

RAVENOL®

OIL ANALYSIS AWD-TOR FLUID



TORSEN DIFFERENTIAL

A Torsen differential belongs to the group of limited slip differentials and is derived from the words Torque and sense.

It is a purely mechanical differential that works without sensors and can often be found in Audi Quattro models today.

It compensates for speed differences and can distribute the torque unevenly. The ratio in which the torque can be distributed between the two sides is called the torque-bias ratio, or TBR for short.

While with the open differential, the torque is either equally distributed to both wheels or lost on the tractionless wheel, the 100 percent limited-slip differential always distributes the power in the same ratio. The Torsen differential, on the other hand, multiplies the force that can still be delivered on the low-traction wheel by the ratio of the TBR to the wheel with greater traction or slower rotation.



RESULTS OF THE OIL ANALYSIS

Parameters Measurement methods	Unit	VW G055145A2	RAVENOL AWD-TOR Fluid
Appearance/colour	-	yellow-brown	yellow-brown
Colour code DIN ISO 2049:2001-06"	-	2,5	2,5
Density 15°C DIN EN ISO 12185:1997-1	kg/m ³	867,7	867,8
Viscosity 40°C E-DIN 51659-2:2014-08	mm ² /s	109,0	106,6
Viscosity 100°C E-DIN 51659-2:2014-08	mm ² /s	16,28	16,41
Viscosity index DIN ISO 2909:2004-08	-	161	166
Brookfield -40°C ASTM D 2983:2009	mPa·s	74800	48700
Pour Point DIN ISO 3016:1982-10	°C	-54	-54
Flash point DIN EN ISO 2592:2002-09	°C	184	230
VKA AW 40kg 1hr DIN EN ISO 20623:2018-04	mm	0,46	0,41
VKA EP Weld-Load DIN EN ISO 20623:2018-04	kg	3600/3800	3800/4000
KRL 20hr KV100°C DIN 51350-6:1996-08	mm ² /s	15,79	16,02
Shear stability, KRL, loss of viscosity	%	3,01	2,38
Foaming test sequence I ASTM D 892:2013	ml/ml	0/0	0/0
Foaming test sequence II ASTM D 892:2013	ml/ml	0/0	0/0
Foaming test sequence III ASTM D 892:2013	ml/ml	0/0	0/0
Copper Corrosion ASTM D130: 2012		2c	1a

