

Configurable sensor sets



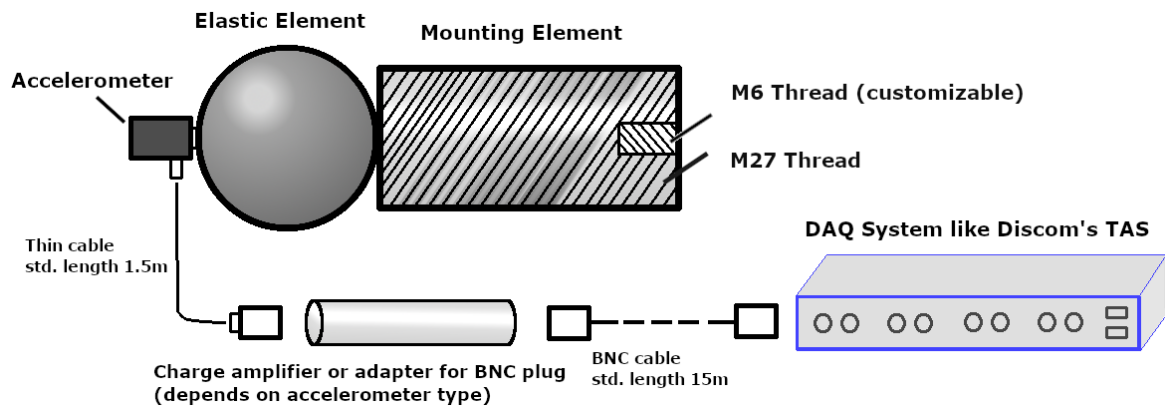
- ✓ Configurable sensor sets consisting of wide range of accelerometers combined with different types of elastic elements enable optimal solution for industrial testing
- ✓ Robust, high quality, wide bandwidth, low noise piezo accelerometers for structure-borne noise measurement
- ✓ Elastic elements to mechanically and electrically decouple mounting and accelerometer

Structure-Borne Noise Sensors with Elastic Elements

Discom offers a variety of structure-borne noise sensors, consisting of piezo accelerometers and elastic elements as mounting adapters.

- small and very light accelerometers offer high bandwidth
- silicon ball or tube as elastic element for mounting prevents resonance with machinery
- electrical isolation from device under test
- accelerometer and elastic element combinations offer a wide range of industrial measurement solutions
- piezo accelerometers available as IEPE (same as ICP® or CCLD®) and charge versions

A sensor set consists of a combination of accelerometer, elastic element, cables, and amplifier or adapter.



1 [Accelerometers](#)

1.1 [KS91E, KS91E1, KS91E3](#)

The **KS91E** types are Discom's standard **IEPE**-compatible accelerometers.

1.2 [KS91F1, KS91F2](#)

The **KS91F** types are **IEPE** accelerometers with high sensitivity.
The **KS91F2**'s main sensitivity is in **transverse direction**.

1.3 [KS91D, KS91D1](#)

The **KS91D** accelerometers have a **charge** output and require additional signal conditioning with a charge-to-IEPE preamplifier.

2

2.1 [BKS03](#)

Discom's standard elastic element for slightly **rounded** or **tilted** surfaces.

2.2 [BKS10, BKS10HD, BKS10Triax](#)

For **tighter** spaces.
BKS10HD has increased shore hardness.

2.3 [MSV18](#)

Elastic element for **magnetic** sensor.

3 [Sets and Combinations](#)

3.1 [Combination Matrix](#)

3.2 [Standart Combinations](#)

3.3 [Spare parts](#)

1.1 Accelerometers KS91E, KS91E1, KS91E3

KS91E, KS91E1, KS91E3 – Basic Specifications			
Sensor Type	IEPE-subminiature accelerometer with ring-shaped probe		compatible with all of Discom’s TAD inputs
Piezo Design	shear design		
Sensitivity	10mV/g ±10%		
Range	±600g (peak)		
Linear Frequency Range	±3dB ±10% ±5%	0.3 Hz .. 23 kHz 0.6 Hz .. 18 kHz 0.9 Hz .. 15 kHz	
Operating Temperature	-40°C .. +120°C		
Connector	M3, female		
Mechanical			
Dimensions (∅ / h)	KS91E: 7.8mm / 11.6mm KS91E1: 7.8mm / 15.5mm KS91E3: 7.8mm / 16.4mm		
Weight	KS91E: 1.6g KS91E1: 1.65g KS91E3: 1.65g		without cable
Types & Mounting Adapters			
KS91E	BKS03		cable <i>radial</i>
KS91E1	BKS10, BKS10HD		cable <i>axial</i>
KS91E3	MVS18		cable <i>axial</i> , special thread



