

# VK series

Non-contact  
Displacement Vibration  
**TRANSDUCER**



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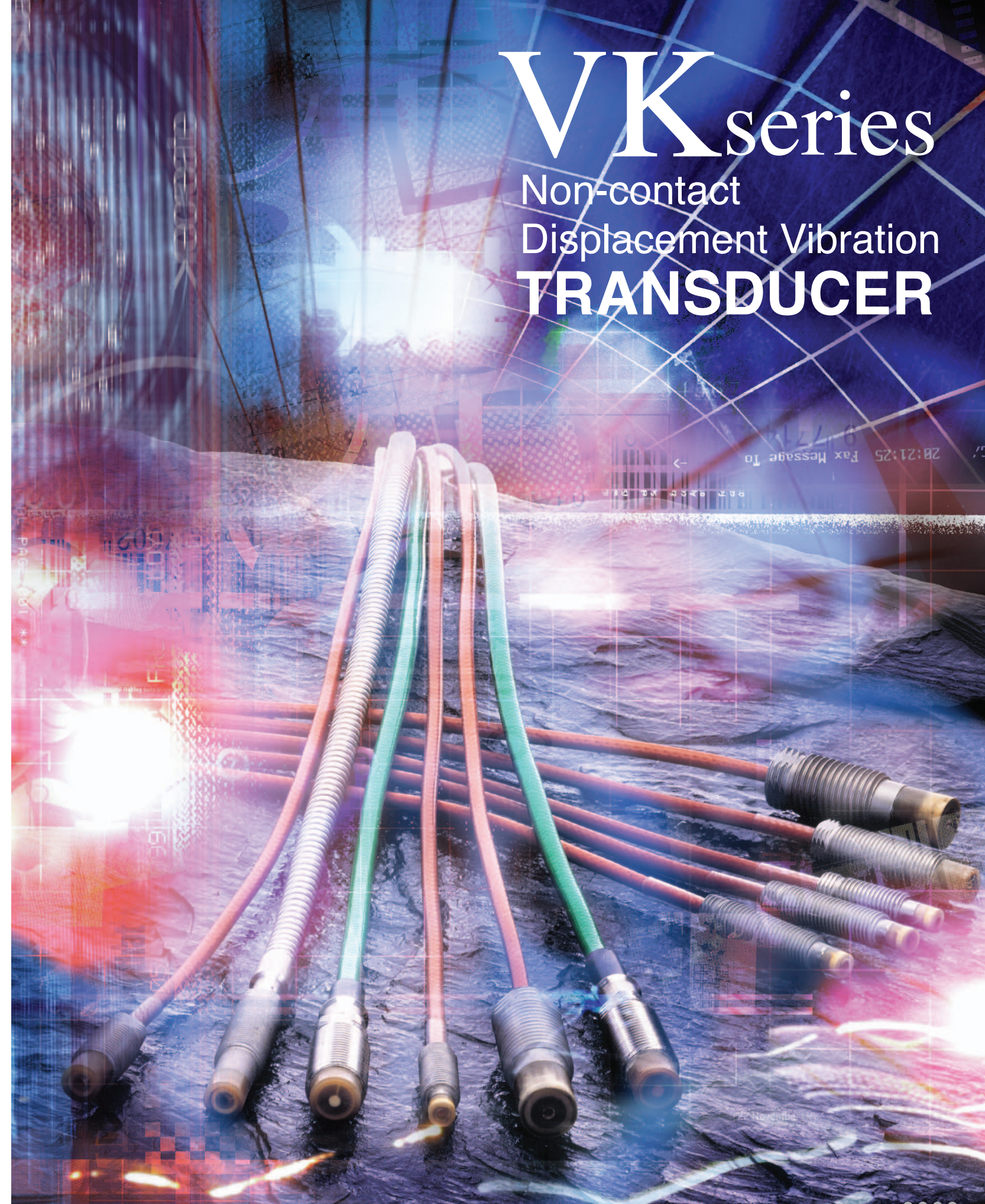
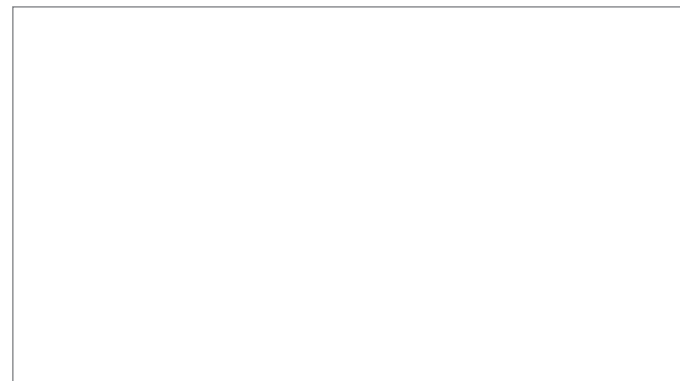
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\* Specifications, outline drawings and other written information can be changed without notice.



