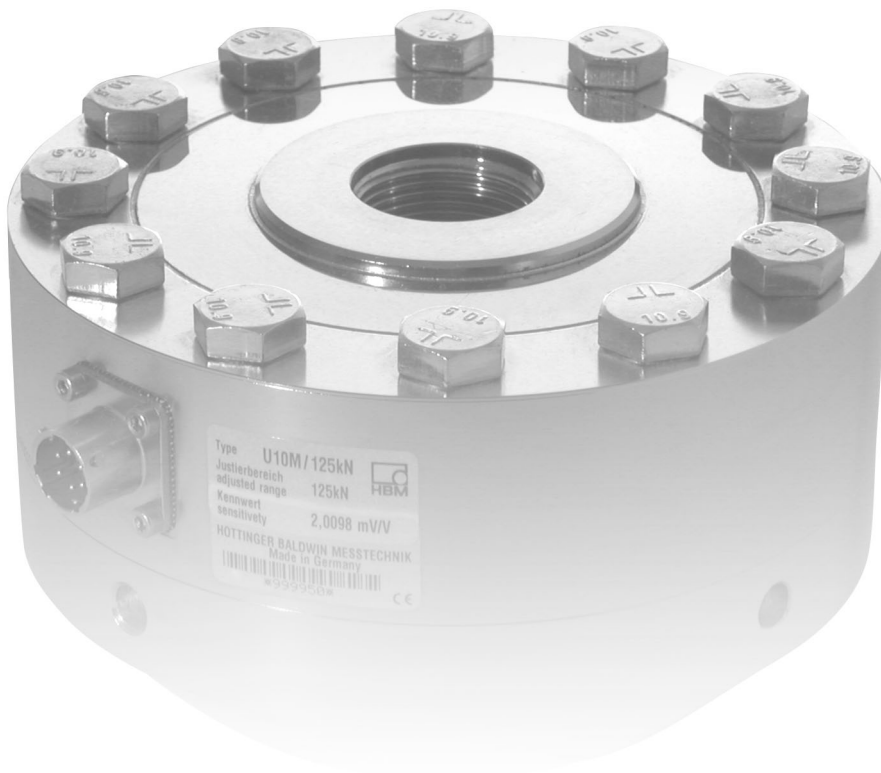


Mounting Instructions

Force Transducer

U10M



Contents	Page
Safety instructions	4
1 Scope of supply	7
2 Application notes	8
3 Conditions on site	10
3.1 Ambient temperature	10
3.2 Dampness	10
3.3 Storage	10
4 Mechanical installation	11
4.1 Important precautions during installation	11
4.2 General installation guidelines	12
4.3 Installation with an adapter	14
4.4 Installation without an adapter	16
5 Electrical connection	17
5.1 Notes on cabling	18
6 Versions and order numbers	19
7 Specifications (VDI/VDE2638)	21
8 Dimensions	23
8.1 Dimensions of the U10M with an adapter	23
8.2 Dimensions of the U10M without an adapter	24
8.3 Installed dimensions of connection variants	25
9 Declaration of conformity	26

Safety instructions

Use in accordance with the regulations

The U10M force transducer is to be used exclusively for force-proving measurement tasks and directly related control tasks. Use for any additional purpose shall be deemed to be **not** in accordance with the regulations.

In the interests of safety, the transducer should only be operated as described in the Installation Instructions. It is also essential to comply with the legal and safety requirements for the application concerned during use. The same applies to the use of accessories.

The transducer is not a safety element within the meaning of its use as intended. For safe and trouble-free operation, this transducer must not only be correctly transported, stored, sited and installed but must also be carefully operated and maintained.

General dangers of failing to follow the safety instructions

U10M force transducers are state-of-the-art and fail-safe.

Transducers can give rise to remaining dangers if they are inappropriately installed and operated by untrained personnel.

Everyone involved with the installation, commissioning, maintenance or repair of a transducer must have read and understood the Installation Instructions and in particular the technical safety instructions.

Remaining dangers

The scope of supply and performance of the transducer covers only a small area of force-proving measurement technology. In addition, equipment planners, installers and operators should plan, implement and respond to the safety engineering considerations of force-proving measurement technology in such a way as to minimize remaining dangers. Prevailing regulations must be complied with at all times. There must be reference to the remaining dangers connected with force-proving measurement technology.

In these Installation Instructions remaining dangers are pointed out using the following symbols:

Symbol:  **WARNING**

Meaning: **Dangerous situation**


Warns of a **potentially** dangerous situation in which failure to comply with safety requirements **can** result in death or serious physical injury.

Symbol:  **CAUTION**


Meaning: **Possibly dangerous situation**

Warns of a potentially dangerous situation in which failure to comply with safety requirements **could** result in damage to property or some form of physical injury.

Symbols indicating application notes and useful information:

Symbol:  **NOTE**

Means that important information about the product or its handling is being given.

Symbol: 

Meaning: CE mark

The CE mark enables the manufacturer to guarantee that the product complies with the requirements of the relevant EC directives (see Declaration of Conformity at the end of this Mounting Instructions).

Conversions and modifications

The transducer must not be modified from the design or safety engineering point of view except with our express agreement. Any modification shall exclude all liability on our part for any damage resulting therefrom. This does not apply to mounting and dismantling the adapter in accordance with Chapter 4.

Qualified personnel

This device must only be installed by qualified personnel, strictly in accordance with the specifications and with the safety requirements and regulations listed below. It is also essential to observe the appropriate legal and safety regulations for the application concerned. The same applies to the use of accessories.

Qualified personnel means persons entrusted with the installation, assembly, commissioning and operation of the product who possess the appropriate qualifications for their function.

Conditions on site

Protect the transducer against dampness or the effects of weather, such as rain, snow, etc.

Avoid coming into contact with corrosive media.

Maintenance

The U10M force transducer is maintenance-free. However, we recommend that you check the initial stress of the force application parts at regular intervals.

Prevention of accidents

Although the declared breaking force is many times the nominal (rated) force, the prevailing accident prevention regulations must still be observed.