KS91E1/KS91D1/KS91F1



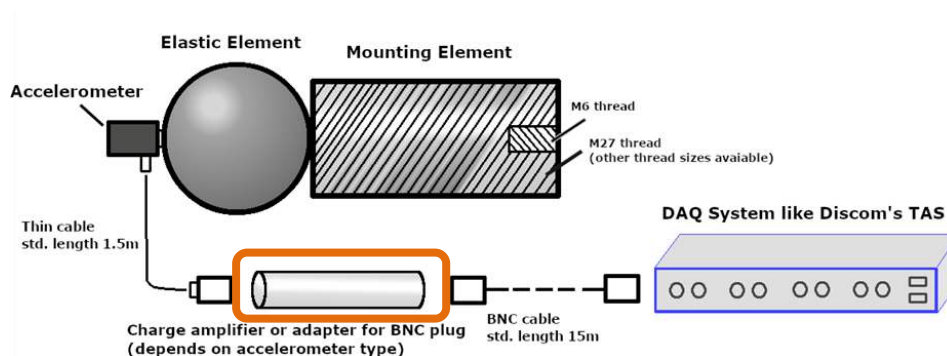
KS91E/KS91D

1.2 Accelerometers KS91F1, KS91F2

KS91F1, KS91F2 – Basic Specifications			
Sensor Type	IEPE accelerometer with ring-shaped, insulated probe made of stainless steel		compatible with all of Discom's TAD inputs
Piezo Design	shear design		
Sensitivity	25mV/g $\pm 20\%$		
Range	$\pm 240g$ (peak)		
Linear Frequency Range KS91F1	$\pm 3dB$	0.3 Hz .. 30 kHz	
	$\pm 10\%$	0.6 Hz .. 18 kHz	
	$\pm 5\%$	0.9 Hz .. 15 kHz	
Linear Frequency Range KS91F2	$\pm 3dB$	0.6 Hz .. 12.5 kHz	
	$\pm 10\%$	1.1 Hz .. 8.0 kHz	
	$\pm 5\%$	1.5 Hz .. 6.8 kHz	
Operating Temperature	$-30^{\circ}C$.. $+120^{\circ}C$		
Connector	M3, female		
Mechanical			
Dimensions ($\varnothing$ / h)	KS91F1: 7.8mm / 15.5mm KS91F2: 8.5mm / 16.0mm		
Weight	KS91F1: 1.65g KS91F2: 2.6g		without cable
Types & Mounting Adapters			
KS91F1	BKS10, BKS10HD		cable axial

1.3 Accelerometers KS91D, KS91D1

KS91D, KS91D1 – Basic Specifications		
Sensor Type	charge accelerometer with electrically isolated stainless steel ring	charge-to-IEPE preamplifier needed to connect to TAD input – Discom offers according preamplifiers ¹
Piezo Design	shear design	
Sensitivity	2.5pC/g $\pm 10\%$	
Range ¹	$\pm 4000g$ (peak)	
Linear Frequency Range	$\pm 3dB$ 0.05 Hz .. 23 kHz $\pm 10\%$ 0.1 Hz .. 18 kHz $\pm 5\%$ 0.15 Hz .. 15 kHz	
Ceramic / Piezo Capacitance	250pF $\pm 10\%$	
Operating Temperature	-40°C .. +150°C	
Connector	M3, female	
Mechanical		
Dimensions ($\varnothing$ / h)	KS91D: 7.8mm / 11.6mm KS91D1: 7.8mm / 15.5mm	
Weight	KS91D: 1.8g KS91D1: 1.85g	without cable
Types & Mounting Adapters		
KS91D	BKS03	cable <i>radial</i>
KS91D1	BKS10, BKS10HD	cable <i>axial</i>



¹ Range with various Amplifiers		
Amplifier	Charge Conversion [mV/pC]	Range [g]
422E51	100	40
422E52	10	400
422E53	1	4000

2 Elastic Elements

The elastic elements provide optimal mounting options for industrial applications, while damping vibrations from the machinery.



*BKS03 with M27 thread, BKS10 and BKS10 Triaxial
with adapter to BKS03 thread*

2.1 BKS03

To be applied to slightly rounded or tilted surfaces.

