

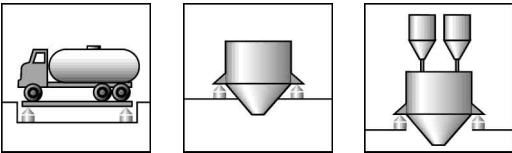


## C16A...

Self-restoring  
rockerpin load cell

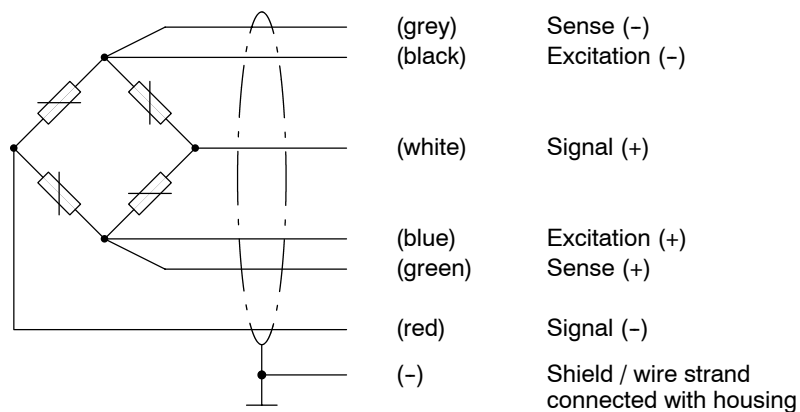
### Special features

- Self-restoring function
- Maximum capacities: 20 t ... 100 t
- Simple to install
- Stainless steel materials, laser welded, IP68
- Legal for trade verification
  - up to 5000 d (OIML R60)
  - up to 10 000 d (NTEP class III LM)
- Optimized for parallel connection by corner pre-adjustment
- Meets EMC / ESD requirements according to EN 45 501
- Explosion proof versions according to ATEX 95 (optional)



### Wiring code

Wiring code (6-wire circuit):



## Specifications

Type		C16A D1					C16A C3				
Maximum capacity ( $E_{max}$ )		20 t	30 t	40 t	60 t	100 t	20 t	30 t	40 t	60 t	100 t
Accuracy class accord. to OIML R60		D1 (0.0330 %)					C3 (0.0170 %)				
Max. numbers of load cell verification intervals ( $n_{LC}$ )		1000 (10000 NTEP III LM)					3000				
Min. load cell verification interval ( $v_{min}$ )	% of $E_{max}$	0,0200 (0.0068 NTEP III LM)					0.0100	0.0083	0.0167 [Option: 0.0050]		
Min. scale verification interval ( $e_{min}$ ) according to EN 45 501 [...# = max. Number of load cells]	kg	-	-	-	-	-	5 [6#] 10 [10#]	10 [10#]	10 [6#] 20 [10#]	10 [4#] 20 [10#]	50 [8#]
Sensitivity ( $C_n$ )	mV/V	2									
Sensitivity tolerance <sup>1)</sup>	%	$\pm 0.5$ <sup>1)</sup>									
Temperature effect on sensitivity ( $TK_C$ ) <sup>2)</sup>	% of $C_n$	$\pm 0.0250$ <sup>2)</sup>					$\pm 0.0080$ <sup>2)</sup>				
Temperature effect on zero signal ( $TK_0$ )	/ 10 K	$\pm 0.0285$					$\pm 0.0140$		$\pm 0.0116$	$\pm 0.0234$	
Hysteresis error ( $d_{hy}$ ) <sup>2)</sup>		$\pm 0.0330$ <sup>2)</sup>					$\pm 0.0170$ <sup>2)</sup>				
Non-Linearity ( $d_{lin}$ ) <sup>2)</sup>	% of $C_n$	$\pm 0.0300$ <sup>2)</sup>					$\pm 0.0180$ <sup>2)</sup>				
Creep ( $d_{cr}$ ), 30 min.		$\pm 0.0330$					$\pm 0.0167$				
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 ( $R_{is}$ )	G $\Omega$	> 5									
Nominal range of ambient temperature ( $B_T$ )	°C [°F]	-10 ... +40 [+14 ... +104]									
Service temperature range ( $B_{tu}$ )		-30 ... +70 [-22 ... +158]									
Storage temperature range ( $B_{ti}$ )		-50 ... +85 [-58 ... 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									
Maximum capacity ( $E_{max}$ )		20 t	30 t	40 t	60 t	100 t					
Deflection at $E_{max}$ ( $s_{nom}$ ), approx.	mm	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					
Protection class according to EN60529 (IEC529)		IP68 (test conditions 100 h at 1 m water column) IP69 K (water at high pressure, steam jet cleaning)									
Material: Measuring body + housing Cable fitting Sealing Cable-sheath		stainless steel stainless steel ( $E_{max}$ 100 t: nickel-plated brass) Viton® ( $E_{max}$ 100 t: silicone) thermoplastic elastomer									

<sup>1)</sup> 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.

