

U2B

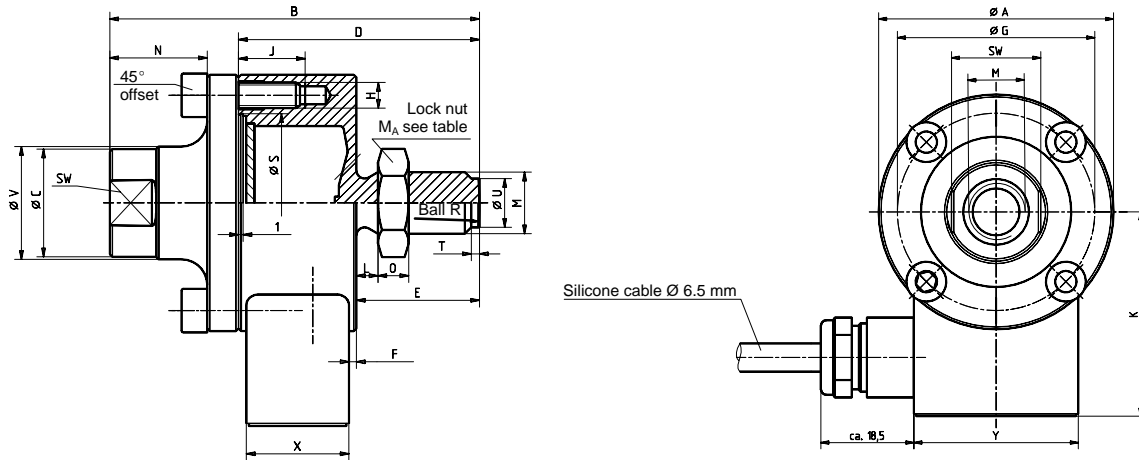
Force Transducers



Special features

- Tensile / compressive force transducers made from stainless materials
- Nominal forces 500 N ... 200 kN
- Integrated lateral force compensation
- Low overall height

Dimensions (in mm; 1 mm= 0.03937 inches)



Rated force	ØA _{-0.2}	B	ØC	D	E	F	ØG	H	J	K	L	M	N	O	ØS ₁₈ ^{H8}	SW	T	ØU	ØV	X	Y	M _A (Nm)	Ball R
0.5-5 kN	50	72	21	47	24	1.5	42	4xM5	13	43.5	4.2	M12	19	6	34	19	1.6	9.5	22	20	35	60	60
10 kN											7.6												
20 kN	90	112	33	72	38	2	70	4xM10	20.5	63.5	10.6	M20x1.5	15	10	55	30	2	17	34	30	50	300	100
50 kN	100	141	40	86	47	6	78	4xM12	19	68	13.2	M24x2	20	12	61	36	2	20	42			500	
100 kN	135	197	68	122	67	17	105	8xM12	16	85.5	19	M39x2	29	19	79	60	2	36	70	30	50	2500	160
200 kN	155	232	82	142	85	19	125	8xM16	26	95.5	24.2	M48x2	32	22	97	70	2.2	43	84			4500	



