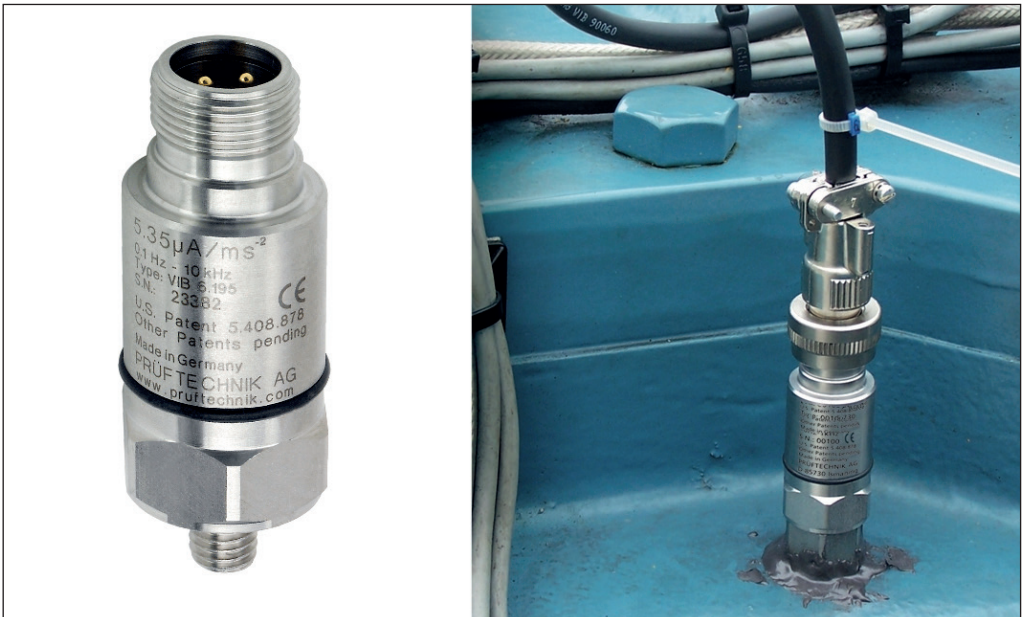


Accelerometer (Wind) **VIB 6.195**

Installation and Operation



Accelerometers of the VIB 6.195 series are used for the measurement of absolute casing vibrations on machinery with rotating components. Due to the very low limit frequency, the accelerometers are particularly suitable for very slowly rotating components ($n \geq 6$ rpm) such as the main bearings of a wind turbine.

The accelerometers have a current linedrive output (CLD).

Safety Information

- Read these operating instructions carefully and store them.
- Observe the operating instructions of the connected devices.
- Read and observe the safety information in these operating instructions!
- Only use the accelerometer as intended and for the permitted purpose of application.
- Use original accessories only.
- Replace defective accelerometers and cables.
- Installation by qualified personnel only.
- Comply with the applicable safety regulations when performing installation work on running machines.
- Comply with the applicable safety regulations when laying cables.
- Observe the technical data and the allowed operating conditions. In case of doubt, consult with PRUFTECHNIK.
- The accelerometer is in compliance with European Directive 2004/108/EC. The complete Declaration of Conformity is available at www.pruftechnik.com.

Repair and Maintenance

The operation of the accelerometer is maintenance-free. A repair is not possible.

Disposal

Dispose of the accelerometer after use in accordance with applicable national regulations.

Mounting

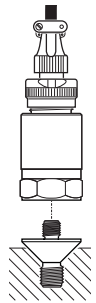
The frequency response and dynamic range of an accelerometer can be greatly influenced by the installation. Poor coupling to the measurement location can adversely affect the signal and restrict the frequency range. In principle, the accelerometer needs a non-positive, resonance-free and rigid fastening to the measurement location, especially for measurements with high frequencies.

The most secure and stable coupling is provided by a screwed mounting, for which a M8 threaded pin is attached to the accelerometer base by default. For this accelerometer series, depending on the requirements on site, various mounting adapters are available as an accessory.