1 Scope of supply

- U10M force transducer (depending on the version)
- U10M Mounting Instructions
- Test certificate

Accessories (not included among the items supplied):

Cables/Plugs

Connection cable KAB157-3; IP67, (with bayonet lock);
3 m long; TPE outer sheath; 6 x 0.25 mm²; free ends;
shielded

Order number:

1-KAB157-3

Connection cable KAB158-3; IP64, (with screw lock);
3 m long; TPE outer sheath; 6 x 0.25 mm²; free ends;
shielded

1-KAB158-3

Grounding cable (400 mm long)

1-EEK4

Grounding cable (600 mm long)

1-EEK6

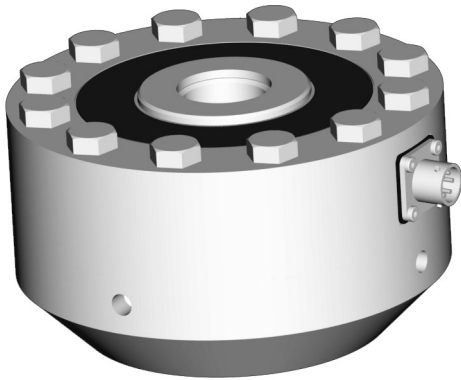
Grounding cable (800 mm long)

1-EEK8

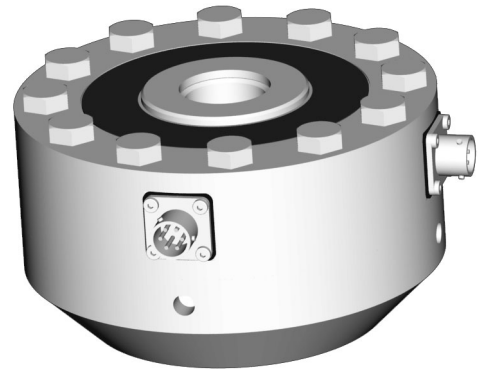
2 Application notes

Force transducers of the U10M series type are available in two mechanical versions:

- Transducers **with** an adapter

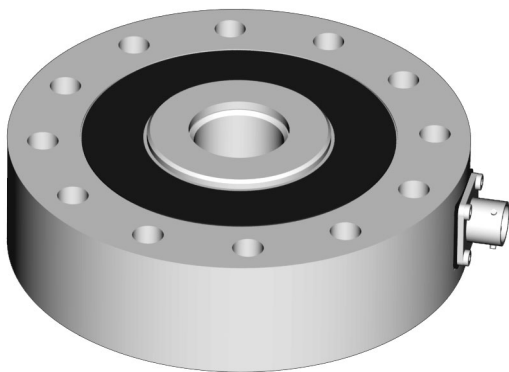


Single bridge

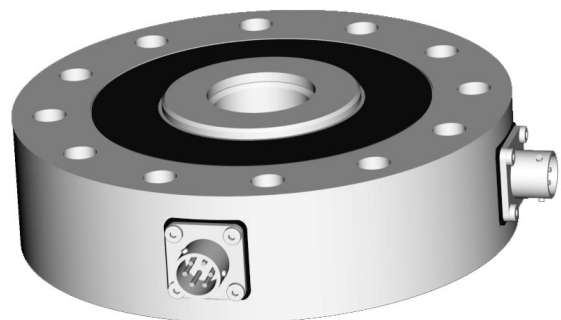


Dual bridge

- Transducers **without** an adapter



Single bridge



Dual bridge

The transducers are suitable for measuring tensile and compressive forces. They measure static and dynamic forces with great accuracy and should therefore be handled with caution. Particular care should be taken when transporting and installing the devices. The transducer could be permanently damaged if knocked or dropped.

The sensitivity of the transducer is determined at the factory with a bolted-on adapter.



NOTE

If the transducer is fitted in some other way, this may alter the sensitivity, depending on the condition of the mounting surfaces. In this situation, we recommend that the device is calibrated once it is installed.

The limits for the permissible mechanical, thermal and electrical stresses are given in the Specifications. It is essential that these always come into consideration when planning the measuring system, when installing it and also when operating it.

Calibration

In the standard version, the transducer is designed for dynamic application up to a vibration bandwidth of $\pm 100 \% F_{nom}$. For quasistatic applications, the transducer can be used up to $200 \% F_{nom}$. The option is available to calibrate accordingly to $200 \% F_{nom}$.

3 Conditions on site

The transducer is not suitable for use in nuclear power stations or where it will come into sustained contact with seawater.

3.1 Ambient temperature

There is compensation for the effects of temperature on the zero signal and on the sensitivity. You must keep to the nominal temperature range to achieve optimum measurement results. Temperature-related measurement errors are caused by heating on one side (e.g. radiant heat) or by cooling. A radiation shield and all-round thermal insulation will produce noticeable improvements, but must not set up a force shunt.

3.2 Dampness

Avoid extreme dampness or a tropical climate, if they are outside the classified limits (degree of protection IP67 as per DIN 60529).



NOTE

Moisture must not be allowed to get in through the free end of the connection cable.

3.3 Storage

Dust, dirt and other foreign bodies must not be allowed to collect in such a way that some of the measuring force is diverted to the housing, thus falsifying the measured value (force shunt).



NOTE

Foreign bodies must not be allowed to clog the gap below the flange face.

4 Mechanical installation

4.1 Important precautions during installation

- Handle the transducer carefully.
- When measuring compressive forces, make sure that the support structure is rigid.
- The force application surfaces must be perfectly clean and bear in full.
- Keep to the prescribed engagement depths for threaded rods or knuckle eyes.
- Do not overload the transducer.
- The transducer should be bypassed either during or immediately after installation by a 50 mm² stranded copper wire (EEK highly flexible grounding cable from the HBM delivery program). The cable is screwed on above and below the transducer. This stops welding currents passing over the transducer and welding the force application point.



WARNING

Additional safeguards must be provided if there is a risk of failure from overloading the transducer which could put people at risk.

4.2 General installation guidelines

The forces to be measured must act on the transducer as accurately as possible in the direction of measurement. Torsional moment and bending moment, eccentric loading and transverse forces can lead to measurement errors and if limits are exceeded, may destroy the transducer.