BROOKFIELD -40°C

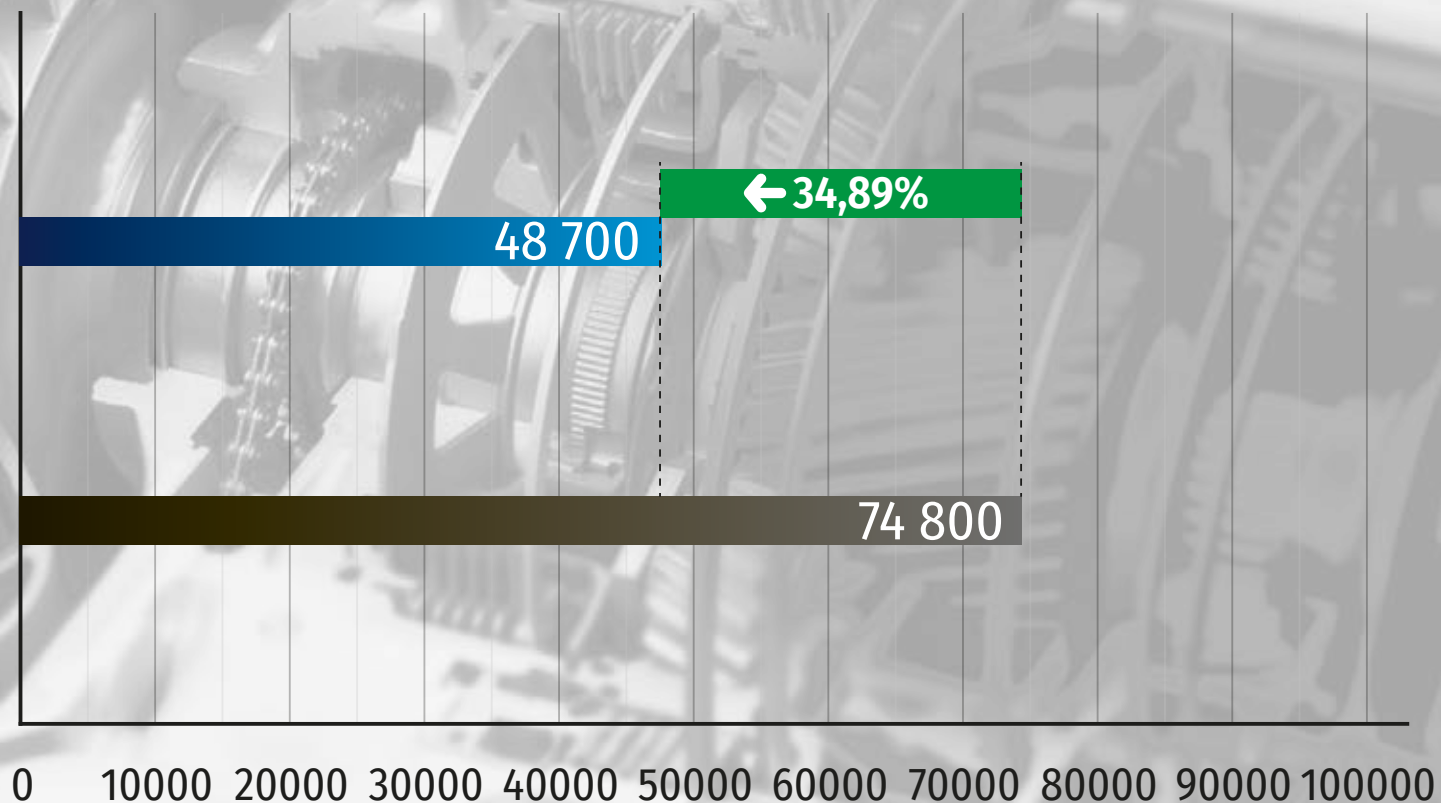
ASTM D 2983

The lower the dynamic viscosity, the better. The Torsen differential will begin to work faster, the oil will circulate more quickly and there is no wear caused by a low temperature start. With regard to the parameters for dynamic viscosity at minus 40 °C, RAVENOL AWD-TOR Fluid delivers 34,89% higher performance than the original oil VW GO55145A2.



RAVENOL
AWD-TOR FLUID

VW
GO55145A2



MPA·S

VKA AW 40KG 1HR

FBT = FOUR BALL TESTER
WEIGHT 40 KG CYCLE TIME 1 HOUR

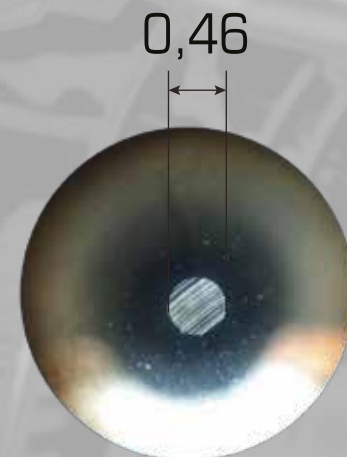
Wear mark, the smaller the better. With regard to its anti-wear characteristics, RAVENOL AWD-TOR Fluid delivers 10,87% higher performance than the original oil VW GO55145A2.



