

# Z30A

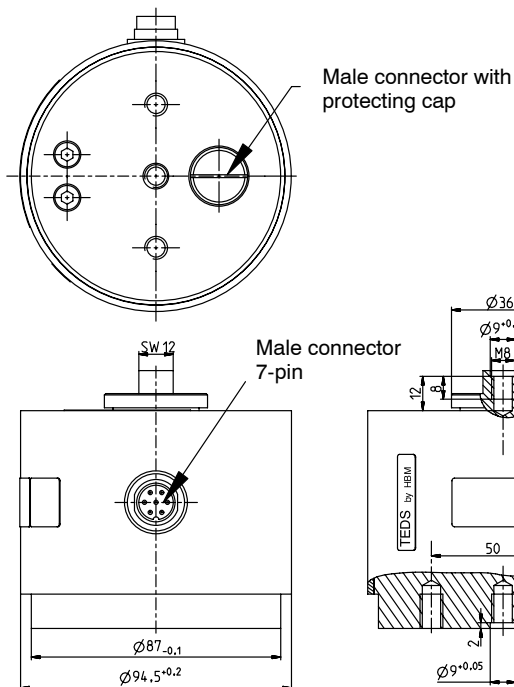
## Force Transducer



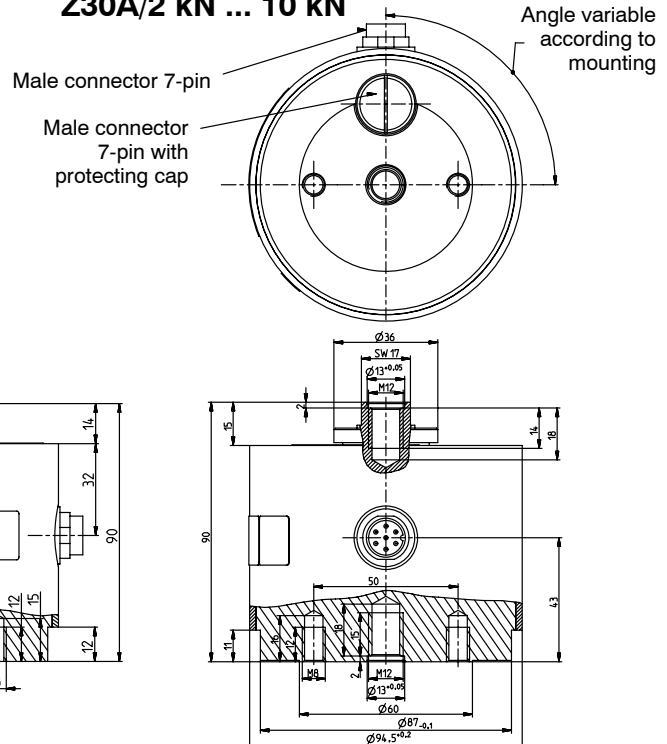
### Special features

- Tensile / compressive force transducer with maximum accuracy
- Nominal (rated) forces 50 N ... 10 kN
- Class 00 in conjunction with DKD calibration certificate according to ISO 376
- Good long-term stability
- Overload protection at nominal (rated) force  $\leq 1000$  N
- TEDS (Transducer electronic data sheet)

### Z30A/50 N ... 1000 N



### Z30A/2 kN ... 10 kN



All dimensions in mm  
(1mm = 0.03937 inches)