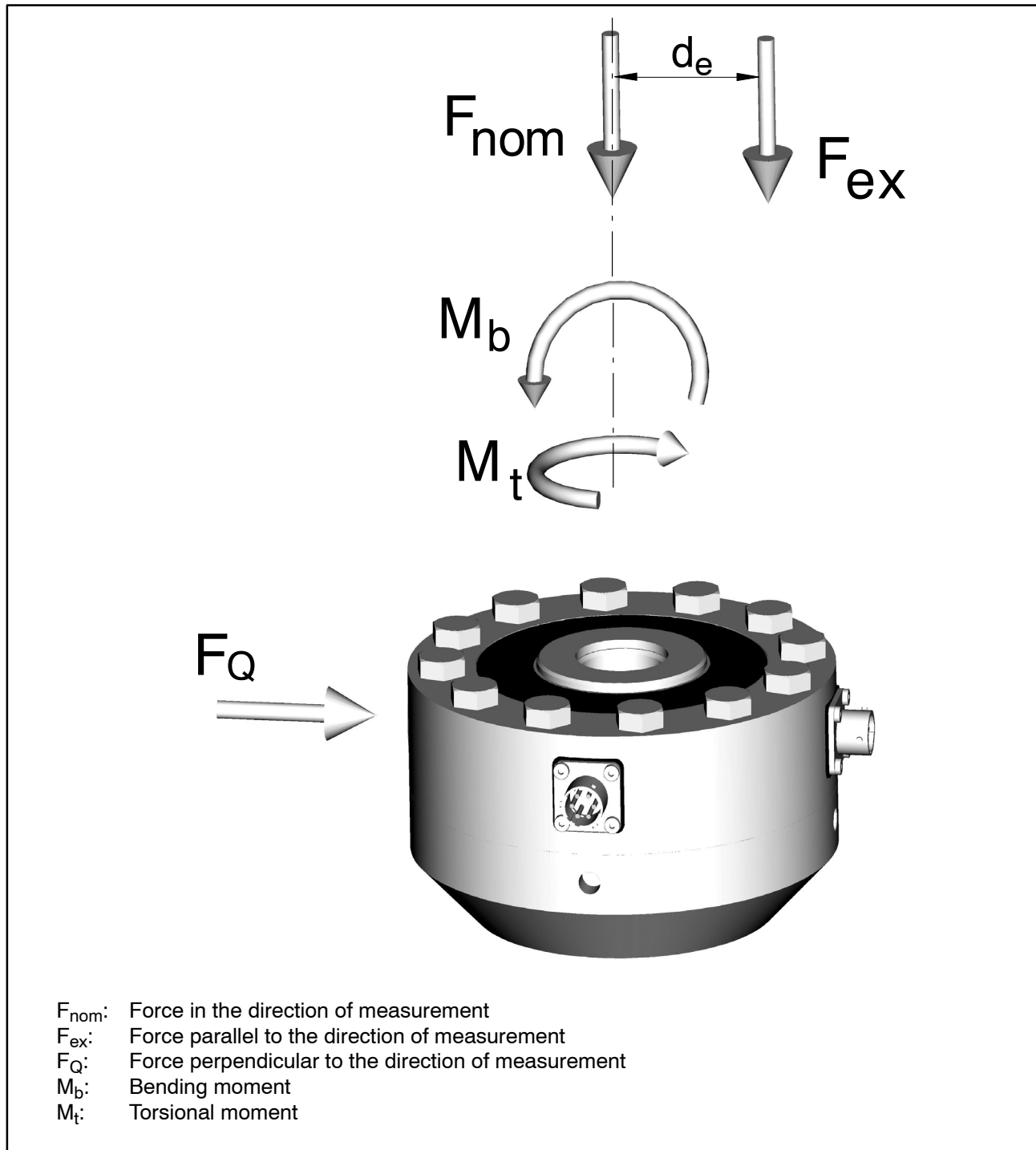


Fig.4.1: Parasitic forces

During installation and while operating the transducer, you must comply with the maximum parasitic forces, the transverse forces and the bending and torsional moments (also see Chapter 7, Specifications).

The strain gage application in the measuring element is enclosed both above and below by covers. These covers must not be put under load or damaged.



CAUTION

To fully utilize the high loading limit of the U10M, adapter parts provided by the customer must be designed accordingly.

4.3 Installation with an adapter

The transducer is bolted directly to an existing structural element (e.g. cross-beam, threaded rod, plate). With this method of installation, the transducers can measure axial forces in tension and compression. Even alternating loads can be recorded perfectly. To do this, the transducer must be installed without axial play. Centering aids on top and underneath the transducer make axial mounting easier.

The useful centering aid on top/underneath corresponds to the dimension P (see Page 23).

The structural elements provided by the customer must be in alignment with the force transducer measurement shaft ¹⁾.

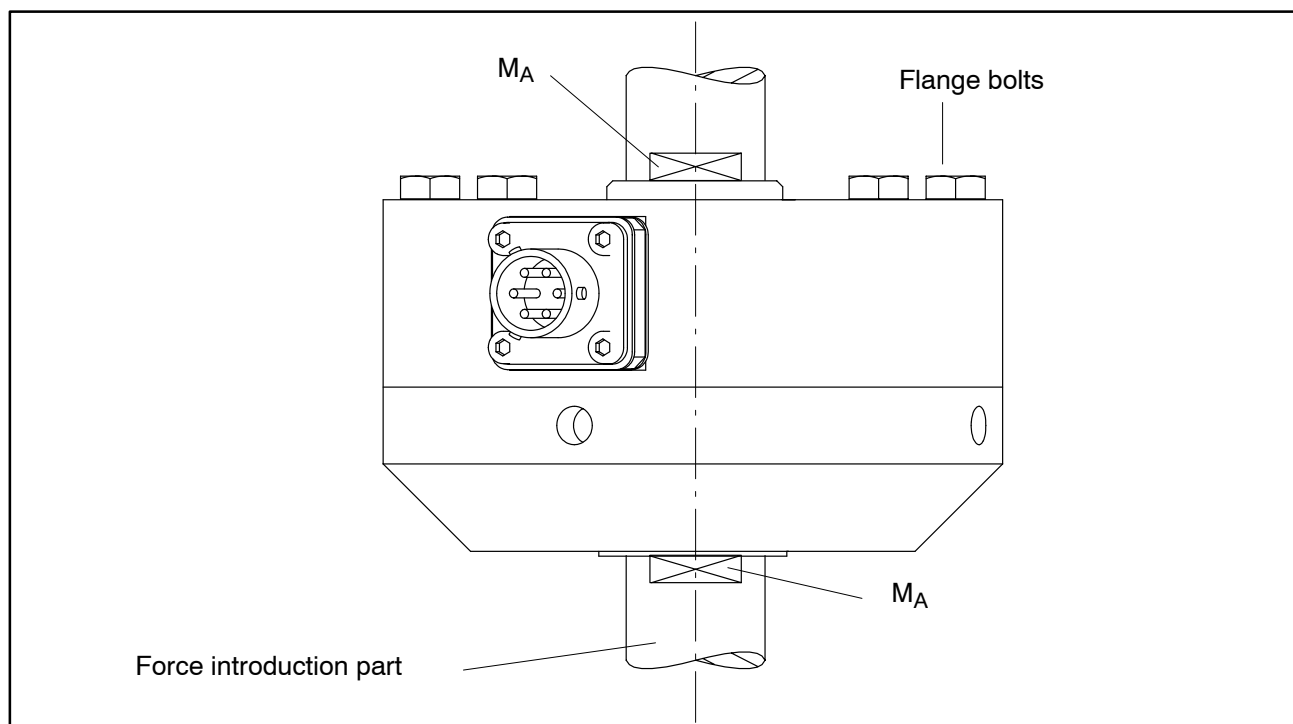


Fig.4.2: Installation with an adapter for tensile/compressive loading

¹⁾ The bolts and threaded rods or knuckle eyes to be screwed into the transducer must have adequate initial stress.

To derive maximum benefit from the holding force of the force application parts provided by the customer, these must have adequate initial stress.

We recommend the following options:

a. Recommended initial stress through the defined tightening torque (for nominal loads up to 25 kN)

- Prestressing the force application part with a defined tightening torque

Engagement depth for all nominal forces up to 25 kN: 26.4 mm.

Nominal force (kN)	Tightening torque M_A (N · m)
1.25	17
2.5	35
5	68
12.5	135
25	135

b. Prestressing through tensile forces (for nominal loads of 50 kN and above)

Screwing in the threaded rod:

- Screw the force introduction part into the transducer (adapter) until it reaches the stop
- Turn the force application part back one rotation
- Load the force transducer to 120 % of the maximum working force
- Tighten the lock nut (M_A , lock with a hook wrench in the holes provided)
- Relieve the force transducer



CAUTION

The flange bolts must not be slackened; otherwise the specifications could differ from the guaranteed values.