RAVENOL
AWD-TOR FLUID



VW
GO55145A2



MM



VKA EP WELD-LOAD

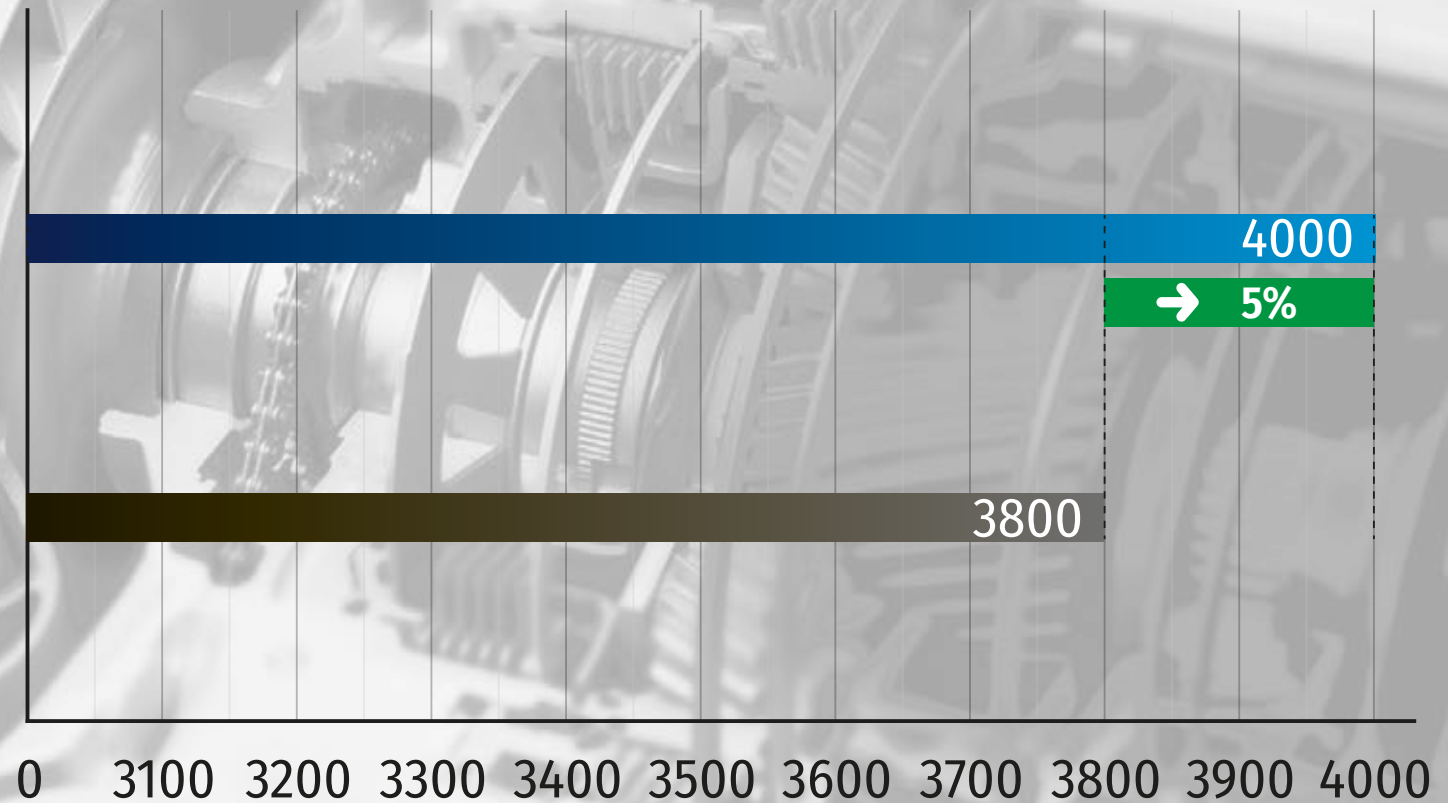
DIN EN ISO 20623:2018-04

The higher the strain it withstands, the better. RAVENOL AWD-TOR fluid withstands 5% more strain than the original oil VW GO55145A2.



