

U5

Force Transducer

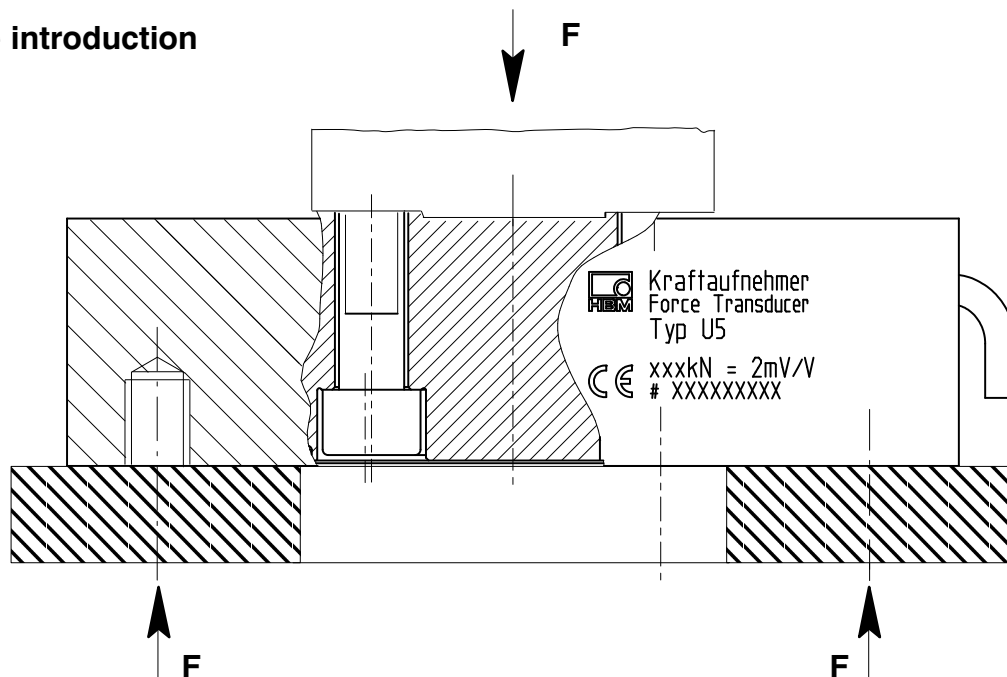


View from below

Special features

- Tensile / compressive force transducer
- Nominal forces 100 kN ... 500 kN
- Variable installation options
- Flange connection can be centered on both sides
- Low overall height
- High transverse force stability