4.4 Installation without an adapter

The transducer is bolted directly to an existing structural element (e.g. profile, cover, plate).

With this method of installation, the transducers can measure axial forces in the direction of tension and in the direction of compression. Even alternating loads can be recorded perfectly. To do this, the transducer must be installed without axial play. Centering aids on top and underneath the transducer make mounting easier.

The useful centering aid on top/underneath corresponds to the dimension J (see Page 24). We recommend that you use centering aids to transfer the transverse forces specified in the data sheet.

The structural elements provided by the customer (bearing surfaces) must meet the following conditions:

- They must run parallel to one another.
- They must not be painted.
- They must be sufficiently hard (at least HRC 40).
- They must be sufficiently rigid, so that they do not deflect.
- The flatness of the bearing pad is ideal when a tolerance of 0.005 mm is not exceeded under load.
- The strength of the tapped holes must be such that screws of class 10.9 (for nominal forces 12.5 kN - 500 kN) and 8.8 (for nominal forces of 1.25 - 5 kN) can be used. The screws used should comply with the property class stated in the Table and be tightened at the relevant tightening torque.

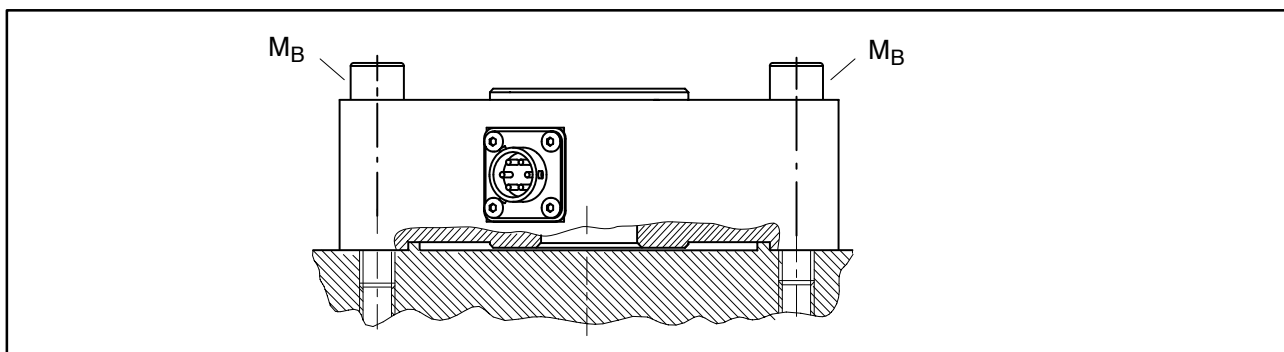


Fig.4.3: Installation without an adapter

Nominal force (kN)	Tightening torque M_B (N · m) ^{*)}	Number	Screws for the transducer fitting			
			Metric	Property class	UNF	Grade
1.25 - 5	9	8	M6	8.8	1/4"	5
12.5 - 25	15	8	M6	10.9	1/4"	8
50 - 125	76	12	M10 x 1.25	10.9	3/8"	8
250	135	16	M12 x 1.25	10.9	1/2"	8
500	320	16	M16 x 1.5	10.9	5/8"	8

^{*)} Screws lightly oiled

5 Electrical connection

Transducers are available with the following electrical connections:

Bayonet lock: plug compatible with MIL-C-26482 Series 1 connectors

Connection cable KAB157-3; IP67, EMC-tested, Order number: 1-KAB157-3

Screw lock: plug compatible with MIL-C-26482 Series 1 connectors

Connection cable KAB158-3; IP64, Order number: 1-KAB158-3

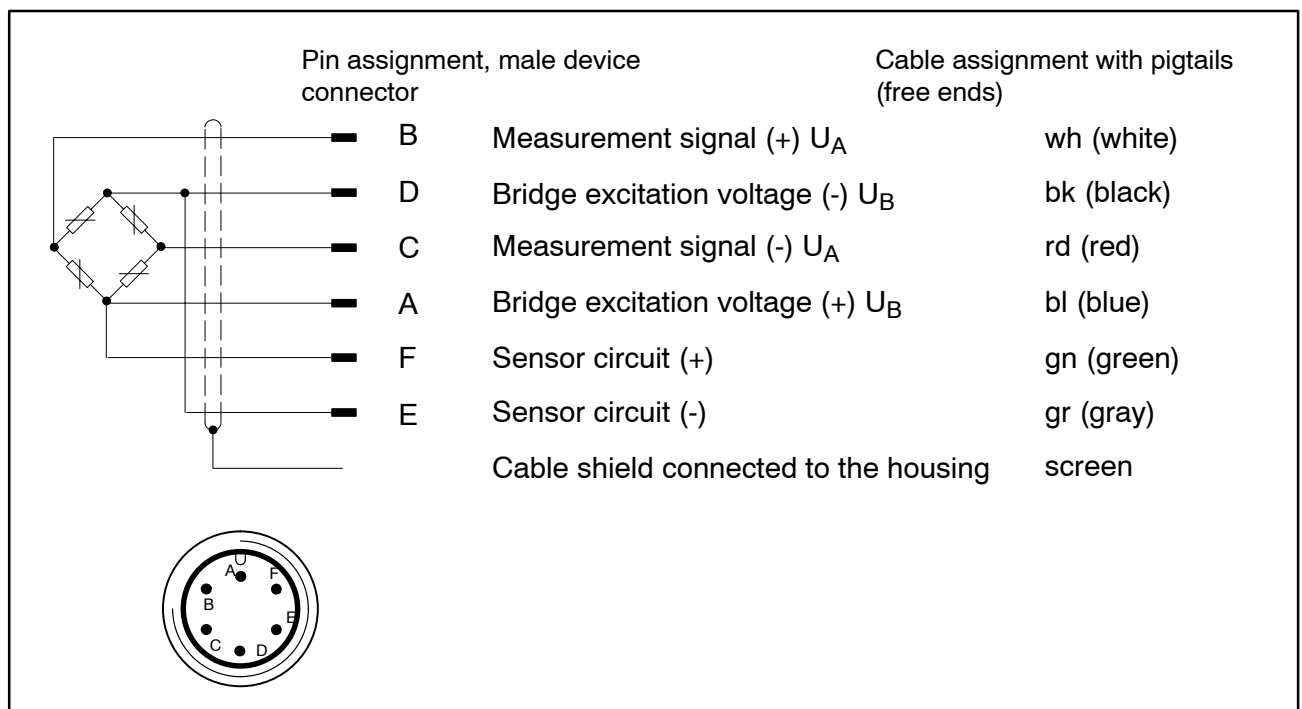


Fig.5.1: Cable assignment KAB 157-3 and KAB 158-3

The cable shield is connected in accordance with the Greenline concept. This encloses the measuring system in a Faraday cage and stops it being affected by electromagnetic interference.

Connectors that meet the CE standard should be fitted to the transducers with free cable ends. Extensive contact should be made with the shielding. With other connection techniques, an EMC-tested screen should be provided in the stranded wire area, with the shielding again making extensive contact (also see the HBM Greenline Information, document G36.35.0).