# ROTATING MACHINERY OPERATION A HIGH GRADE TRANSDUCER FOR SAFE-

Complies with American Petroleum Institute (API) Standard 670  
 Non-contact rotor vibration measurement  
 Sensor durability  
 A variety of monitors-displacement, vibration, rotation, and zero speed

Many types of rotating machinery are utilized in the oil refining-centered energy industry. To ensure safe operation of the machinery, consistent monitoring is essential. In many cases, machinery failures result in vibration value increases. Therefore, constant vibration value monitoring promotes early irregularity detection and considers optimal counter plans. SHINKAWA vibration monitoring products are varied and flexible, adapting to any user's customized system.

## LINE UP



**VK-A Series / TRANSDUCER**  
 The VK-A Series vibration transducer is an eddy-current transducer designed to measure the shaft vibration, and satisfies the American Petroleum Institute API Standard 670.



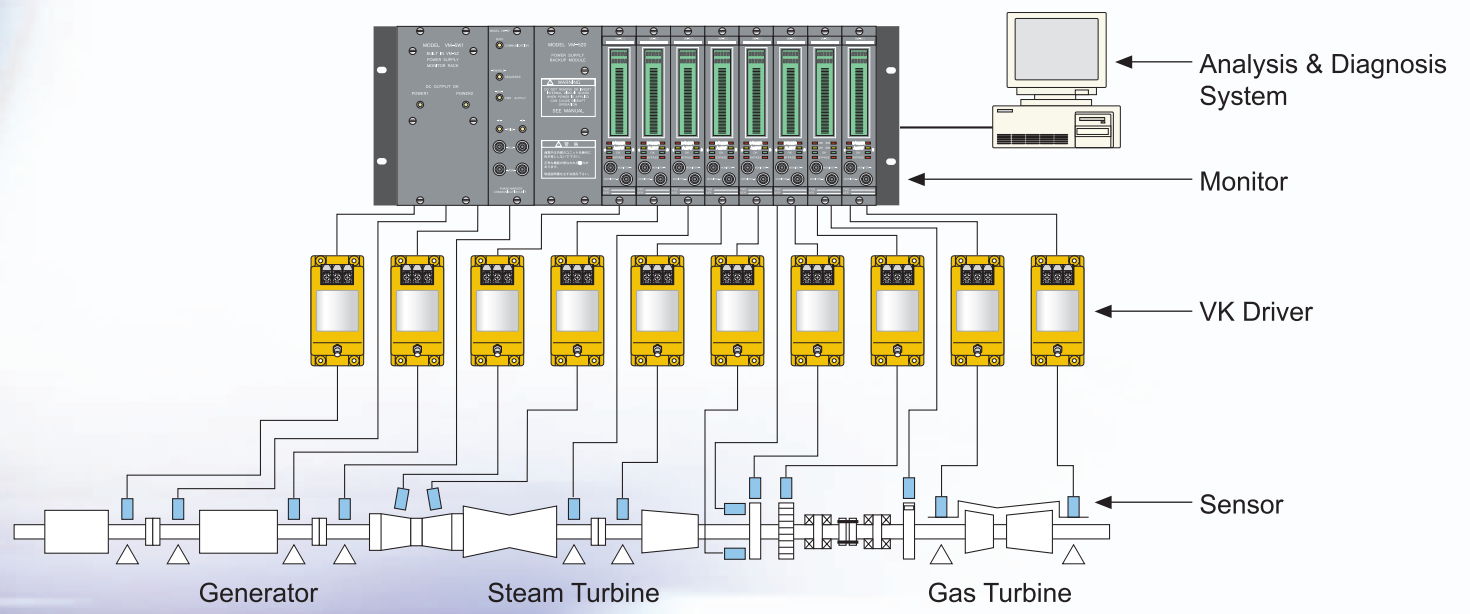
**VK-P Series / TSI TRANSDUCER**  
 The VK-P Series TSI transducer is exclusively designed for bearing position and differential expansion measurement. This high-grade, eddy-current type, non-contacting transducer offers lower temperature drift and stable displacement measurement.

**VK-R Series / Long cable TRANSDUCER**  
 With a long cable extension feature, this transducer is most suitable for power generation gas turbines and other types whose large size requires a vibration transducer with a long cable length.