# Specifications

Type	Z30A										
Data according to VDI 2638 and ISO 376											
Nominal (rated) force	$F_{nom}$	N	50	100	200	500	1000				
		kN						2	5	10	
Class acc. to ISO 376 (0.2 $F_{nom}$ to $F_{nom}$ )		00 <sup>1)</sup>									
Nominal sensitivity	$C_{nom}$	mV/V	2								
rel. sensitivity error (compression)	$d_c$	%	< ± 0.1								
rel. sensitivity variation (tension/compression)	$d_{zd}$	%	< ± 0.1								
rel. zero signal error	$d_{s,0}$	mV/V	< ± 0.2	< ± 0.1							
Rel. repeatability error without rotation (0.2 $F_{nom}$ to $F_{nom}$ )	$b'$	%	< ± 0.02								
Rel. reproducibility error with rotation (0.2 $F_{nom}$ to $F_{nom}$ )	$b$	%	< ± 0.04								
Rel. interpolation error (0.2 $F_{nom}$ to $F_{nom}$ )	$f_c$	%	< ± 0.02								
Rel. zero error (zero signal return)	$f_0$	%	< ± 0.008								
Rel. reversibility error (0.2 $F_{nom}$ to $F_{nom}$ )	$v$	%	< ± 0.06								
Rel. linearity error	$d_{lin}$	%	< ± 0.03								
Effect of temperature on sensitivity/10 K by reference to nominal sensitivity	$TK_c$	%	< ± 0.02								
Effect of temperature on zero signal/10 K by reference to nominal sensitivity	$TK_0$	%	< ± 0.02								
Rel. creep over 30 min	$d_{crF+E}$	%	< ± 0.03								
Effect of lateral forces (lateral force 10 % $F_{nom}$ )	$d_Q$	%	< 0.1								
Effect of eccentricity per mm	$d_E$	%	< 0.03								
Input resistance	$R_e$	Ω	>345				>690				
Output resistance	$R_a$	Ω	300-500				600-800				
Isolation resistance	$R_{is}$	Ω	>5·10 <sup>9</sup>								
Reference excitation voltage	$U_{ref}$	V	5								
Operating range of the excitation voltage	$B_{U,G}$	V	0.5...12								
Nominal temperature range	$B_{t,nom}$	°C	+10...+40								
Operating temperature range	$B_{t,G}$	°C	-10...+70								
Storage temperature range	$B_{t,S}$	°C	-25...+85								
Reference temperature	$t_{ref}$	°C	+22								
Max. operational force	( $F_G$ )	%	120				150				
Limit force	( $F_L$ )	%	150								
Breaking force	( $F_B$ )	%	250								
Limit torque	( $M_G$ )	N·m	1.5	3	5	5	5	80			
Nominal displacement	$S_{nom}$	mm	< 0.4						approx. 0.2		
Fundamental resonance frequency	$f_G$	kHz	0.2	0.3	0.5	0.9	1.1	1.1	1.1	1.25	
Rel. permissible oscillatory stress	$F_{rb}$	%	70								
Weight		kg	approx. 0.9				approx. 2.3				
Degree of protection per DIN EN 60529		IP50									
Connector, six-wire connection		Binder series 723, radial and axial housing plug									
Transducer identification		TEDS, acc. to IEEE 1451.4									

<sup>1)</sup> Class 00 according to ISO376 only guaranteed in conjunction with a DKD calibration certificate