Mounting adapters

- Screw adapter M8-90°, VIB 3.437 ($h^* = 4$)
- Screw adapter M5-flat, VIB 3.439 ($h^* = 1$)
- Bonded adapter, VIB 3.433 ($h^* = 8$)
- Magnetic holder, VIB 3.423 ($h^* = 10$)

* h^* : Installation height in mm, only adapter

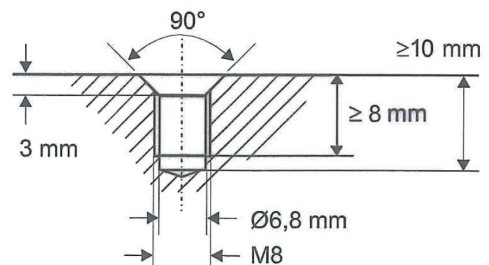


Accelerometer / Screw adapter

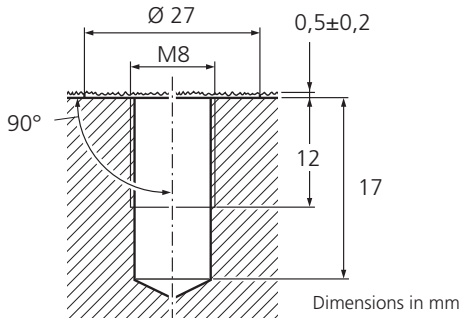
Required tools and resources

- Hand-held drill
- Drill bits with depth gauge (4.2 mm / 6.8 mm)
- Thread tap (M8/M5)
- 90°-countersink (for VIB 3.437)
- Torque wrench, SW22
- Compressed air for cleaning out the hole
- Solvent for degreasing
- Threadlocker (e.g., LOCTITE 243)
- Drill the mounting hole and cut the thread.

Thread hole for screw adapter VIB 3.437



Thread hole for accelerometer VIB 6.195



- Clean the contact surfaces of the accelerometer / adapter and of the machine with solvent.
- Allow the contact surfaces to dry.
- Apply a thin film of threadlocker (LOCTITE 243) to improve signal transmission.
- Screw in the accelerometer / adapter and tighten with a wrench.

Maximum torque:

- 11 Nm, accelerometer VIB 6.195 w/ M8 thread
- 11 Nm, adapter VIB 3.437
- 3 Nm, adapter VIB 3.439

- Screw in the accelerometer by hand (3 to 7 Nm).

Notes

Excessive torque can damage the threads on the accelerometer or machine part. Too little torque can allow the accelerometer to work loose and cause measurement errors!

If the accelerometer is affixed to non-grounded machine components (e.g. belt-driven fan), the accelerometer must be grounded to prevent static charges.

Adhesive mounting

Applies to bonded adapter VIB 3.433.

Required tools and resources

- Hand-held drill and drill bit (3.5 mm)
- Angle grinder and rasp
- Compressed air for cleaning out the hole.
- Torque wrench with 22 mm / 7/8" hex socket
- Solvent for degreasing
- Threadlocker (LOCTITE 243)
- 2-Component adhesive (WEICON HB 300,..)

Note

Switch off the machine and secure it against a restart. Do not switch on the machine until the adhesive has hardened (approx. 24 hours).

Select the point of installation

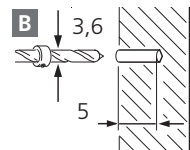
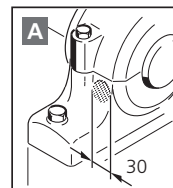
- Allow sufficient space for applying the adhesive with a wooden spatula.

Prepare bonding location

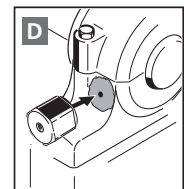
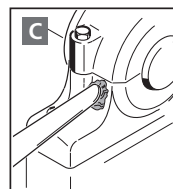
- Grind down existing coats to the bare metal ($\text{Ø} > 30 \text{ mm}$, **A**).
- If necessary, grind down the location (**A**).
- Sand down the point of installation with a rasp and file several grooves in a diamond pattern for greater adhesive strength (**A**).

