


Don't be afraid of oncoming traffic.



A small detail with a big effect.
That is how the best ideas work.
Eaton integrated two-way traffic
and used only one line instead of
two in the car air conditioning
system. Energy savings included.

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The Eaton logo is displayed in white, bold, sans-serif capital letters. The letter 'A' is stylized with a dot in the center. The background of the entire page is a photograph of a large, circular tunnel with a greenish-yellow tint. The tunnel walls are made of concrete segments, and there are ladders and lights visible along the sides. The perspective is looking down the length of the tunnel towards a bright light at the far end.

EAT•N

Coolaxial
Product Focus

Coaxial Coolant Tube

Coolaxial

One line – two directions

The solution is sometimes intuitive, if you know where to look. Like a tunnel builder who saves time and money by digging a single tunnel for traffic from both directions – Eaton has also integrated two lines into one tube to increase the efficiency of the air conditioning system.

One line – two directions. It is that easy!

Always be one step ahead.

Coolaxial reduces

- Space
- Fuel consumption
- CO₂ emission
- Pressure loss
- Installation time.

Coolaxial improves

- Air conditioning system efficiency
- Cooling capacity
- Compressor protection.



Improvements with Coolaxial

Space

Eaton Coolaxial solves packaging problems with smaller space requirements.

Fuel and CO₂ reduction

Systems with Eaton Coolaxial operate with a higher refrigerant inlet temperature at the compressor. The effect is reduced fuel consumption of the compressor.

For example, at 35 °C outdoor temperature and 40% humidity, compressor energy consumption is reduced by 9%. Under the same conditions, fuel consumption is reduced by 1 l/100 km and CO₂ emissions by 23 g/km.

At 45 °C and humidity of 25%, compressor energy consumption is reduced further to 13% while fuel consumption decreases by 1.4 l/100 km and CO₂ emissions are reduced by 34 g/km.

The Eaton Coolaxial combats pollution, enhancing the ability of vehicle manufacturers to adhere to EC standards for reducing CO₂ emissions.

Pressure loss

Eaton Coolaxial design optimizes the total capacity of your system by reducing pressure loss on the suction side by 35%.

Cooling capacity

An air conditioning system with Eaton Coolaxial generates almost 6% more cooling capacity at idle speed and more than 12% during driving operations under the same conditions.

Cooling efficiency

The Eaton Coolaxial enables an increase in the performance (COP) of the air conditioning system of about 10% at idle speed and 13% in driving operation at identical or higher cooling capacity.

Compressor protection

Additional compressor protection is provided by an increase of overheating on the low pressure side. The resulting temperature change on discharge side is marginal.

Handling and installation

With its compact design, the Eaton Coolaxial is easier to handle during installation, reducing installation time. Additional benefit can be gained with the application of Eaton quick connectors.

The compactness of the Eaton Coolaxial saves containers and reduces your logistics costs and part number count.

IMPROVEMENTS WITH COOLAXIAL IN LIGHT COMMERCIAL VEHICLE¹

Energy Consumption Compressor

Driving Condition 1*	-9%
Driving Condition 2*	-13%

Fuel Reduction

Driving Condition 1*	1.0 l/100 km
Driving Condition 2*	1.4 l/100 km

CO₂ Emission

Driving Condition 1*	-23 g/km
Driving Condition 2*	-34 g/km

Pressure Loss

Idle	-35.0%
Driving	-34.9%

Cooling Capacity

Idle	+5.7%
Driving	+12.4%

Cooling Efficiency (COP)

Idle	+9.5%
Driving	+12.9%

* Driving Condition 1

35 °C, 40% humidity

* Driving Condition 2

45 °C, 25% humidity

¹ Values may vary depending on system and environmental conditions



Coolaxial is the solution

The Eaton Coolaxial is extremely flexible for easier packaging. Outer chambers do not restrict flow at a bending radius of 40 mm and a bending angle of more than 180°.

Eaton Coolaxial has been designed for easy integration of pressure switches and charge-ports common to today's refrigerant systems.

The Eaton manufacturing process for the Coolaxial has been proven stable and repeatable in production.

The innovation and performance of the Eaton Coolaxial has been proven to vehicle manufacturers under various test conditions. Witness the performance of Eaton Coolaxial at Audi.

With the Eaton Coolaxial, you provide your customers with exactly what they want: an active contribution to the environment with driving comfort.

Benefit from the two-way traffic!

1



2



1. Based on our extensive experience as an automotive hose assembly supplier for many manufacturers and platforms, we are able to integrate Coolaxial into both existing and future vehicle systems.

2. Eaton specialists measure and evaluate the efficiency improvement of a mobile air conditioning system using system test benches and mobile data logging systems in our Engineering Center.