5.1 Notes on cabling

- Only use HBM shielded, low-capacitance measurement cables.
- Do not route measurement cables parallel to power lines or control circuits. If this is not possible (for example, in cable pits), protect the measurement cable with a steel conduit or similar and keep it at least 50 cm away from all other cables. The power lines or control circuits should be twisted (15 twists per meter).
- Avoid stray fields from transformers, motors and contact switches
- Do not ground the transducer, amplifier and indicator more than once. All the devices in the measurement chain must be connected to the same grounded conductor.
- The connection cable screen is connected to the transducer housing.

Connection to terminals:

1. The screen is accessible through making a cut in the cable sheath
2. Bring the screen into extensive contact with the housing ground.


Connect to a plug connector:

Bring the cable shield into extensive contact with the connector housing.

For cable extension, we recommend pairs of HBM shielded, low-capacitance measurement cables.

6 Versions and order numbers

Code	Measuring range	Order number
1k25	1.25 kN	1-U10M / 1.25 kN
2k50	2.5 kN	1-U10M / 2.5 kN
5k00	5 kN	1-U10M / 5 kN
12k5	12.5 kN	1-U10M / 12.5 kN
25k0	25 kN	1-U10M / 25 kN
50k0	50 kN	1-U10M / 50 kN
125k	125 kN	1-U10M / 125 kN
250k	250 kN	1-U10M / 250 kN
500k	500 kN	1-U10M / 500 kN

 Preferential version, available soon

	Number of measuring bridges	Sensitivity	Calibration	Transducer identification	mechanical version	Plug protection	Plug version bridge A	Plug version bridge B
	Single bridge	not adjusted	100 % (dyn.)	without TEDS	with adapter	without plug protection	Bayonet connector	Bayonet connector
	SB	N	1	S	W	U	B	B
	Dual bridge	adjusted	200 % (stat.)	with TEDS	without adapter	with plug protection	Threaded connector	Threaded connector
	DB	J	2	T	N	P	G	G
K-U10M-	12k5	DB	J	2	T	P	B	G

Number of measuring bridges	For reasons of redundancy, in devices relevant to safety it is necessary to check the plausibility of the measurement signal with a second measuring bridge (applied on the measuring element). The signals are independently conditioned and evaluated using two separate measuring amplifiers.
Sensitivity	The exact nominal (rated) sensitivity is specified on the identification plate. The transducer can also be adjusted to a linear, adjusted sensitivity of 1 mV/V or 2 mV/V (when 200 % calibration is selected: 2 mV/V or 4 mV/V). The rel. sensitivity deviation is then 0.1 % of the nominal (rated) sensitivity. The sensitivity range of a non-adjusted transducer is between 1 and 1.5 or 2 and 2.5 mV/V.
Calibration	In the standard version, the transducer is designed for dynamic application up to a vibration bandwidth of $\pm 100\% F_{nom}$. For quasistatic applications, the transducer can be used up to $200\% F_{nom}$. The option is available to calibrate accordingly to $200\% F_{nom}$.

Transducer identification	TEDS integration (integrated electronic data sheet) in accordance with IEEE1451.4
Mechanical version	The sensitivity is determined at the factory with the bolted-on adapter. The bolted-on adapter ensures the best-possible screw-fastening conditions and allows the transmission of axial force through central internal threads. If this is not used, a sensitivity deviation of < 1 % must be taken into account.
Plug protection	Mechanical protection through the installation of an additional square profile around the connector. Approximate dimensions (in mm): WxHxD: 30x30x20
Plug version bridge A	The standard version is the male device connector with bayonet locking (MIL-C-26482 Series 1 compatible). The option is also available to install a screw-fitting male device connector (MIL-C-26482 Serie 1 compatible).
Plug version bridge B	The standard version is the male device connector with bayonet locking (MIL-C-26482 Series 1 compatible). The option is also available to install a screw-fitting male device connector (MIL-C-26482 Serie 1 compatible). Both these connection variants are often used for differentiation in the dual-bridge version.

Accessories

Cables/Plugs

Connection cable KAB157-3; IP67, (with bayonet lock);
3 m long; TPE outer sheath; 6 x 0.25 mm²; free ends;
shielded

Order number:

1-KAB157-3

Connection cable KAB158-3; IP64, (with screw lock);
3 m long; TPE outer sheath; 6 x 0.25 mm²; free ends;
shielded

1-KAB158-3

Grounding cable (400 mm long)

1-EEK4

Grounding cable (600 mm long)

1-EEK6

Grounding cable (800 mm long)

1-EEK8

7 Specifications (VDI/VDE2638)

Nominal (rated) force	F_{nom}	kN	1.25	2.5	5	12.5	25	50	125	250	500
Nominal (rated) sensitivity	C_{nom}	mV/V	1 ... 1.5 ¹⁾			2 ... 2.5 ¹⁾					
Rel. zero signal tolerance	$d_{s,0}$	%	1								
Relative reversibility error (0.4 F_{nom}) ²⁾	$u_{0.4}$	%	$\leq \pm 0.075$		$\leq \pm 0.1$		$\leq \pm 0.125$		$\leq \pm 0.15$		
Rel. reversibility error relative to sensitivity ¹⁾		%	$\leq \pm 0.03$		$\leq \pm 0.04$		$\leq \pm 0.05$		$\leq \pm 0.06$		
Relative repeatability error without rotation		%	$\leq \pm 0.025$								
Linearity deviation	d_{lin}	%	$\leq \pm 0.03$			$\leq \pm 0.04$			$\leq \pm 0.06$		
Temperature influence on sensitivity/10K relative to sensitivity	TK_c	%	$\leq \pm 0.015$								
Temperature influence on zero signal/10 K relative to sensitivity	TK_0	%	$\leq \pm 0.015$								
Bending moment influence (at 10 % x F_{nom} x 10 mm)	d_Q	%	$\leq \pm 0.015$								
Relative creep over 30 min	d_{crF+E}	%	$\leq \pm 0.04$		$\leq \pm 0.025$						
Input resistance	R_i	Ω	> 345								
Output resistance	R_o	Ω	280 ... 360								
Insulation resistance	R_{is}	Ω	$> 5 \times 10^9$								
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	$B_{t,nom}$	$^{\circ}C$	-10 ... +45								
Operating temperature range	$B_{t,G}$	$^{\circ}C$	-30 ... +85								
Storage temperature range	$B_{t,S}$	$^{\circ}C$	-30 ... +85								
Reference temperature	t_{ref}	$^{\circ}C$	+23								

¹⁾ Option: Adjustment of sensitivity to 2 mV/V (or 1 mV/V)