Optionally, and only if drilling is possible:

- Drill hole for centering pin: 3.6 mm / 5 mm deep (**B**). Remove the centering pin from the mounting adapter if drilling is not possible.
- Blow out the hole.
- Clean the contact surfaces of the mounting adapter and the machine with solvent.
- Allow contact surfaces to dry.



Dimensions in mm



Apply adhesive

- Prepare the adhesive for use.
- Apply the adhesive with a wooden spatula evenly to the base of the mounting adapter and the bonding location (approx. 1 mm thick, **C**).

Affix mounting adapter

- Press the adapter gently against the bonding location and turn it to evenly distribute the adhesive. If applicable, screw in the centering pin (**D**).
- Do not remove excess adhesive. If necessary, apply additional adhesive around the bonding location for greater stability.

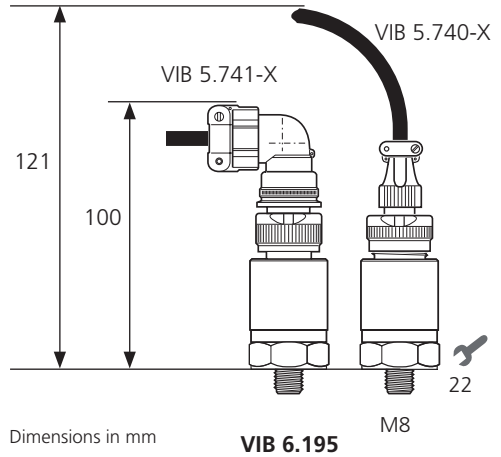
Note

An adhesive tape may be used to hold the adapter in place during the first hour of hardening.

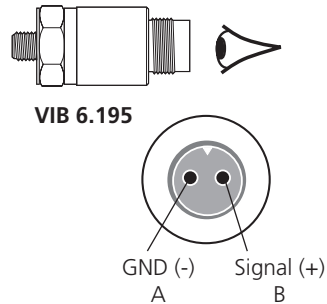
Mount sensor

- Clean the contact surfaces of the sensor and the adapter with solvent.
- Allow contact surfaces to dry.
- Thinly apply LOCTITE 243 to improve signal transmission.
- Screw in the sensor and tighten with a torque wrench (3 Nm).
- Check the sensor for tight mechanical fit.

Installation height



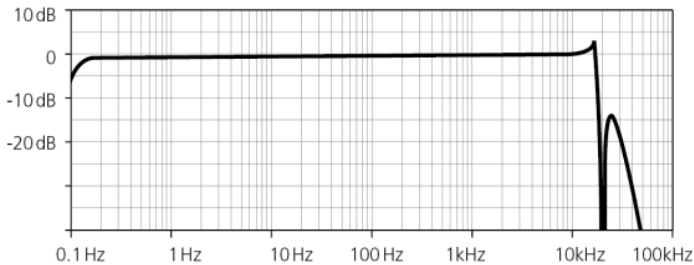
Pin allocation, accelerometer



Technical Data

PARAMETER		VIB 6.195
Measurement	Signaling system	Current Line Drive (CLD)
	Transmission factor $\pm 4\%$ (Ref.: 159 Hz; 25 °C [77°F])	5.35 $\mu\text{A}/\text{ms}^{-2}$ [52.43 $\mu\text{A}/\text{g}$]
	Frequency range $\pm 3\text{dB}$	0.1 Hz ... 10kHz
	Resonance frequency	17kHz; > 10 dB damped
	Linearity range $\pm 10\%$	$\pm 450 \text{ ms}^{-2}$ [$\pm 46\text{g}$] (r.m.s.)
Electrical	Power supply	> 10 mA / 7-18 VDC
	Noise (0,1 Hz - 20 kHz)	< 0.002 ms^{-2} (as of 2 Hz)
	Output impedance	< 10 Ohm
Environment	Degree of protection	IP 67 w/ cable connected
	Shock resistance	< 50 kms^{-2} [5000 g]
	Temperature range	-30 °C ... +80 °C [-22 °F ... + 176 °F]
	Temperature sensitivity	< 0.01 ms^{-2}/K
	Transverse sensitivity	< 5%
	Magnetic sensitivity	< 1 ms^{-2}/T (at 50 Hz)
	Base strain sensitivity	< 0.1 $\text{ms}^{-2}/\mu\text{m}/\text{m}$
Mechanical	Case material	Stainless steel VA 1.4305
	Connector type	Cable connector, 2-pole (MIL-C-5015)
	Weight	85 g [3 oz]
	Mounting thread	M8 thread bolt (changeable); mounting adapter optional

