



Brüel & Kjær Vibro



Velocity sensors

Quality products from a single source

For more than 50 years Brüel & Kjær Vibro has been a leading manufacturer of vibration measuring instruments and machine condition monitoring systems.

Brüel & Kjær Vibro offers its customers world-wide services and a rapid and budget-conscious supply of system solutions.

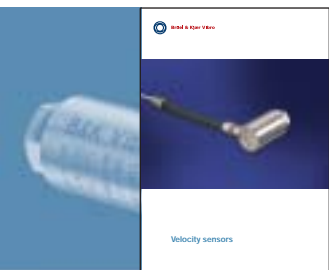
For measurement and monitoring of mechanical vibration in rotating machines, the technically correct acquisition of measurements is of decisive importance.

The right sensor for your measurement task!

The prodigious programme of sensors from Brüel & Kjær Vibro offers the most suitable solution for every application.

Velocity sensors for measurement of

- absolute case vibration
- absolute bearing vibration



Displacement sensors and inductive displacement sensors for measurement of

- relative shaft vibration
- relative shaft position
- absolute and relative expansion
- speed and phase position
- eccentricity



All brochures are available in PDF-file format from:
www.bkvvibro.com

Brüel & Kjær Vibro reserves the right to change specifications and accessories without prior notification.

Velocity sensors

Range of application

The velocity sensors of Brüel & Kjær Vibro measure mechanical vibrations in the **frequency range 1 Hz to 2,000 Hz**. Their high level of reliability has been proven through long-term installations in industry.

Velocity sensors are used for measurement of the

- absolute casing vibrations
- absolute bearing vibrations

in machines.

Coordinated solutions

The resonant frequencies of the velocity sensors are at 8 Hz or 15 Hz depending upon their different constructional features. Through electronic linearization of the respective frequency range it is possible to also measure vibrations that lie well below these resonant frequencies with high accuracy. The measuring and monitoring instruments of Brüel & Kjær Vibro operate with linearization circuits which are exactly tuned to the characteristics of our velocity sensors.

The essential advantages

- Selection of the adequate velocity sensor for the application from a variety of different constructional types for
 - high temperatures,
 - explosive and hazardous areas and
 - underwater applications
- High suitability for industrial utilization through the stainless-steel casing
 - oil-, water- and dust-tight,
 - low sensitivity to disturbing influences,
 - suitable for use in a chemically aggressive environment and
 - low sensitivity to external magnetic fields through special construction
- Simple mounting
 - Through the central threaded facility of the sensor as well as the technically suitable installation accessories, cable and protective conduit
- Convenient connection to the measuring instruments
 - the active velocity sensor requires no power and
 - delivers a high output voltage at a low internal resistance



Technical data of the velocity sensor

Measurement direction	horizontal	vertical	horizontal & vertical
Operating conditions	Order code		
Standard for permanent installations	VS-068	VS-069	VS-077
Extended temperature range			VS-079
Ex-areas ¹⁾	VS-0168	VS-0169	VS-0177
Underwater (to 50 m depth)	VS-288	VS-289	VS-277
For portable use			VS-080

1) marking  II 2 G Ex d IIC T6  II 2 D Ex tD A21 IP 66 T=85°C

Measurement and electrical properties

Measurement principle	electro-dynamic sensor	electro-dynamic sensor
Op. frequency range	10 Hz ... 2000 Hz	20 Hz ... 2000 Hz
with linearization	1 Hz ... 2000 Hz	1 Hz ... 2000 Hz
Transmission factor $f = 80 \text{ Hz}, R_L = 1 \text{ M}\Omega$	100 mV/mm/s	75 mV/mm/s (VS-079: 70 mV/mm/s)
Transverse sensitivity	< 7 %	< 5 %
Resonant frequency f_0	8 Hz +/- 10 %	15 Hz +/- 2 %
Max. permissible vibration displacement	± 0.45 mm	+/- 1 mm
Output impedance	4 kΩ	3 kΩ

Operating temperature range

-40 ... +80 °C	•			•			•				•
-40 ... +200 °C							•				
-10 ... +70 °C		•		•				•			
-20 ... +50 °C			•			•				•	

Protection class

IP 65		•		•				•			
IP 66	•	•		•	•		•	•	•		
IP 68 (5 bar)			•			•				•	
IP 44											•