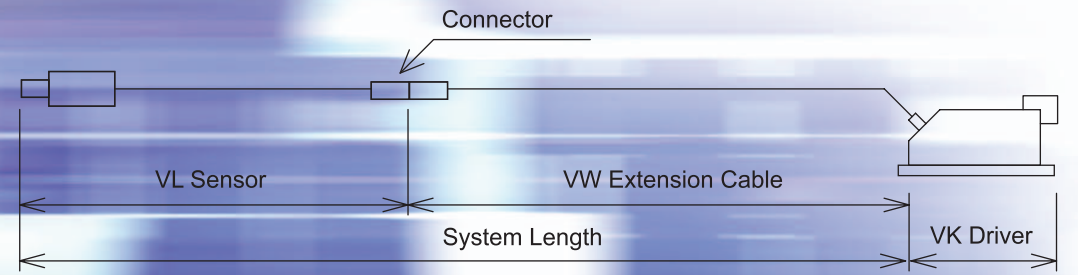
## TRANSDUCER & MONITOR

### MONITORING SYSTEM EXAMPLE

This vibration monitoring system consists of various transducers and monitors for signal management. Numerous kinds of monitoring systems that suit any rotating machinery can be configured.



### VK SYSTEM CONFIGURATION



**VK SERIES**

# VK-A

## TRANSDUCER

The VK-A series vibration transducer is an eddy-current transducer that measures the shaft vibration without contact, and complies with API Standard 670. This is the most appropriate sensor to measure shaft vibration supported by plain bearings, and is frequently used to monitor the vibration of turbine generators and compressors. It can also be used in an explosive gas atmosphere due to its intrinsic safety construction.



### System composition

Consists of sensor, extension cable and driver. Available in lengths of 5m and 9m, total distance between sensor and driver.

### Intrinsic safety explosion-proof construction

TIIS equivalent to IEC standard  
Ex ia IIC T5 (VK-452A), Ex ia IIC T6 (VK-202A)  
CSA, FM, ATEX

### Anti-corrosion

Extensive operating temperature range (-40 to +177deg.C).  
Not affected by lubricating oil or dust (excluding connector).  
Ammonia resistant and hydrogen sulfide models are also available. For details, contact us. (Inappropriate for outside installation, where sensors may be exposed to rain.)

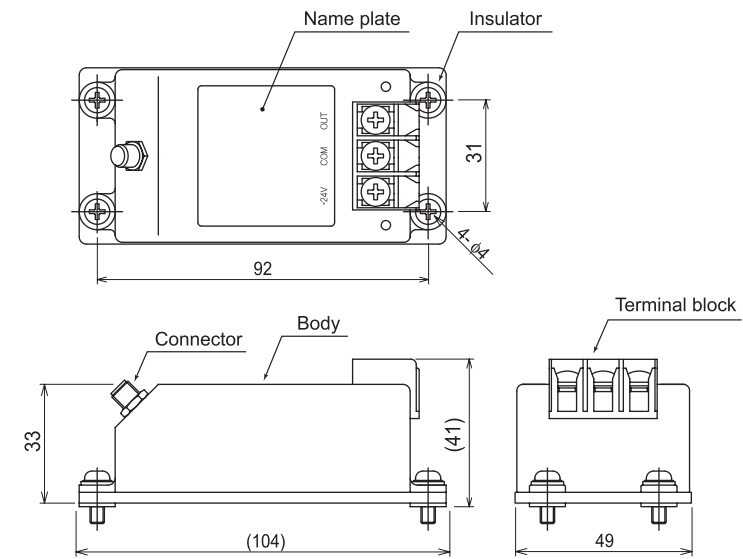
### API compliant

Satisfies API Standard 670 regarding scale factor error, interchangeability and sensor size.

### [Specifications]

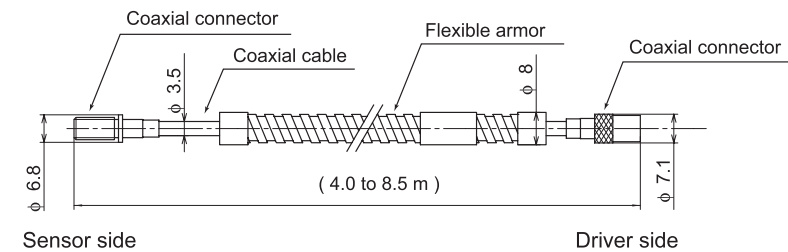
	VK-202A	VK-452A
Calibrated Material	JIS SCM440 (AISI 4140 steel) flat surface	
Linear Range	More than 2,000 $\mu\text{m}$	More than 4,500 $\mu\text{m}$
Scale Factor	787 mV / 100 $\mu\text{m}$	394 mV / 100 $\mu\text{m}$
Operating Temperature Range	Sensor	-40 to +177 deg.C (Connector : MAX. 125 deg.C)
	Ext. Cable	-40 to +177 deg.C
	Driver	-38 to +80 deg.C
Power Supply	-24 VDC +/- 10 %	
System Cable Length	5 m +/- 10 % or 9 m +/- 10 %	

