

U15

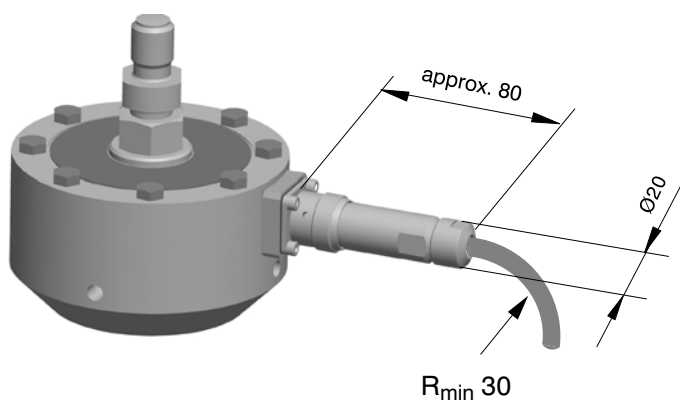
Force transducer



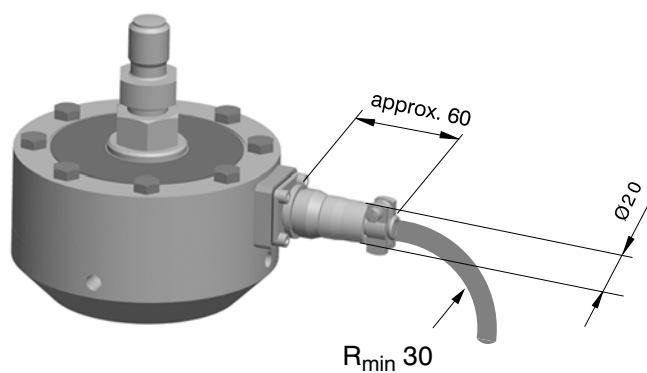
Special features

- Tensile/compressive force transducer
- Nominal (rated) forces 2.5 kN to 1 MN
- Class 0.5 to ISO 376 (in combination with DKD calibration certificate)
- Electronic bending moment adjustment
- Double bridge version option

