



Aerospace Sensing & Controls

Chip Detectors

Eaton Tedeco® brand Chip Detectors are widely used to provide early failure detection in the lube systems of helicopter engines, transmissions and auxiliary power units, and, to a lesser extent, in commercial or military gas turbine engine lube systems.

They consist of a magnet surrounded by two closely spaced conductive pole shoes that are insulated from each other. Ferrous debris particles, captured by the magnet, eventually bridge the pole shoe gap, completing a conductive circuit similar to an electric switch. They are typically series connected through a power supply and an indicating lamp in the cockpit of an aircraft.

When combined with a self-closing valve, the chip detector can be removed for inspection or cleaning while keeping oil loss at a minimum. Removal of the plug is facilitated by the patented quick-disconnect Helilok® mechanism. A simple pushing motion, which the helical cam converts into rotation, unlocks the unit while a strong spring pushes it out, at the same time closing a valve. This mechanism assures positive locking when the plug is returned since the helical locking cams have only one stable position, that is, when they are locked.

Lockwiring of the plug is not required.

Options:

- Drain and sampling attachments

Features:

- Terminal configurations include threaded bayonet hermetic receptacles or stud terminals
- Helilok® quick-disconnect and positive locking mechanism
- Lockwiring of chip detector plug not required
- Retains ferrous debris off-line analysis
- Self-closing valve allows removal of chip detector with minimum oil loss
- Scalloped hand grip permits a secure hold on plug, even with arctic gloves



Chip Detectors with Self-Closing Valves

Chip Detector Contact Gap Designs

Depending on wear, particle size, and quantity, chip detectors are available with either axial or radial gap configuration.

Axial Gap Chip Detectors

The axial gap chip detector has two pole pieces which have a gap between them in an axial direction relative to the magnetic chip detector. Characterized by improved contact exposure, high particle retention and increased small particle sensitivity, this type is ideally suited to engine lube systems, high speed pumps and other equipment with high surface speeds that generate small particles.



Axial Gap Chip Detector

Radial Gap Chip Detectors

The radial gap chip detector has two pole pieces which have a gap between them in a radial direction relative to the magnetic chip detector. The pole pieces are located at the end of the magnet nearest the oil stream and have an annulus extending radially outward from the centerline of the detector. This type is recommended for helicopter gearboxes and transmissions and other relatively low-speed power trains where impending failure produces wear particles of larger size and quantity.



Radial Gap Chip Detector

Eaton Corporation
Sensing & Controls
24 East Glenolden Avenue
Glenolden, PA 19036-2198
USA
tel: (610) 522-4000
fax: (610) 522-4900
www.aerospace.eaton.com

AS 9100

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