

New AC-Immune Coils for Hydraulics

The new double-wound coils ensure suppression of electromagnetic interference for heavy-duty applications in the rail transport sector.

Agrate Brianza (MB). May 6, 2020. ATAM, a recognised international manufacturer and supplier in the field of encapsulated coils and industrial connectors, is launching a new series of double-wound, AC-immune coils specifically developed for heavy-duty hydraulic applications in the rail transport sector.

ATAM's Series 463 through to Series 466 has been extended to incorporate coils capable of suppressing electromagnetic interference from alternating current, which can "dirty" continuous current magnetic fields generated to pilot solenoid valves.

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, including items developed from scratch as well as standard products adapted to the specific requirements of customers.

Construction Method

The construction techniques employed for the new coil series are 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).

In this way the main coil powered with continuous current can maintain stable piloting of a solenoid even with "dirty" power supply networks, improving efficiency and safety along the line while avoiding the risk of electronic filters (normally used for this purpose) melting down due to Joule heating caused by persistent disturbances in the main electrical supply.

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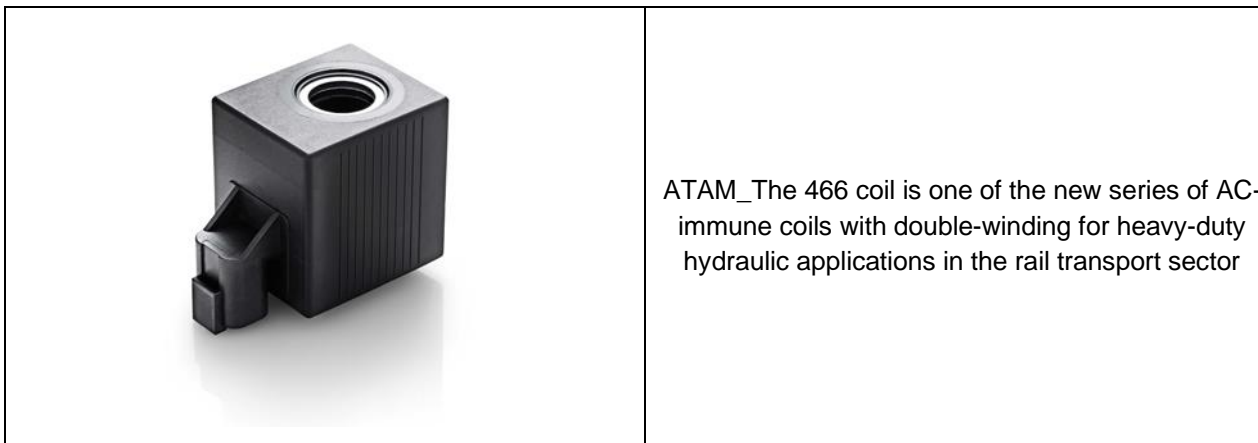


Fields of Use

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, like for example on railway points, and in general for applications in which the protection of coils with normal electronic filters is in some way problematic. They are also used when maximum safety is required, again for example on railway points, fitted on well filtered voltages in compliance with the principle of safety system redundancy.

FIGURES



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