

Small Scroll (MLZ/LLZ) compressors

Refrigerant and oil compatibility

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Disclaimer: Information given below is a summary of data available in Danfoss literature. For more details, see application guidelines and all relevant document.

Background:

Refrigerant manufacturers are responding to challenges on climate change and global warming by developing new products and Danfoss encourages the further development and application of low-GWP refrigerants.

Small Scroll compressors have been improved and are now approved for use with refrigerant R448A/R449A/R452A, which could replace R404A and R507 in the middle/low temperature refrigeration application.

A new class of POE oil (215PZ) is being implemented. This new oil is an improvement, to enable the oil (215PZ) to withstand more mechanically demanding and more stressful operations with new refrigerants. All of new MLZ/LLZ compressors with POE oil 215 PZ will be named with evolution “A”, example: MLZ076T4LC9A / LLZ034T4LQ9A

This modification has no impact on the performance nor the reliability or the operating envelope of the affected compressors, Life tests have been carried out along the same specification for the current version.

The reference of the oil on the compressor nameplate will change as will the reference for ordering a can of oil.

Please refer to following table:

Can	POE 215 PZ (RLH46HB)
1 liter can	120Z0648

The following tables intends to give you some visibility on the possibilities of retrofit for compressors still in operation, and that do not benefit of recent mechanical and lubrication improvements.

MLZ

Table below is for compressor factory oil charged with PVE 320HV

Factory charged oil in the compressor	Original qualified refrigerant in the compressor	Authorized refrigerant if oil changed to POE 215 PZ	Comment
PVE 160HV/320HV	R404A / R407F / R407A / R507 / R134a	R404A / R407F / R407A / R507 / R134a	<p>Compressor original code example: MLZ076T4LC9</p> <p>PVE 160HV/320HV and POE 215 PZ are compatible and miscible.</p> <p>Max 20% of residual PVE 160 HV/320HV</p>

For recently released improved products, factory oil charged with POE 215PZ, table as bellow

Factory charged oil in the compressor	Original qualified refrigerant in the compressor	Comment
POE 215PZ	R404A / R407F / R407A / R507 / R134a / R448A / R449A / R452A	<p>Compressor original code with A example: MLZ076T4LC9A</p> <p>Compressors with mechanical and lubrication improvement. Qualified model evolution A</p> <p>Progressive release of models list (1)</p>

Nota : with R448A, R449A and R452 A, cooling capacity is slightly reduced (see Coolselector) and COP improved.

(1) For additional information, see Cooling Product Notification FRCC.EN.211.A1.02

LLZ

Table below is for compressor factory oil charged with PVE 320HV

Factory charged oil in the compressor	Original qualified refrigerant in the compressor	Authorized refrigerant if oil changed to POE 215 PZ	Comment
PVE 320HV	R404A / R507	R404A / R507	Compressor original code example: LLZ034T4LQ9 PVE 320HV and POE 215 PZ are compatible and miscible. Max 20% of residual PVE 320HV

For recently released improved products, factory oil charged with POE 215 PZ, see table below.

Factory charged oil in the compressor	Original qualified refrigerant in the compressor	Comment
POE 215 PZ	R404A / R507 / R452A/R448A/R449A	Compressor original code with A example: MLZ076T4LC9A Compressors with mechanical and lubrication improvement. qualified model evolution A Progressive release of qualified code numbers (1)

Nota : with R448A, R449A and R452A, cooling capacity is slightly reduced (see Coolselector) and COP improved.

(1) For additional information, see Cooling Product Notification FRCC.EN.211.A1.02