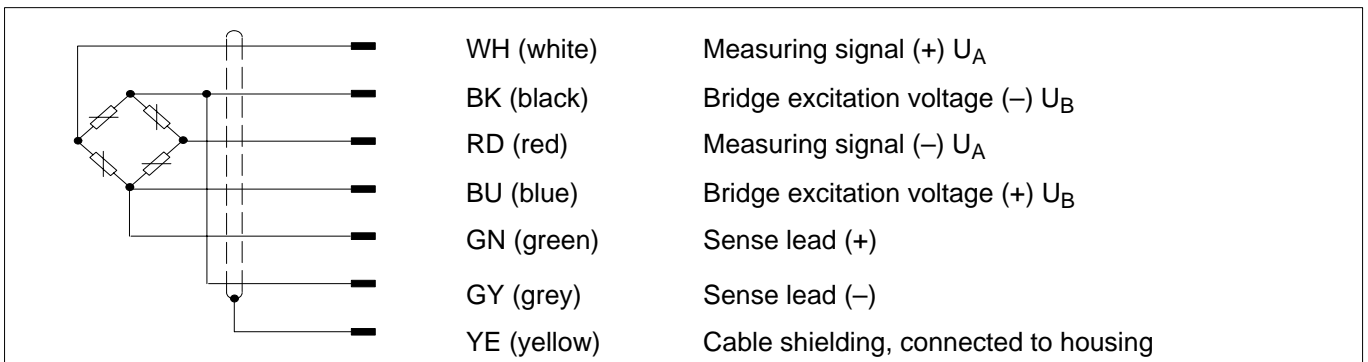
Specifications

Force transducer type		U2B									
Rated force	F _{nom}	kN	0.5	1	2	5	10	20	50	100	200
Class of accuracy			0.2	0.1							
Rated sensitivity	C _{nom}	mV/V	2								
rel. tensile/compressive sensitivity variance	d _c	%	<0.2/1.5		<0.2/0.5						
rel. zero signal variance	d _{s,0}	%	<1								
Rel. inversion span (0.2F _{nom} to F _{nom})/hysteresis	u	%	<0.2		<0.15						
Linearity variation	d _{lin}	%	<0.2		<0.1						
Influence of temperature on sensitivity/10 K relative to nominal sensitivity	TK _c	%	0.1								
Influence of temperature on the zero signal/10 K relative to nominal sensitivity	TK ₀	%	0.05								
Influence of eccentricity (1 mm)	d _E	%	0.05								
Influence of lateral force (lateral force 10 % F _{nom}) ¹⁾	d _Q	%	0.1								
Rel. creep over 30 min	d _{crF+E}	%	<± 0.06								
Input resistance	R _i	Ω	>345								
Output resistance	R _o	Ω	300...400								
Insulation resistance	R _{is}	Ω	>2·10 ⁹								
Reference excitation voltage	U _{ref}	V	5								
Service range of excitation voltage	B _{U,G} T	V	0.5...12								
Rated temperature range	B _{t,nom}	°C	-10...+70								
Service temperature range	B _{t,G}	°C	-30...+85 (120) ³⁾								
Storage temperature range	B _{t,S}	°C	-50...+85								
Reference temperature	t _{ref}	°C	+23								
Max. operating force	(F _G)	%	130	150							
Breaking force	(F _B)	%	>300								
Static lateral force limit ¹⁾	(F _Q)	%	25								
Nominal displacement	S _{nom}	mm	<0.1				<0.07		<0.09		
Fundamental resonance frequency	f _G	kHz	4	6	8.7	14	17.5	8	8.5	6	5.6
Weight		kg	0.8				2.9	4.3	10.7	15.9	
Rel. permissible vibration loading	F _{rb}	%	100	160							
Protection system according to DIN EN 60529	-	-	IP67								
Length of cable, 6-wire connection	-	-	3 m				6 m		12 m		

