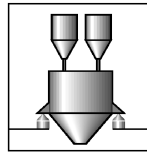
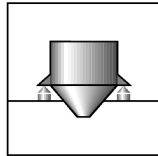
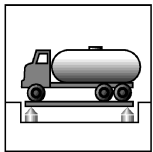


# C16A../20t ... 100t

[www.hbm.sh.cn](http://www.hbm.sh.cn)



## Self-restoring rockerpin load cell



### Special features

- Self-restoring function
- Simple to install
- Stainless steel materials, laser welded, IP68
- Legal for trade verification
  - up to 5000d (OIML R60)
  - up to 10 000d (NTEP class III LM)
- Optimized for parallel connection by corner pre-adjustment
- Meets EMC / ESD requirements according to EN 45 501
- **Available Options:**
  - Explosion proof versions
    - EEx ib IIC T4
    - EEx d IIC T6
  - Lightning protection

### Wiring code

Wiring code (6-wire circuit):

(grey)	Sense (-)
(black)	Excitation (-)
(white)	Signal (+)
(blue)	Excitation (+)
(green)	Sense (+)
(red)	Signal (-)
(-)	Shield / wire strand connected with housing



Type		C16A D1					C16A C3				
		20t	30t	40t	60t	100t	20t	30t	40t	60t	100t
Maximum capacity ( $E_{max}$ )		D1 (0.0330%) 1000 (10000 NTEP III LM)					C3 (0.0170%) 3000				
Min. load cell verification interval ( $v_{min}$ )	% of $E_{max}$	0.0200 (0.0068 NTEP)					0.0100			0.0083	0.0167
Min. scale verification interval ( $e_{min}$ ) according to EN 45 501 [... LC = max. Number of load cells]	kg	-	-	-	-	-	5 [6 LC] 10 [10 LC]	10 [10 LC]	10 [6 LC] 20 [10 LC]	10 [4 LC] 20 [10 LC]	50 [8 LC]
Sensitivity ( $C_n$ )	mV/V	2									
Sensitivity tolerance <sup>1)</sup>	%	$\leq \pm 0.5000$ <sup>1)</sup>									
Temperature effect on <b>sensitivity</b> ( $TK_C$ ) <sup>2)</sup>	% of $C_n$	$\leq \pm 0.0250$ <sup>2)</sup>					$\leq \pm 0.0080$ <sup>2)</sup>				
Temperature effect on <b>zero signal</b> ( $TK_0$ )	/ 10K	$\leq \pm 0.0285$					$\leq \pm 0.0140$			$\leq \pm 0.0116$	$\leq \pm 0.0234$
Hysteresis error ( $d_{hy}$ ) <sup>2)</sup>	% of $C_n$	$\leq \pm 0.0330$ <sup>2)</sup>					$\leq \pm 0.0170$ <sup>2)</sup>				
Non-Linearity ( $d_{lin}$ ) <sup>2)</sup>	% of $C_n$	$\leq \pm 0.0300$ <sup>2)</sup>					$\leq \pm 0.0180$ <sup>2)</sup>				
Creep ( $d_{cr}$ ), 30 min.		$\leq \pm 0.0330$					$\leq \pm 0.0167$				
Input resistance ( $R_{LC}$ ) (black-blue)	$\Omega$	700 $\pm$ 20									
Output resistance ( $R_0$ ) <sup>1)</sup> (red-white)		706 $\pm$ 3.5 <sup>1)</sup>									
Reference excitation voltage ( $U_{ref}$ )	V	5									
Nominal range of excitation voltage ( $B_U$ )		0.5 ... 12									
Insulation resistance ( $R_{is}$ )		$> 5$									
Nominal range of ambient temperature ( $B_T$ )	$^{\circ}C$ [ $^{\circ}F$ ]	-10 ... +40 [15...105]									
Service temperature range ( $B_{tu}$ )		-30 ... +70 [-20...160]									
Storage temperature range ( $B_{tl}$ )		-50 ... +85 [-60...185]									
Limit load ( $E_L$ )	% of $E_{max}$	150									
Breaking load ( $E_d$ )		$> 350$									
Permissible dynamic load ( $F_{srel}$ ) (vibration amplitude according to DIN 50100)		70									
Deflection at $E_{max}$ ( $s_{nom}$ ), approx.	mm	0.65	0.75	0.85	1.22	1.57	0.65	0.75	0.85	1.22	1.57
Weight (G) with cable, approx.	kg	2.1	2.3	2.9	3.7	8	2.1	2.3	2.9	3.7	8
Protection class according to EN60529 (IEC529)		IP68 (test conditions 100h at 1m water column) IP69K (water at high pressure, steam jet cleaning)									
Material:	Meas. body + housing Cable fitting Sealing Cable-sheath	stainless steel stainless steel (Maximum capacity 100t: nickel-plated brass) neoprene thermoplastic elastomer									