²⁾ Specifications at 200 % are typically at nominal force

Nominal (rated) force	F_{nom}	kN	1.25	2.5	5	12.5	25	50	125	250	500
Maximum operating force ⁷⁾	(F_G)	%	230								
Breaking force	(F_B)	%	> 400								
Static lateral limit force (transducer with adapter) ³⁾⁵⁾⁷⁾	(F_Q)	%	100								
Maximum permissible torque ⁵⁾⁷⁾	M_t	kN · m	30	60	125	315	635 ⁴⁾	1270	3175 ⁴⁾	5715	11430
Maximum permissible bending moment ⁵⁾⁷⁾	M_b	kN · m	30	60	125	315	635	1270	3175	5715	11430
Weight with adapter without adapter		kg	1.2			3		10		23	60
		kg	0.5			1.3		5		11	28
Rel. permissible vibrational stress to DIN 50100	F_{rb}	%	200								
Interference immunity (EN61326-1, Table A.1) Electromagnetic field (AM) Electrostatic discharge (ESD) Contact discharge Air discharge Burst (rapid transients) Surge (impulse voltages) Conducted interference		V/m	10								
		kV	4								
		kV	8								
		kV	2								
		kV	1								
		V	10								
	Degree of protection to DIN EN 60529			IP67							
Natural frequency	f_G	kHz	4.5	5.9	9.3	6.6	9.2	6.5	8.1	6.6	6.1
Nominal displacement	s_{nom}	mm	0.02			0.03			0.04	0.05	0.06

³⁾ Pure lateral force (relative to $V/2$)

⁴⁾ Transducer with 25 kN adapter: 3700 N · m; 125 kN: 2640 N · m

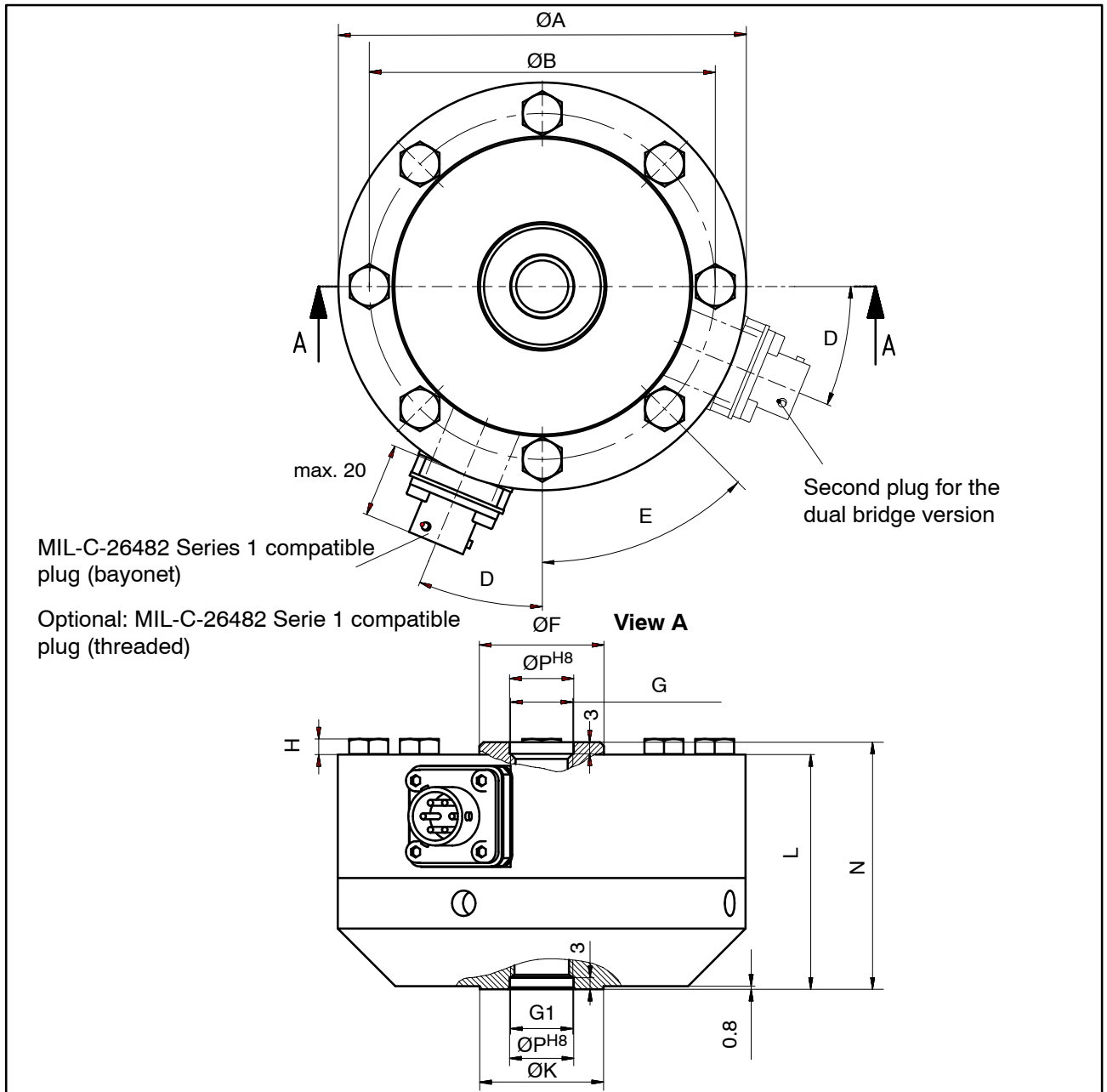
⁵⁾ See section 4.2

⁶⁾ For version with inserted bayonet connector

⁷⁾ Each additional static stress (bending moment, torque moment or pure lateral force) can only be permitted with its given load limit if none of the others can occur. Otherwise the limit values must be reduced. If for instance 40 % of the bending moment and also 40 % of the lateral limit force are present, only 20 % of the torque moment are permitted, provided that the nominal (rated) force is not exceeded.