### VK-202A DRIVER



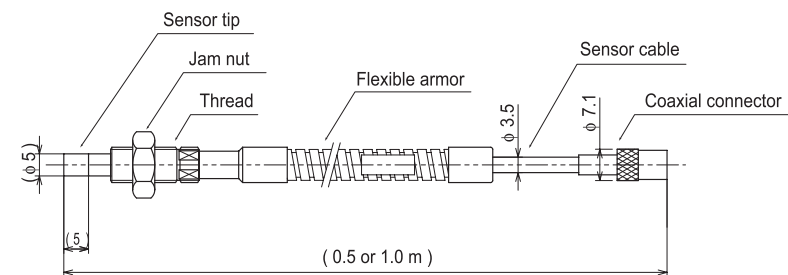
Dimensions : mm

### VW EXTENSION CABLE



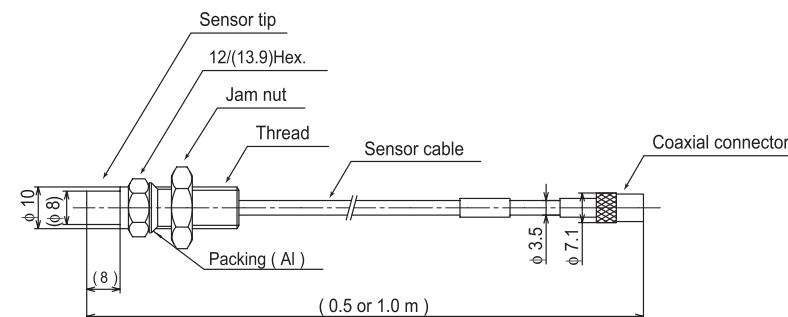
Dimensions : mm

### VL-202A SENSOR



Dimensions : mm

### VL-202A REVERSE MOUNT TYPE SENSOR



Dimensions : mm

# VK-P

## TSI TRANSDUCER

The VK-P series TSI transducer is a high-grade, eddy-current type, non-contacting transducer for bearing position and differential expansion measurement required for TSI. It offers the necessary low temperature drift and stability for displacement measurement, and can also be used in an explosive gas atmosphere due to its intrinsically safe construction.



### System composition

Consists of sensor, extension cable and driver. Available in lengths of 5m and 9m, the total distance between sensor and driver.

### Various type of measured ranges

The VK-P series transducer is offered in five measured ranges of 2mm, 3mm, 6mm, 13.5mm and 26mm. Suitable for long-range measurement as required for TSI.

### Intrinsic safety explosion-proof construction

TIIS equivalent to IEC standard  
Ex ia IIC T5, CSA, FM, ATEX

### Anti-corrosion

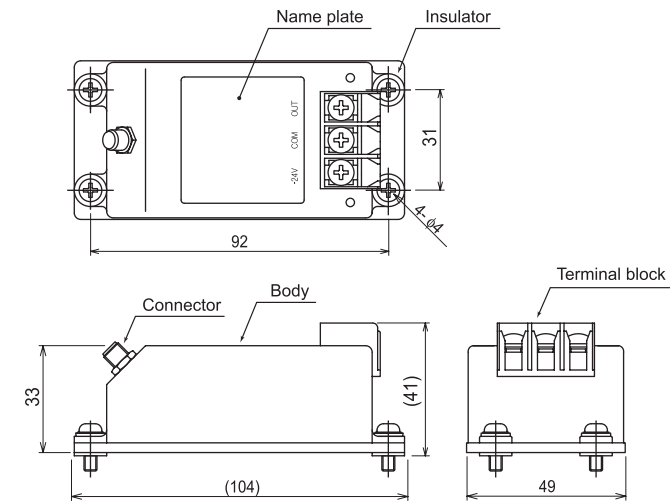
Extensive operating temperature range (-40 to +125deg. C). Not affected by lubricating oil or dust (excluding connector). Ammonia resistant and hydrogen sulfide models are also available. (For details, contact us.) (Outside installation inappropriate.)