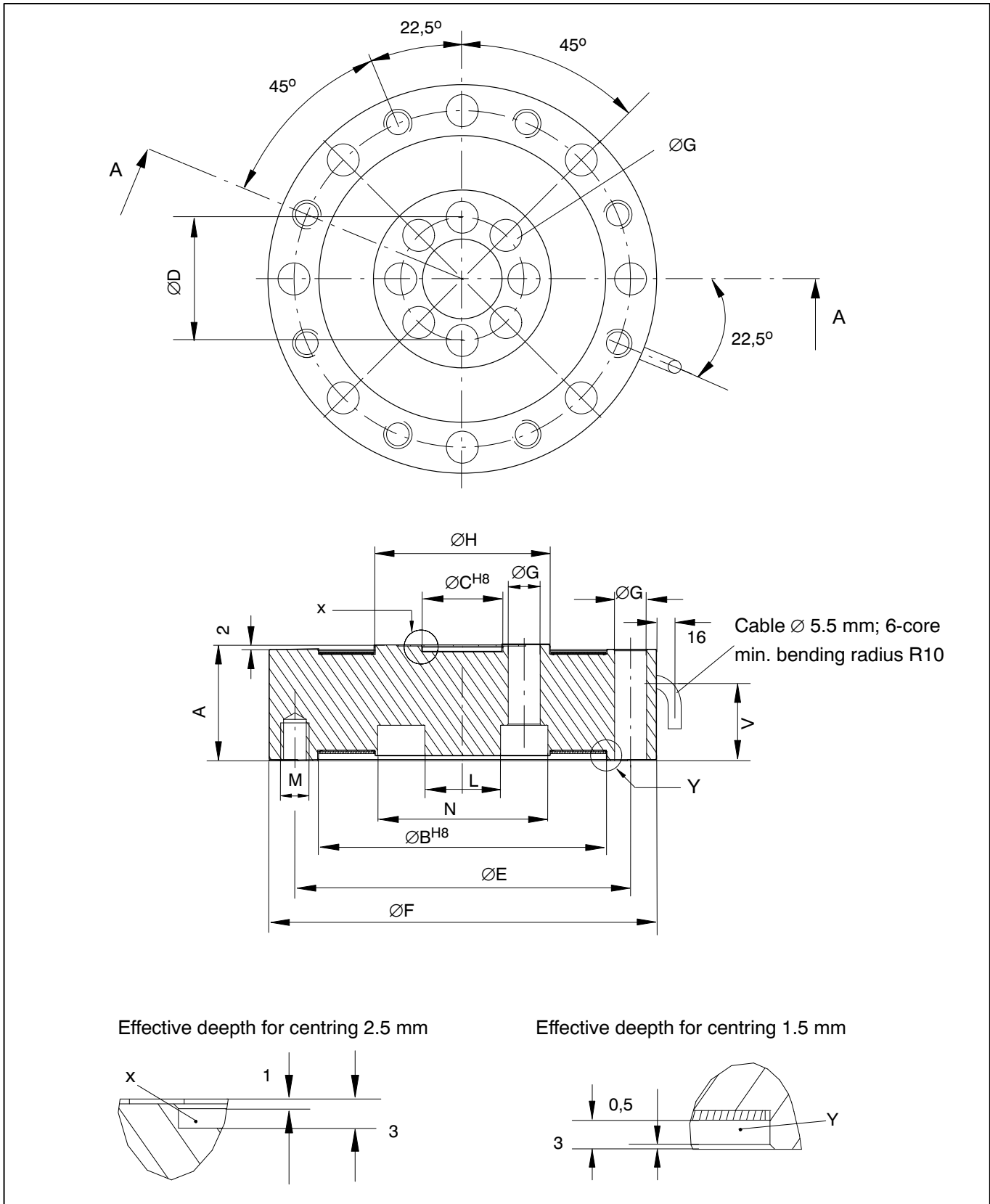
Force introduction



Specifications (VDI/VDE 2638)

Nominal force	F_{nom}	kN	100	200	500
Accuracy class			0.1		0.3
Nominal sensitivity	C_{nom}	mV/V	2		
Rel. sensitivity deviation compressive force	d_C	%	< ± 0.25		
Rel. tensile/compressive force sensitivity difference	d_{zd}	%	< ± 0.2 (typically 0.07)	< ± 0.5 (typically 0.02)	< ± 2 (typically 1)
Compressive force sensitivity difference when using through-holes on the outer ring	d_{dd}	%	< ± 0.2 (typically 0.07)		< +1 (typically 0.5)
Rel. deviation from zero	$d_{s,0}$	%	< 1		
Rel. range of inversion (0.5 F_{nom})	$u_{0.5}$	%	< 0.2		
Linearity deviation compressive force	d_{lin}	%	< 0.1		
Linearity deviation tensile force	d_{lin}	%	< 0.1		< 0.3
Effect of temperature on sensitivity/10 K by reference to sensitivity	TK_c	%	0.1		
Effect of temperature on zero signal/10 K by reference to sensitivity	TK_0	%	0.1		
Effect of transverse forces (t. force 10 % F_{nom})*	d_Q	%	< ± 0.1		
Effect of eccentricity / mm		%	< ± 0.1		
Rel. creep over 30 min	d_{crF+E}	%	< ± 0.05		
Input resistance	R_e	Ω	> 345		
Output resistance	R_a	Ω	300 – 400		
Isolation resistance	R_{is}	Ω	> 2x10 ⁹		
Reference excitation voltage	U_{ref}	V	5		
Operating range of the excitation voltage	$B_{U,G,T}$	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		
Max. operational force	(F_G)	%	150		
Limit force	(F_L)	%	150		
Breaking force	(F_B)	%	> 300	> 250	
Static lateral limit force	(F_Q)	%	60	50	
Per. torque	M_g	kN·m	1	2	5
Nominal displacement	S_{nom}	mm	0.09	0.11	0.16
Fundamental resonance frequency	f_G	kHz	4.8	4.3	3.3
Weight		kg	5	7	17
Rel. permissible vibrational stress	F_{rb}	%	160		100
Degree of protection to DIN EN 60529			IP65		