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

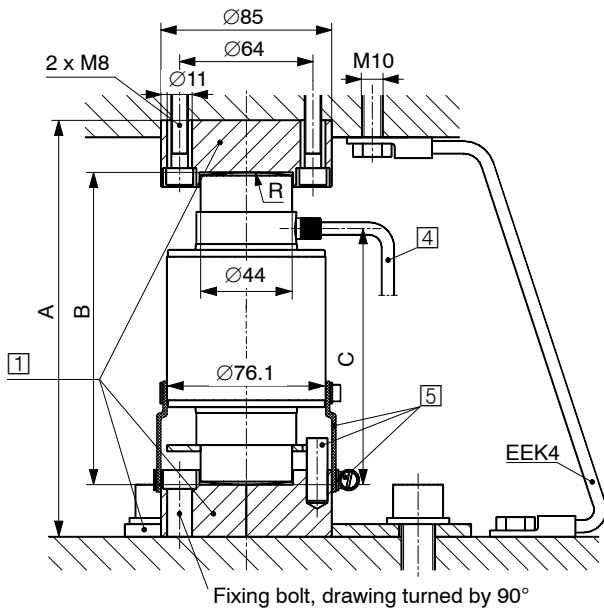
### Available Options for C16A:

- **Explosion-proof versions according to ATEX:**
  - II 2 G Ex ia IIC T4 resp. T6 (Zone 1) \*)
  - II 2 D Ex tD A21 IP68 T80 °C (Zone 21) \*)
  - \*) with EC-Type Examination Certificate
  - II 3 G Ex nA II T6 (Zone 2)
  - II 3 D Ex tD A22 IP68 T80 °C (Zone 22 for non-conductive dust)
  - II 2 G Ex d IIC T6 (Zone 1) \*); see separate data sheet
  - \*) with EC-Type Examination Certificate
- **Overvoltage protection** (not possible in connection with Explosion-proof versions)
- $v_{min} = 0.0050$  % (Y=20000)
- **Accuracy classes C4 and C5 (OIML)** on request
- **Cable length 20 m** ( $E_{max} = 20$  t + 30 t) / • **Cable length 40 m** ( $E_{max} = 20$  t ... 100 t)
- **20 m metal braided cable** ( $E_{max} = 20$  t ... 60 t)

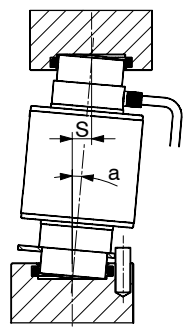
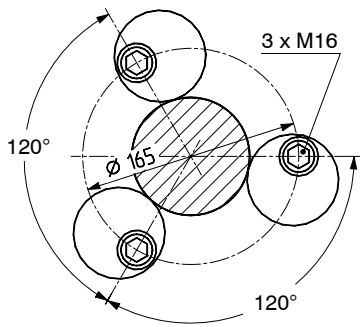
**Dimensions and Accessories for maximum capacities of 20 t ... 60 t** (in mm; 1 mm = 0.03937 inches)

**Mounting variation 1:**

C16.../≤60 t + C16/ZOU44A (max. load per load cell = 40 t)

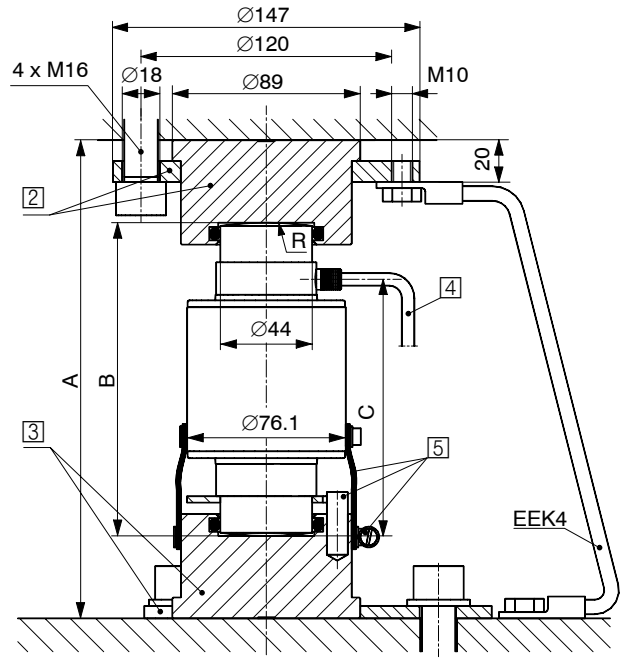


Top view



**Mounting variation 2:**

C16.../≤60 t + EPO3/50 t + C16/EPU44A



- 1 C16/ZOU44A
- 2 EPO3/50 t
- 3 C16/EPU44A
- 4 Cable length (standard):  
20 t + 30 t = 12 m;  
40 t + 60 t = 20 m
- 5 Dowel pin  $\varnothing 10 \times 30$  (rotation stop),  
flexible tube and tube clip enclosed  
in the packing of the load cell