Installed dimensions of connection variants

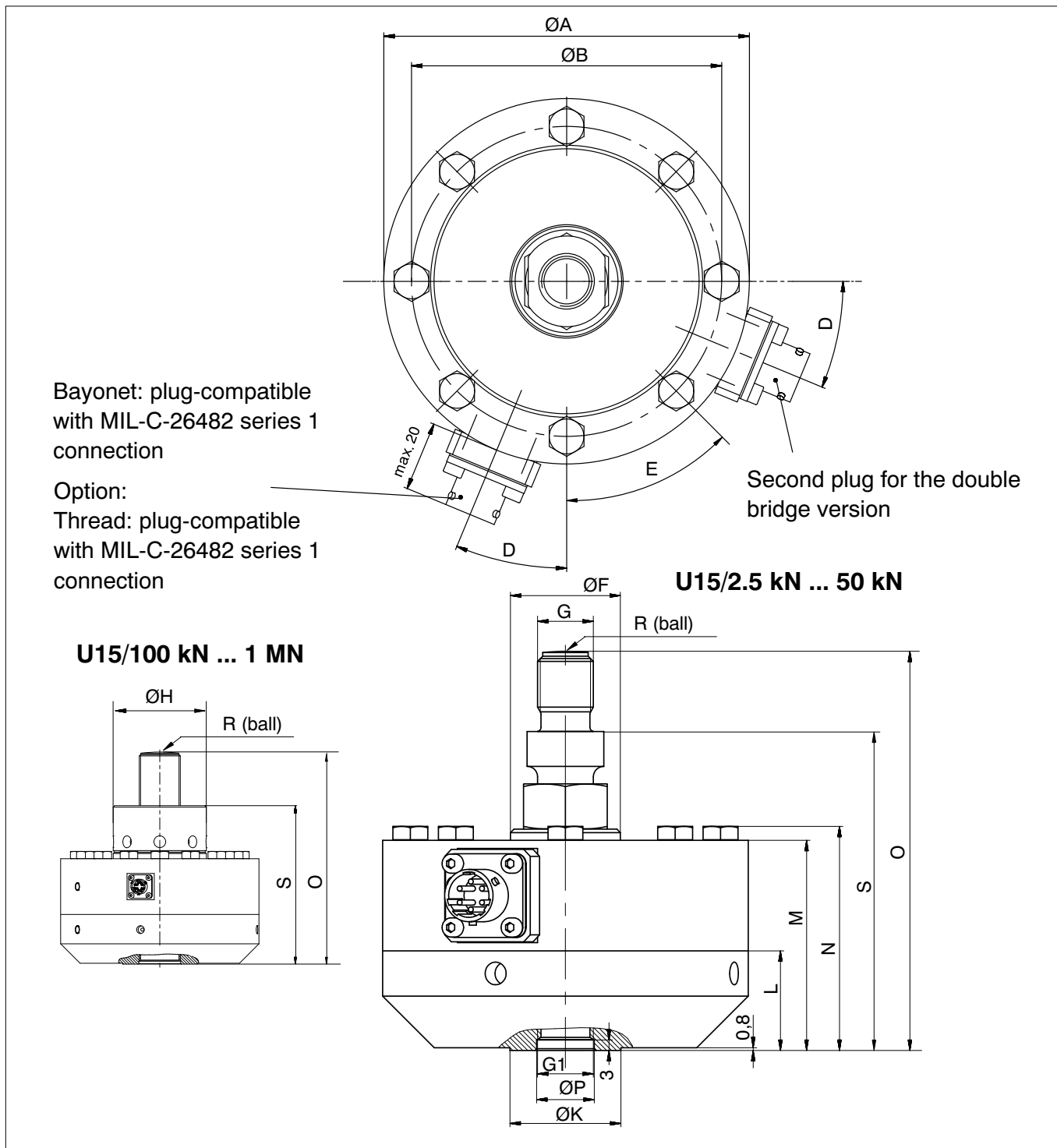


Connection cable **KAB 157-3**
with **bayonet fastening**



Connection cable **KAB 158-3** with
screw fastening

Dimensions U15



Nominal (rated) force	ØA	ØB	D	E	ØF	G	G1	ØH	ØK	L
2.5 kN - 50 kN	104.8	88.9	22.5°	45°	31.5	M16x2-6g	M16x2-4H 22.1 deep	-	31.8	28.6
100 kN - 250 kN	153.9	130.3	15°	30°	-	M33x2-6g	M33x2-4H 35.6 deep	67.3	57.2	44.5
500 kN	203.2	165.1	11.25°	22.5°	-	M42x2-6g	M42x2-4H 44.5 deep	95.5	76.2	50.8
1 MN	279	229	11.25°	22.5°	-	M72x2-6g	M72x2-4H 69.8 deep	135	114	76.2

Nominal (rated) force	M	N	S	ØPH8	R	O
2.5 kN - 50 kN	60.3	64.3	91.5	16.5	60	114.5
100 kN - 250 kN	85.9	92.3	131.5	33.5	160	174.5
500 kN	108	115.5	162.3	43	160	217.3
1 MN	152.4	162.4	229.8	73	400	307.3

Specifications

Type	U15											
Data per VDI 2638 and ISO 376												
Nominal (rated) force	F _{nom}	kN	2.5	5	10	25	50	100	250	500		
		MN										1
Class to ISO 376 (0.2 F _{nom} to F _{nom}) ¹⁾	0.5											
Nominal (rated) sensitivity Rel. zero signal error	C _{nom}	mV/V	2 ... 3 ³⁾			4 ... 4,8 ⁴⁾						
	d _{s,o}	%	< ± 1									
Rel. reproducibility and repeatability errors (0.2F _{nom} to F _{nom}) for:												
	a constant mounting position	b'	%	< ± 0.025								
varying mounting positions	b	%	< ± 0.05									
Rel. interpolation error (0.2F _{nom} to F _{nom})	f _c	%	< ± 0.01			< ± 0.04			< ± 0.05			
Relative zero error (zero signal return)	f _o	%	< ± 0.01									< ± 0.02
Rel. reversibility error (0.2F _{nom} to F _{nom})	v	%	< ± 0.075			< ± 0.1			< ± 0.125			< ± 0.15
Relative linearity error	d _{lin}	%	< ± 0.03			< ± 0.04						< ± 0.06
Temperature effect on sensitivity per 10 K, relative to the nominal (rated) sensitivity	TK _c	%	< ± 0.015									
Temperature effect on the zero signal per 10 K, related to the nominal (rated) sensitivity	TK ₀	%	< ± 0.01									
Relative creep over 30 min	d _{crF+E}	%	< ± 0.04			< ± 0.025						
Effect of lateral forces (lateral force 10% F _{nom})	d _Q	%	< 0.015									
Input resistance	R _i	Ω	> 345									
Output resistance	R _o	Ω	220 to 300									
Insulation resistance	R _{is}	Ω	> 2 x 10 ⁹									
Reference excitation voltage	U _{ref}	V	5									
Operating range of excitation voltage	B _{U,G}	V	0.5 to 12									
Nominal temperature range	B _{t,nom}	°C	+10 to +40									
Operating temperature range	B _{t,G}	°C	-30 to +85									
Storage temperature range	B _{t,S}	°C	-30 to +85									
Reference temperature	t _{ref}	°C	+22									
Max. operating force	(F _G)	%	115									
Breaking force	(F _B)	%	200									
Limit torque	(M _G)	N·m	15	30	60	155	180	635	1320	2855	5715	
Nominal (rated) displacement	S _{nom}	mm	0.04			0.06			0.08	0.1	0.12	
Fundamental resonance frequency	f _G	kHz	2.7	3.8	5.6	5.3	7.5	4.3	5.8	4.9	4.0	
Rel. permissible vibrational stress	F _{rb}	%	100									
Weight		kg	1.4			3.3			10.5		27	73
Degree of protection per EN 60529	IP67 ²⁾											
Plug connection, six-wire configuration	Bayonet or thread (option) plug-compatible to MIL-C-26482 series 1											
Transducer identification (option)	TEDS, per IEEE1451.4											

