

DATA SHEET

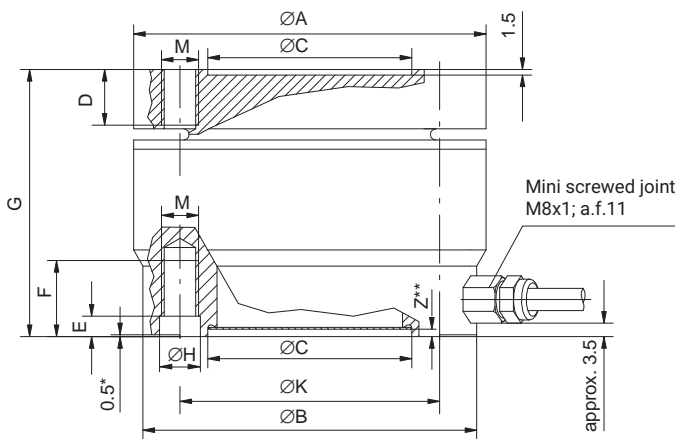
U3 Force Transducer

SPECIAL FEATURES

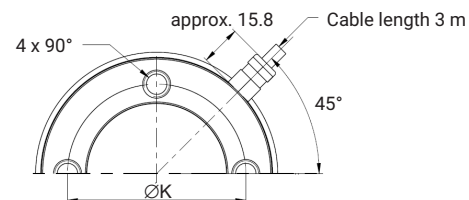
- Tensile / compressive force transducer
- Nominal forces 500 N ... 100 kN
- Integrated lateral force compensation
- Low overall height
- Flanged ends on both side
- Sturdy design through high dynamic load-carrying capacity
- Stainless steel housing



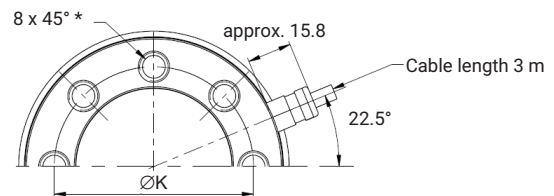
DIMENSIONS



U3: 0.5 - 20 kN



U3: 50 kN/100 kN



* Only at 50 kN and 100 kN

** Usable centering depth for Z = 1 mm

Dimensions in mm (1 mm = 0.03937 inches)

Nominal force	ØA	ØB	ØCH ^B	D	E	F	G	ØH	ØK ^{±0.1}	M	Z
U3/0.5-10 kN	54	50	34	8.5	5	13	47	5.5	42	M5	3
U3/20-100 kN	95	90.5	55	14	5.5	20.5	72	11	70	M10	

SPECIFICATIONS (VDI/VDE 2638)

Type			U3								
Nominal force	F_{nom}	kN	0.5	1	2	5	10	20	50	100	
Accuracy class			0.2								
Nominal sensitivity	C_{nom}	mV/V	2								
Rel. sensitivity deviation compressive force	d_c	%	< ±0.2								
Rel. tensile/compressive force sensitivity diff.	d_{zd}	%	<2	<1							
Relative zero signal deviation	$d_{s,o}$	%	<1								
Relative range of inversion (0.2* F_{nom} to F_{nom})	$u_{0,5}$	%	<0.2								
Linearity deviation compressive force	d_{lin}	%	<0.2								
Linearity deviation tensile force	d_{lin}	%	<0.3	<0.2							
Effect of temperature on sensitivity/10 K by reference to nominal sensitivity	TK_c	%	<0.2	<0.1							
Effect of temperature on zero signal/10 K by reference to nominal sensitivity	TK_0	%	<0.1								
Effect of eccentricity at 1 mm	d_E	%	< ±0.1								
Effect of transverse forces transverse force 10 % F_{nom} ¹⁾	d_Q	%	< ±0.1								< ±0.2
Relative creep over 30 min	d_{crF+E}	%	< ±0.1								
Input resistance	R_e	Ω	>345								
Output resistance	R_a	Ω	300 - 400								
Isolation resistance	R_{is}	Ω	>2x 10 ⁹								
Reference excitation voltage	U_{ref}	V	5								
Operating range of the excitation voltage	$B_{U,GT}$	V	0.5 to 12								
Nominal temperature range	$B_{t,nom}$	°C	-10 to +70								
Operating temperature range	$B_{t,G}$	°C	-30 to +85								
Storage temperature range	$B_{t,S}$	°C	-50 to +85								
Reference temperature	t_{ref}	°C	+23								
Maximum operating force	F_G	%	130								
Limit force	F_L	%	130	150						130	
Breaking force	F_B	%	>300								250
Static lateral limit force ¹⁾	F_Q	%	100						80	50	
Permissible eccentricity	e_G	mm	25						40	32	20
Nominal displacement	S_{nom}	mm	<0.08						<0.1		
Fundamental resonance frequency	F_G	kHz	1.3	2.1	3.1	5.2	7.1	3.7	5.7	7.25	
Relative permissible vibrational stress	F_{rb}	%	100	160							
Weight		kg	approx. 0.6						approx. 2.5		
Degree of protection to DIN EN60529			IP65								
Cable length, six-wire connection		m	3								

