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December 2019

RADIAL OIL SEPARATOR INSIDE SPRAY OR SPRAY-COOLED ELECTRIC MACHINES

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Recommended Citation

Blunder, Verena, "RADIAL OIL SEPARATOR INSIDE SPRAY OR SPRAY-COOLED ELECTRIC MACHINES",
Technical Disclosure Commons, (December 02, 2019)
https://www.tdcommons.org/dpubs_series/2723



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RADIAL OIL SEPARATOR INSIDE SPRAY OR SPRAY-COOLED ELECTRIC MACHINES

Technical task:

Cooling medium for cooling drive machines in the automotive industry.

Initial situation:

Coolants are sprayed inside drive machines to cool components. This is also done with oil, for example in future electric drive machines for vehicles. This oil must be captured from the air and returned to the oil circuit.

Solution:

The electric machine executes a very fast rotational movement through the rotor. This sets the air in the electric machine room into a similar rotational movement, which can be used at the same time to increase the amount of coolant precipitated from the air.

Explanation:

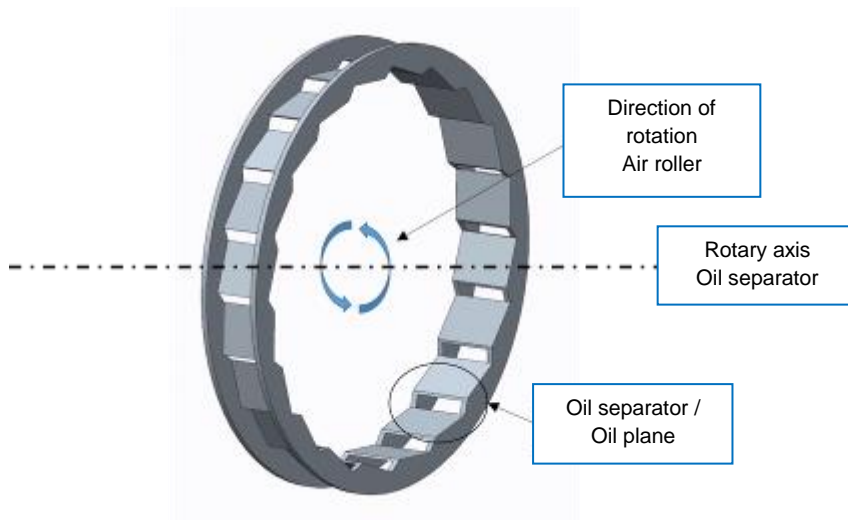
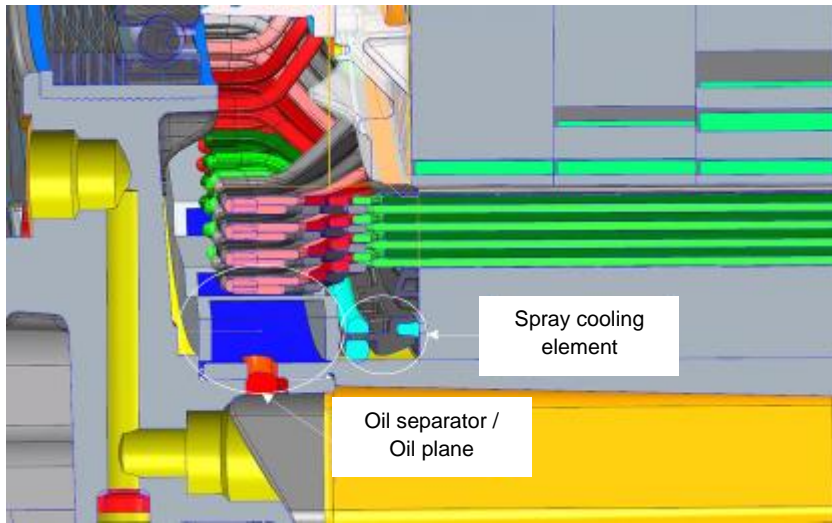
An oil trap element uses the basically continuous flow direction to trap the oil of the "fluid-laden" air by means of calming gutter or impact.

Advantages:

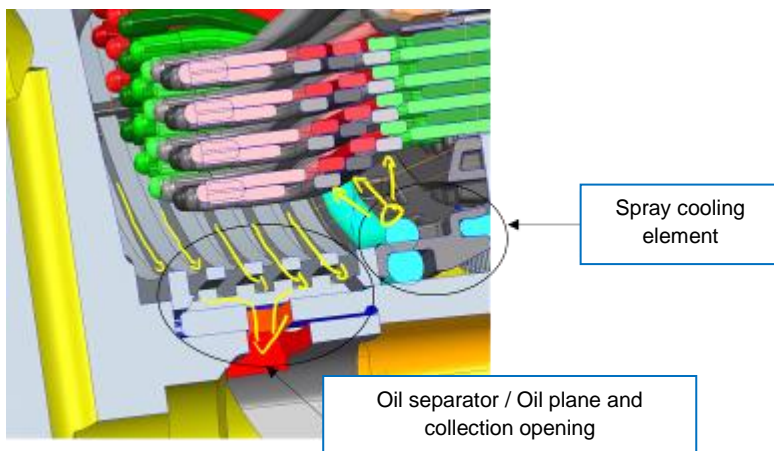
- Less oil in the air in the electric machine
- Low air resistance during rotation of the rotor
- Oil is pumped faster into the tank
- Less oil needed (cost) or oil can soothe longer (cooling improves)
- The oil can be separated very close to the point of use and directed directly to the destination (suction opening).
- Reduction of the number of components and efficient implementation

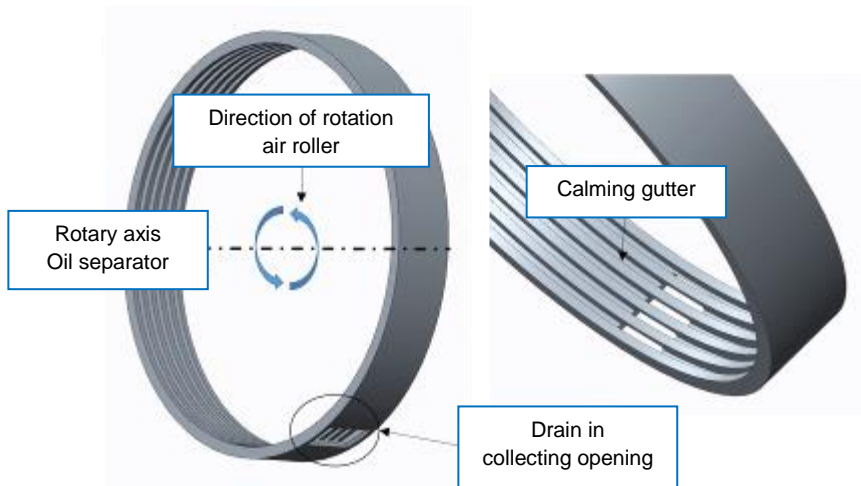
Technical implementation:

Variant 1



Variant 2





Advice:

If it is not possible to safeguard the invention as a stand-alone unit, it would be possible to increase the degree of innovation by renaming it a "combination" of spray element and separation system. If a stand-alone backup is possible, a separate message with the combination solution will be sought subsequently.