### [Specifications]

		VK-202P	VK-302P	VK-602P
Calibrated Material		JIS SCM440 (AISI 4140 Steel) Flat Surface		
Linear Range		More than 2 mm (begins at approx. 0.3 mm from sensor tip)	More than 3 mm (begins at approx. 0.3 mm from sensor tip)	More than 6 mm (begins at approx. 0.3 mm from sensor tip)
Sensitivity		787 mV / 100 μm	5 V / mm	2.5 V / mm
Operating Temperature Range	Sensor	-40 to +125 deg.C		
	Ext. Cable	-40 to +125deg. C		
	Driver	-38 to +80 deg. C		
Power Supply		Within -24 VDC +/- 10 %		
System Cable Length		5 m +/- 10 % or 9m +/- 10%		

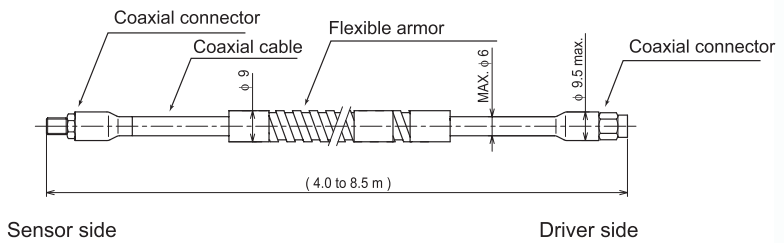
		VK-143P	VK-263P
Calibrated Material		JIS SCM440 (AISI 4140 Steel) Flat Surface	
Linear Range		More than 13.5 mm (begins at approx. 0.3 mm from sensor tip)	More than 26 mm (begins at approx. 0.3 mm from sensor tip)
Sensitivity		0.8 V / mm	0.4 V / mm
Operating Temperature Range	Sensor	-40 to +125 deg. C	
	Ext. Cable	-40 to +125 deg.C	
	Driver	-38 to +80 deg. C	
Power Supply		Within -24 VDC +/- 10%	
System Cable Length		5 m +/- 10% or 9m +/- 10%	