8 Dimensions (in mm; 1 mm = 0.03937 inches)

8.1 Dimensions of the U10M with adapter

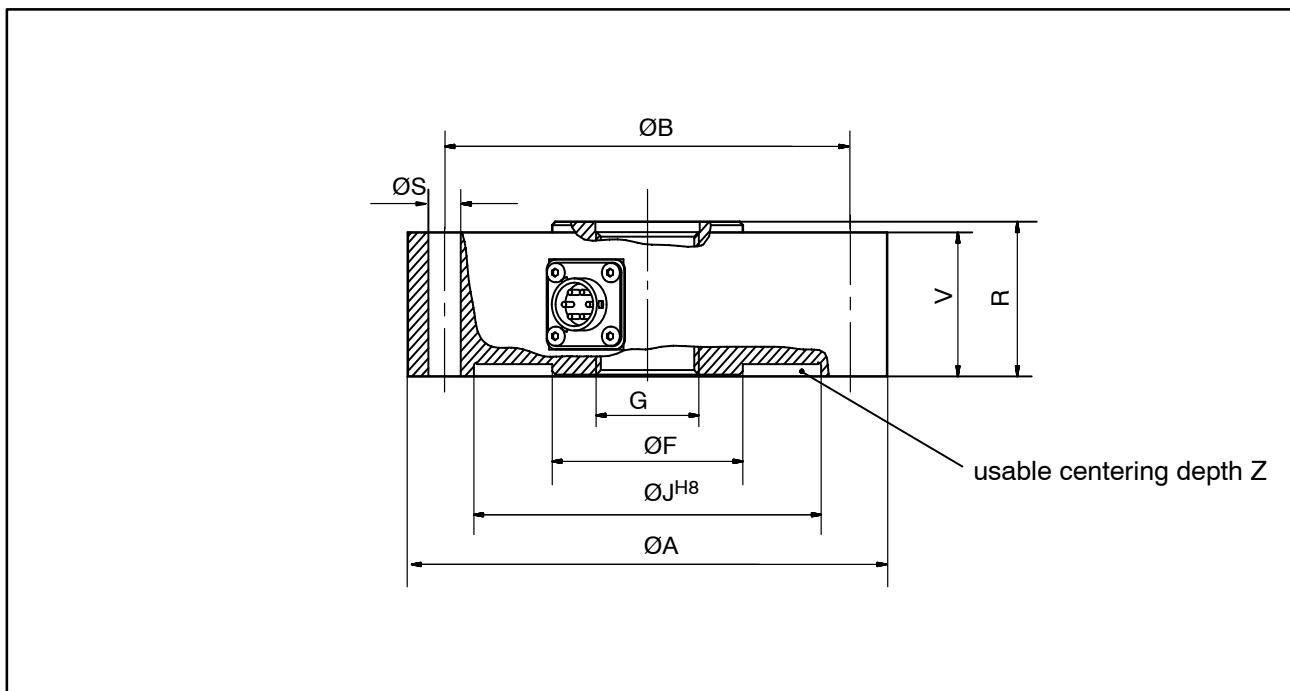


Nominal force	$\varnothing A$	$\varnothing B$	D	E	$\varnothing F$	G
up to 25 kN	104.8	88.9	22.5°	45°	30.4 ¹⁾	M16x2-4H 28.4 deep
50 to 125 kN	153.9	130.3	15°	30°	61.2 ²⁾	M33x2-4H 35.6 deep
250 kN	203.2	165.1	11.25°	22.5°	95.5	M42x2-4H 54.6 deep
500 kN	279	229	11.25°	22.5°	122.2	M72x2-4H 82.6 deep

Nominal force	G1	H	$\varnothing K$	L	N	$\varnothing PH8$
up to 25 kN	M16x2-4H 22.1 deep	4	31.8	60.3	63.5	16.5
50 to 125 kN	M33x2-4H 35.6 deep	6.4	57.2	85.9	89	33.5
250 kN	M42x2-4H 44.5 deep	7.5	76.2	108	114.3	43
500 kN	M72x2-4H 69.8 deep	10	114	152.4	165.1	73

1) 1.25 kN and 25 kN: 31.5
 2) 125 kN: 67.3

8.2 Dimensions of the U10M without adapter



Nominal force	$\varnothing A$	$\varnothing B$	$\varnothing S$	$\varnothing F$	$\varnothing JH8$	G	V	R	Z
1.25	104.8	88.9	6.8	30.4	78	M16x2-4H	31.7	34.9	2.5
2.5				30.4					
5				30.4					
12.5				31.5					
25				31.5					
50	153.9	130.3	10.4	61.2	111.5	M33x2-4H	41.4	44.5	2.5
125				67.3					
250	203.2	165.1	13.5	95.5	143	M72x2-4H	57.2	63.5	3.5
500	279	229	16.8	122.2	175	M72x2-4H	76.2	88.9	6

