

# SENSOR TECHNOLOGY

## MAGNETIC BEARING SENSORS

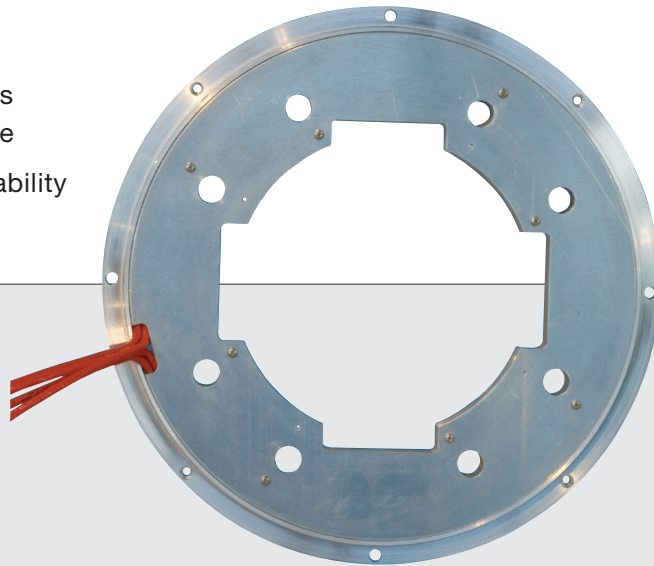
Waukesha Magnetic Bearings® offers a wide range of sensors for application within magnetic bearing systems, including magnetic displacement sensors, inductive sensors, eddy current sensors and capacitive sensors. With a wide selection of field-proven sensor technologies, Waukesha is uniquely positioned to address a broad range of application requirements.

## TYPICAL SELECTION CONSIDERATIONS

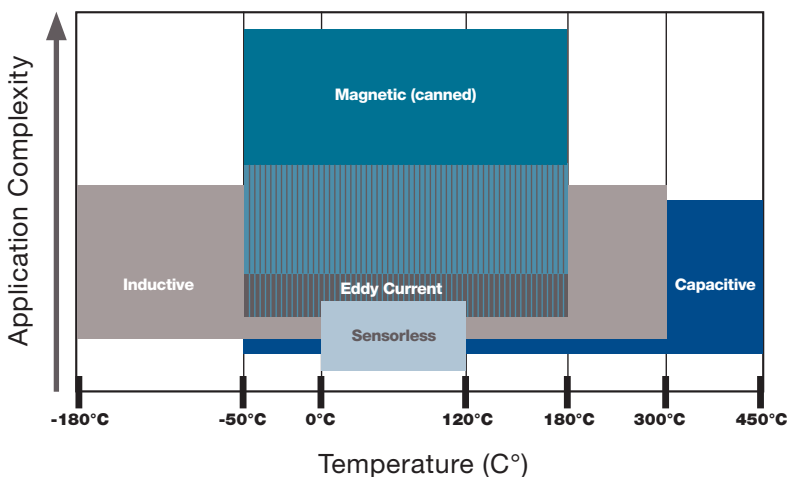
- Requirement of direct shaft sensing (beneficial with removable shaft sleeves)
- Requirement for reduced conductor count (beneficial with qualified pressure penetrators)
- Required temperature range
- Dynamic performance requirements
- Use of canned or sealed bearing technology

## OPTIONS FOR ALL SENSORS

- Single or dual ring configurations for optimal dynamic performance
- Redundancy for maximum availability



A magnetic displacement sensor for use in a gas compressor application.



Waukesha Magnetic Bearings offers the broadest range of sensor technologies in the industry, selected and optimised based on application requirements.

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	<b>Magnetic Displacement</b>	<b>Inductive</b>	<b>Eddy Current</b>	<b>Capacitive</b>
Overview	A proprietary sensor design for use on systems requiring superb dynamic performance. The sensor of choice for canned magnetic bearings	For use in applications where space and conductor count are design drivers	Similar to inductive sensors but providing wider bandwidth	Suitable for very high temperature and radiation applications
Principle of Operation	DC magnetic circuit	AC magnetic circuit (inductive characteristic)	AC magnetic circuit (resistive characteristic)	AC capacitive circuit
Canned Bearing Capability	Yes	No	No	No
Direct Shaft Sensing Capability	Yes	No	Yes, on radial bearings with special surface treatment	Yes
Temperature	-50 to +180°C	-180 to + 300°C	-50 to +180°C	-50 to + 450°C
Axial Sensor Target Required	Yes, but can be combined with main thrust disk	Available with radial sensor/axial sensor collocated configuration	Yes	Yes, but can be combined with main thrust disk
Permitted Environment	Corrosive /dirty gasses and liquids, NACE compliant	Clean (non-corrosive) gasses and liquids, vacuum, option for NACE compliance	Clean (non-corrosive) gasses and liquids, vacuum	Vacuum / clean gasses (non-corrosive and non-condensing), high radiation
Axial Length of Radial Sensor	Good	Excellent	Good	Good
Sensor Noise and Immunity Performance	Excellent	Good	Good	Good