* by reference to a force introduction point on the force-introduction surface



Nominal force	A	ØB ^{H8}	ØCH ⁸	ØD	ØE	ØF	ØG	ØH	V	M	L	N
100 kN	49	122	34	52	142	164	13.5	74	33.5	M12 x 15.5 deep	32	72
200 kN	55	144	43	67	166	190	17	96	37.5	M16 x 19 deep	41	93
500 kN	65	186	76	104	225	260	21	140	48	M20 x 23 deep	72	136

Order code:

Code	Option 1: Measuring range
100K	Measuring range 100 kN
200K	Measuring range 200 kN
500K	Measuring range 500 kN

Code	Option 2: Electrical connection
K	with cable, 6 m, free ends
M	with cable, 6 m, MS connector (male)
D	with cable, 6 m, D15 connector
Y	with cable, any length, max. 20 m, free ends
N	with cable, any length, max. 20 m, MS connector (male)
F	with cable, any length, max. 20 m, D15 connector
P	with Binder 723 connector

K-U5- - m

Accessories (also available):

Cable / Connector

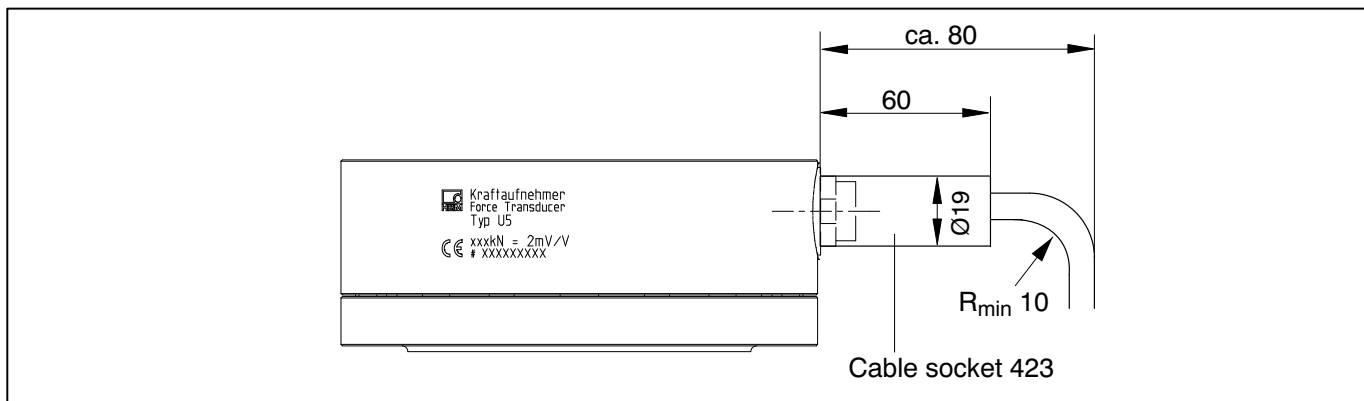
Connection cable Kab139A-6, 6 m, with cable socket 423 and free ends

