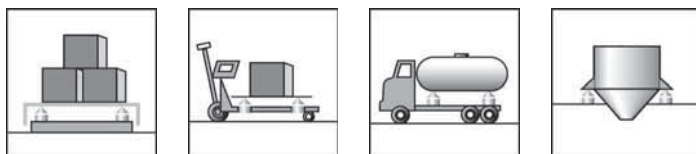


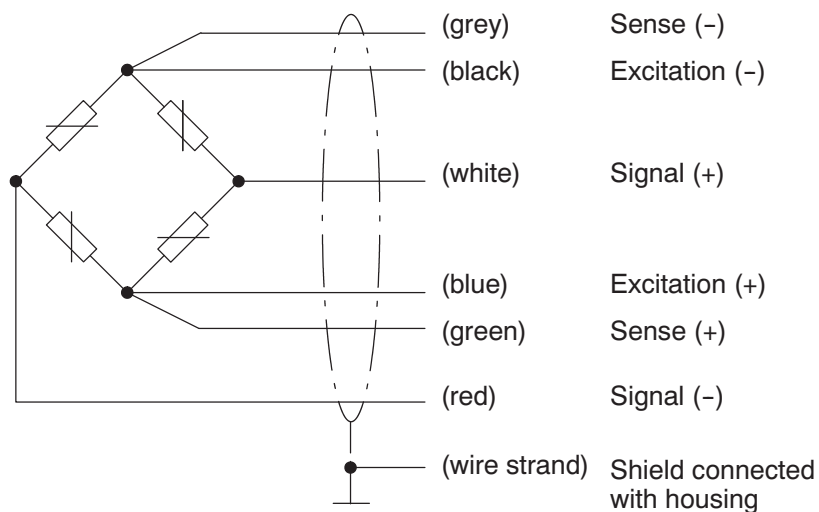
Load cells

Special features

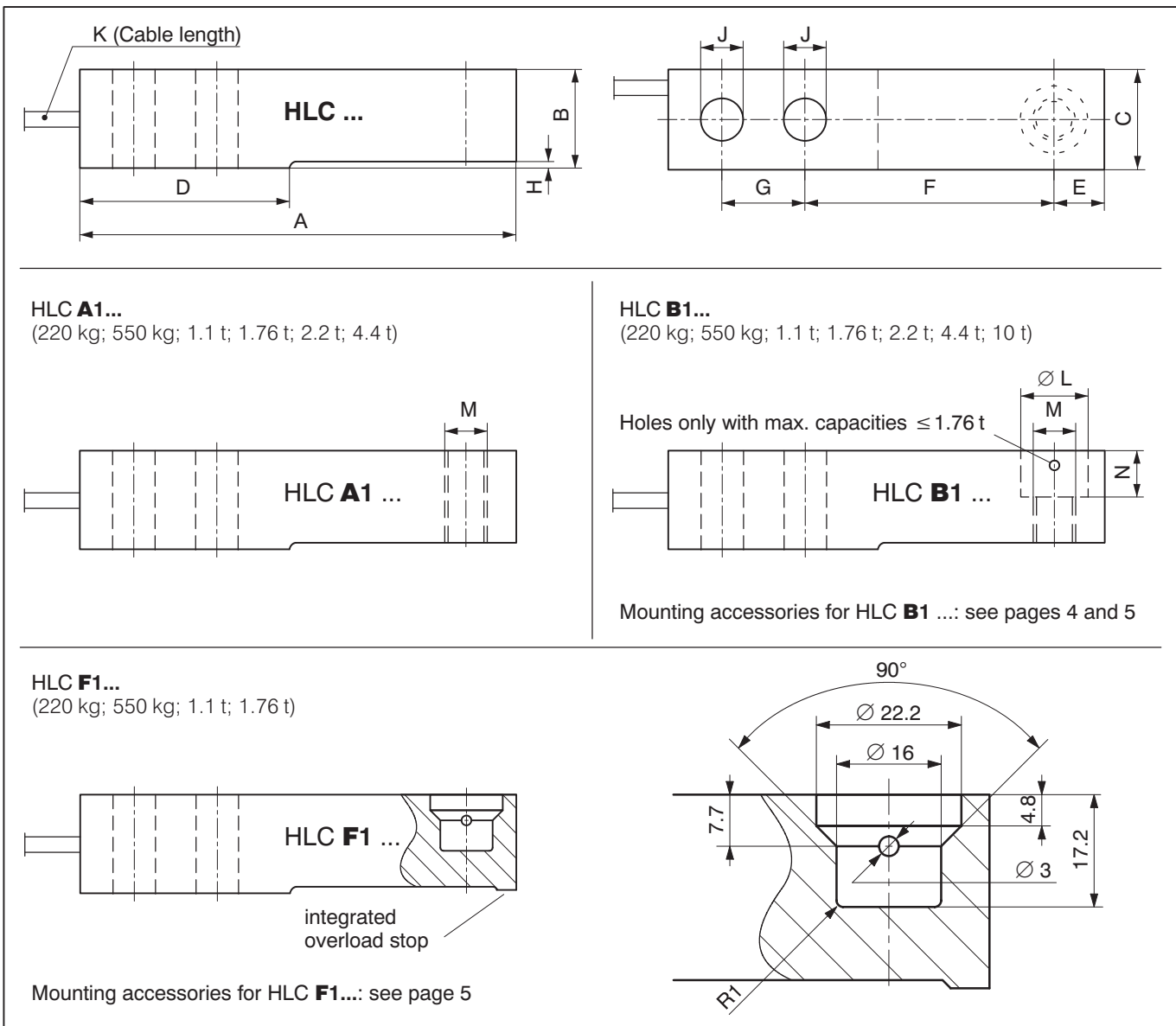
- Hermetically sealed (IP68)
- Max. capacities: 220 kg ... 10 t
- Stainless steel
- Low overall height
- Meets EMC/ESD requirements according to EN 45 501
- Complies with OIML R60 regulations up to 6000d
- Explosion-proof versions according to ATEX 95 optional