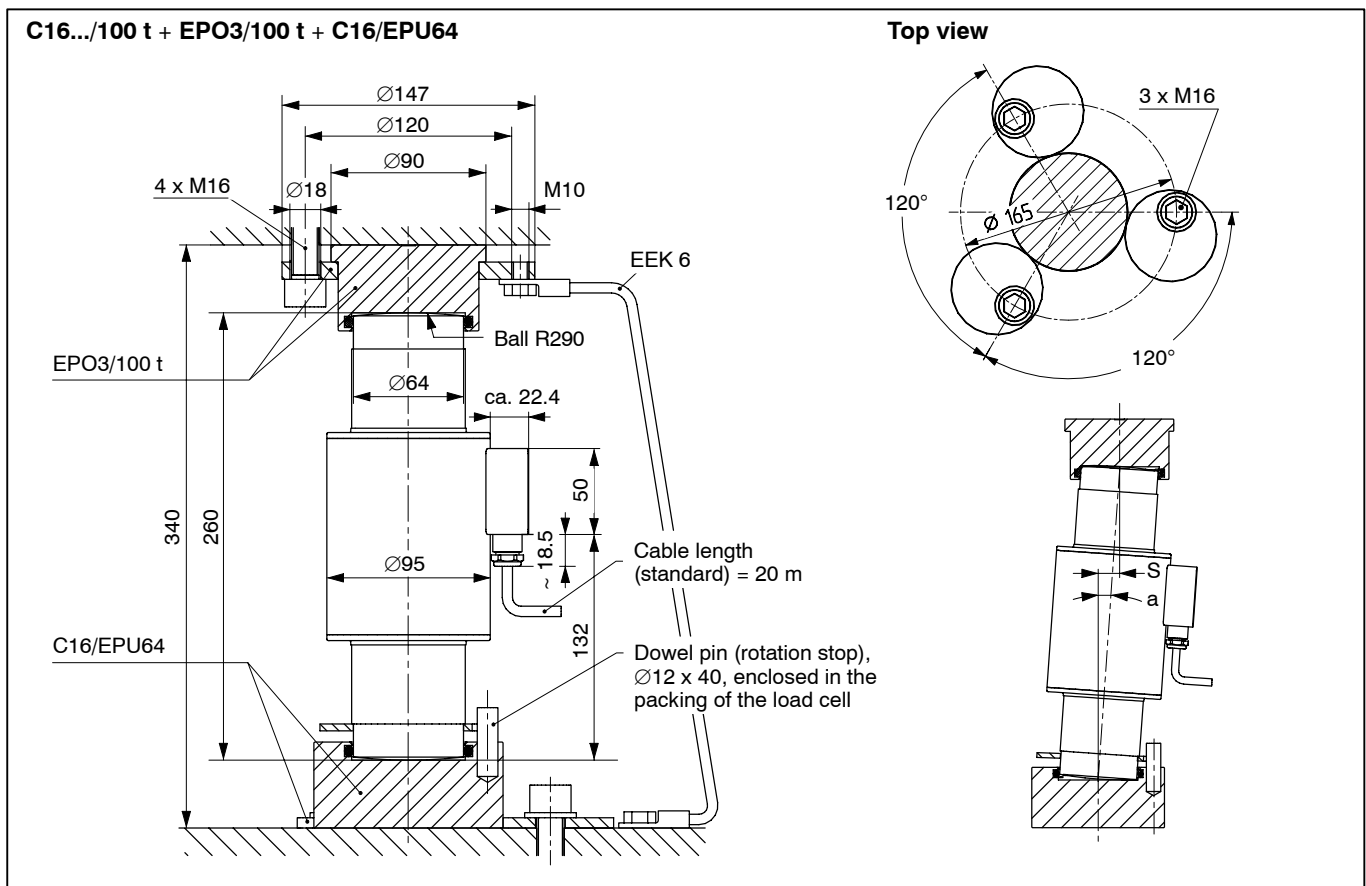
Mount. variation 1	$E_{max}$ C16...	Thrust pieces above + below (1 set = 2 pcs.)		A	B	C	R Ball	$a_{max}^{2)}$	$S_{max}^{3)}$	$F_R^{4)}$ (% of applied load)	
										at $S_{max}$	at $S = 1 \text{ mm}$
	20 t	C16/ZOU44A 1)		200	150	123	130	5°	13	6.4	0.49
	30 t			200	150	123	160	5°	13	9.9	0.76
	40 t			200	150	123	180	5°	13	12.2	0.94
	60 t			260	210	157	220	3°	11	5.7	0.52

