

FACT SHEET

GEARBOX OIL COOLER



Various variants of transmission cooling

Transmission oil cooling is intended for applications that impose demands on transmission cooling, for instance heavy transportation and/or vehicles driven in hot climates.

Volvo Trucks offers several variants of transmission cooling, from basic to extra-high performance and with different techniques for cooling.

Air or water

The water-cooled variants are connected to the engine's own cooling system and cools the transmission via a heat exchanger that is attached directly to the transmission.

The air-cooled variants have a separate radiator fitted in the front of the vehicle. This radiator is connected in series with the engine's cooling system and in turn to the heat exchanger attached to the transmission.

Sales variants

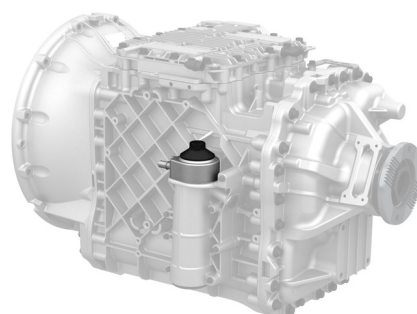
TC-MAO*	Oil/air cooler for I-Shift Basic performance
TC-MWO	Oil/water cooler for I-Shift Basic performance
TC-MWOH2	Oil/water cooler for I-Shift High performance
TC-MAOH2	Oil/air cooler for I-Shift Extra-high performance
TC-HWO	Oil/water cooler for Powertronic Basic performance

*Only for CNG-engines.

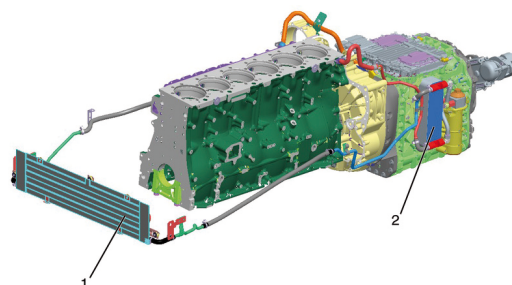


PRODUCTIVITY

- Increases durability of the transmission.
- Operation can be performed in warmer conditions.



TC-MWO - Showing the heat exchanger on the transmission



TC-MAOH2

1. Separate radiator
2. Heat exchanger

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Oil cooler choice

Based on the following choices for topography, ambient temperature and gross combination weight (GCW), a recommendation of a suitable oil cooler is suggested.

Recommendations apply for both direct drive and overdrive transmissions and with and without retarder.

Topography

When selecting oil cooler, start to check the topography the vehicle will operate in:

Flat topography	T-FLAT
Predominantly flat topography	T-PFLAT
Hilly topography	T-HILLY
Very hilly topography	T-VHILLY

More information is to be found in respective fact sheet for the above sales variants.

Hot climate

Ambient temperature hot. Up to +40 °C. Warmer allowed 25 h/year. Limit for temperate climate is exceeded. Sales variant **ATU40**.

Very hot climate

Ambient temperature very hot. Warmer than +40 °C more than 25 h/year. Sales variant **ATU-VH**.

More information is to be found in separate fact sheet for Ambient temperature.

Directive for heavy duty applications

This applies for I-Shift only.

Select the load case (LC1-LC12) in the Topography/Load case table by using the topography defined earlier. Finalize the oil cooler choice in the Climate table (UTCOOL means without oil cooler).

Topography/Load case table

	Topography			
GCW (tonnes)	T-FLAT	T-PFLAT	T-HILLY	T-VHILLY
>80	LC12	LC12	LC12	LC12
61–80	LC8	LC11	LC12	LC12
53–60	LC4	LC7	LC12	LC12
37–52	LC3	LC4	LC10	LC12
0–36	LC1	LC2	LC9	LC12
	Load case (LC)			

Climate table

	Climate		
Load case	Temperate	Hot	Very hot
LC1	UTCOOL	UTCOOL	UTCOOL
LC2	UTCOOL	UTCOOL	TC-MWO
LC3	UTCOOL	TC-MWO	TC-MWO
LC4	UTCOOL	TC-MWO	TC-MWOH2
LC5	TC-MWO	TC-MWO	TC-MWOH2
LC6	TC-MWO	TC-MWOH2	TC-MWOH2
LC7	TC-MWO	TC-MWOH2	TC-MWOH2
LC8	TC-MWO	TC-MWOH2	TC-MWOH2
LC9	TC-MWOH2	TC-MWOH2	TC-MAOH2
LC10	TC-MWOH2	TC-MWOH2	TC-MAOH2
LC11	TC-MWOH2	TC-MAOH2	TC-MAOH2
LC12	TC-MAOH2	TC-MAOH2	TC-MAOH2

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GEARBOX OIL COOLER**Additional information for PTO applications****Gearbox mounted PTO**

In some cases where the gearbox PTO is severely used, extra care about oil cooler choice is needed. For these applications, follow the below stated directives:

- Heavy rear PTO usage (transmission PTO) > 75 kW 15 minutes or more, TC-MWO is required if the directive doesn't require TC-MWOH2 or TC-MAOH2.
- PTO usage (transmission PTO) 1 hour or more, TC-MWO is required if the directive doesn't require TCMWOH2 or TC-MAOH2.

Splitbox PTO

In applications where a splitbox is utilized for running high-capacity PTO:s, the additional directives should be followed:

Splitbox engaged only on direct gear.

- Splitbox PTO usage >30 minutes, TC-MWO is required.

Splitbox engaged on indirect gear.

- Splitbox PTO usage <30 minutes, TC-MWOH2 is required.
- Splitbox PTO usage >30 minutes, TC-MAOH2 is required.