

Issue no. 01/2023

Risk of confusion over air conditioning compressor safety valves

Occasionally, when adjusting the oil quantity in a new air conditioning compressor, the safety valve is mistaken for the drain plug.

If an air conditioning compressor is replaced, it's almost always necessary to adjust the oil quantity in the compressor. Most compressors have a drain plug for this purpose. First, this must be removed to completely drain the oil from the compressor. The required quantity of oil for the entire air conditioning system is then determined and refilled via the drain plug opening (see TM 03/2020).

In the worst case, the safety valve (pressure-relief valve) can be confused with the drain plug, for example, if it is located under a connector plug or cable and is therefore not immediately visible. However, oil cannot be drained or refilled this way, even if the valve is removed. Since the valve is always located in the high-pressure section of the compressor, it isn't connected to the working chamber in which the oil is located.

Purpose of the safety valve

If there is a malfunction or blockage in the air conditioning circuit, the safety valve will open at a defined pressure to protect the system from damage caused by overpressure. Many safety valves have a paint or film seal, but there are also versions without this sort of seal. If the seal is missing or residues of oil or contrast agent

can be seen on the safety valve, it can be assumed that the valve has opened due to a defect. That's why the valve should always be inspected as part of a system check.

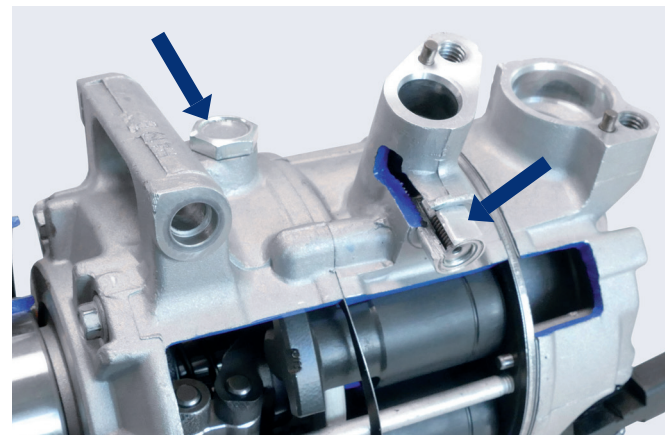


Figure 1: Drain plug (left) and safety valve (right) at the outlet on the high-pressure side

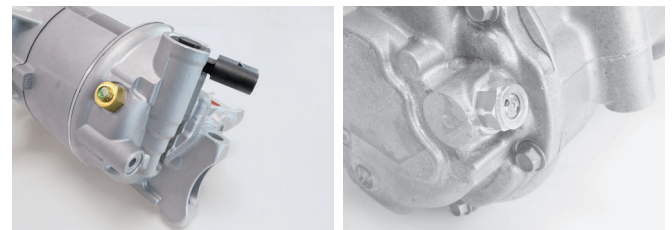


Figure 2: Safety valves in various designs

Important!

When replacing the compressor, the oil quantity must always be adjusted to prevent consequential damage caused by overfilling or underfilling. Seals on opened connections should always be replaced and wetted with clean compressor oil before assembly to prevent damage.