

Thermal Expansion Valve (TXV)

Proper working parameters of the AC system



Role & Operation

The Thermal Expansion Valve (TXV) is one of the major control components of the AC loop. It's a precise metering device that controls the amount of refrigerant released into the evaporator.

The TXV separates the high-pressure and low-pressure sides of the AC loop. It is preset to maintain the superheat condition within the evaporator and, by this, to ensure the system's most optimal operation and output matching the needs for cold air production.



Important to know

- The TXV valve's malfunction leads to the AC system's worsened performance, and exposes the AC compressor to abnormal load, thus premature, severe failures such as overheating, seizure and slugging.
- Getting stuck in an open or closed position is one of the most common TXV failures. It disables the required refrigerant flow control and pushes the system parameters out of balance. System inner contamination is the major culprit leading to valve blockages.
- It is highly recommended to replace the TXV valve with the AC compressor's replacement. A thorough and effective AC system flushing procedure must always precede the TXV and/or the AC compressor's replacement.

EXPERIENCE THE DIFFERENCE:



Competitive offering

Nissens' Expansion Valves offering has been developed to match the aftermarket needs and, along with the attractive product selection and wide applications coverage, related tools and concepts including technical training are offered by us to help grow your AC business.



All that you need from your AC Specialist

Our aim is to supply the market with a holistic product selection within the AC category, enabling reliable performance of the climate comfort system and first-time-right installation of its critical component, i.e., the AC compressor. The TXV range from Nissens joins our well-established collection of AC parts: compressors, condensers, receiver-dryers, evaporators and fans.



Genuine Nissens Quality - precision in every detail

Nissens Expansion Valves are developed according to our renowned, high-quality standards, which include a comprehensive test and validation series. These cover, among others, strict control of the valve's pressure performance, tightness, opening and set-point setting, as well as its precise inner elements' finish and cleanness.

O-rings included in the product box; mounting bolts included when applicable



Quick & Proper Installation
First Fit Product



Stock Availability - February 2021

Program Highlights



+60

Initial range of item numbers at launch

+275

OE applications covered



Valve Technology
Block type



Program Scope
Passenger Cars
Light Vans
Trucks



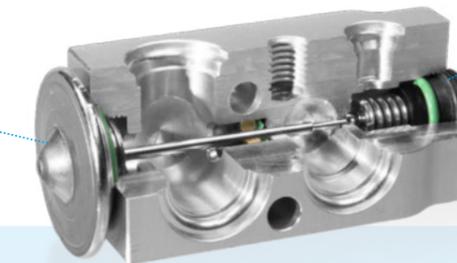
Precision matching OE characteristic

The power (sensing) element is the most important component in the Expansion Valve. Our specially designed charge formula ensures the valve's operation matches the OE equivalent characteristics and the specific system needs in the given vehicle application.



Proper setting for operation stability

Our valve's output pressure and opening characteristics are thoroughly tested and appropriately adjusted to ensure the valve's stable and appropriate function within the common range of the refrigerant temperatures and pressures that occur during the AC cycle.

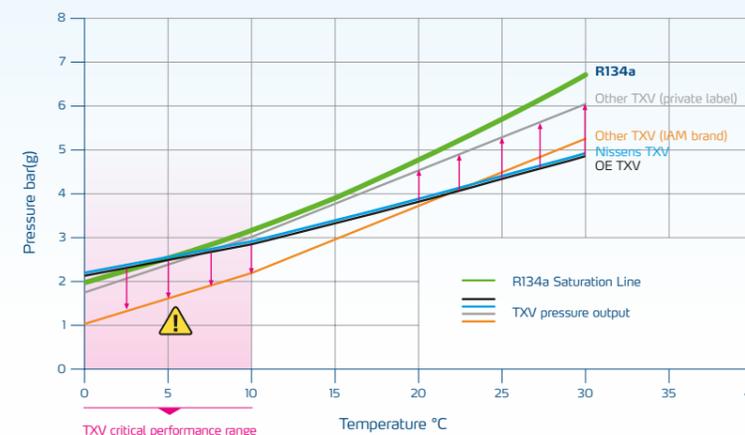


Safe and reliable system performance

Advanced performance tests have proven, Nissens Expansion Valve is a safe, perfectly finished product designed to maintain the required refrigerant parameters (superheat), and thus the AC system's optimal thermal performance and proper balance. Furthermore, it ensures safe operation and long life span of the AC compressor, preventing it from slugging or failures related to lubrication and overheating.

TXV Sensing Element's Behavior Test, Pressure Output vs Temperature

A back-to-back test of sensing element's behavior was performed to build comparison of the outlet pressure performance generated by opening set points of various TXV brands. Nissens' item number #999222 was used for the test, along with the OE and other IAM equivalents.



The Test Conclusions

Nissens TXV's opening behavior is based on a proper sensing element charge, and thus an appropriate set-point configuration that matches the OE unit and the system-specific requirements for the refrigerant parameters.

Significant deviations in the sensing element's behavior, and thus opening setting of the other tested TXV brands. The other tested valves' setting does not follow the OE valve's characteristics across various temperatures and considerably differs in the critical performance range (i.e. below 10°C).

The notable, large deviations from the OE pattern may lead to a significant reduction of the system thermal efficiency, and thus provoke severe failures of the AC compressor (e.g. slugging, lubricant dilution, overheating). Furthermore, the large deviations and different from OE behavior, reveal an improper charge technology applied for the sensing element at the other brand's valves.