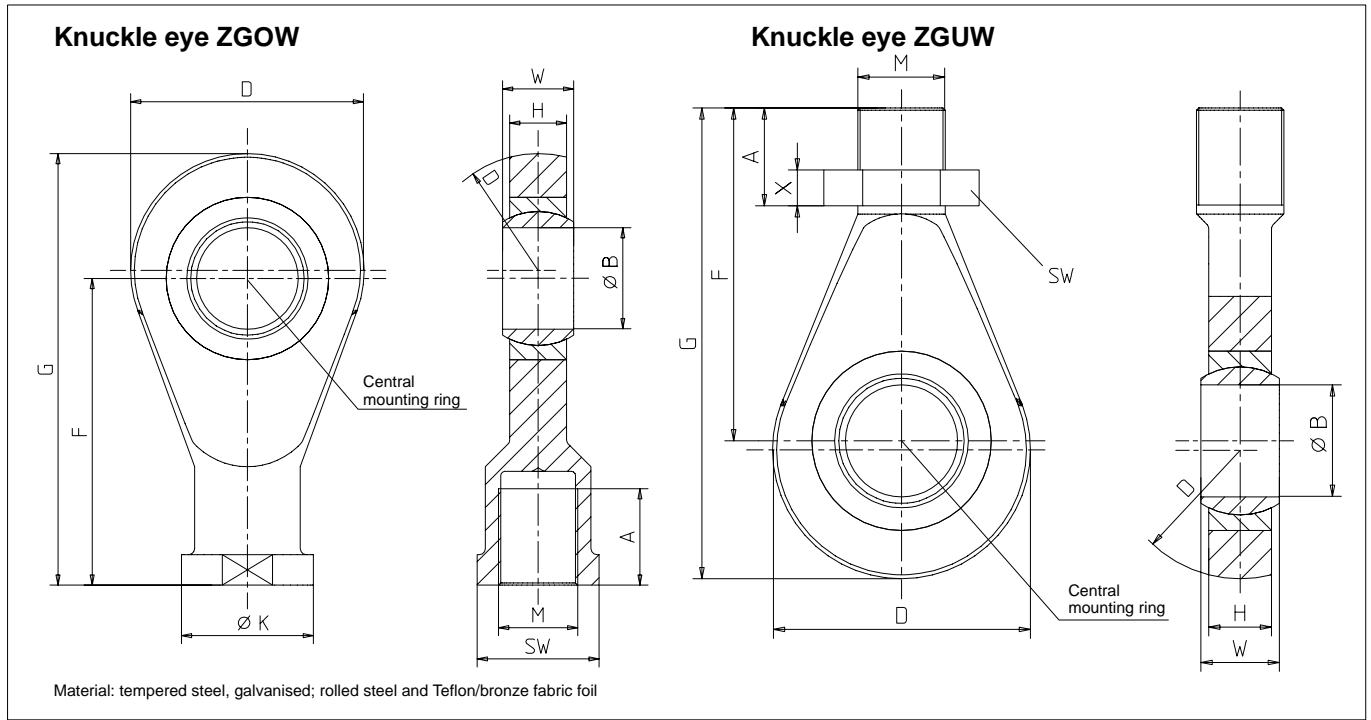
¹⁾ relative to a force introduction 20 mm over the membrane

³⁾ Class 120 °C version optional

Cable wiring assignment (six wire connection)



Aid to installation (dimensions in mm)

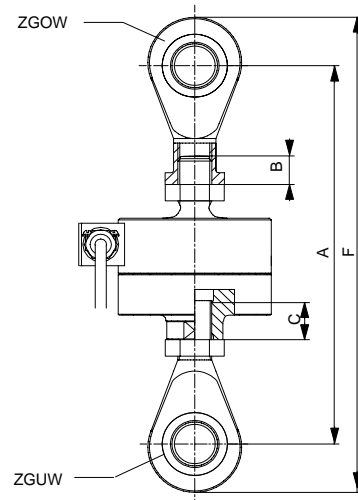


Rated force in kN	Order No. Knuckle eye ZGOW	Weight in kg	A	ØB	D	F	G	H	ØK	M	SW	W
0.5...10	1-U2A/1t/ZGOW	0.2	22	12 ^{H7}	32	50	66	12	22	M12	19	16
20	1-U2A/2t/ZGOW	0.5	33	20 ^{H7}	50	77	102	18	34	M20x1.5	32	25
50	1-U2A/5t/ZGOW	0.8	42	25 ^{H7}	60	94	124	22	42	M24x2	36	31
100	1-U2A/10t/ZGOW	3.2	50	50 ^{+0.002 -0.014}	115	151	212.5	28	65	M39x2	60	35
200	1-U2A/20t/ZGOW	4.8	60	60 ^{+0.003 -0.018}	126	167	235	36	82	M48x2	70	44