Frequency output - VIB 6.195



Electrical connection

Only electricians are allowed to install accelerometers. Comply with the national and international regulations for the installation of electrical equipment.

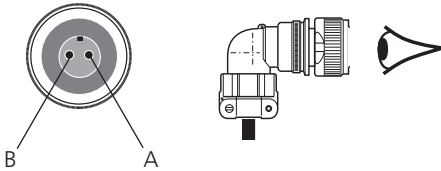
For the electrical connection to a **stationary** condition monitoring system (CMS), the following connection cables are suitable.

For accelerometer **VIB 6.195**:

- Sensor cable with silicon coating and straight cable connector, X meters long, **VIB 5.740-X**
- Sensor cable with silicon coating and angled cable connector, X meters long, **VIB 5.741-X**
- Sensor cable with PUR coating and straight cable connector, stainless steel, X meters long, **VIB 5.746-L**
- Sensor cable with PUR coating and angled cable connector, X meters long, **VIB 5.745-L**

Please find the technical data of the cables in the sensor and cable catalogue, which you can download from the PRUFTECHNIK website (www.pruftechnik.com).

Pin allocation, cable



CABLE	VIB 5.740-X VIB 5.741-X		VIB 5.745-L VIB 5.746-L	
	A	B	A	B
Pin				
Color code	BN	BU	WT	BN

BN: brown / BU: blue / WT: white / BK: black

Lay the cable

- Lay the cable in a cable conduit or a protective tube.
- Use Velcro strips or cable ties for mounting.
- Do not lay the connection cable parallel to power lines. Keep a minimum distance (> 1m).
- Lay a cable loop with sufficient excess cord at each connection or before each gland.
- Label the cable ends to avoid confusion.
- Observe the terminal assignments on the CMS (see CMS installation manual).

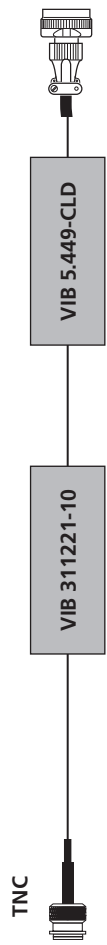
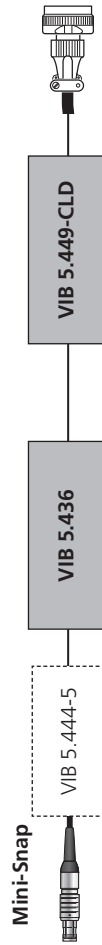
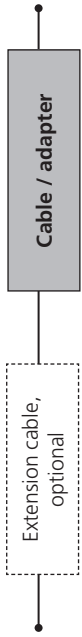
Extend the cable

- Observe the maximum cable lengths (see CMS installation manual).
- Use shielded, 2-wire electrical cables for extension.
- Connect the cable ends in a junction box.
- Mount a metal junction box electrically insulated.

EMC protection

- Use double-shielded triaxial cables in environments exposed to strong electromagnetic radiation.
- Keep the accelerometer connection cable as short as possible.
- Connect the triaxial cable and the accelerometer connection cable in a junction box.
- Mount the junction box close to the accelerometer.

Connection options for accelerometer VIB 6.195 to portable measurement devices





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Productive maintenance technology