

## THE IMPORTANCE OF TX VALVES

### What is a TX valves' function?

A thermostatic expansion valve (TX Valve) controls the flow of liquid refrigerant into the evaporator. They have a variable metering orifice that opens and closes based on the outlet temperature and pressure of the evaporator coil.

Most passenger vehicle ac systems use block style TX valves.

### What is Tonnage?

TX valves have a tonnage rating which refers to the capacity of the valve.

1 ton = 12,000 Btu/hr

### What is Superheat and why is it important?

Superheat refers to the "extra heat" absorbed by refrigerant vapour after it has changed state inside the evaporator coil. It ensures all liquid refrigerant is evaporated which provides maximum thermal efficiency.

Most TX valves have a Superheat setting between 5-10°C.

### Excessive superheat

- Can result in low liquid level and flow rate.
- This can cause the compressor to be starved of refrigerant and lubrication, which can result in overheating and failure.

### No Superheat

- Can cause a flooded evaporator resulting in no change of state in refrigerant from liquid to gas and liquid could exit the evaporator, potentially causing "liquid slugging" of a compressor.

### Symptoms of a malfunctioning TX valve

- Frost on the evaporator
- Low suction and head pressure
- High evaporator and compressor superheat
- Short cycling low pressure control

### What causes the evaporator lines to freeze?

- Excessive moisture in the system, saturated dryer. This will cause the moisture to freeze at the metering needle and block the flow of refrigerant.
- If the TX valve is flooding the evaporator the suction line should be frosty. In severe cases the frost can be seen on the compressor suction fitting and also the body of the compressor. This will wash out the oil from the compressor leaving bearings surfaces dry and fail.

### Can a dirty TX valve be cleaned?

- Block type – no, it's best to be replaced.



CoolDrive Auto Parts has a comprehensive range of OE and aftermarket TX valves available. Contact your local branch.