Weight (without cable)

approx. 500 g	•	•	•	•	•	•	•	•	•	•	
approx. 300 g											•

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Electrical connection

Integrated cable with open ends	•	•	•	•	•	•	•	•	•	•	
BNC plug (inverse polarity)											•

Cable execution

2-core, PTFE, length 5 m ²⁾	•		•			•	•				
3-core, PVC, length 10 m		•		•				•			
2-core, PUR, length 50 m			•		•				•		
With steel protective conduit	•		•			•	•				
Without steel protective conduit		•	•		•	•			•		
Cable must be ordered separately											• ³⁾

2) 10 m cable length on enquiry

3) e.g. Cable 5 m length: AC-435 (BNC to Tuchel plug) or AC-183/05 (BNC to BNC)

Sensor mounting

Central threaded M 10	•	• ⁴⁾		•	•		•	•	•		
Central threaded M 8			•			•				•	• ⁵⁾

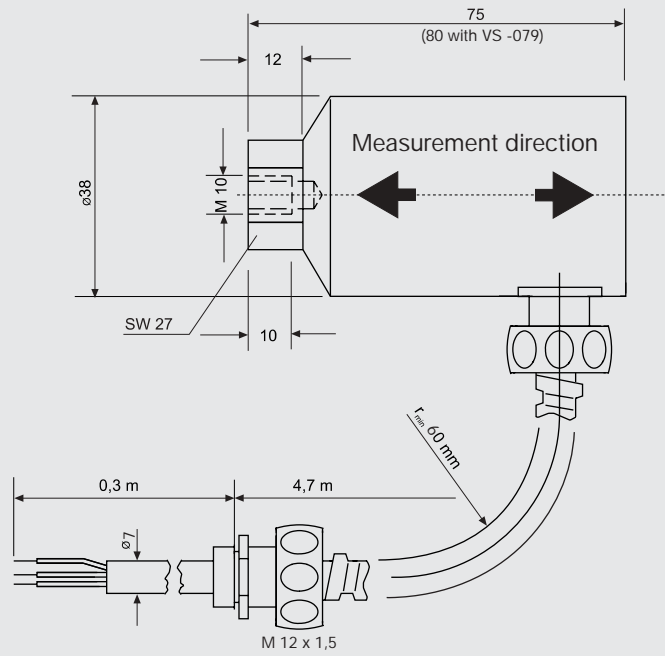
4) can also be supplied as VS-0188 with central thread M 8

5) typically by means of a magnetic head, (AC-172, AC-273) or probe (AC-171, AC-172)

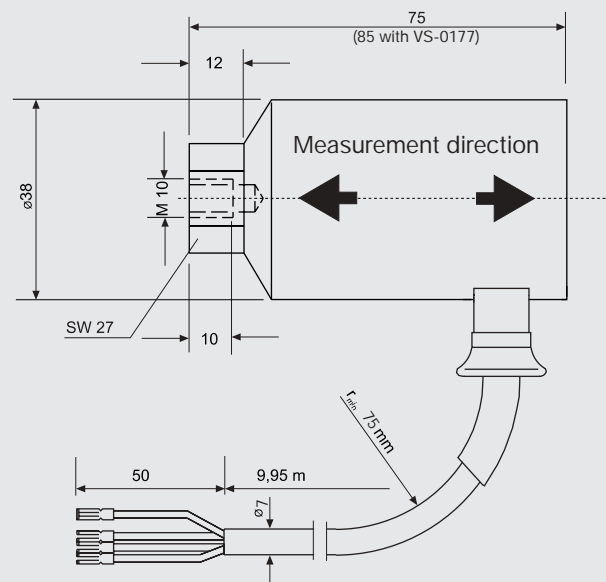
Velocity sensors

Types and dimensions

VS-068
VS-069
VS-077
VS-079



VS-0168
VS-0169
VS-0177



Velocity sensors for permanent installation

Order code

Sensor type	VS-068	VS-069	VS-077	VS-079
Measurement direction	horizontal	vertical	horizontal & vertical	horizontal & vertical
Cable length	5 m with protective conduit			
Operating temperature range	-40 ... +80° C			High-temperature -40 ... +200° C