### DRIVER



Dimensions : mm

### EXTENSION CABLE

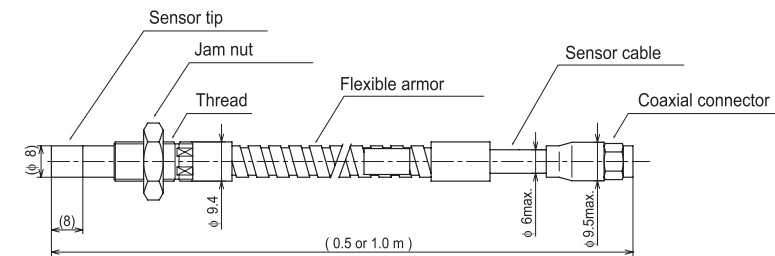


Sensor side

Driver side

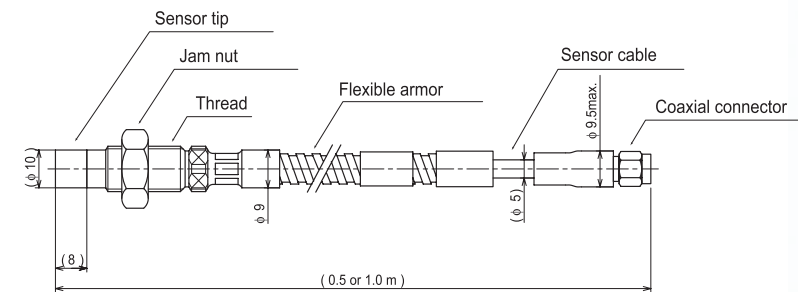
Dimensions : mm

### VL-202P SENSOR



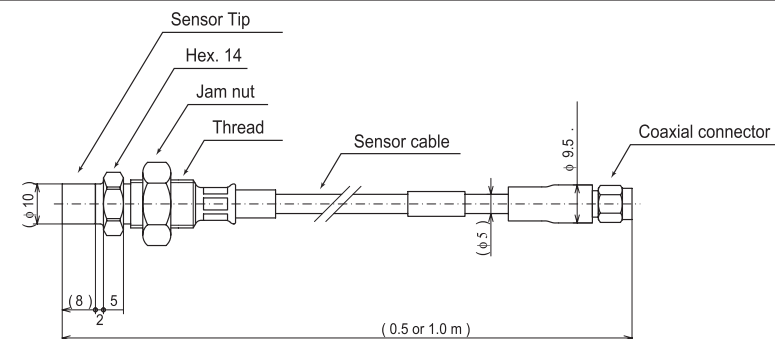
Dimensions : mm

### VL-302P SENSOR



Dimensions : mm

### VL-302P REVERSE MOUNT TYPE SENSOR



Dimensions : mm

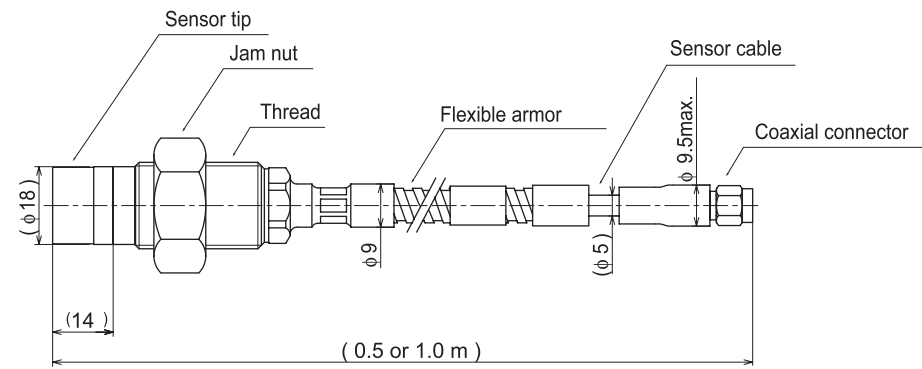
VK SERIES

# VK-P

## TSI TRANSDUCER

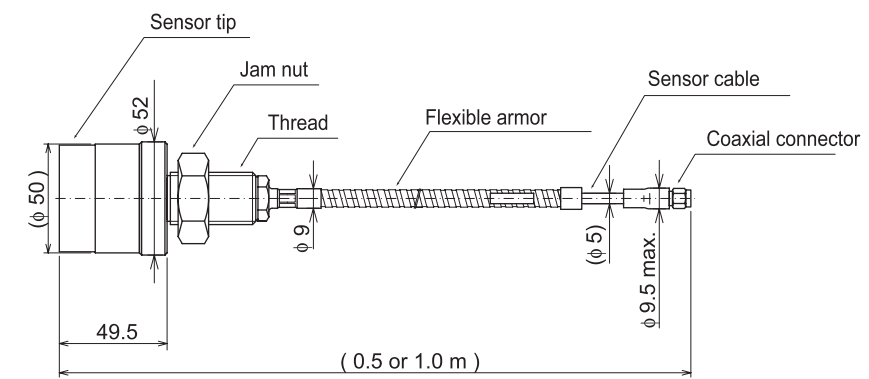


### VL-602P SENSOR



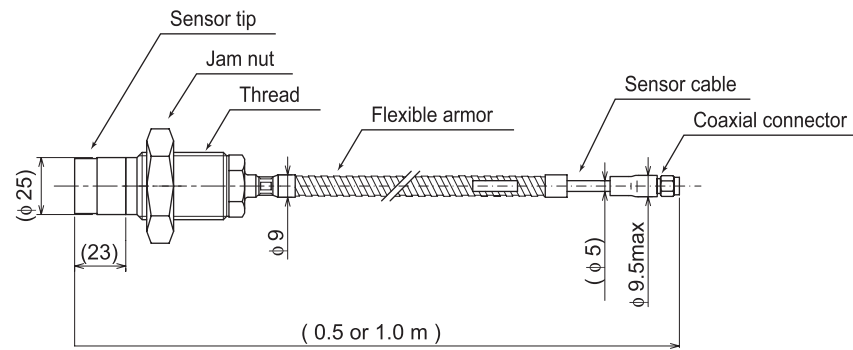
Dimensions : mm

### VL-263P SENSOR



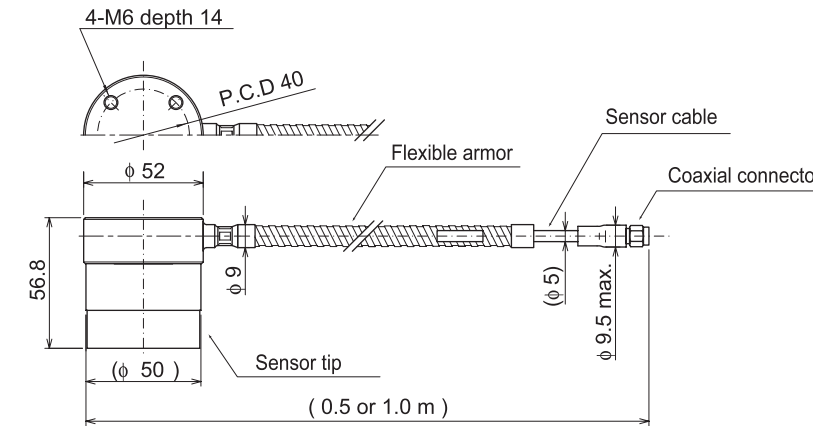
Dimensions : mm

### VL-143P SENSOR



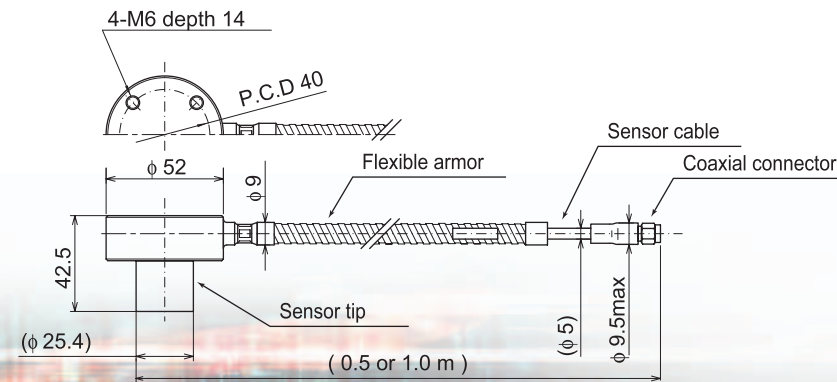
Dimensions : mm

### VL-263P SIDE EXIT TYPE SENSOR



Dimensions : mm

### VL-143P SIDE EXIT TYPE SENSOR



Dimensions : mm

# VK-R

## LONG CABLE TRANSDUCER

The VK-R series vibration transducer is an eddy-current transducer designed to measure the shaft vibration without contact, and complies with API Standard 670. With its long cable extension feature, this transducer is most suitable for many types of rotating