Wiring code (6-wire circuit)



Dimensions (in mm; 1 mm = 0.03937 inches)



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 ²⁾	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 ²⁾	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 ¹⁾	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

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

³⁾ Maximum capacity 10 t: Load introduction = counterbore + hole

⁴⁾ 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.

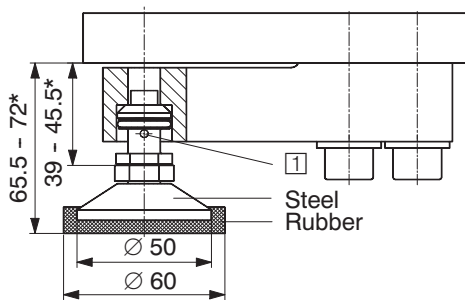
⁵⁾ Accuracy classes **C4** and **C6**: **HLC B1 ... / 220 kg; 550 kg; 1,1 t** only

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** ... and HLC **F1** ..., depending on the mounting situation (see pages 4 and 5)

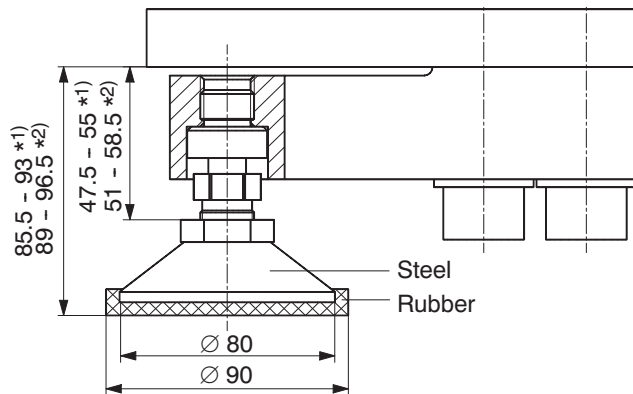
Mounting accessories for HLC B ... (to be ordered separately; Dimensions in mm; 1 mm = 0.03937 inches)

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



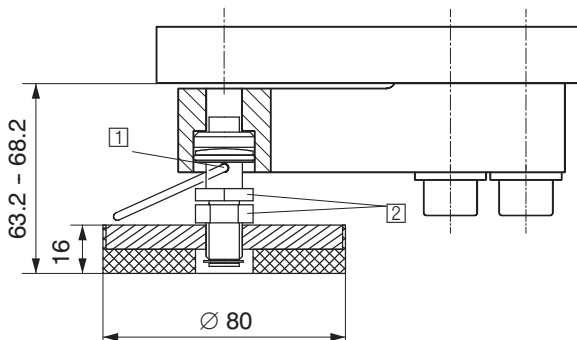
1 Foot fixed in the load cell with the enclosed spring shackle

