

Common causes of Air Conditioning condenser clogging

The air conditioning (AC) condenser is placed in the front of the car, and is typically located with other heat exchangers, such as an intercooler and engine radiator. The condenser is crucial for AC system operation. It ensures that the refrigerant changes from a gas to a liquid form. This is achieved through condensation, where heat is extracted from the refrigerant, and exchanged with ambient air.

When impurities develop in the system, the thin channels inside the condenser will quickly clog. This can restrict refrigerant flow, eventually reducing the unit's ability to exchange heat. In most cases, this will eventually cause overpressure in the system, which is extremely harmful for the compressor. Condensers with micro tube technology are at great risk. While micro tube technology offers excellent cooling performance, the thin fins are more exposed to blockages. As refrigerant flow is compressed to a more confined area, fewer impurities are needed for clogging to occur.

Recommended Solution

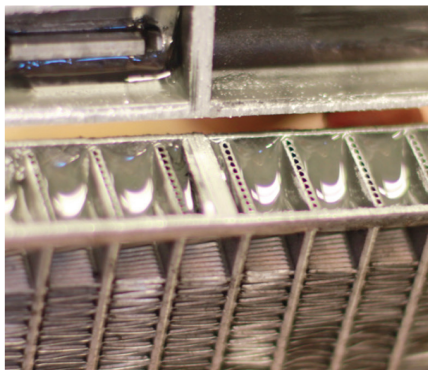
To keep the condenser in good condition, the receiver dryer must always be replaced during a compressor replacement, if the circuit has been exposed to ambient air, or the system has run empty (due to leakage from the AC system). If none of these events occur, it is recommended to replace the receiver dryer every second year.

Furthermore, it is always required to perform a system flush after a compressor breakdown. But make sure that no flushing agent residues remain in the system after flushing.

Always use recommended oils and additives. Replace the condenser in cases of doubt.

Common causes for condenser clogging

- **No or poor flushing** – A thorough system flush must always be performed prior to a new component installation - especially after a compressor failure/seizure. When a compressor has seized, metal chips can break off and cause clogging in the system. Furthermore, carbonized oil particles, developed due to compressor overheating, can cause clogging in the system, and must be flushed.



Black, carbonized oil will quickly clog the condenser's inner tubes



Visible soiling at the condenser inlet



Oil drained from a seized compressor. The visible contaminations are spread in the entire system, including the condenser



Worn out receiver dryer (or desiccant bag cartridge) often results in clogging of the condenser's inner tube

- **Receiver dryer poor condition** – Poor condition of the receiver dryer means that it will become less efficient in filtering particles, increasing the risk of impurities flowing through the system. This will eventually lead to clogging of the condenser, as well as other components.
- **Wrong use of additives** – Incorrect additives, or improper application of additives, can cause system contamination. This is often caused by crystallized stop-leak agents and/or Teflon that has peeled off inner parts

of the compressor. Teflon peeling off can be caused by aggressive cleaning agents, that are not properly removed from the system.

- **Wrong Lubricant** – A lubricant with a too high viscosity can easily clog the condenser, especially condensers built with micro tube technology, due to the confined flow in the fins.