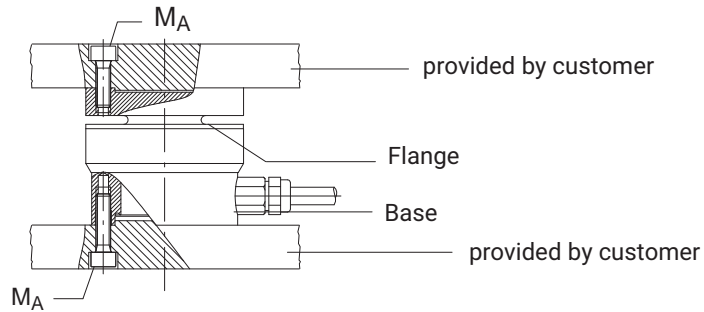
¹⁾ by reference to a force introduction point on the force-introduction surface

ACCESSORIES (TO ORDER)

'Complete adapter' for knuckle eye mounting		Knuckle eye 1-ZGUW	
0.5-10 kN	Order no. 2-9289.1956	0.5-10 kN	Order no. 1-U2A/1t/ZGUW
20 kN	Order no. 2-9289.1957	20 kN	Order no. 1-U2A/2t/ZGUW
50 kN	Order no. 2-9289.1958	50 kN	Order no. 1-U2A/5t/ZGUW
100 kN	Order no. 2-9289.2280	100 kN	Order no. 1-Z4/100kN/ZGUW

