}</math>)</b>		-50 ... +85 [-58 ... +185]		
<b>Safe load limit (<math>E_L</math>)</b>		150		
<b>Lateral load limit (<math>E_{lq}</math>)</b>		100		
<b>Breaking load (<math>E_d</math>)</b>	% of $E_{max}$	300		
<b>Permissible dynamic load (<math>F_{srel}</math>)</b> (vibration amplitude according to DIN 50100)		70		
<b>Deflection at <math>E_{max}</math> (<math>s_{nom}</math>), approx.</b>	mm	0.5 (1.76 t = 1.4 mm)		
<b>Weight (G), approx.</b>	kg	0.9 (220 kg ... 1.76 t); 1.6 (2.2 t); 2.2 (4.4 t); 6.2 (10 t)		
<b>Protection class to EN 60 529 (IEC 529)</b>		IP68		
<b>Material: Measuring element</b> <b>Cable fitting</b> <b>Cable-sheath</b>		Stainless steel Stainless steel / Gasket: Viton® PVC		

<sup>3)</sup> Maximum capacity 10 t: Load introduction = counterbore + hole

<sup>4)</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.

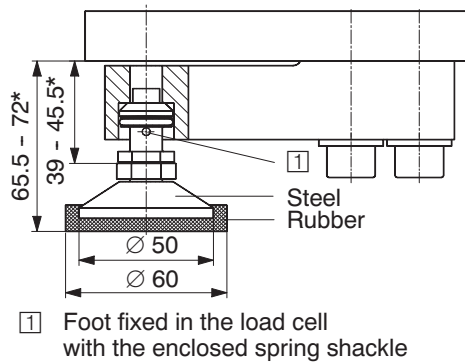
<sup>5)</sup> Accuracy classes **C4** and **C6**: **HLC B1 ... / 220 kg; 550 kg; 1,1 t** only

## Mounting accessories (to be ordered separately)

In order to minimize error interferences due to load introduction, HBM offers various proven load introductions for the load cell types HLC **B1** ... und HLC **F1** ..., depending on the mounting situation (see pages 4 and 5)

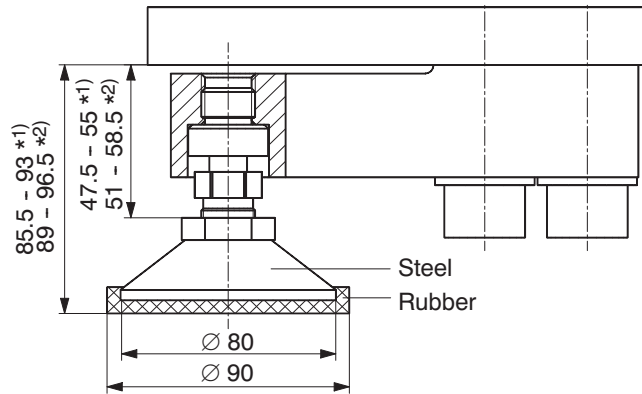
**Mounting accessories for HLC B ...** (to be ordered separately; Dimensions in mm; 1 mm = 0.03937 inches)

**HLCB/ZFP/1.76 T** - Load introduction swivel foot  
(Stainless steel) for HLC B / 220 kg ... 1.76 t:



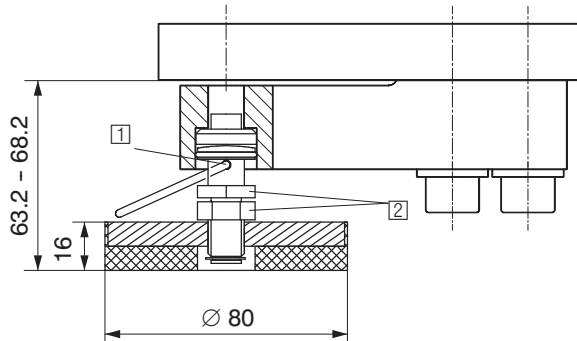
1 Foot fixed in the load cell with the enclosed spring shackle