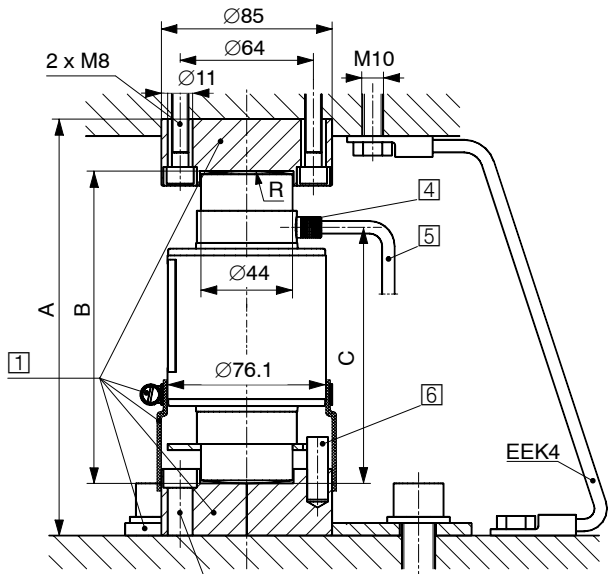
1) Smaller tolerances on Sensitivity and Output resistance are not necessary. Throughout corner pre-adjustment the Sensitivity and Output resistance are coordinated, so that the indicated value of the scale is within permissible limits when off-center load is applied.

2) 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 for  $p_{LC} = 0.7$  according to OIML R60 respectively NTEP.

### Mounting variation 1:

max. load per load cell = 40t

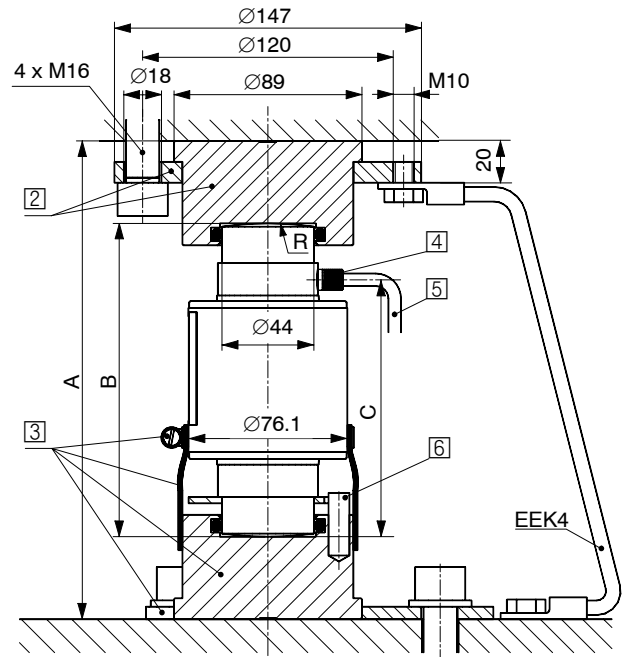
C16A + C16/ZOU44A



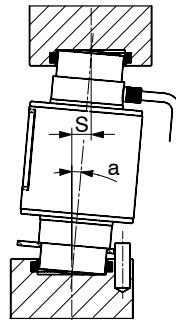
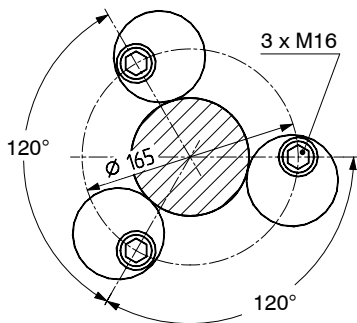
Fixing bolt, drawing turned by 90°