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



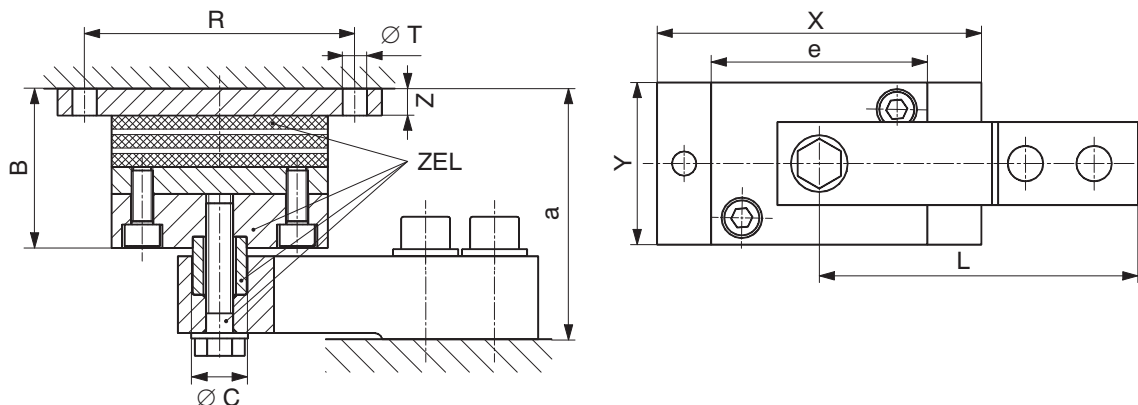
* = Height adjustment (1) = Maximum capacity 2.2 t / (2) = Maximum capacity 4.4 t

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



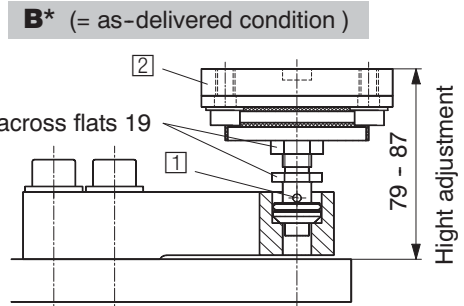
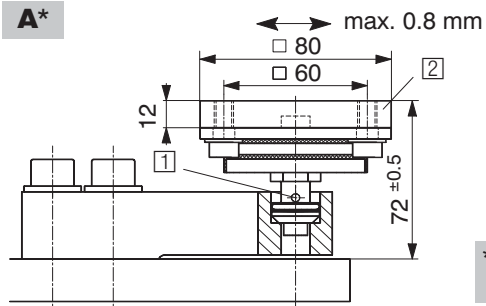
Maximum permissible lateral shift (when loaded with max. capacity):

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

Type	Max. capacity	B	∅ C _{-0.1}	L	R	∅ 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

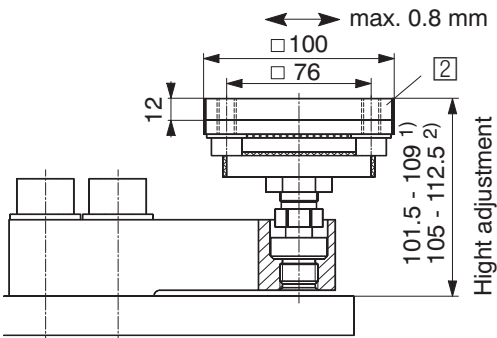
Accessories for HLC B ... + HLC F ... (to be ordered separately; Dimensions in mm; 1 mm = 0.03937 inches)

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)