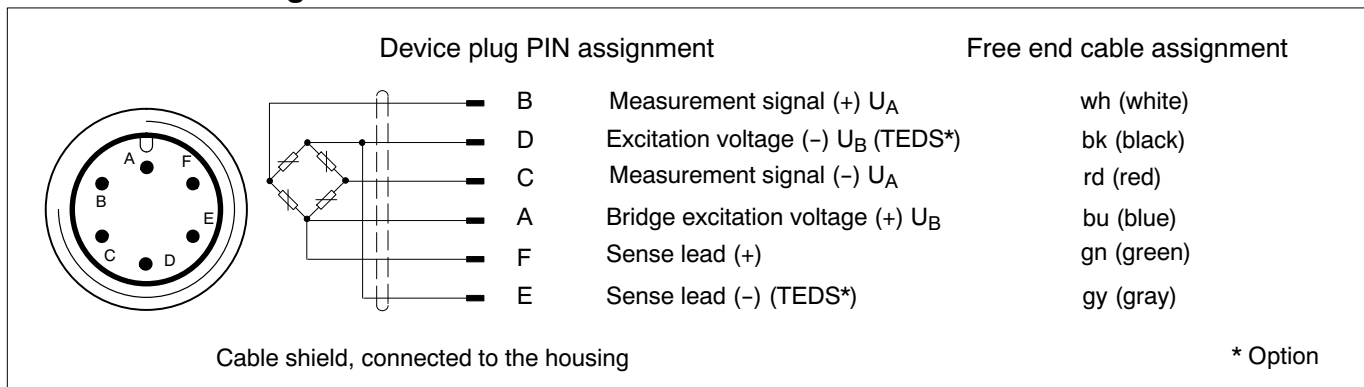
1) Classification only guaranteed in conjunction with a DKD calibration certificate to ISO 376