### Mounting variation 2:

C16A + EPO3/50t + C16/EPU44A



### Top view



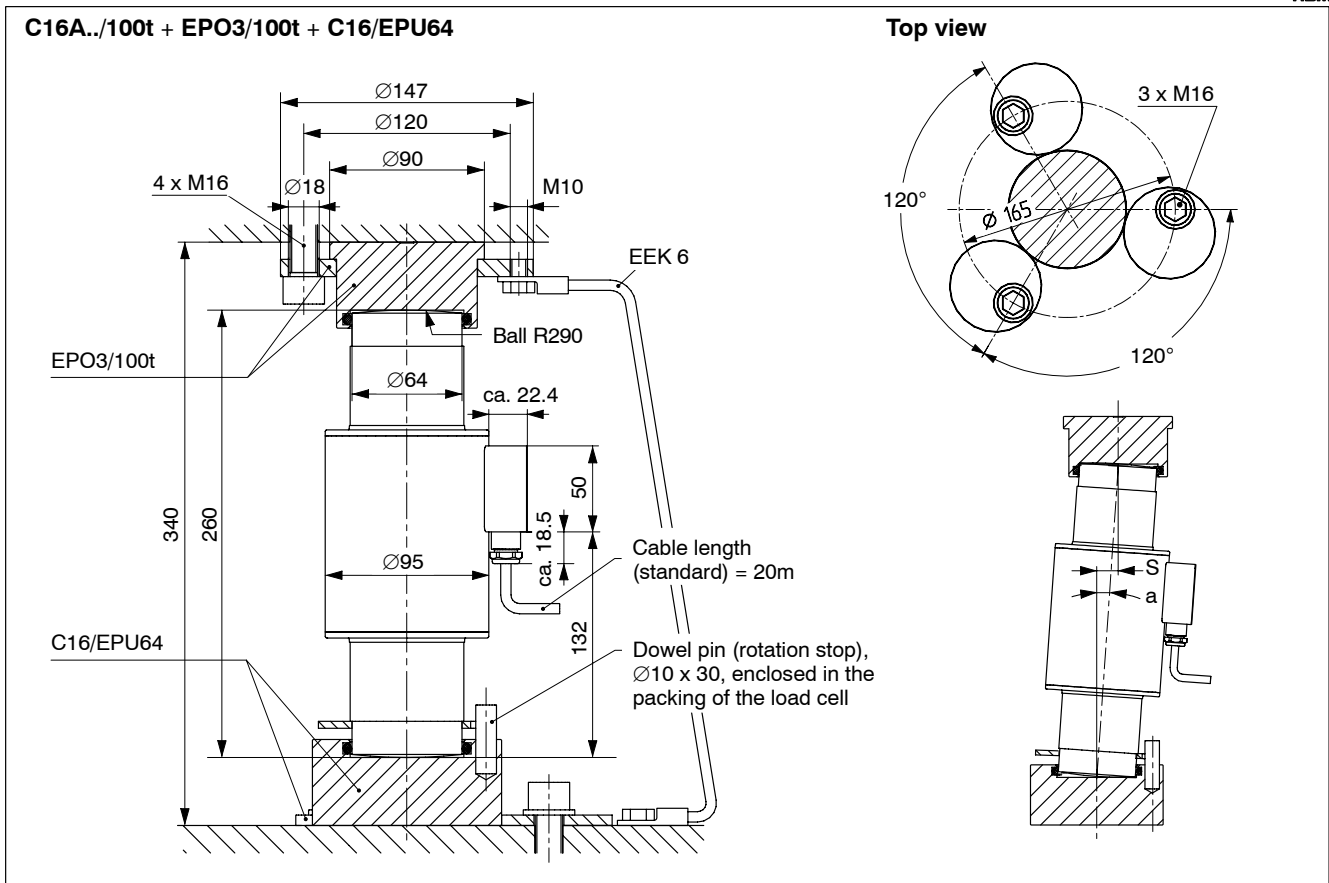
- 1 C16/ZOU44A
- 2 EPO3/50t
- 3 C16/EPU44A
- 4 Entry fitting Ø10 for protective cable conduit
- 5 Cable length (standard):  
20t + 30t = 12m;  
40t + 60t = 20m
- 6 Dowel pin (rotation stop), Ø10 x 30, enclosed in the packing of the load cell

