DOUBLE-WOUND COILS SUIT HEAVY-DUTY RAIL TRANSPORT APPLICATIONS

A new series of double-wound, AC-immune coils – specifically developed for heavy-duty hydraulic applications in the rail transport sector – have been launched by ATAM. These are designed to provide the rail industry with coils capable of suppressing electromagnetic interference from alternating current, which can cause variations in the magnetic fields that are generated to pilot solenoid valves.

The construction method employed is based on a double coaxial winding. Any potential stray currents in the supply that could disturb the 'main' field generated by the first coil are cancelled out by a magnetic field generated by the second, forming a short circuit (simply by generating a magnetic field equal and opposite to any variations generated in the second coil by sinusoidal supply disturbances).

The main coil powered by continuous current can therefore maintain stable piloting of a solenoid even with variations in the power supply networks. The result is improved efficiency and safety along the line, whilst also avoiding the need for electronic filters, which can be at risk of melting down due to Joule heating caused by persistent disturbances in the main electricity supply.

High power AC-immune coils are normally implemented for the actuation of hydraulic solenoids on rail transport lines with supply voltage of 110 VDC, but they are also used with voltages of 115, 100, 72, and 32 VDC, depending on the supply ratings of the trains, subways, or shuttles in the different countries in which these devices are installed. In some of these applications the vehicle power supply lines are 'dirty' with stray medium to high voltage alternating currents of 500 to 700 VAC.

AC-immune coils are also used in heavy-duty off-vehicle applications, such as on railway points, and in general for applications in which the protection of coils with normal electronic filters is problematic. They are also used when maximum safety is required, again for example on railway points.

ATAM's new range of coils complements its extensive portfolio. However, the company is best known for its custom-made products, which today account for 70% of total production.

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