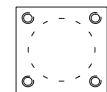
* Mounting **alternatively**

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



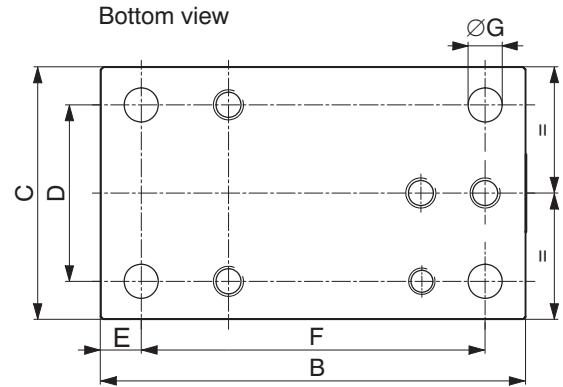
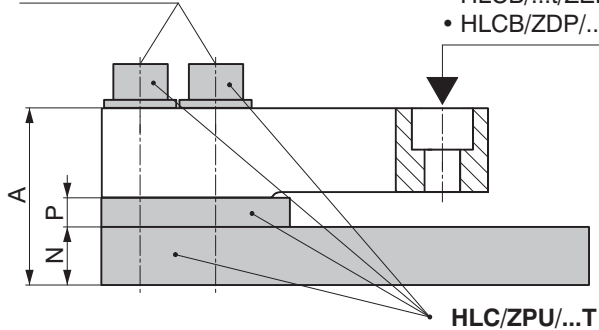
1) = Maximum capacity 2.2 t
 2) = Maximum capacity 4.4 t

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

Wrench torque for screws M_A: see table

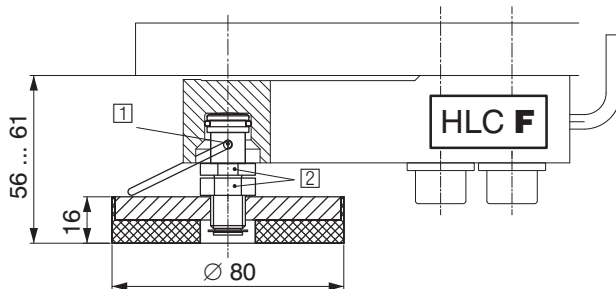
Load introduction via:

- 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

HLC Load cells, optional versions [!!!]

Order no.							
K-HLC							
Code	Option 1: Design						
A	HLCA	[not with Option 3 = 10]					
B	HLCB						
F	HLCF	[only with Option 3 = 220 / 550 / 1100 / 1760]					
Code	Option 2: Accuracy						
D1	D1 (OIML)						
C3	C3 (OIML) [not with Option 3 = 10]						
C4	C4 (OIML) [only with Option 1 = B + Option 3 = 220 / 550 / 1100 + Option 5 = S3] (on request)						
C6	C6 (OIML) [only with Option 1 = B + Option 3 = 220 / 550 / 1100 + Option 5 = S3] (on request)						
Code	Option 3: Capacity		EUR	Code	Option 3: Capacity		
220	220kg		266	2200	2.2t [only with Option 1 = A / B]		
550	550kg		255	4400	4.4t [only with Option 1 = A / B]		
1100	1.1t		255	10	10t [only with Option 1 = B]		
1760	1.76t		255				
Code	Option 4: Ex protection (accord. to ATEX 95)						
N	non ATEX						
1	ATEX Zone 1 + 21 and FM		FM				
2	ATEX Zone 2 + 22 (non-conductive dust)						
Code	Option 5: Cable length						
S3	3m (Standard) [only with Option 3 = 220 / 550 / 1100 / 1760]						
S6	6m (Standard) [only with Option 3 = 2200 / 4400 / 10]						
6	6m [only with Option 2 = D1 / C3 + Option 3 = 220 / 550 / 1100 / 1760]						
12	12m [only with Option 2 = D1 / C3 + Option 3 = 220 / 550 / 1100 / 1760]						
Code	Option 6: Miscellaneous						
N	without						
K-HLC - [] - [] - [] - [] - [] - [] - []							

[!!!]: Not all codes can be combined with each other. Please take heed of the terms in the square brackets!

Options for HLC...:

- **Explosion-proof versions according to ATEX:**
 - II 2G Ex ia IIC T4 resp. T6 (Zone 1) *)
 - II 2D Ex tD A21 IP68 T 80°C (Zone 21) *)
 - *) with EC-Type Examination Certificate

 - II 3G Ex nA II T6 (Zone 2)
 - II 3D Ex tD A22 IP68 T 80°C (Zone 22 for non-conductive dust)

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