**HLCB/ZFP/4.4 T** - Load introduction swivel foot  
(Stainless steel) for HLC B / 2.2 t + 4.4 t:



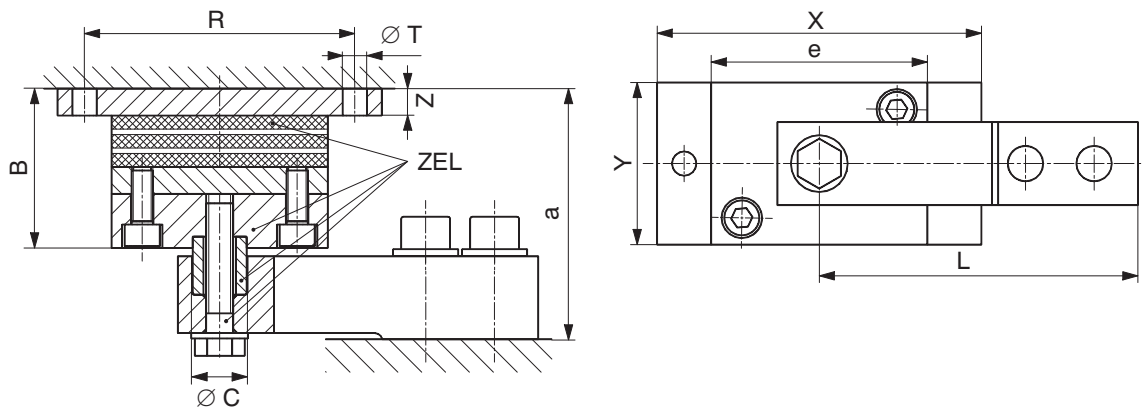
\* = Height adjustment (1) = Maximum capacity 2.2 t / 2) = Maximum capacity 4.4 t

**HLCB/ZAK/1.76T** - Load introduction swivel foot (stainless steel) for HLC B ≤ 1.76 t



- 1 Foot fixed in the load cell with the enclosed spring shackle
- 2 Width across flats 19

**HLCB/...T/ZEL** - Rubber-metal bearing (galvanized material; HLCB/1.76T/ZELR = stainless steel) for HLC B



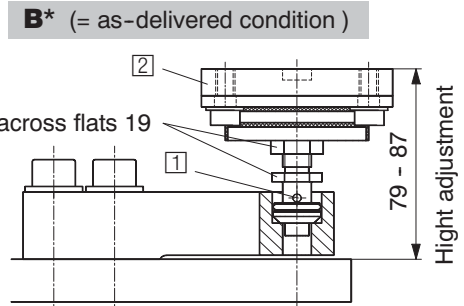
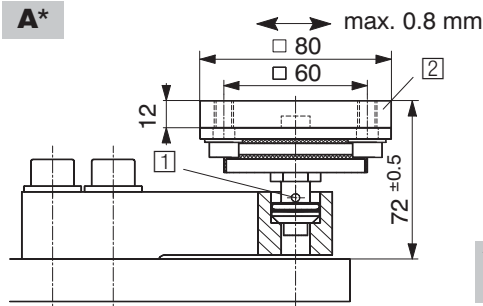
Maximum permissible lateral shift (when loaded with max. capacity):

HLCB/1.76T/ZEL: 4.5 mm  
HLCB/4.4T/ZEL: 8 mm  
HLCB/10T/ZEL: 9.5 mm

Type	Max. capacity	B	Ø C <sub>-0.1</sub>	L	R	Ø T	X	Y	Z	a	e
HLCB/1.76T/ZEL HLCB/1.76T/ZELR	220 kg ... 1.76 t	58.8	20	118	100	9	120	60	10	92	80
HLCB/4.4T/ZEL	2.2 t	71.2	30	152.4	125	11	150	100	10	113	100
HLCB/4.4T/ZEL	4.4 t	71.2	30	152.4	125	11	150	100	10	116	100
HLCB/10T/ZEL	10 t	85	50.8	214.9	175	13	200	100	12	167	150