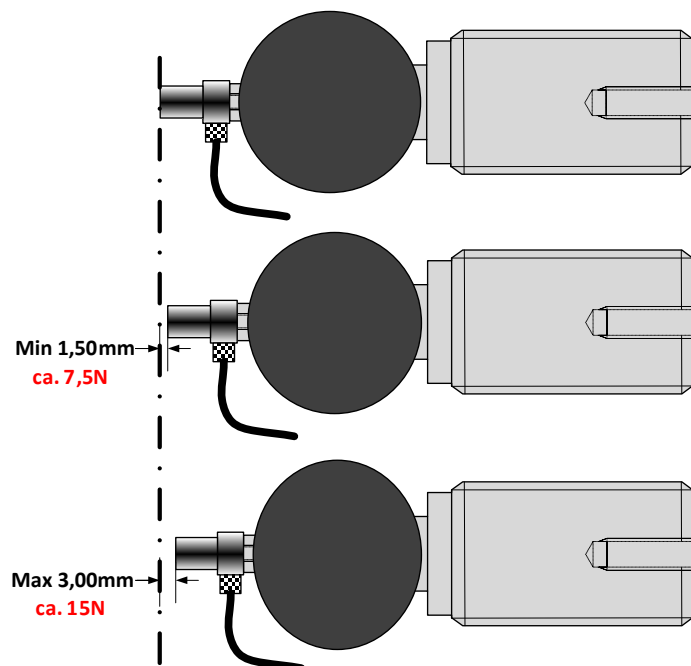
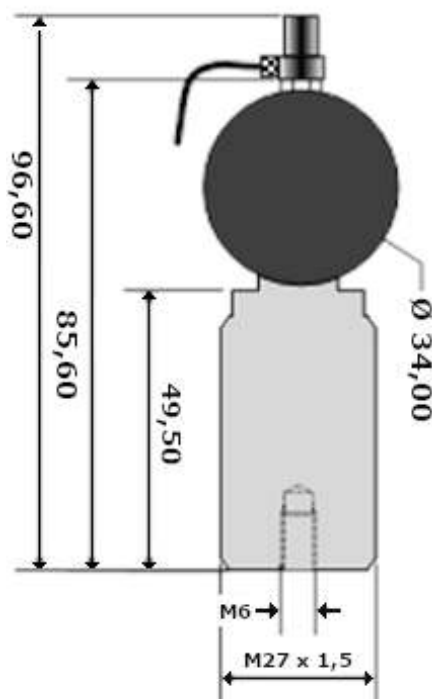
Max. deviation from vertical direction: 5°

Smooth (finished) surfaces recommended.

Press in by 1.5 to 3 mm (press-on force 7.5 – 15 N).



BKS03 (here combined with [KS91E Accelerometer](#))



2.2 BKS10, BKS10HD, BKS10Triax

To be applied to flat surfaces.

