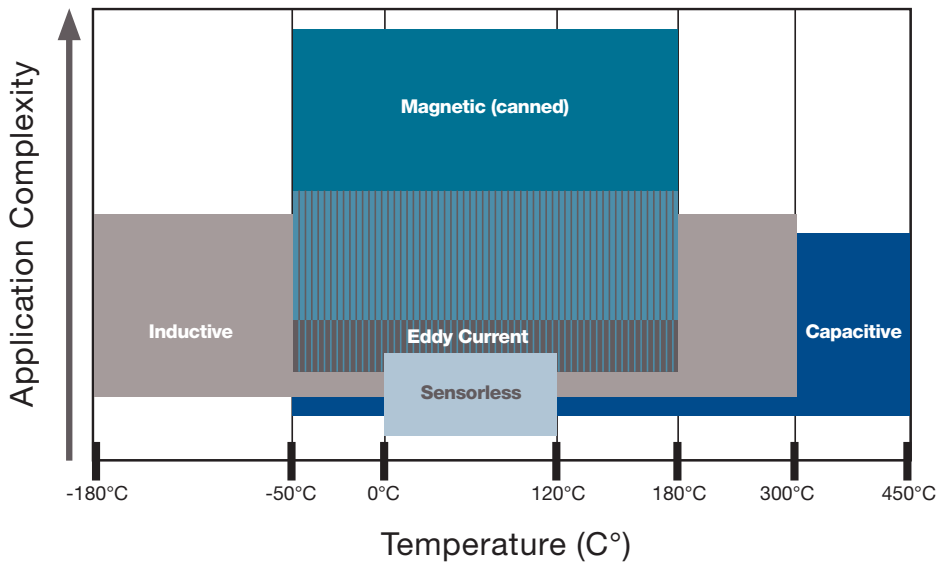




# Magnetic Bearing Sensor Technology

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. (See back for details.)

With a wide selection of field-proven sensor technologies, Waukesha is uniquely positioned to address a broad range of application requirements.



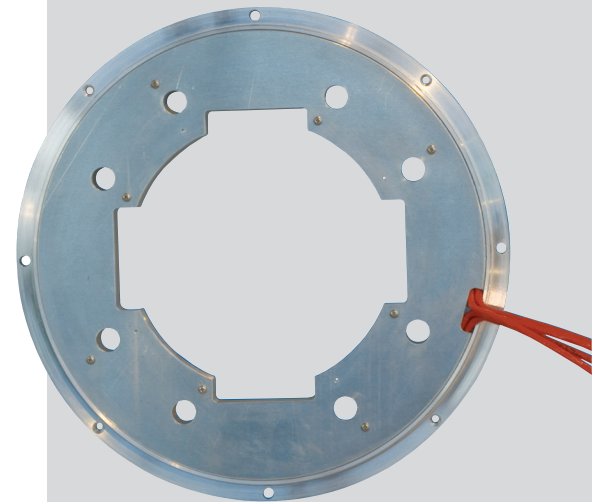
*Waukesha Magnetic Bearings offers the broadest range of sensor technologies in the industry, selected and optimised based on application requirements.*

## 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.*

## MAGNETIC BEARING SENSOR SPECIFICATION

	MAGNETIC DISPLACEMENT	INDUCTIVE	EDDY CURRENT	CAPACITIVE
<b>Overview</b>	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
<b>Principle of Operation</b>	DC magnetic circuit	AC magnetic circuit (inductive characteristic)	AC magnetic circuit (resistive characteristic)	AC capacitive circuit
<b>Canned Bearing Capability</b>	Yes	No	No	No
<b>Direct Shaft Sensing Capability</b>	Yes	No	Yes, on radial bearings with special surface treatment	Yes
<b>Temperature</b>	-50°C to +180°C	-180°C to + 300°C	-50°C to +180°C	-50°C to + 450°C
<b>Axial Sensor Target Required</b>	Yes, but can be combined with main thrust disk	Available with radial sensor/axial sensor colocated configuration	Yes	Yes, but can be combined with main thrust disk
<b>Permitted Environment</b>	Corrosive/dirty gases and liquids, NACE compliant	Clean (non-corrosive) gases and liquids, vacuum, option for NACE compliance	Clean (non-corrosive) gases and liquids, vacuum	Vacuum/clean gases (non-corrosive and non-condensing), high radiation
<b>Axial Length of Radial Sensor</b>	Good	Excellent	Good	Good
<b>Sensor Noise and Immunity Performance</b>	Excellent	Good	Good	Good