RET-TH is a compact, gearbox-mounted, hydraulic retarder that effectively supplements the vehicle’s ordinary brake system. It is suited to a number of manual gearboxes as well as to l-shift.

The retarder is coordinated with the engine’s exhaust brake, which results in high overall braking power. Volvo’s most powerful engine brakes can be used, and a special function ensures that the rear axle is not overloaded.

Using the additional brake as primary brake limits wear on the truck’s ordinary brakes, which reduces total operating costs.

The compact retarder is very suitable for regional and long-haul transports in hilly areas. Retaining a safe driving the average speed can be increased as the retarder makes it possible to maintain higher speeds when driving on long downgrades. This results in a considerable increase in vehicle productivity.

The retarder is fitted with a cruise control function that makes it easier for the driver to maintain a constant speed when driving downhill. Since the retarder is connected to the propeller shaft, braking power is also utilised when changing gears. Engaging and regulating the retarder is carried out conveniently with a lever next to the steering wheel.

The retarder should be regarded as an integrated part of the brake system, and it must be factory mounted as it cannot be retrofitted.

### FEATURES AND BENEFITS

- Compact and durable design with few moving parts results in a long service life and high vehicle productivity.
- Coordinated with the engine’s exhaust brake.
- High braking torque that increases driving safety and reduces wear on the vehicle’s ordinary brake system.
- Easy-to-access manual control provides exactly the right amount of braking power in every situation.
- Cruise control function provides automatic cruise control on downgrades.
- Approved for ADR transport.

### SPECIFICATION

<table>
<thead>
<tr>
<th>Designation</th>
<th>RET-TH</th>
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<tbody>
<tr>
<td>Manufacturer</td>
<td>Voith</td>
</tr>
<tr>
<td>Max. brake torque on propeller shaft</td>
<td>3250 Nm</td>
</tr>
<tr>
<td>Max. brake torque at 750 r/min</td>
<td>3000 Nm</td>
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<tr>
<td>Max. brake torque at 500 r/min</td>
<td>2000 Nm</td>
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<tr>
<td>Max. brake power* (approx.) with engine brake, EBR, kW:</td>
<td></td>
</tr>
<tr>
<td>EPG</td>
<td>VEB</td>
</tr>
<tr>
<td>D9</td>
<td>580**</td>
</tr>
<tr>
<td>D11</td>
<td>600**</td>
</tr>
<tr>
<td>D13 (Euro3)</td>
<td>620**</td>
</tr>
<tr>
<td>D13 (Euro4)</td>
<td>620**</td>
</tr>
<tr>
<td>D13B</td>
<td>780</td>
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<tr>
<td>D13C</td>
<td>620**</td>
</tr>
<tr>
<td>D16C</td>
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<tr>
<td>D16E</td>
<td>670</td>
</tr>
<tr>
<td>D16G</td>
<td>670**</td>
</tr>
</tbody>
</table>

* In the case of continuous operation, effect is reduced when water and oil temperature increase.
** Also for EBR-EPGC.
*** Also for EBR-VGTC.

Weight including oil: 105 kg
Oil change volume: ca 6 l
**High driver efficiency with effective brake function**

The retarder is activated together with the engine’s exhaust brake by a control lever next to the steering wheel. When the retarder is engaged, this is shown in the driver information display.

The retarder’s function is regulated by an electronic control module integrated into the vehicle’s electronic system. The retarder’s control module communicates with the engine management system, and depending on the truck’s instrumentation, also with the gearboxes’ control module, and with the control modules for ABS (Anti-lock Braking System) or EBS (Electronically controlled Braking System).

The control lever has four or five positions, depending on whether the truck has a manual gearbox or l-shift.

The first position provides automatic cruise control when driving down hills (Brake Cruise) as well as Brake Blending, i.e. activation together with the ordinary brakes when the brake pedal is depressed. The next three positions provide fixed brake power levels between 20-60% of the total brake torque if the vehicle is unloaded, and between 40-100% if it is loaded.

On vehicles with I-shift gearboxes, there is also a spring-return “B position” that is used to activate the “brake program”. This function enables faster down-changes while braking for the purpose of providing higher power from the engine’s exhaust brake.

**Simple design provides high vehicle reliability**

The RET-TH is a compact, closed unit with few moving parts, which results in minimal wear and high vehicle reliability.

The retarder consists primarily of two impellers; a fixed one (stator) and a rotating one (rotor) which counteract each other with the help of oil. Due to the fact that the impellers on the stator and rotor are angled towards each other, the flow of oil between them is counteracted.

When the rotor (1), which is fitted to the gearboxes’ output shaft, rotates oil (2) is forced toward the stator (3), which is fixed in the retarder housing.

When oil reaches the stator’s impellers, a braking effect is created against the movement of the rotor, which means that the rotation of the propeller shaft is braked.

The retarder’s control module regulates the oil volume and the oil pressure in the retarder. The amount of brake force is dependent on the pressure and the amount of oil pressed in between the rotor and the stator.

**Effective cooling for high reliability**

When the retarder is used for braking, kinetic energy is converted into heat. In order to maintain an effective braking function, it is important to cool the heated oil.

Cooling is done by an integrated heat exchanger that has separate circuits for the retarder and the gearbox. The heat exchanger is connected to the vehicle’s ordinary cooling system, which ensures that the cooling requirements are met and this also makes the vehicle highly reliable. By activating the electrically controlled cooling fan at an early stage, good cooling throughout the entire braking process is ensured.

**Reduced operating costs increase profitability**

Thanks to the retarder’s high braking torque, it can handle the majority of all braking situations. This results in reduced wear on the ordinary brakes, which means lower maintenance and repair costs.

The retarder is coordinated with the engine’s exhaust brake, which provides high total braking power. A special function also ensures that the rear axle is not overloaded at high simultaneous braking torque. The retarder installation is integrated in the transmission.

The retarder weighs approximately 105 kg and the gearboxes’ total length is increased by only approximately 100 mm. Gearbox-driven power take-offs can be used with no limitations.

The compact retarder normally does not require any service or maintenance in addition to one oil change per year.

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**FACT SHEET**

Volvo Truck Corporation

www.volvotrails.com

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