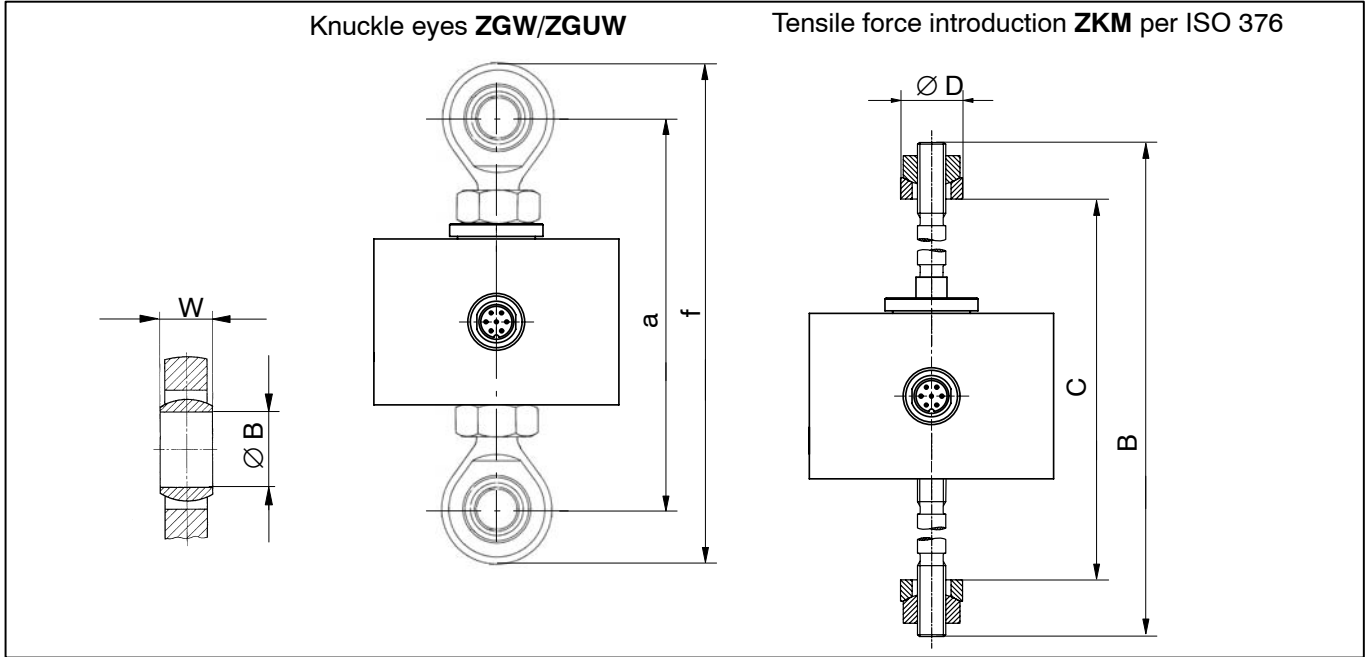
**Order numbers: Force transducer**

Order code	Nominal (rated) force								Unit
	1-Z30A/ ...	50	100	200	500	1000			
						2	5	10	kN

Ordering example: 1-Z30A/2kN

**Accessories** (not included in the scope of supply)

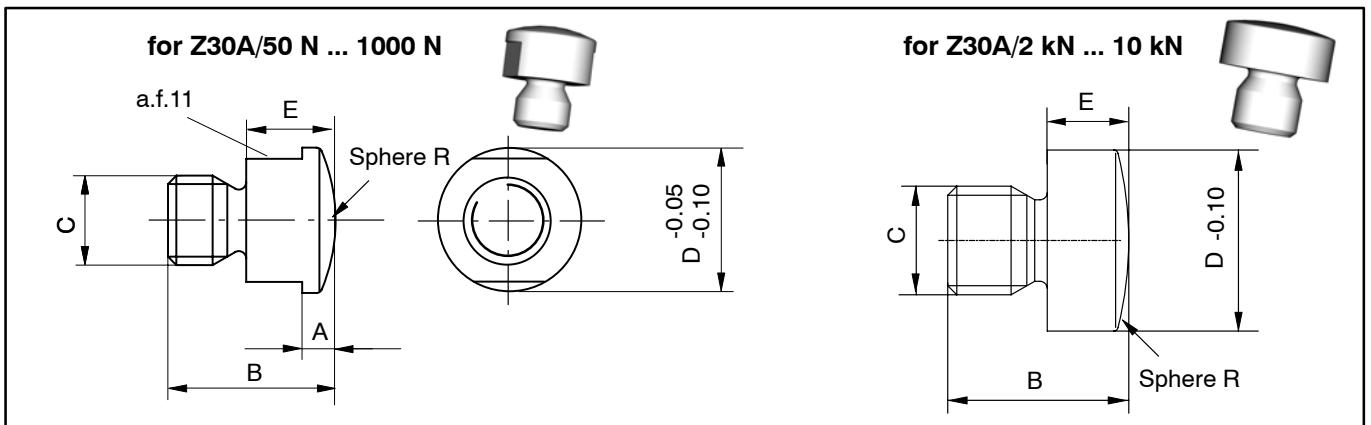
**Force introduction parts for tensile loading**



Type	ZKM Order number	B	C		ØD
			min	max	
Z30A/2kN - 10kN	1-Z30/10kN/ZKM	229	250	312	35 -0.120 -0.280