RAVENOL
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VW
GO55145A2



KG

SHEAR STABILITY, KRL, LOSS OF VISCOSITY

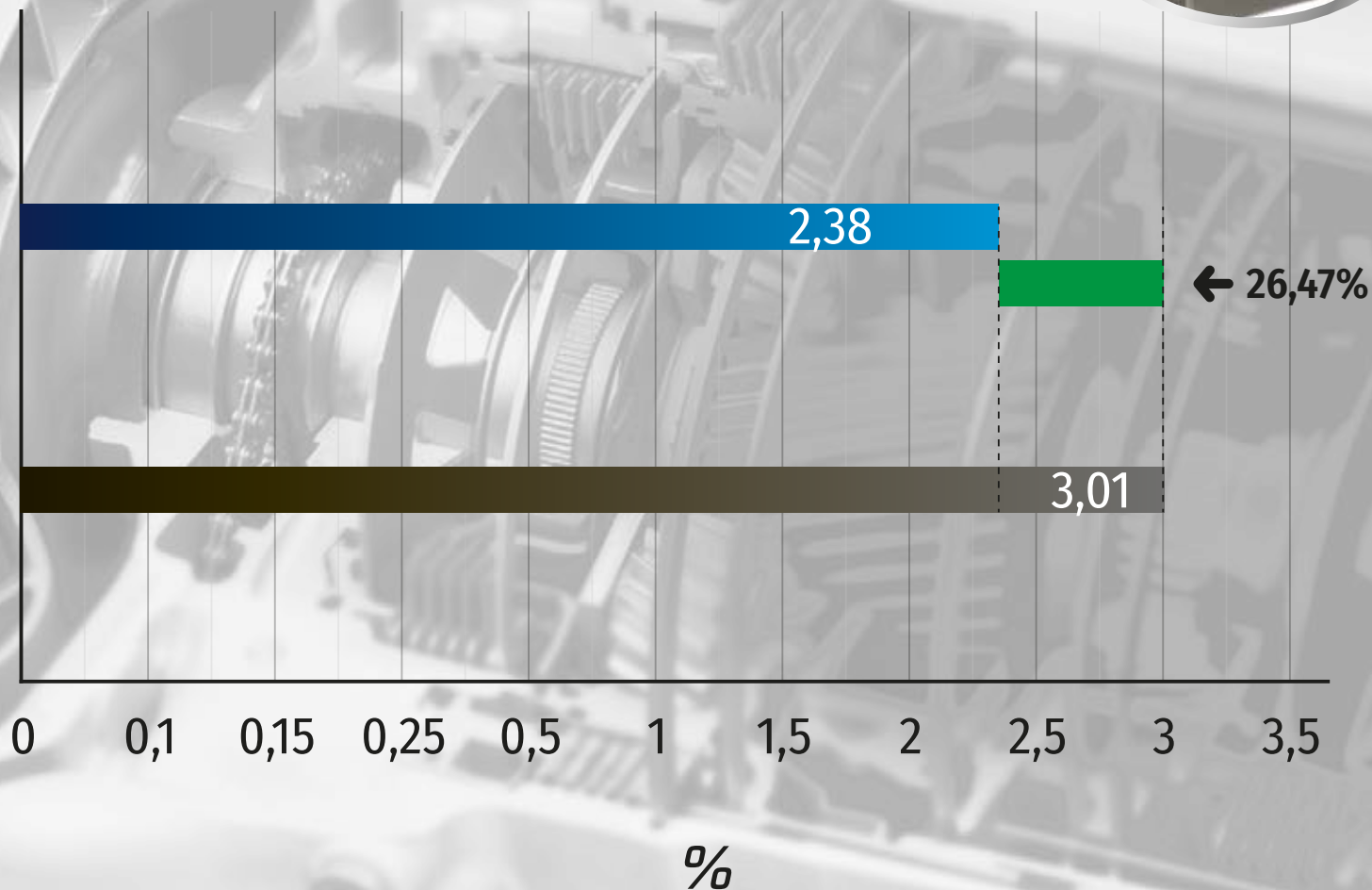
DIN 51350-6

TAPERED ROLLER BEARING TEST 20-HOUR



RAVENOL
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VW
G055145A2



COPPER STRIP TEST: EFFECT OF CORROSION ON COPPER

ASTM D130: 2012

Test duration 3 hr
Temperature: 121 °C



FRESHLY POLISHED
RAVENOL AWD-TOR FLUID
VW G055145A2

FRESHLY POLISHED	1A	1B	2A	2B	2C	2D	2E	3A	3B	4A	4B	4C
	SLIGHT TARNISH		MODERATE TARNISH					DARK TARNISH		CORROSION		

TEST RESULTS

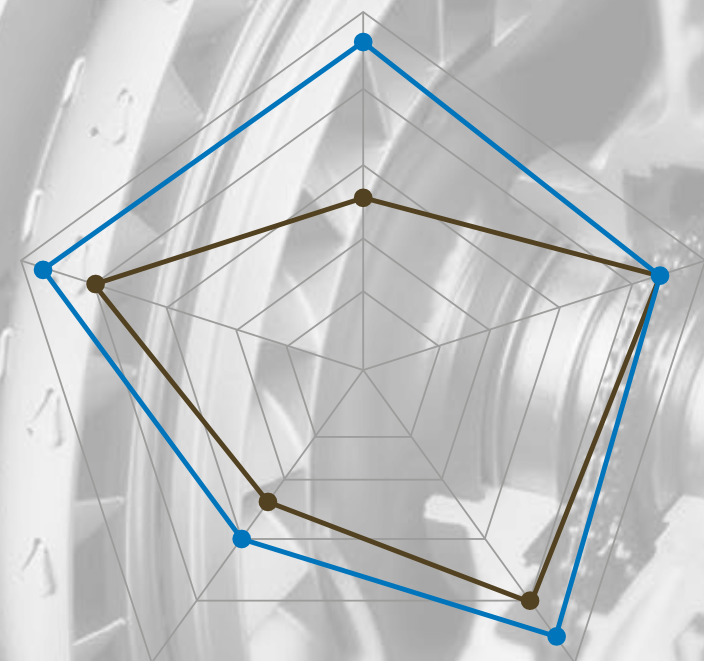
Brookfield -40°C

VKA AW
40KG 1H

Pour
Point

Shear stability, KRL

VKA EP WELD-LOAD



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Pour Point DIN ISO 3016:1982-10	°C	-54	-54
VKA AW 40KG 1H		0,46	0,41
VKA EP WELD-LOAD	N	3800	4000
Shear stability, KRL, loss of viscosity	%	3,01	2,38

—●— RAVENOL
AWD-TOR Fluid

—●— VW
G055145A2