8.3 Installed dimensions of connection variants

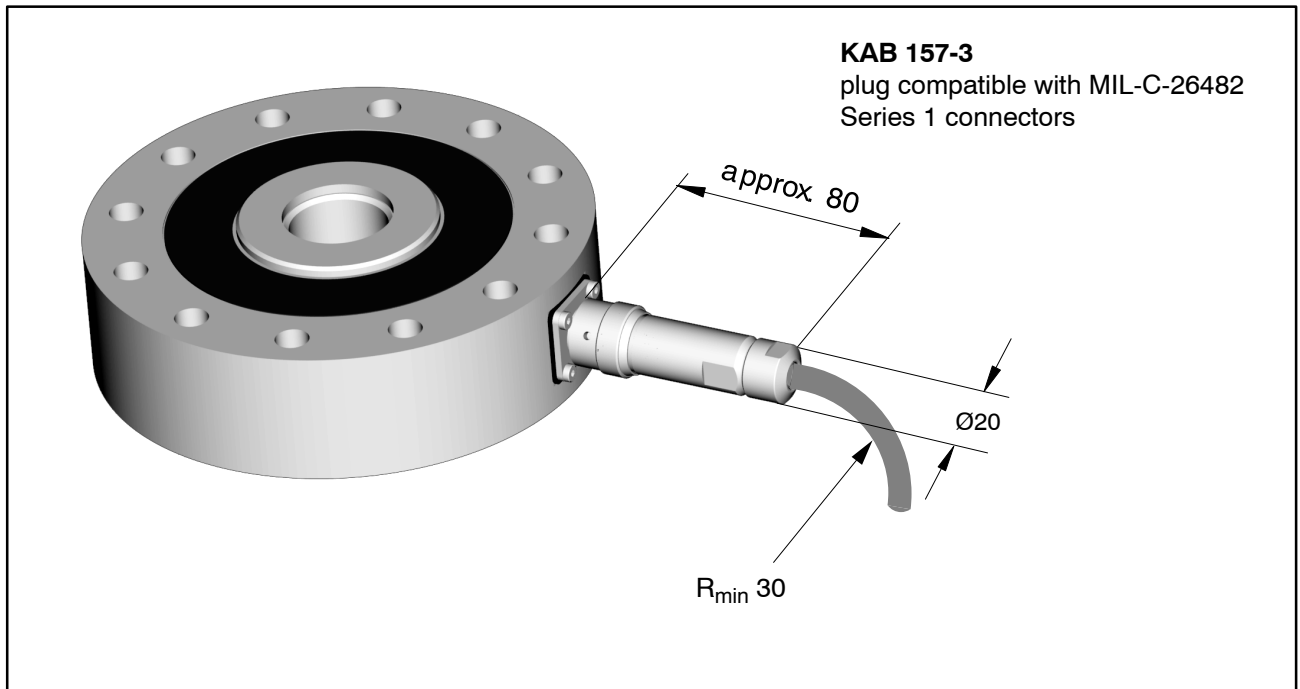


Fig. 8.1: Space for the bayonet locking connector

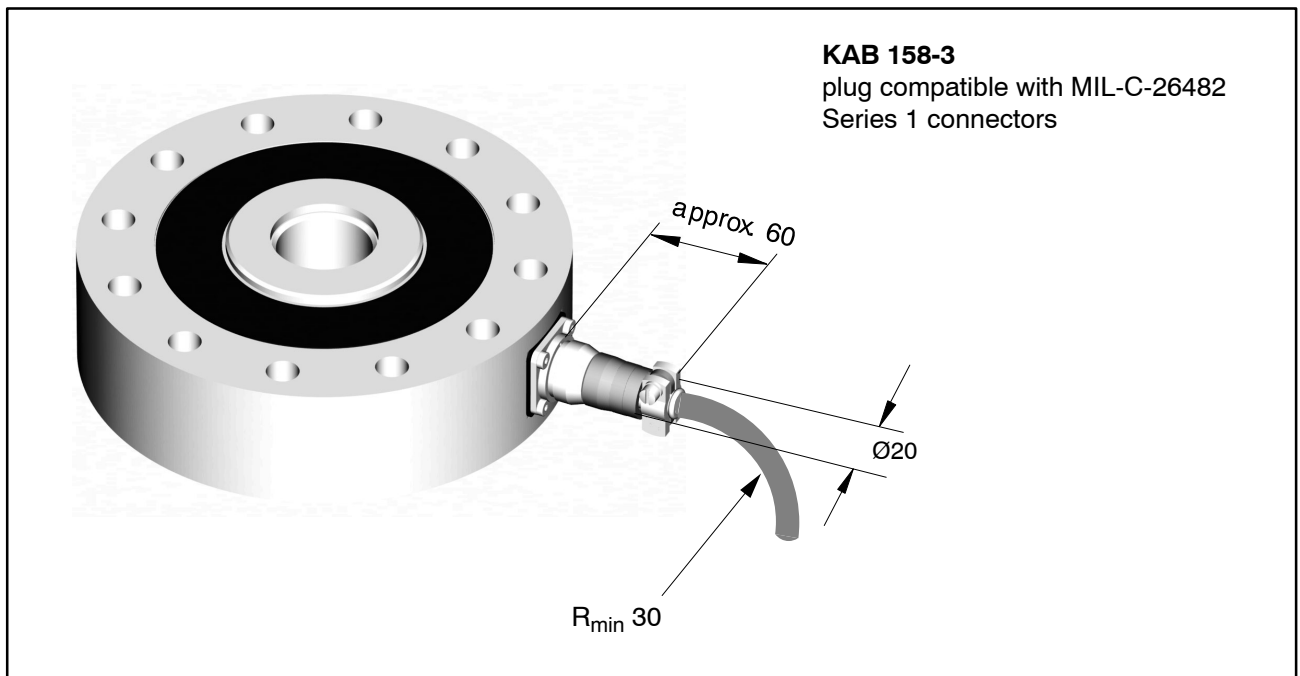


Fig. 8.2: Space for the screw locking connector

9 Declaration of Conformity



Hottinger Baldwin Messtechnik GmbH

Im Tiefen See 45 - D-64293 Darmstadt
Tel. ++49/6151/803-0, Fax. ++49/6151/894896

Konformitätserklärung

Declaration of Conformity

Déclaration de Conformité

Document: 229/07.2004

Wir,

We,

Nous,

Hottinger Baldwin Messtechnik GmbH, Darmstadt

erklären in alleiniger Verantwortung,
dass das Produkt

declare under our sole
responsibility that the product

déclarons sous notre seule
responsabilité que le produit

Kraftaufnehmer

Typenreihe U10

auf das sich diese Erklärung
bezieht, mit der/den folgenden
Norm(en) oder normativen
Dokument(en) übereinstimmt (siehe
Seite 2) gemäß den Bestimmungen
der Richtlinie(n)

to which this declaration relates is
in conformity with the following
standard(s) or other normative
document(s) (see page 2)
following the provisions of
Directive(s)

auquel se réfère cette déclaration
est conforme à la (aux) norme(s) ou
autre(s) document(s) normatif(s)
(voir page 2) conformément aux
dispositions de(s) Directive(s)


89/336/EWG - Richtlinie des Rates vom 3. Mai 1989 zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit, geändert durch 91/263/EWG, 92/31/EWG, 93/68/EWG und 93/97/EWG

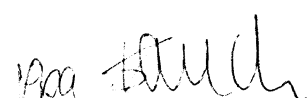
Die Absicherung aller produkt-spezifischen Qualitätsmerkmale erfolgt auf Basis eines von der DQS (Deutsche Gesellschaft zur Zertifizierung von Managementsystemen) seit 1986 zertifizierten Qualitätsmanagementsystems nach DIN ISO 9001 (Reg. Nr. DQS-000001). Die Überprüfung der sicherheitsrelevanten Merkmale (Elektromagnetische Verträglichkeit, Sicherheit elektrischer Betriebsmittel) führt ein von der DATech erstmals 1991 akkreditiertes Prüflaboratorium (Reg. Nr. DAT-P-006 und DAT-P-012) unabhängig im Hause HBM durch.

All product-related features are secured by a quality system in accordance with DIN ISO 9001, certified by DQS (Deutsche Gesellschaft zur Zertifizierung von Managementsystemen) since 1986 (Reg. No. DQS-000001). The safety-relevant features (electromagnetic compatibility, safety of electrical apparatus) are verified at HBM by an independent testing laboratory which has been accredited by DATech in 1991 for the first time (Reg. Nos. DAT-P-006 and DAT-P-012).

Chez HBM, la détermination de tous les critères de qualité relatifs à un produit spécifique est faite sur la base d'un protocole DQS (Deutsche Gesellschaft zur Zertifizierung von Managementsystemen) certifiant, depuis 1986, notre système d'assurance qualité selon DIN ISO 9001 (Reg. Nr. DQS-000001). De même, tous les critères de protection électrique et de compatibilité électromagnétique sont certifiés par un laboratoire d'essais indépendant et accrédité depuis 1991 (Reg. Nr. DAT-P-006 et DAT-P-012).

Darmstadt, 2004-07-08


Roland Seebauer


Dr. Wolfgang Bauch

Document: 229/07.2004

Diese Erklärung bescheinigt die Übereinstimmung mit den genannten Richtlinien, beinhaltet jedoch keine Zusicherung von Eigenschaften.

Die Sicherheitshinweise der mitgelieferten Produktdokumentation sind zu beachten.

Folgende Normen werden zum Nachweis der Übereinstimmung mit den Vorschriften der Richtlinie(n) eingehalten:

EN 61326 : 1997
+ A1 : 1998 + A2 : 2001

Elektrische Betriebsmittel für Leittechnik und Laboreinsatz - EMV-Anforderungen;
Deutsche Fassung

This declaration certifies conformity with the Directives listed above, but is no asseveration of characteristics.

Safety directions of the delivered product documentation have to be followed.

The following standards are fulfilled as proof of conformity with the provisions of the Directive(s):

Cette déclaration atteste la conformité avec les directives citées mais n'assure pas un certain caractère.

S.v.p. observez les indications de sécurité de la documentation du produit ajoutée.

Pour la démonstration de la conformité aux disposition de(s) Directive(s) le produit satisfait les normes:

Subject to change without notice.
All product descriptions are for general information only. They do not represent any form of guarantee under the law and constitute no form of liability.

Hottinger Baldwin Messtechnik GmbH

Postfach 10 01 51, D-64201 Darmstadt, Germany
Im Tiefen See 45, D-64293 Darmstadt, Germany
Tel.: 061 51/ 8 03-0; Fax: 061 51/ 8039100
E-mail: support@hbm.com www.hbm.com



measurement with confidence