Velocity sensors for use in Ex-areas

Order code

Sensor type	VS-0168	VS-0169	VS-0177
Measurement direction	horizontal	vertical	horizontal & vertical
Cable length	10 m without protective conduit		
Operating temperature range	-10 ... +70°C		
Marking	Ⓔ II 2 G Ex d IID T6 Ⓔ II 2 D Ex tD A21 IP 66 T=85°C		

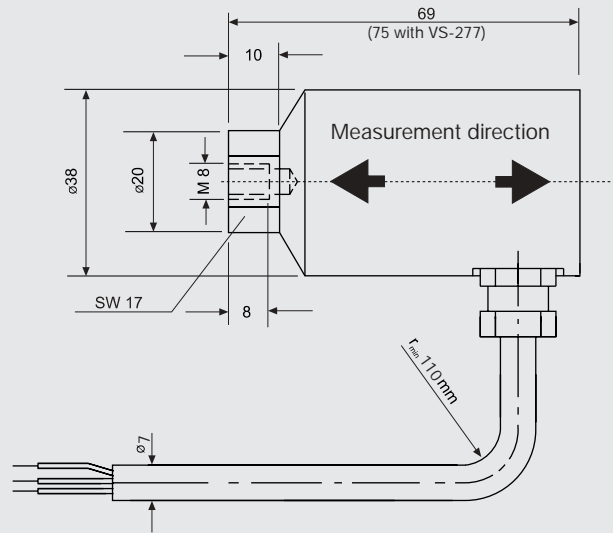
Velocity sensors

Types and dimensions

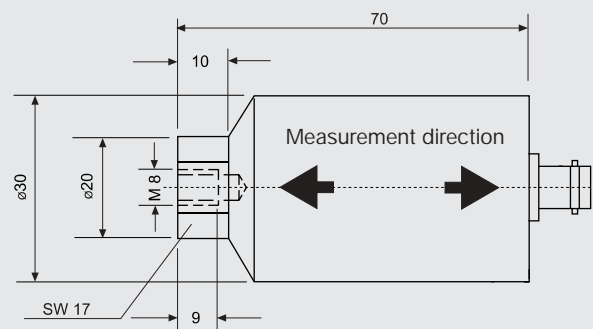
VS-277

VS-288

VS-289



VS-080



Velocity sensors for underwater use

Order code

Sensor type	VS-277	VS-288	VS-289
Measurement direction	horizontal & vertical	horizontal	vertical
Operating temperature range	-20 ... 50° C		
Application	Underwater to 50 m depth		