machinery, such as power generating gas turbines whose large size also requires a vibration transducer with a long cable length. The VK-R transducer can also be used in an explosive gas atmosphere due to its intrinsically safe construction.

### System composition

Consists of sensor, extension cable and driver. Available in lengths of 15m and 20m, the total distance between sensor and driver.

### Intrinsic safety explosion-proof construction

TIIS equivalent to IEC standard, Ex ia IIC T6

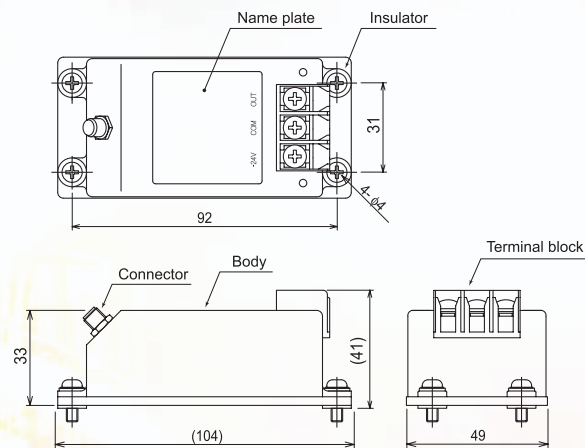
### Anti-corrosion

Extensive operating temperature range (-40 to +177 deg.C).  
Not affected by lubricating oil or dust (excluding connector).

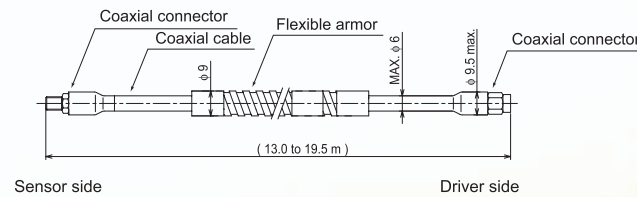
### [Specifications]

		VK-152R
Calibration Material		JIS SCM440 (AISI 4140 Steel ) Flat Surface
Linear Range		More than 1,500 μm
Sensitivity		787 mV / 100 μm
Operation Temperature Range	Sensor	-40 to +177 deg. C (connector : MAX. 125 deg. C)
	Ext. cable	-40 to +177 deg.C
	Driver	-38 to +80 deg.C
Power Supply		-24 VDC (-18 to -26 VDC)
System Cable Length		15 m +/- 10% or 20 m +/- 10%