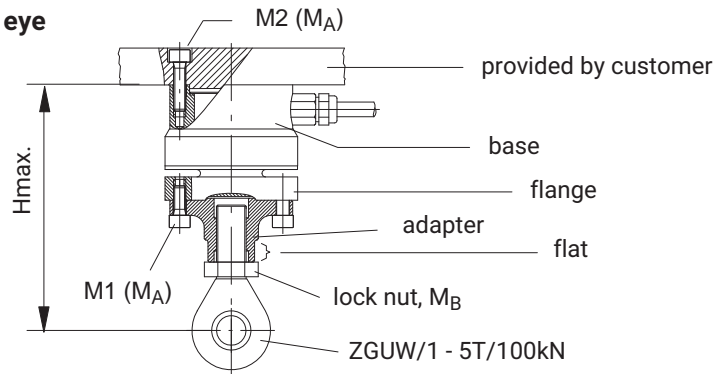
INSTALLATION AND ACCESSORIES

Installation without Adapter



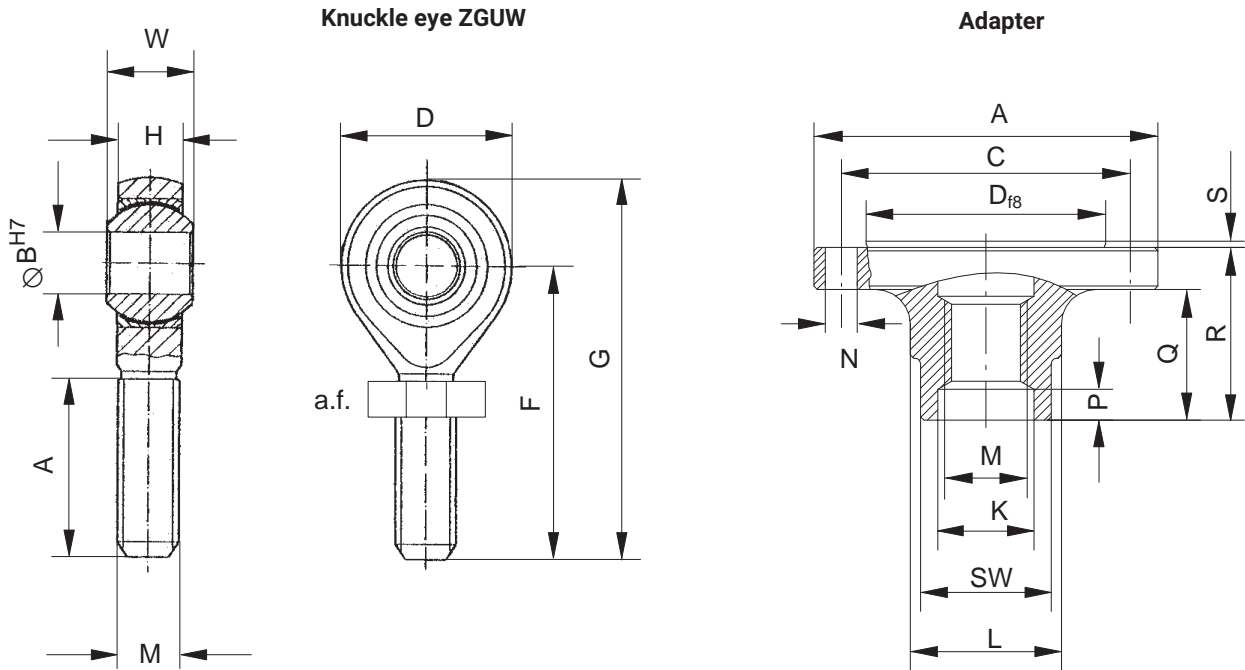
Nominal force (kN)	Starting torque M_A (N·m)	Thread
0.5 - 10	5	4 x M5
20	40	4 x M10
50	40	8 x M10
100	94	8 x M10-12.9 DIN912 galvanised

Installation with adapter and knuckle eye



Nominal force (kN)	H_{max} (mm)	Starting torque M_A (N·m)	Starting torque M_B (N·m)	Screws for adapter mounting	
				M1	M2
0.5 - 10	108	5	60	M5x12	M5
20	170	40	300	M10x25	M10
50	180	40	500	M10x25	M10
100	187	94	1000	M10x25	M10

MOUNTING ACCESSORIES



Material: tempering steel, galvanised; rolled steel and PTFE/bronze fabric foil

KNUCKLE EYE

Nominal force (kN)	A	ØB ^{H7}	D	F	G	H	M	X	W	a./f.	Weight (kg)
0.5...10	33	12	32	54	70	12	M12	7	16	19	0.1
20	47	20	50	78	103	18	M20x1.5	9	25	30	0.4
50	57	25	60	94	124	22	M24x2	10	31	36	0.6
100	66	30 ^{H7}	70	110	145	25	M30x2	24	37	46	1.1

ADAPTER

Nominal force (kN)	ØA	ØC	ØD ^{f8}	M	ØK	ØL	ØN	P	Q	R	S	a./f.	Weight ¹⁾ (kg)
0.5...10	50	42	34	M12	14	22	4x5.5	4.5	19	25.1	0.9	19	0.15
20	90	70	55	M20x1.5	22	34	4x11	4.5	15	40.1	0.9	30	1.3
50	90	70	55	M24x2	26	42	8x11	6	20	45.1	0.9	36	1.45
100	90	70	55	M30x2	32	47	8x11	6	20	45.1	0.9	41	1.45

1) including screws

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