

U15

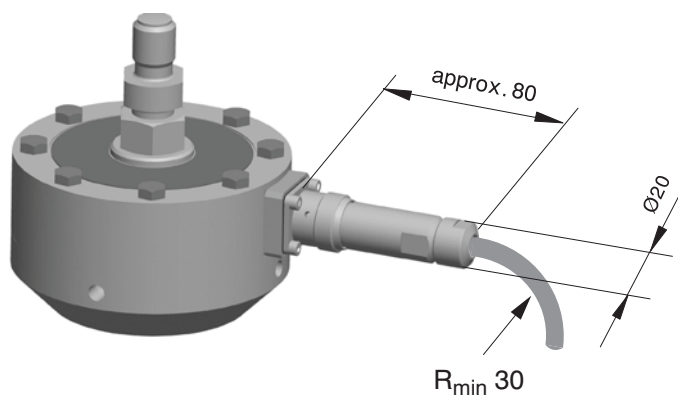
Force Transducer



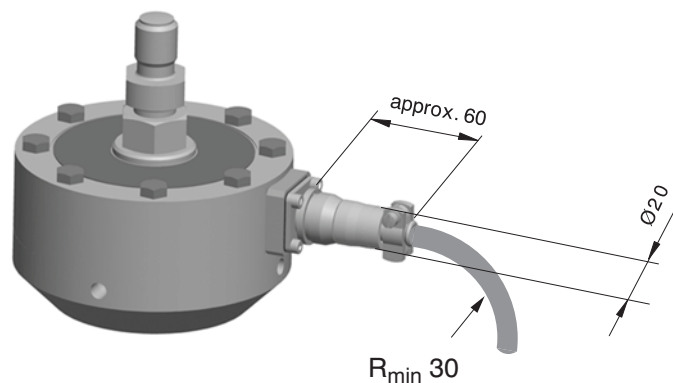
Special features

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

Mounting dimensions of the connection variants

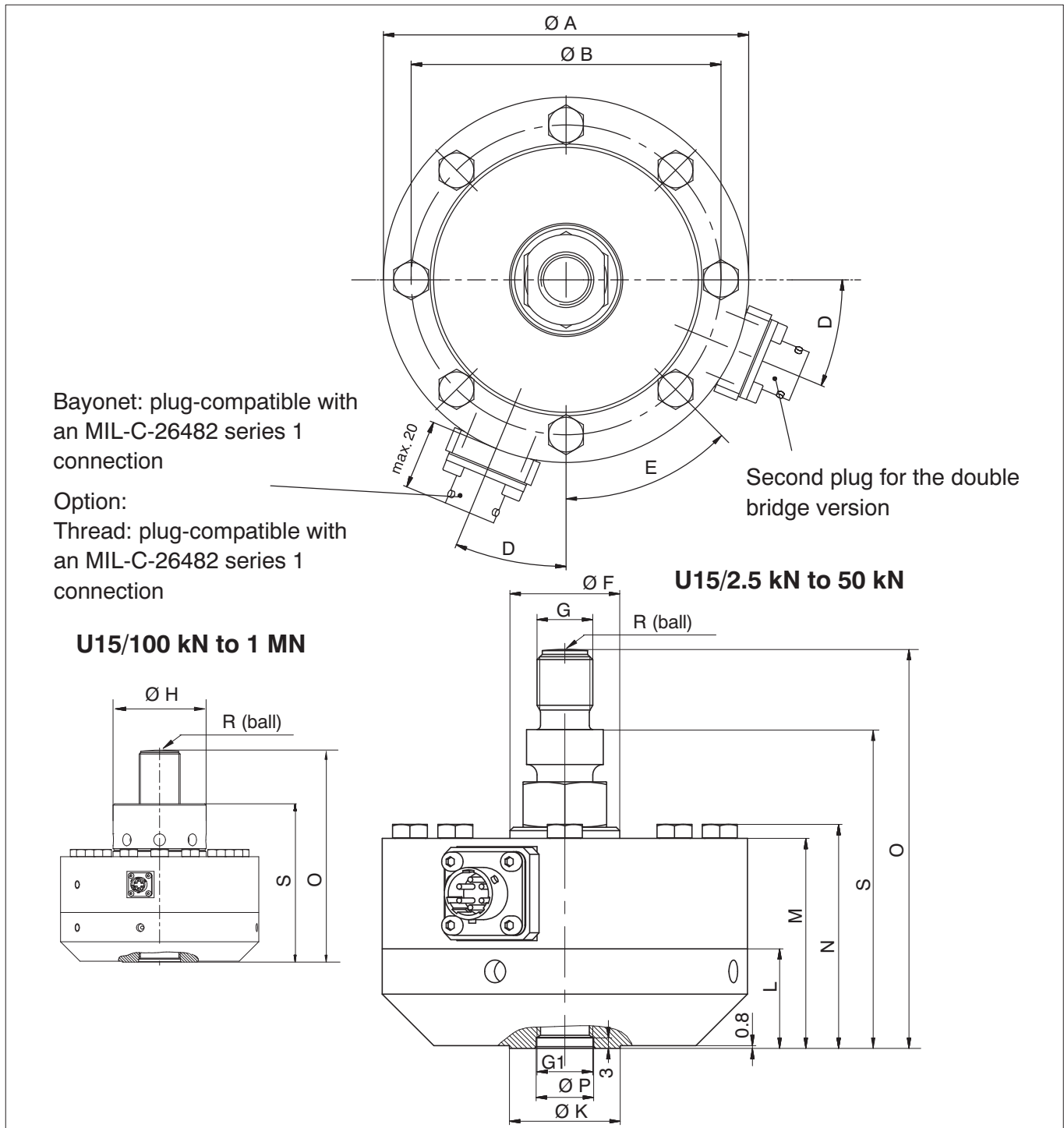


Connection cable **KAB 157-3**
with **bayonet locking**



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

Dimensions U15



Nominal (rated) force	$\varnothing A$	$\varnothing B$	D	E	$\varnothing F$	G	G1	$\varnothing H$	$\varnothing K$	L
2.5 kN - 50 kN	104.8	88.9	22.5°	45°	31.5	M16 x 2-6 g	M16 x 2-4H 22.1 deep	-	31.8	28.6
100 kN - 250 kN	153.9	130.3	15°	30°	-	M33 x 2-6 g	M33 x 2-4H 35.6 deep	67.3	57.2	44.5
500 kN	203.2	165.1	11.25°	22.5°	-	M42 x 2-6 g	M42 x 2-4H 44.5 deep	95.5	76.2	50.8
1 MN	279	229	11.25°	22.5°	-	M72 x 2-6 g	M72 x 2-4H 69.8 deep	135	114	76.2

Nominal (rated) force	M	N	S	$\varnothing PH8$	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