2) For the connected bayonet plug version

3) Adjustment to 2 mV/V with a characteristic curve deviation of 0.1% possible

4) Adjustment to 3 mV/V with a characteristic curve deviation of 0.1% possible

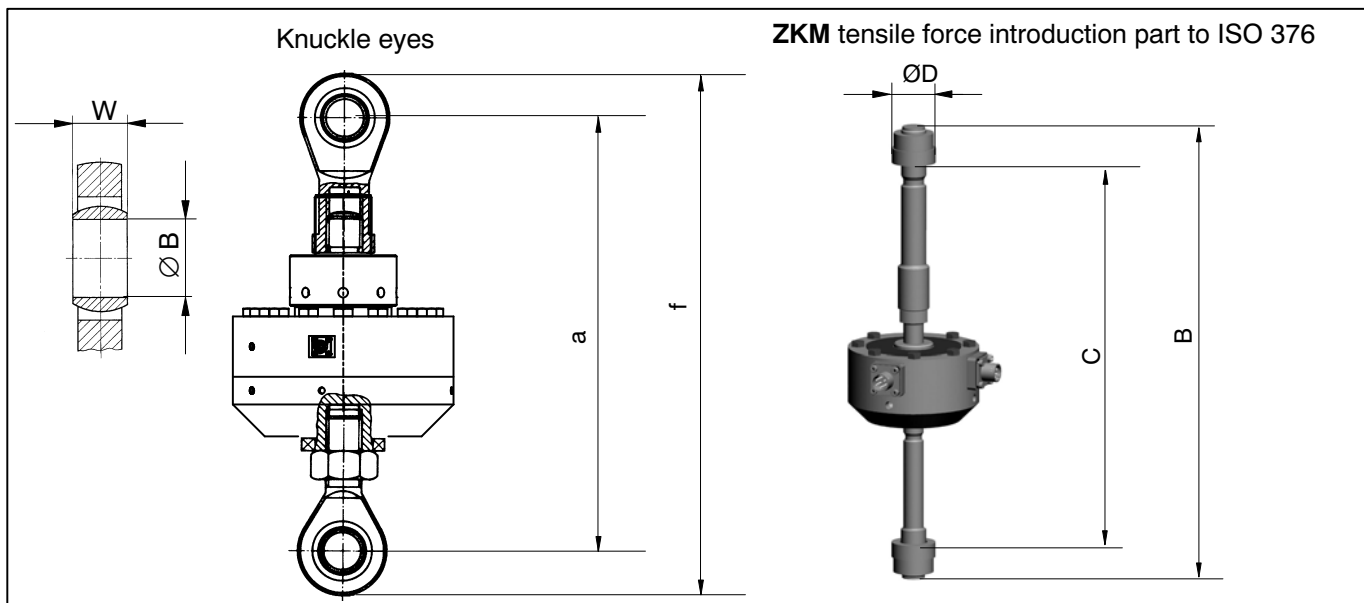
Pin and cable assignment



Accessories (not included among the items supplied)

Order number	
K-CAL-FD...	DKD calibration certificate to ISO 376
1-KAB157-3	Connection cable with bayonet locking; IP67; 3 m long, \varnothing 6.5 mm; TPE outer sheath; 6 x 0.25 mm ² ; free ends, shielded
1-KAB158-3	Connection cable with bayonet locking; IP67; 3 m long, \varnothing 6.5 mm; TPE outer sheath; 6 x 0.25 mm ² ; free ends, shielded
3-3312.0382	Loose connecting socket, bayonet locking
3-3312.0354	Loose connecting socket, screw locking

Force application parts for tensile loading

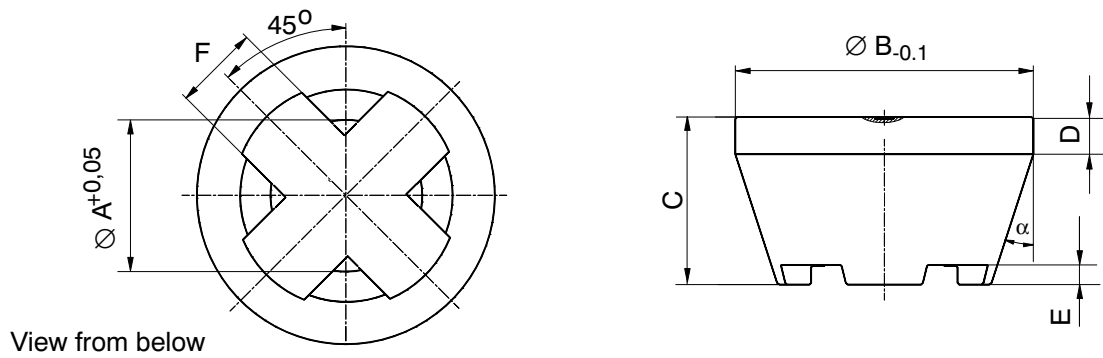


Type	ZKM Order number	B	C		ØD
			min	max	
U15/2.5 kN-50 kN	1-Z4/20kN/ZKM	approx. 372	approx. 277	approx. 313	35
U15/100 kN-250 kN	1-U15/250kN/ZKM	approx. 478	approx. 364	approx. 404	64
U15/500 kN	1-U15/500kN/ZKM	approx. 650	approx. 447	approx. 539	90
U15/1 MN	1-U15/1MN/ZKM	approx. 833	approx. 549	approx. 679	120