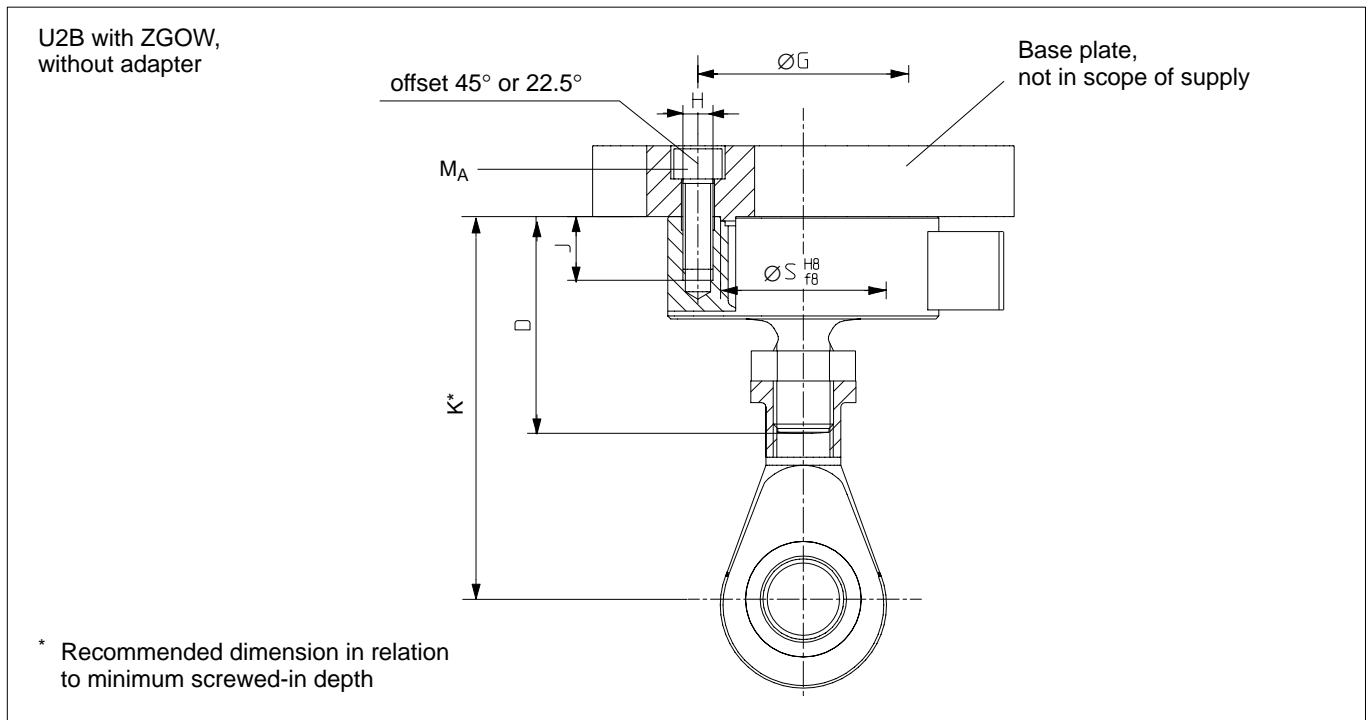
Rated force in kN	Order No. Knuckle eye ZGUW	Weight in kg	A	ØB	D	F	G	H	M	SW	W	X
0.5...10	1-U2A/1t/ZGUW	0.1	33.5	12 ^{H7}	32	54.5	70.5	12	M12	19	16	7
20	1-U2A/2t/ZGUW	0.2	48.8	20 ^{H7}	50	79.8	104.8	18	M20x1.5	30	25	9
50	1-U2A/5t/ZGUW	0.4	57.5	25 ^{H7}	60	94.5	124.5	22	M24x2	36	31	10
100	1-U2A/10t/ZGUW	1.1	65.5	50 ^{+0.002 -0.014}	115	148.5	210	28	M39x2	60	35	16
200	1-U2A/20t/ZGUW	3.2	80	60 ^{+0.003 -0.018}	126	168	236	36	M48x2	75	44	18

U2B force transducer complete with knuckle eyes ZGOW, ZGUW

Rated force in [kN]	A _{min}	A _{max}	F _{min}	F _{max}	Minimum screwed-in depth		Maximum screwed-in depth
					b	c	
0.5...10	139	156	171	188	9.6	9.6	25
20	212	234	262	284	16	16	40
50	260	288	320	348	19.2	19.2	55
100	418	436	541	559	27	31.2	75
200	466	489	602	625	36.6	38.4	90



Mounting accessories, continued (dimensions in mm)



Rated force in kN	D	$\text{Ø}G$	H	J	K	$\text{Ø}S$	M_A^1 [Nm]
0.5...10	47	42	4xM5	13	84...86.4	34	5
20	72	70	4xM10	20.5	131.6	55	35
50	86	78	4xM12	19	158.2	61	60
100	122	105	8xM12	16	244	79	60
200	142	125	8xM16	26	270.2	97	150

¹⁾ Recommended values when using a torque wrench on dry thread

Options

- Service temperature range updated to 120 °C

Accessories, additional:

- Knuckle eye U2B, upper, U2A/.../ZGOW
- Knuckle eye U2B, lower, U2A/.../ZGUW

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