



Delo[®] TorqForce

Proven performance heavy-duty transmission and drive train fluids

Product description

Delo TorqForce products are proven performance heavy-duty transmission and drive train fluids formulated for use in transmissions, final drives, and hydraulic systems in Allison, Caterpillar, Dana Powershift, Komatsu, Komatsu Dresser, Tremec/TTC, Vickers and ZF equipment.

Delo TorqForce products are formulated with premium base oils combined with detergent and dispersant additives, oxidation and corrosion inhibitors, anti-wear, extreme pressure and foam suppression agents.

Customer benefits

- Proven additive package helps protect metal surfaces against scuffing and wear under severe high temperature, high load conditions
- Reliable frictional control helps prevent clutch slippage and offers quiet, efficient transmission and brake operation while reducing wear
- High quality base stock formulation is designed to provide robust oxidation protection at high operating temperatures and help extend oil service life
- Formulated to keep metal parts clean and free from varnish and sludge deposits that can cause premature breakdown



Product highlights

- **Designed to provide severe high temperature, high load protection**
- **Promotes friction and wear control for quieter operation**
- **High quality helps extend oil service life**
- **Formulated for keep-clean component protection**

Selected specification standards include:

Allison	Caterpillar
Dana Powershift	Eaton
Komatsu	Komatsu Dresser
Meritor (Rockwell)	Tremec/TTC
Vickers	Volvo
ZF	

Applications

- Delo TorqForce products are proven performance lubricants designed for use in transmissions, final drives, and hydraulic systems requiring a fluid meeting Caterpillar TO-4 or Allison C-4 requirements. They are also recommended for transmission and hydraulic systems manufactured by Dana Powershift, Komatsu, Komatsu Dresser, Tremec/TTC, Vickers and ZF
- Delo TorqForce products are designed for both newly developed and older model drive train components
- They offer robust friction retention, wear control, seal compatibility, oxidation stability, and viscosity stability
- The frictional characteristics of the fluid are designed to be retained over the life of the lubricant
- Delo TorqForce products are formulated to help protect against wear, even in severe service conditions and under high loads. They offer improved protection to precision parts against wear under high load conditions by helping control the formation of corrosion, varnish, and sludge
- Delo TorqForce products are compatible with new and traditional seal and clutch materials
- In order to meet Caterpillar specifications, Delo TorqForce products are not friction modified. Therefore, they are not recommended for equipment made by other OEMs who require friction modified fluids in order to assure smooth and quiet brake operation. For these applications, use 1000 THF or Super Universal Tractor Oil Extra 10W-30. (Note too that the reverse is also true - friction-modified fluids like these should not be used in Caterpillar TO-4 applications)
- Delo TorqForce SAE 10W may also be used as a substitute for Cat HYDO 10W in hydraulic system applications

The choice of viscosity grade will depend on ambient temperature conditions and operating severity. Viscosity grade recommendations are shown below:

SAE grade	10W		30		50	
	Min	Max	Min	Max	Min	Max
Hydraulic systems	-20	+40	-10	+50	—	—
Hydrostatic transmissions	-20	+40	—	—	—	—
Powershift transmissions	-20	+10	0	+35	+10	+50
Final drive/Differential/Gearboxes (except for off-highway trucks)	-30	0	-20	+25	0	+50
Final drive (off-highway trucks)	-30	-10	-20	+15	0	+50

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Note: Caterpillar's primary recommendation for final drives and axles in off-road service is their newer lubricant performance specification FD-1 – Delo TorqForce FD meets this specification. TO-4 type lubricants are still acceptable, although with a shorter drain interval.

Approvals, performance and recommendations

Approvals

SAE Viscosity Grade	10W	30	50
• ZF TE-ML 03C	X ^[2]	X ^[3]	—
• ZF TE-ML 07F	—	X ^[3]	—

Performance

SAE Viscosity Grade	10W	30	50
• Allison C-4	X	X	—
• Caterpillar TO-4 ^[1]	X	X	X
• Volvo 97305-90	—	—	X

Recommendations

SAE Viscosity Grade	10W	30	50
• Dana Powershift	X	—	—
• Eaton Fuller Roadranger manual transmissions	—	—	X ^[4]
• Komatsu KES 07.868.1	X	X	X
• Komatsu Dresser	X	X	X
• Meritor (Rockwell) Manual transmissions	—	—	X ^[4]
• Tremec/TTC	X	—	—
• Vickers 35VQ25	X	—	—

^[1] Caterpillar does not operate a formal approval system - each supplier is responsible for the performance of their own product.

^[2] ZF registration number: ZF001904.

^[3] ZF registration number: ZF001903.

^[4] Standard drain applications.

Typical test data				
Test	Test Methods	Results		
Viscosity Grade		SAE 10W	SAE 30	SAE 50
Shelf Life: 60 months from date of filling indicated on the product label.				
Density, 15°C, kg/l	ASTM D4053	0.868	0.883	0.895
Pour Point, °C	ASTM D5950	-42	-27	-27
Flash Point COC, °C	ASTM D92	232	≥225	≥225
Viscosity, Kinematic, 100°C, mm ² /s	ASTM D445	6.7	10.9	18.5
Viscosity, Kinematic, 40°C, mm ² /s	ASTM D445	42	88	199
Viscosity Index	ASTM D2270	117	110	103

The typical test data set out above does not constitute a specification. It is indicative only and can be affected by allowable production tolerances. Chevron may modify this test data. Modified data will supersede all previous data, so please ensure you refer to the latest version of this Product Data Sheet (PDS).

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