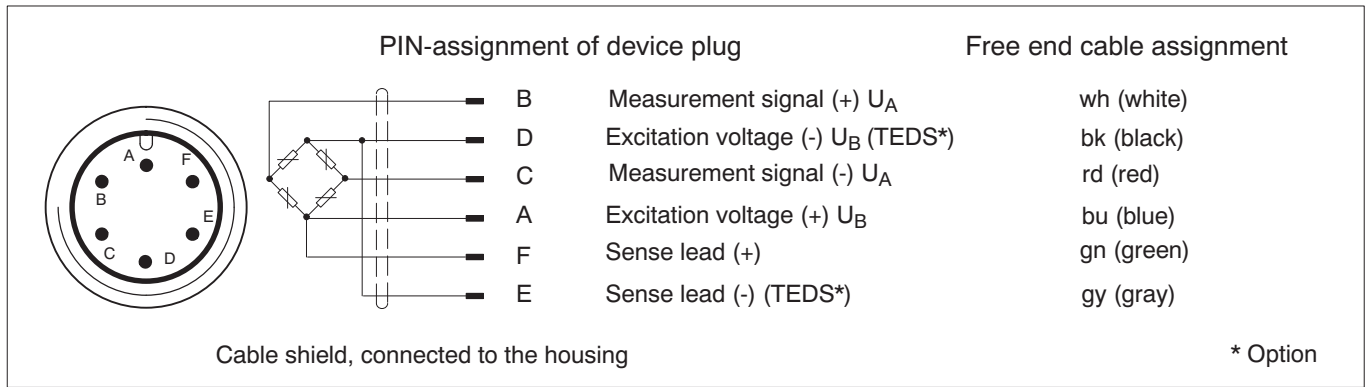
Specifications

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 under ISO 376 (0.2 F _{nom} to F _{nom}) ¹⁾	0.5												
Nominal (rated) sensitivity	C _{nom}	mV/V	2				3						
Rel. sensitivity error	d _c	%	< ± 0.1										
Rel. zero signal error	d _{s,0}	%	< ± 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				
Rel. 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		
Rel. linearity error	d _{lin}	%	< ± 0.03			< ± 0.04					< ± 0.06		
Effect of temperature on sensitivity/10 K, related to nominal sensitivity	TK _C	%	< ± 0.015										
Effect of temperature on zero signal/10 K, related to nominal sensitivity	TK _Q	%	< ± 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 _e	Ω	> 345										
Output resistance	R _a	Ω	220 to 300										
Insulation resistance	R _{iS}	Ω	> 2 x 10 ⁹										
Reference excitation voltage	U _{ref}	V	5										
Operating range of the excitation voltage	B _{U,G}	V	0.5 to 12										
Nominal (rated) 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. operational 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 oscillatory 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 connection	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

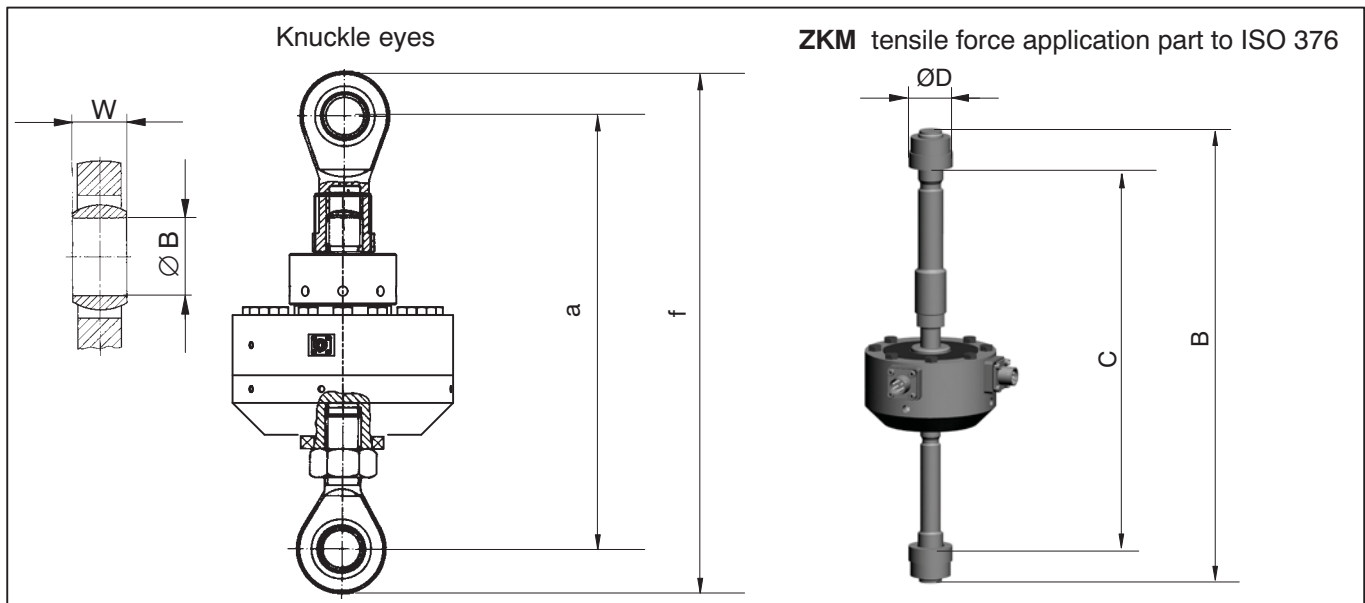
Pinout and cable assignment



Accessories (not included in scope of supply)

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 screw locking; IP54; 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