Order number: 1-KAB139A-6

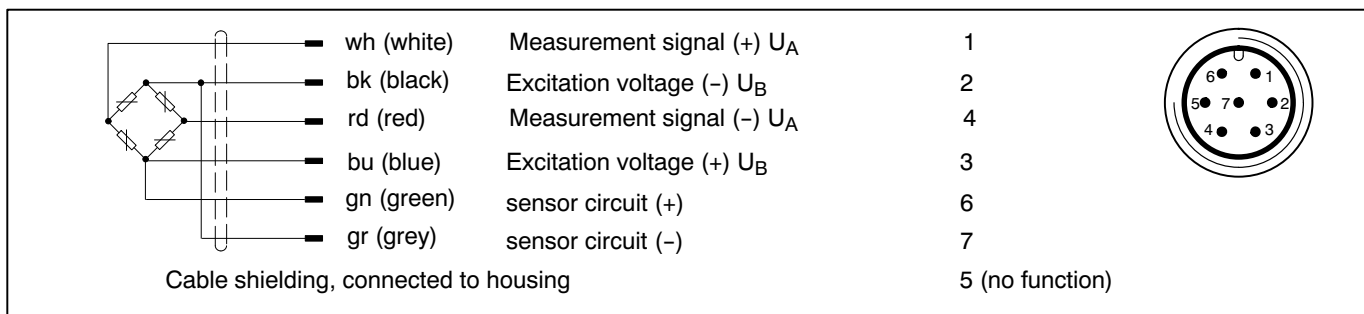
Connector MS3106PEMV, mounted on Kab139A-6 15-pin D-connector, mounted on Kab139A-6

Order number: D-MS/MONT

Order number: D-15D/MONT

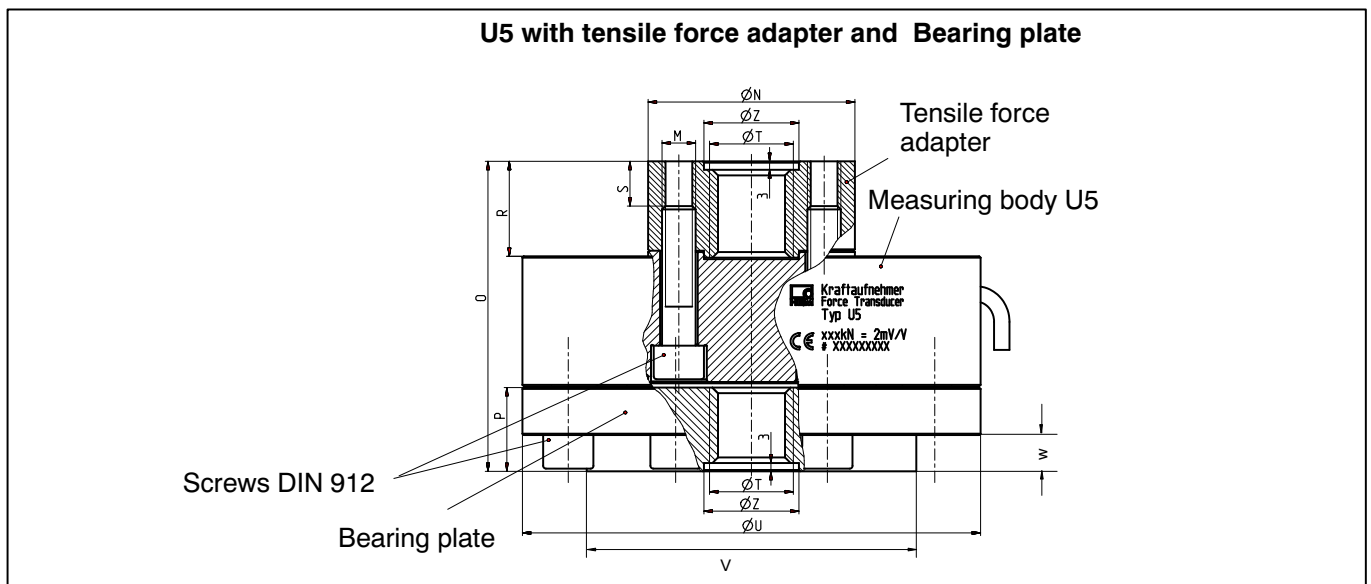


Space required for cable socket



Pin assignment

Mounting accessories



Mounting accessory for measurement of tensile force (tensile force adapter)

Nominal force	Ø N	M	O	P	R	S	ØT	ØU	V	W	ØZ ^{+0,1}	Weight bearing plate (kg)
100 kN	74	M12	111	30	34	approx. 16	M30x2	164	118	13	34	approx. 3.9
200 kN	96	M16	137	40	44	approx. 20	M39x2	190	136	17	43	approx. 6.5
500 kN	138	M20	224.5	80	81.5	approx. 55	M72x4	260	190	35	76	approx. 25