### DRIVER

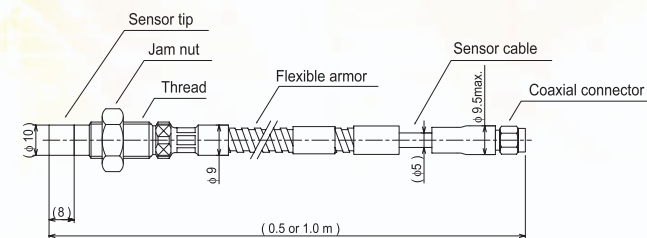


### EXTENSION CABLE

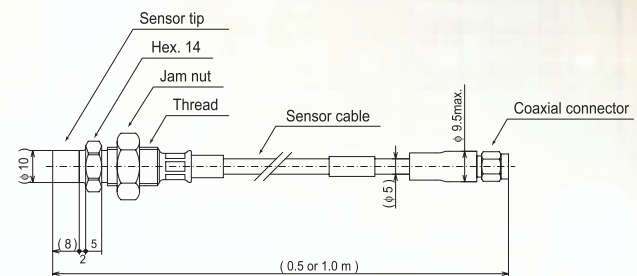


Dimensions : mm

### SENSOR



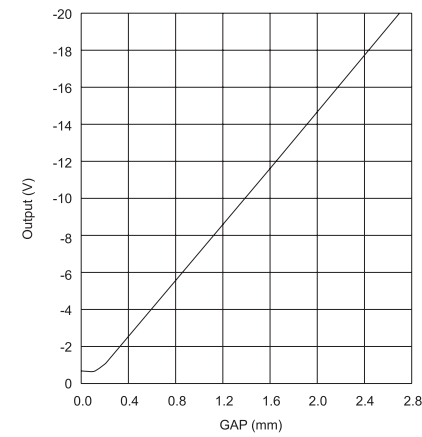
### REVERSE MOUNT TYPE SENSOR



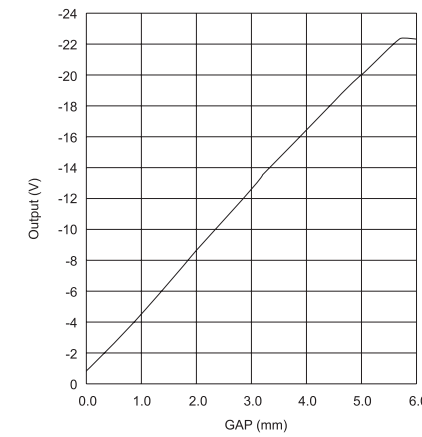
Dimensions : mm

## STATIC CHARACTERISTICS

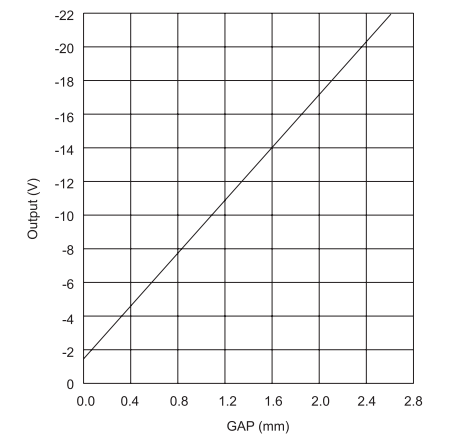
### VK-202A



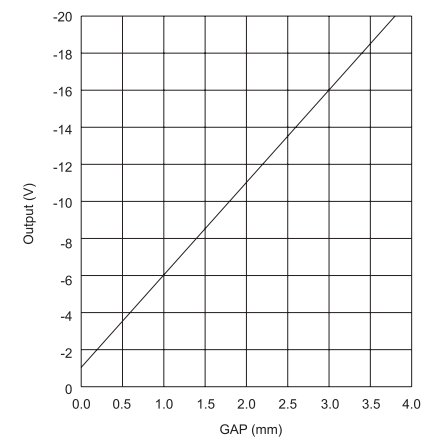
### VK-452A



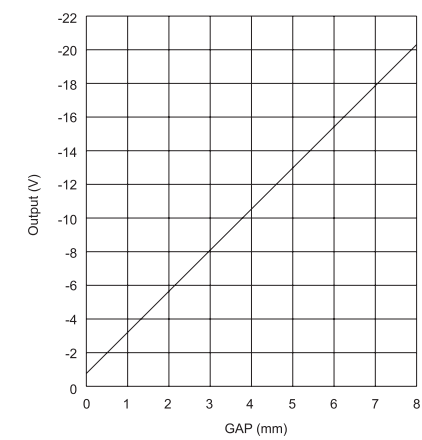
### VK-202P



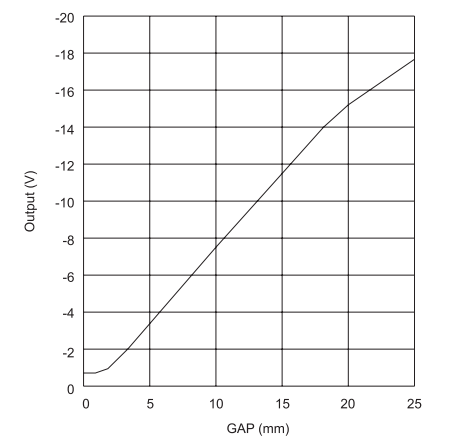
### VK-302P



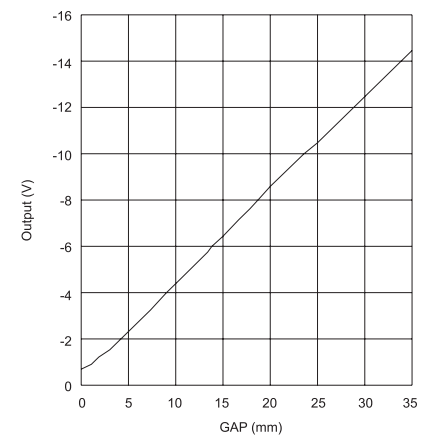
### VK-602P



### VK-143P



### VK-263P



### VK-152R