Max. deviation from vertical direction: 2°

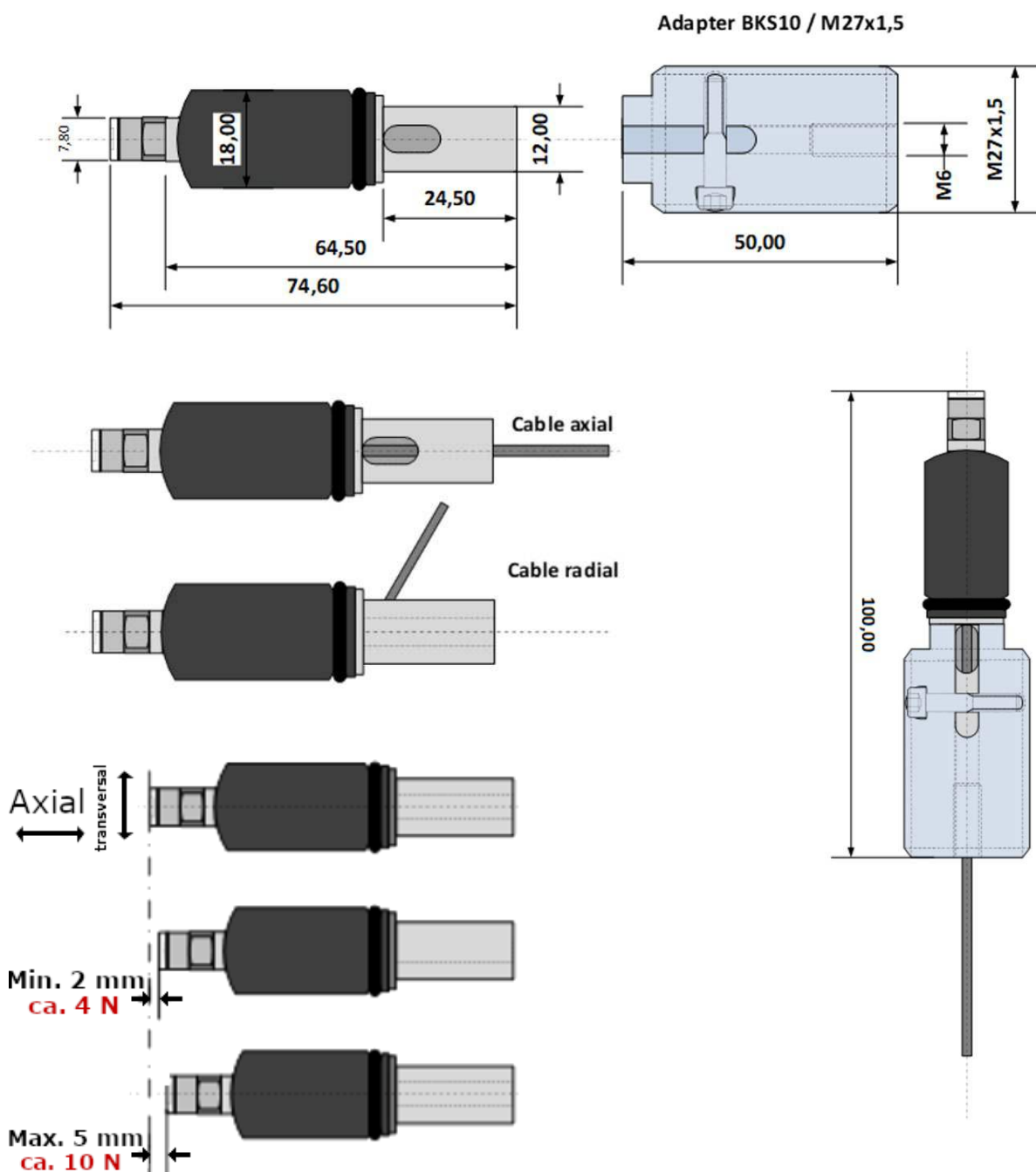
Smooth (finished) surfaces required.

For tight spaces.

Cable is protected inside of elastic element.

Press in by 2 to 5 mm (pressure force 4 – 10 N).

The BKS10HD has an increased shore hardness.



2.3 MVS18

Magnetically attached, works only with magnetic surfaces.

Different magnet sizes and strengths available.

Cable with coaxial connector that can turn and resist high force:



MVS2018

3.1 Combination Matrix

The following table shows the available combinations of accelerometer and elastic element for mounting.

Elastic Element Accelerometer	BKS03	BKS10	BKS10HD	BKS10 Triax	MVS18
KS91E cable radial IEPE, 10mV/g	✓	(✓) ¹			
KS91E1 cable <i>axial</i> IEPE, 10mV/g		✓	✓		
KS91E3 cable <i>axial</i> , special thread IEPE, 10mV/g					✓
KS91F1 cable <i>axial</i> IEPE, 25mV/g		✓	✓		
KS91F2 cable <i>axial</i> , Piezo radial IEPE, 25mV/g		✓	✓		
KS91D cable radial Charge, 2.5pC/g	✓	(✓) ¹			
KS91D1 cable <i>axial</i> Charge, 2.5pC/g		✓	✓		
B&K 4519-001 cable radial IEPE, 100mV/g	✓				
PCB 356A32 cable <i>axial</i> , 4-pin connector Triax IEPE, 100mV/g				✓	
PCB 356A03 cable <i>axial</i> , 4-pin connector Triax IEPE, 10mV/g	✓				

¹Adapter required (Art.: 02623)

Other accelerometer/ mounting options are available on demand!

3.2 Standard Combinations

This table shows the most frequent component combinations which can be ordered as a set:

Standard sensor sets for Discom measurement systems			
Order No.	Accelerometer	Elastic element	Scope of delivery
1-DC/BKS03D	KS91D	BKS03 ¹	✓ External charge-to-IEPE Amplifier (10mV/pC) ✓ 15m BNC cable ✓ 1.5m sensor cable
1-DC/BKS03E	KS91E	BKS03 ¹	✓ Built-in IEPE Amplifier (10mV/g) ✓ 15m BNC cable ✓ 1.5m sensor cable
1-DC/BKS03TRI	356A03	BKS03 ¹	✓ Built-in IEPE Amplifier (10mV/g) ✓ 3x 15m BNC cable ✓ 3m sensor cable
1-DC/BKS10	KS91E	BKS10 ²	✓ Built-in Amplifier (10mV/g) ✓ 15m BNC cable ✓ 1.5m sensor cable
1-DC/BKS10D	KS91D1	BKS10 ²	✓ External charge-to-IEPE Amplifier (10mV/pC) ✓ 15m BNC cable ✓ 1.5m sensor cable
1-DC/BKS10HD	KS91E1	BKS10HD ³	✓ Built-in IEPE Amplifier (10mV/g) ✓ 15m BNC cable ✓ 1.5m sensor cable
1-DC/MVS18	KS91E3	MVS18 ⁴	✓ Built-in IEPE Amplifier (10mV/g) ✓ 15m BNC cable ✓ 3m sensor cable