Adapter

100 kN:

Tensile force adapter each with 8 screws (M12 x 50)

Order no. 2-9278.0350

Bearing plate each with 8 screws (M12 x 30)

Order no. 2-9278.0351

200 kN:

Tensile force adapter each with 8 screws (M16 x 55)

Order no. 2-9278.0353

Bearing plate each with 8 screws (M16 x 40)

Order no. 2-9278.0354

500 kN:

Tensile force adapter each with 8 screws (M20 x 65)

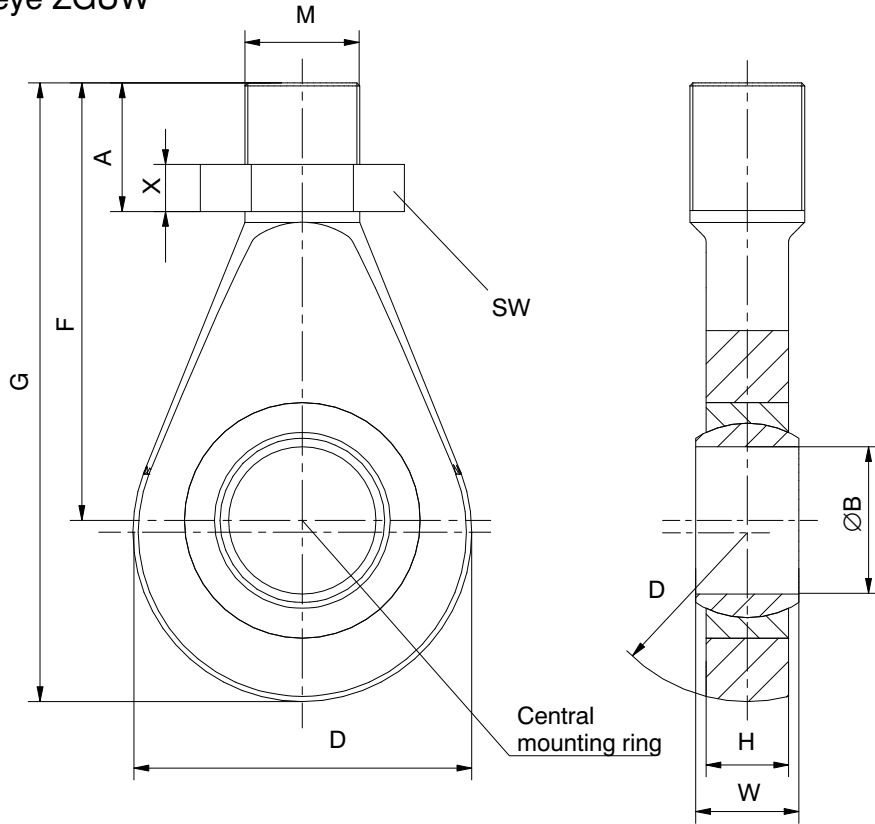
Order no. 2-9278.0356

Bearing plate each with 8 screws (M20 x 65)

Order no. 2-9278.0357

Mounting accessories (Dimensions in mm)

Knuckle eye ZGUW



Material: tempered steel, galvanised; rolled steel and Teflon/bronze fabric foil

Nominal force kN	Order no. Knuckle eye ZGUW	Weight kg	A	ØB	D	F	G	H	M	SW	W	X
100	1-Z4/100kN/ZGUW	1.3	66.5	30 ^{H7}	70	110.5	145.5	25	M30x2	46	37	24
200	1-U2A/10t/ZGUW	1.1	65.5	50 ^{+0.002 -0.014}	115	148.5	210	28	M39x2	60	35	16
500	1-Z4/500kN/ZGUW	12.5	80	60 ^{+0.003 -0.018}	180	255	352	36	M72x4	-*)	44	

* secured with 2 screws to prevent rotation

Modifications reserved.

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Hottinger Baldwin Messtechnik GmbH

Im Tiefen See 45, D-64293 Darmstadt, Germany

Tel.: +49 6151 803-0 Fax: +49 6151 803 9100

Email: support@hbm.com Internet: www.hbm.com



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