Mount. variation 1	E <sub>max</sub> C16i	Thrust pieces above + below (1 set = 2 pcs.)		A	B	C	R Ball	a <sub>max</sub> <sup>2)</sup>	S <sub>max</sub> <sup>3)</sup>	F <sub>R</sub> <sup>4)</sup> (% of applied load)	
										at S <sub>max</sub>	at S = 1mm
20t	30t	C16/ZOU44A <sup>1)</sup>		200	150	123	130	5°	13	6.4	0.49
				200	150	123	160	5°	13	9.9	0.76
				200	150	123	180	5°	13	12.2	0.94
				260	210	157	220	3°	11	5.7	0.52

Mount. variation 2	E <sub>max</sub> C16i	Thrust pieces above   below		A	B	C	R Ball	a <sub>max</sub> <sup>2)</sup>	S <sub>max</sub> <sup>3)</sup>	F <sub>R</sub> <sup>4)</sup> (% of applied load)	
										at S <sub>max</sub>	at S = 1mm
20t	30t	EPO3/50t	C16/ EPU44A	229	150	123	130	5°	13	6.4	0.49
				229	150	123	160	5°	13	9.9	0.76
				229	150	123	180	5°	13	12.2	0.94
				289	210	157	220	3°	11	5.7	0.52

- 1) Max. load: 40t
- 2) Max. permissible skewing
- 3) Max. permissible lateral displacement of load introduction
- 4) Restoring force

# Dimensions and Accessories for Max. capacity 100t (in mm, 1mm = 0.03739 inches)



$\alpha_{max}$ (max. permissible skewing)	$S_{max}$ (max. permissible lateral displacement of load introduction)	$F_R$ (Restoring force, % of applied load)	
		at $S_{max}$	at $S = 1mm$
4°	18	8.6	0.48

Furthermore deliverable: Maximum capacity 200tons (see separate data sheet)

### Options:

- Explosion-proof version EEx ib IIC T4 for the use in intrinsically safe circuits
- Explosion-proof enclosure EEx d IIC T6 (see separate data sheet)
- Lightning protection
- Accuracy classes C4 and C5 on request

### Accessories (to be ordered separately):

#### Thrust pieces

##### Maximum capacities 20t ... 60t - Mounting Variation 1:

- **C16/ZOU44A** Thrust pieces (stainless steel) for above and below (1 Set = 2 pcs.), for use with C16.../≤60t up to a maximum load per load cell of 40 tons, incl. mounting set 2-9290.0070 (3 excentric washers, 90mm flexible tube, tube clip)

##### Maximum capacities 20t ... 60t - Mounting Variation 2:

- **EPO3/50t** Thrust piece for above, incl. spanner
- **C16/EPU44A** Thrust piece for below, incl. mounting set 2-9290.0070 (3 excentric washers, 90mm flexible tube, tube clip)

##### Maximum capacity 100t:

- **EPO3/100t** Thrust piece for above, incl. spanner
- **C16/EPU64** Thrust piece for below, incl. 3 excentric washers

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