3.3 Sensor set spare parts and for separate order

Name	Article no.	Scope of delivery
BKS03-E Sensorset; (1-DC/ACCSET_BKS03E)	02681	- BKS03-FE elastic element [art.: 01716] - KS91E accelerometer, accelerometer sensitivity: 10mV/g; range: +-600g [art.: 01018] - Sensor cable 1.5 m [art.: 02619] - UNF10-32 / BNC adapter [art.: 00281]
BKS03-D Sensorset; (1-DC/ACCSET_BKS03D)	02682	- BKS03-FE elastic element [art.: 01716] - KS91D accelerometer, sensitivity 2.7 pC/g, range: +-4000g [art.: 01021] - Sensor cable 1.5 m [art.: 02619]
BKS03-TRIAX Sensorset; [1-DC/ACCSET_TRI03]	04728	- BKS03-FE elastic element [art.: 01716] - PCB-356A03 Accelerometer Triaxial (v.2021) sensitivity: 10mV/g; range: +-500g, glued in special housing for use with BKS03 [art.: 04639] - PCB-034G10 sensorcable 3m, 4Pin/3xBNC [art.: 02840]
BKS10-E Sensorset; (1-DC/ACCSET_BKS10E)	02683	- BKS10 FE elastic element [Art.: 02616] - KS91E1 accelerometer, sensitivity: 10mV/g; range: +-700g [Art.: 02618] - Sensor cable 1.5 m [Art.: 02619] - UNF10-32 / BNC adapter [Art.: 00281]
BKS10-TRIAX Sensorset; (1-DC/ACCSET_TRI10)	04729	- BKS10-TRIAX FE elastic element [art.: 03345] - PCB-356A32 accelerometer triaxial sensitivity: 100mV/g; range: +-50g; 1-4000Hz; modified for BKS10 Triax [art.: 03335] - PCB-034K10 sensorcable 3m, 4Pin / 3xBNC [art.: 03334]
KS91E Accelerometer (1-DC/ACC_KS91E)	01018	- KS91E accelerometer, sensitivity: 10mV/g; range: +-600g - Sensor cable 1.5 m [art.: 02619] - UNF10-32 / BNC adapter [art.: 00281]
KS91D Accelerometer (1-DC/ACC_KS91D)	01021	- KS91D Accelerometer, sensitivity: 2,7pC/g; range: +-4000g - Sensor cable 1.5 m [art.: 02619]
KS91E1 Accelerometer (1-DC/ACC_KS91E1)	02618	KS91E1 Accelerometer, sensitivity: 10mV/g; range: +-700g - Sensor cable 1.5 m [art.: 02619] - UNF10-32 / BNC adapter [art.: 00281]
KS91F1 Accelerometer (1-DC/ACC_KS91F1)	03130	KS91F1 Accelerometer, sensitivity: 25mV/g; range: +-700g - Sensor cable 1.5 m [art.: 02619] - UNF10-32 / BNC adapter [art.: 00281]

Sensor Set Components



Sensor cable 0,3m (1_DC/CAB_ACC_0.3)	02854	Sensor cable Connectors: M3/UNF10-32, length 0,3m; with silicone protective tubing
Sensor cable 1,5m (1-DC/CAB_ACC_1.5)	02619	Sensor cable (Connectors: M3/UNF10-32, length 1.5m with silicone protective tubing
BKS03 FE (1-DC/EE_BKS03)	01716	BKS03 FE Elastic element black silicone compound, hardness: 7 Shore
BKS10 FE (1-DC/EE_BKS10)	02616	BKS10 FE Elastic element black silicone compound, hardness: 7 Shore
BKS10-FE HD (1-DC/EE_BKS10HD)	03340	BKS10-FE HD Elastic element blue silicone compound, hardness: 21 Shore
BKS10 Triax FE (1-DC/EE_BKS10TRI)	03345	BKS10 Triax FE Elastic element for Triaxialsensor blue silicone compound, hardness: 21 Shore