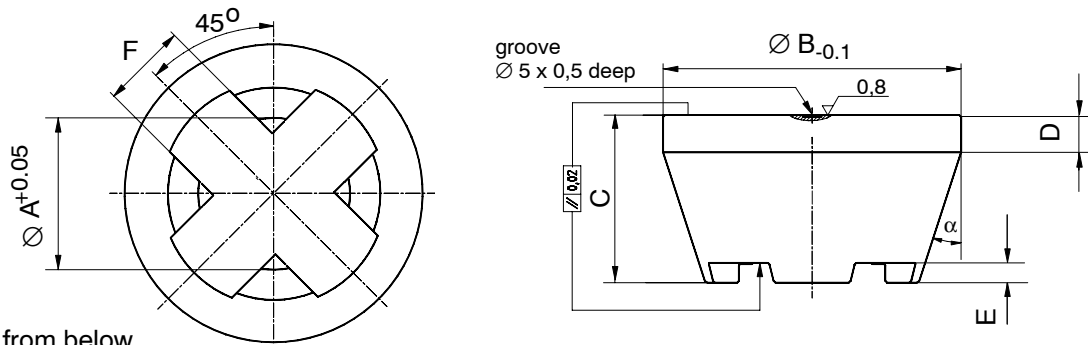
Type	Knuckle eye upper/lower Order number	a	f	W	ØB
Z30A/50N - 1000N	1-U1R/200kg/ZGW	138	170	12	8 <sup>H7</sup>
Z30A/2kN - 10kN	1-U2A/1t/ZGUW	169	201	16	12 <sup>H7</sup>

**Load button for compressive loading**



Type	Load button Order number	A	B	C	D	E	R
Z30A/50N - 1000 N	1-U1R/200kg/ZL	3	15	M8	13	8	16
Z30A/2kN - 10 kN	3-9202.0140	-	20	M12	20	9	40

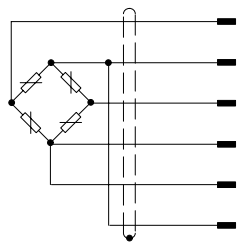
**Thrust piece EDO4/EDO3 for precision measurements**  
(must always be used in combination with the load button, when under compressive loading)



View from below

Type	Thrust piece Order number	Weight (kg)	$\varnothing A$	$\varnothing B$	C	D	E	F	$\alpha$
Z30A/50N - 1000N	1-EDO3/1kN	approx. 0.2	13.2	37	22	6	3	8	18°
Z30A/2kN - 10kN	1-EDO4/50kN	0.34	20.2	48	29	8	5	12	18°

**Pin assignment of plug and KAB139A-6 connection cable**



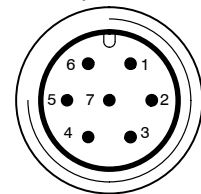
Cable shield, connected to housing

- WH (white) Measurement signal (+)  $U_A$
- BK (black) Excitation voltage (-)  $U_B$  (TEDS)
- RD (red) Measurement signal (-)  $U_A$
- BU (blue) Excitation voltage (+)  $U_B$
- GN (green) Sensor circuit (+)
- GY (grey) Sensor circuit (-) (TEDS)

**Pin on Binder plug**

- 1
- 2
- 4
- 3
- 6
- 7
- 5 (no function)

**Top view**



Binder series 723



Transport case for four Z30A force transducers and accessories,  
Order number: 1-Z30/BOX

Dimensions: 440 x 320 x 147 mm

**Cable/plug**

Order number	
1-KAB139A-6	Kab 139A-6 connection cable, 6m, with Binder cable socket and free ends
D-MS/MONT	MS3106PEMV connection plug fitted to Kab139A
D-15D/MONT	15-pin D-Sub plug fitted to Kab139A

Modifications reserved.  
All details describe our products in general form only. They are not to be understood as express warranty and do not constitute any liability whatsoever.

**Hottinger Baldwin Messtechnik GmbH**

Im Tiefen See 45, D-64293 Darmstadt, Germany  
Tel.: +49 6151 8030; Fax: +49 6151 803 9100  
E-mail: support@hbm.com www.hbm.com



measurement with confidence