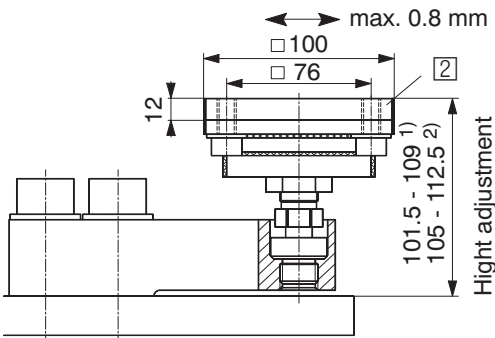
**Accessories for HLC B ... + HLC F ... (to be ordered separately; Dimensions in mm; 1 mm = 0.03937 inches)**

**HLCB/ZDP/1.76 T Easy top** - Rubber-metal bearing for HLC B / 220 kg ... 1.76 t  
 (Load introduction: stainless steel, Welding plate: galvanized material)



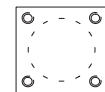
\* Mounting **alternatively**

**HLCB/ZDP/4.4 T Easy top** - Rubber-metal bearing for HLC B / 2.2 t + 4.4 t  
 (Load introduction: stainless steel, Welding plate: galvanized material)



1) **Easy top** fixed in the load cell with the enclosed spring shackle

2) Welding plate (schematically top view)  
 ZPU/1.76T: 4x M8  
 ZPU/2.2T + 4.4T: 4x M10



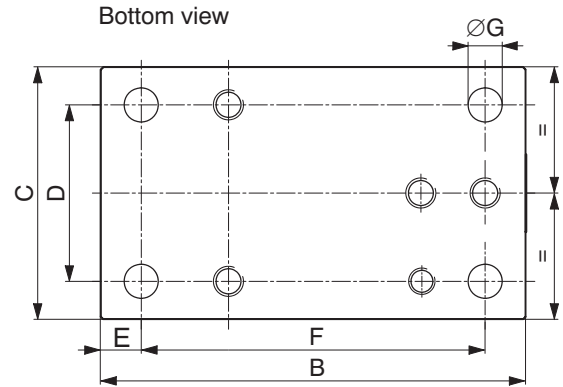
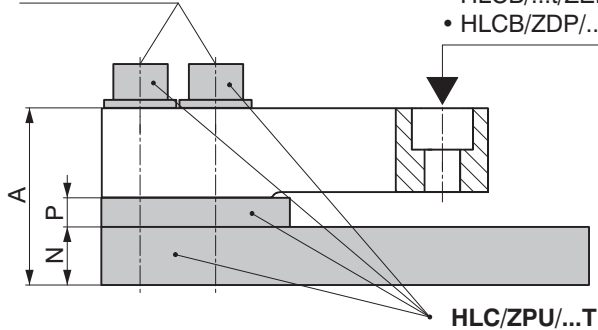
1) = Maximum capacity 2.2 t  
 2) = Maximum capacity 4.4 t

**HLC/ZPU/...T** - Base plate / Mounting kit (galvanized material) for HLC B

Wrench torque for screws  $M_A$ : see table

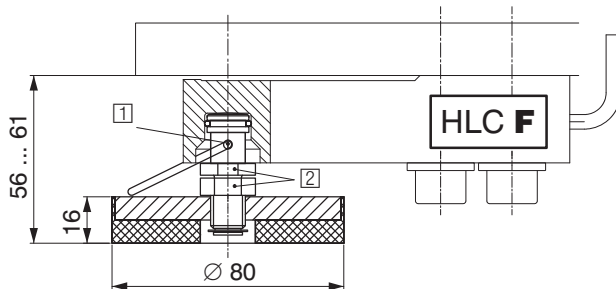
Load introduction via:

- HLCB/...t/ZEL
- HLCB/ZDP/...t



Type	Max. capacity	Breaking load	A	B	C	D	E	F	G	N	P	$M_A$
HLC/ZPU/1.76 T	220 kg ... 1.76 t	3.52 t	60.5	168	100	70	16	136	13.5	20	10	130 N·m
HLC/ZPU/2.2 T	2.2 t	4.4 t	81.5	212	120	84	18	175	14	25	20	400 N·m
HLC/ZPU/4.4 T	4.4 t	8.8 t	88	212	120	84	18	175	14	25	20	400 N·m

**HLCF/ZKP/1.76T** - Load introduction swivel foot (stainless steel) for HLC F ≤ 1.76 t



- 1) Foot fixed in the load cell with the enclosed spring shackle
- 2) Width across flats 19