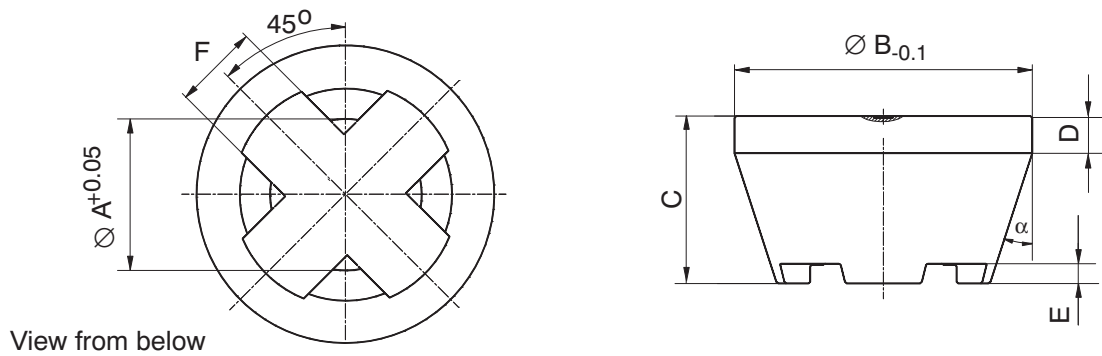


Type	ZKM Order number	B	C		\varnothing D
			min	max	
U15/2.5kN - 50kN	1-Z4/20kN/ZKM	approx. 372	approx. 277	approx. 313	35
U15/100kN - 250kN	1-U15/250kN/ZKM	approx. 478	approx. 364	approx. 404	64
U15/500kN	1-U15/500kN/ZKM	approx. 650	approx. 447	approx. 539	90
U15/1MN	1-U15/1MN/ZKM	approx. 833	approx.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

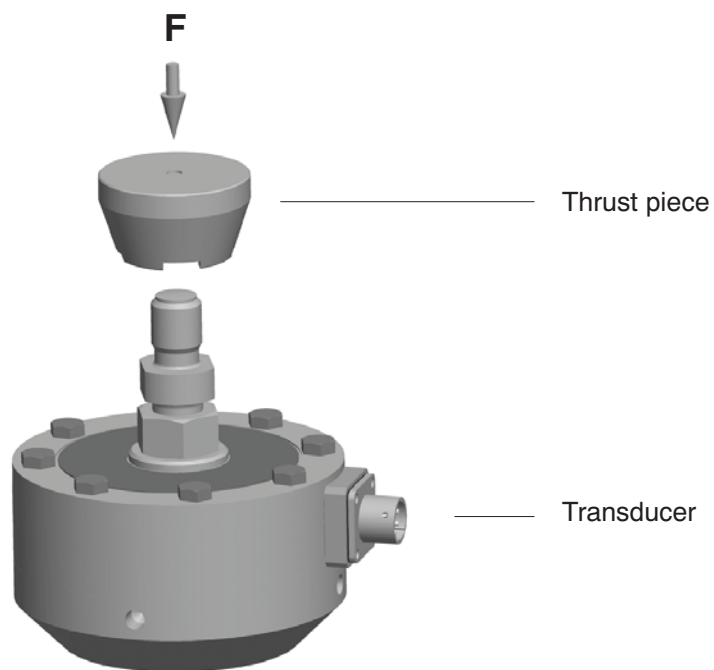
Type	Top/bottom knuckle eye Order number	a	f	W	\varnothing B
U15/2.5kN - 50kN	1-Z4/20kN/ZGOW / 1-Z4/20 kN/ZGUW	approx. 209	approx. 246	21	16
U15/100kN - 250kN	1-ZGIM33F / 1-ZGAM33F	approx. 362	approx. 488	35	50
U15/500kN	1-ZGIM42F / 1-ZGAM42F	approx. 418	approx. 554	44	60
U15/1MN	1-ZGIM72F / 1-ZGAM72F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

Force application parts for compressive loading

Thrust piece per ISO 376



Type	Thrust piece Order number	Weight (kg)	$\varnothing A$	$\varnothing B$	C	D	E	F	α
U15/2.5kN - 50kN	1-EDO4/20kN	approx. 0.34	16.2	48	29	8	5	12	18°
U15/100kN - 250kN	1-U15/250kN/EDO	approx. 1.3	33.2	80	45	10	5	23	18°
U15/500kN	1-U15/500kN/EDO	approx. 1.3	42.2	80	45	10	5	23	18°
U15/1MN	1-EDO4/500kN	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
Single bridge	without TEDS	without plug protection	Bayonet connector	Bayonet connector
SB	S	U	B	B
Double bridge	with TEDS	with plug protection	Threaded connector	Threaded connector
DB	T	P	G	G

K-U15-	25k0	DB	T	P	B	G
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Number of measuring bridges	When being used as a reference transducer, the second measuring bridge can be used as the input signal for machine control.
Transducer identification	TEDS integration (integrated electronic data sheet) per IEEE1451.4
Plug protection	Mechanical protection by mounting an additional square profile around the plug. Dimensions approx.: width x height x depth: 30 x 30 x 20 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 double bridge versions.

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