Mount. variation 2	$E_{max}$ C16...	Thrust pieces		A	B	C	R Ball	$a_{max}^{2)}$	$S_{max}^{3)}$	$F_R^{4)}$ (% of applied load)	
		above	below							at $S_{max}$	at $S = 1 \text{ mm}$
	20 t	EPO3/50 t	C16/EPU44A	229	150	123	130	5°	13	6.4	0.49
	30 t			229	150	123	160	5°	13	9.9	0.76
	40 t			229	150	123	180	5°	13	12.2	0.94
	60 t			289	210	157	220	3°	11	5.7	0.52

1) Maximum load: 40 t  
2) Max. permissible skewing

3) Max. permissible lateral displacement of load introduction  
4) Restoring force

**Dimensions and Accessories for maximum capacity 100 t** (in mm; 1 mm = 0.03937 inches)



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

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

## **Accessories (to be ordered separately):**

### **Thrust pieces**

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

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

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

- **EPO3/50t** Thrust piece for above, incl. spanner
- **C16/EPU44A** Thrust piece for below, incl. 3 excentric washers

#### **Maximum capacities 100 t:**

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

### **Grounding cable (copper), cross section: 16 mm<sup>2</sup>**

- **EEK4** for Maximum capacities 20 t ... 60 t, Length 400 mm, Order no.: 1-EEK4
- **EEK6** for Maximum capacities 100 t + 200 t, Length 600 mm, Order no.: 1-EEK6



## Ordering codes:

### C16A Load cells

Type	C16A(D1)		C16AC3	
Accuracy	D1 (OIML)		C3 (OIML)	
Note	-		-	
Capacity	Order no.		Order no.	
20t	1-C16A2D1/20T-1		1-C16A2C3/20T-1	
30t	1-C16A2D1/30T-1		1-C16A2C3/30T-1	
40t	1-C16A2D1/40T-1		1-C16A2C3/40T-1	
60t	1-C16A2D1/60T		1-C16A2C3/60T	
100t	1-C16AD1/100T		1-C16AC3/100T	
200t *)	1-C16A/200T	*)	-	

\*) Accuracy: 0.1%

### C16A Load cells, optional versions

Order no.	
<b>K-C16A2</b>	
<b>Code</b>	Option 1: Mechanical version
<b>S</b>	Standard
<b>Code</b>	Option 2: Accuracy
<b>0.1</b>	0.1% [ only with Option 3 = 200 ]
<b>D1</b>	D1 (OIML) [ only with Option 3 = 20 / 30 / 40 / 60 / 100 ]
<b>C3</b>	C3 (OIML) [ only with Option 3 = 20 / 30 / 40 / 60 / 100 ]
<b>C4</b>	C4 (OIML) [ only with Option 3 = 30 / 40 / 60 ]
<b>C5</b>	C5 (OIML) [ only with Option 3 = 30 / 40 / 60 ] (on request)
<b>Code</b>	Option 3: Capacity
<b>20</b>	20t [ only with Option 2 = D1 / C3 ]
<b>30</b>	30t [ only with Option 2 = D1 / C3 / C4 / (C5 on request) ]
<b>40</b>	40t [ only with Option 2 = D1 / C3 / C4 / (C5 on request) ]
<b>60</b>	60t [ only with Option 2 = D1 / C3 / C4 / (C5 on request) ]
<b>100</b>	100t [ only with Option 2 = D1 / C3 ]
<b>200</b>	200t [ only with Option 2 = 0.1 ]
<b>Code</b>	Option 4: Ex protection (accord. to ATEX 95)
<b>N</b>	non ATEX
<b>1</b>	ATEX Zone 1 + 21 and FM  [ only with Option 6 = N ]
<b>2</b>	ATEX Zone 2 + 22 (non-conductive dust)  [ only with Option 6 = N ]
<b>Code</b>	Option 5: Cable length
<b>S12</b>	12m (standard) [ only with Option 3 = 20 / 30 ]
<b>S20</b>	20m (standard) [ only with Option 3 = 40 / 60 / 100 / 200 ]
<b>20</b>	20m [ only with Option 3 = 20 / 30 ]
<b>40</b>	40m
<b>20R</b>	20m (Metal braiding) [ only with Option 3 = 20 / 30 / 40 / 60 ]
<b>Code</b>	Option 6: Lightning protection
<b>N</b>	without
<b>L</b>	with Lightning protection [ only with Option 4 = N ]
<b>Code</b>	Option 7: Miscellaneous
<b>N</b>	without
<b>Y</b>	Y=20000 [ only with Option 2 = C3 ]
K-C16A2 - <b>S</b> - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]	

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