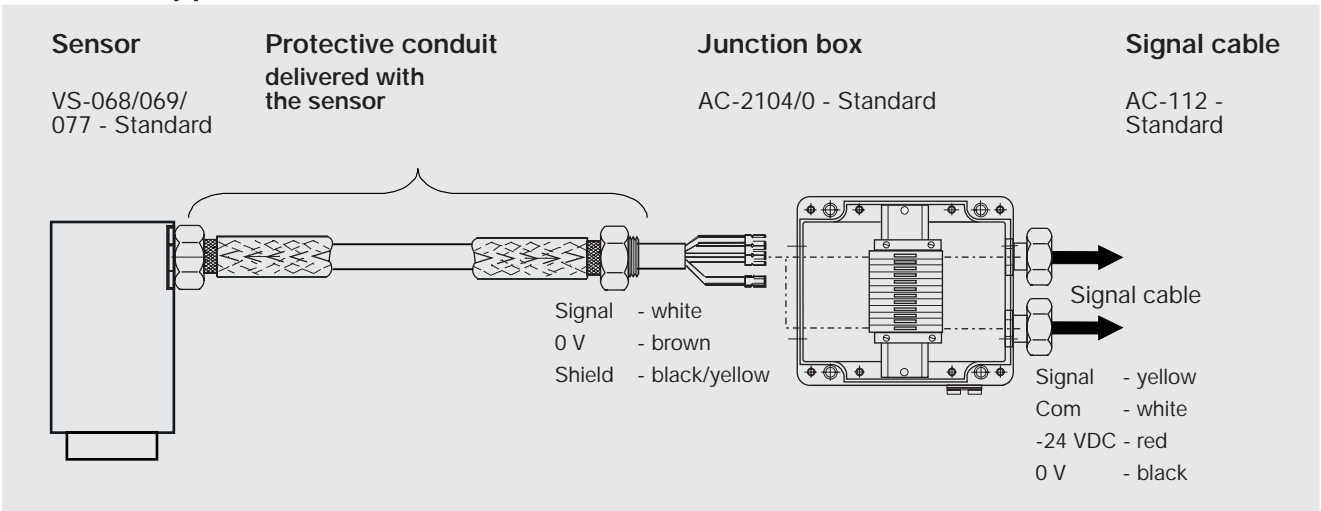
Velocity sensor for portable use

Order code

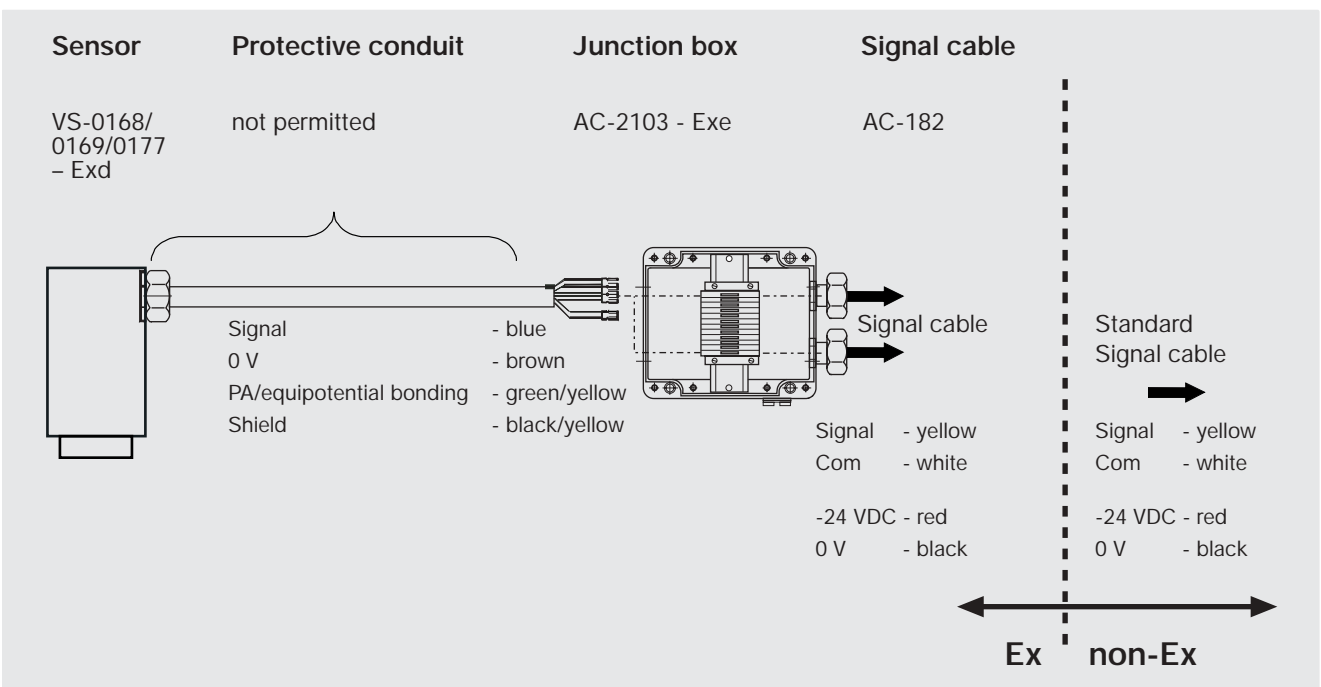
Sensor type	VS-080
Measurement direction	horizontal & vertical
Operating temperature range	-40 ... 80° C
Electrical connection	BNC plug (inverse polarity)

Installation examples

Standard application



Exe installation



Our offices in Darmstadt and Nærum



office in Darmstadt



office in Nærum



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