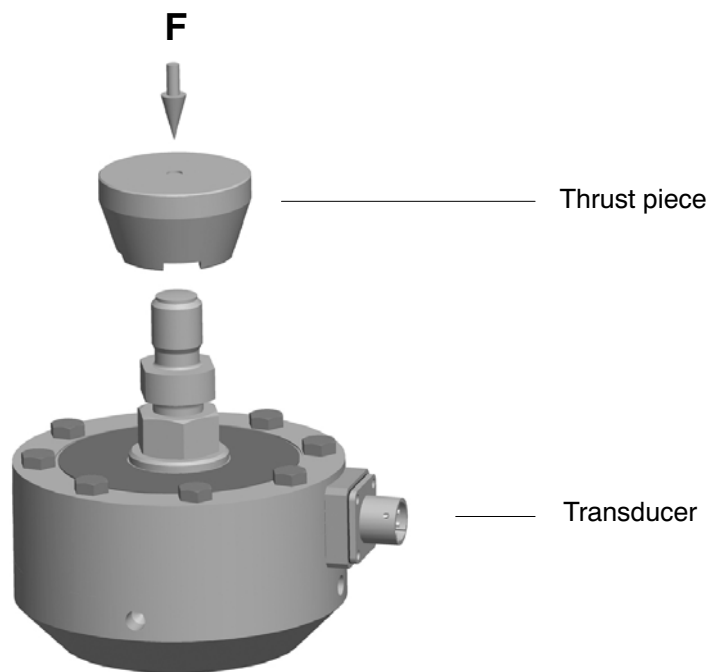
Type	Knuckle eye top/bottom Order number	a	f	W	ØB
U15/2.5 kN-50 kN	1-Z4/20kN/ZGOW / 1-Z4/20kN/ZGUW	approx. 209	approx. 246	21	16
U15/100 kN-250 kN	1-ZGIM33F / 1-ZGAM33F	approx. 362	approx. 488	35	50
U15/500 kN	1-ZGIM42F / 1-ZGAM42F	approx. 418	approx. 554	44	60
U15/1 MN	1-ZGIM72F / 1-ZGAM72F	approx. 588	approx. 792	60	90

Force application parts for compressive loading

Thrust piece to ISO 376



Type	Thrust piece Order number	Weight (kg)	$\varnothing A$	$\varnothing B$	C	D	E	F	α
U15/2.5 kN-50 kN	1-EDO4/20kN	approx. 0.34	16,2	48	29	8	5	12	18°
U15/100 kN - 250 kN	1-U15/250kN/EDO	approx. 1.3	33,2	80	45	10	5	23	18°
U15/500 kN	1-U15/500kN/EDO	approx. 1.3	42,2	80	45	10	5	23	18°
U15/1 MN	1-EDO4/500 kN	approx. 3.5	72,4	112	68	15	12	30	15°



Versions and order numbers

Code	Nominal (rated) force
2k50	2.5 kN
5k00	5 kN
10k0	10 kN
25k0	25 kN
50k0	50 kN
100k	100 kN
250k	250 kN
500k	500 kN
1M00	1 MN

	Number of measuring bridges	Transducer identification	Plug protection	Plug version bridge A	Plug version bridge B	Sensitivity adjustment	
	Single bridge SB	Without TEDS S	Without plug protection U	Bayonet connector B	Bayonet connector B	Not adjusted U	
	Double bridge DB	With TEDS T	With plug protection P	Threaded connector G	Threaded connector G	Adjusted J	
K-U15-	25k0	DB	T	P	B	G	U

Number of measuring bridges	When being used as a reference transducer, the second measuring bridge can be used as the input signal for the machine control.
Transducer identification	TEDS integration (integrated electronic data sheet) in accordance with IEEE1451.4
Plug protection	Mechanical protection through the installation of an additional square profile around the connector. Dimensions approx.: width x height x depth: 30x30x20 mm
Plug version bridge A	Device plug with bayonet locking (PT02E10-6P-compatible) or screw-fitted device plug (PC02E10-6P-compatible).
Plug version bridge B	Bayonet locking (PT02E10-6P-compatible) or screw-fitted device plug (PC02E10-6P-compatible). Both these connection variants are often used for differentiation in the double-bridge version.
Sensitivity adjustment	The exact nominal (rated) sensitivity is specified on the type plate. The transducer can also be adjusted to a whole number sensitivity of 2 mV/V or 3 mV/V. The sensitivity range of a unadjusted transducer lies between 2 and 3 mV/V (nominal (rated) forces between 2.5 kN and 10 kN) or 4 and 4.8 mV/V (nominal (rated) forces between 25 kN and 1 MN).

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