

RAVENOL®

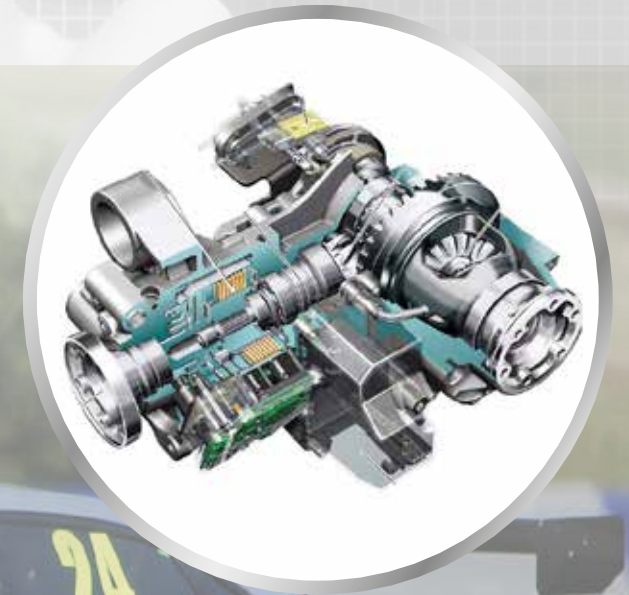
OIL ANALYSIS AWD-H FLUID



HALDEX SYSTEM

The Haldex system is a type of AWD system that is normally used in Volkswagen Group vehicles. It is often found in Volkswagen and Audi vehicles. The main function of the Haldex System is to transmit torque from the engine to both axes.

Example using a front-wheel drive car. Under normal conditions, approx. 95% of the power is diverted to the front wheels. When the electronically activated clutch is engaged, the power is diverted 50/50 to the rear wheels due to the spinning of the front wheels. The Haldex sensor allows very little rotation before engaging.



RESULTS OF THE OIL ANALYSIS

Parameters Measurement methods	Unit	VW G060175A2	RAVENOL AWD-H Fluid
Appearance/colour	-	light yellow	light yellow
Colour code DIN ISO 2049:2001-06"	-	1,5	1,0
Density 15°C DIN EN ISO 12185:1997-1	kg/m ³	859,6	858,0
Viscosity 40°C E-DIN 51659-2:2014-08	mm ² /s	24,54	24,53
Viscosity 100°C E-DIN 51659-2:2014-08	mm ² /s	5,44	5,42
Viscosity index DIN ISO 2909:2004-08	-	164	166
Brookfield -40°C ASTM D 2983:2009	mPa·s	16400	6060
Pour Point DIN ISO 3016:1982-10	°C	-42	-63
Flash point DIN EN ISO 2592:2002-09	°C	188	192
VKA AW 40kg 1hr DIN EN ISO 20623:2018-04	mm	0,8	0,58
VKA EP Weld-Load DIN EN ISO 20623:2018-04	kg	1800/2000	2000/2200
KRL 20hr KV100°C DIN 51350-6:1996-08	mm ² /s	5,16	5,36
Shear stability, KRL, loss of viscosity	%	5,15	1,1
Foaming test sequence I ASTM D 892:2013	ml/ml	400/120	0/0
Foaming test sequence II ASTM D 892:2013	ml/ml	360/0	0/0
Foaming test sequence III ASTM D 892:2013	ml/ml	430/140	0/0
Copper Corrosion 3hr 150°C ASTM D130: 2012	-	4c	1a

BROOKFIELD -40°C

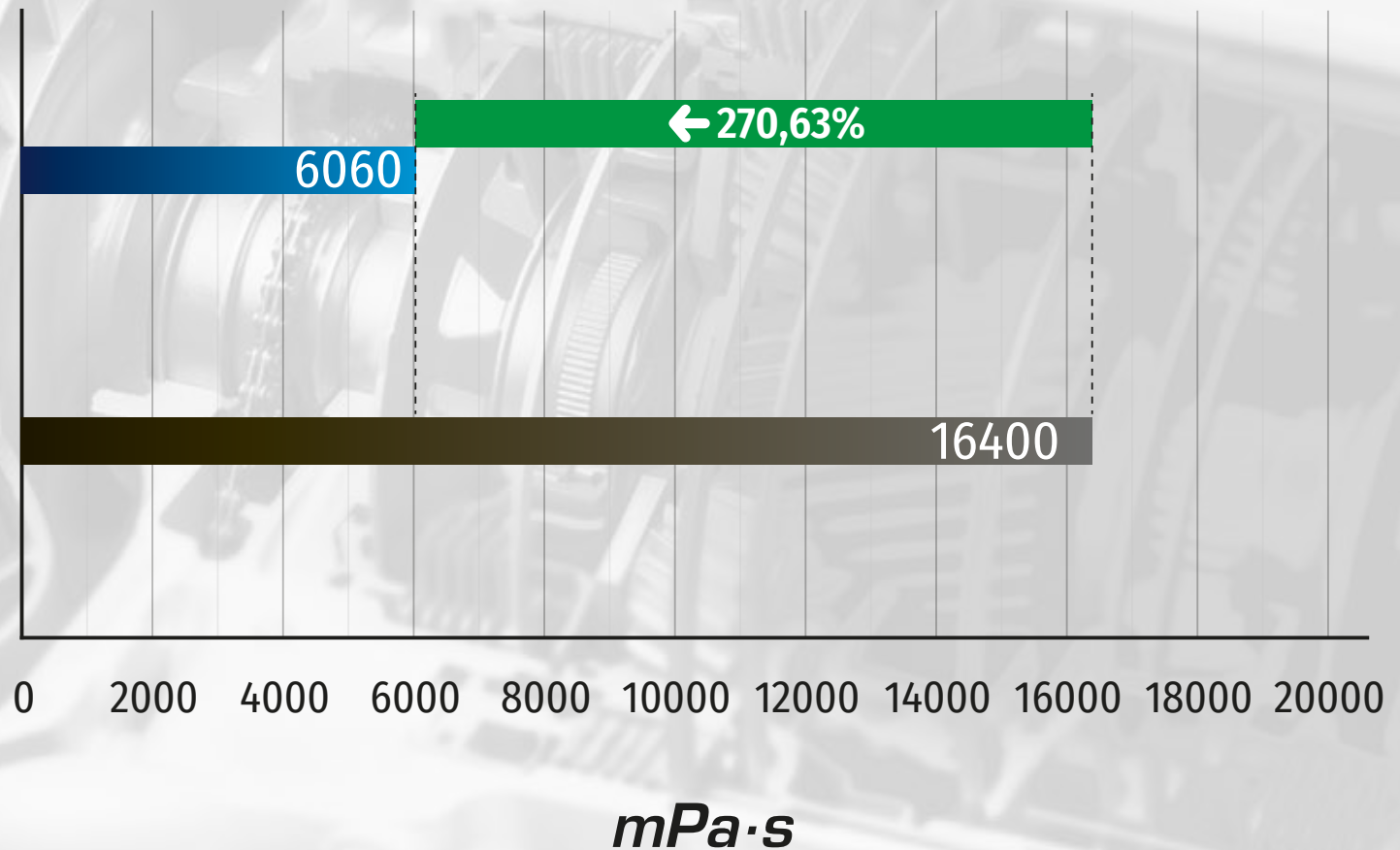
ASTM D 2983

The lower the dynamic viscosity, the better. The Haldex clutch 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-H Fluid delivers 270,63% higher performance than the original oil VW G060175A2.



RAVENOL
AWD-H FLUID

VW
G060175A2



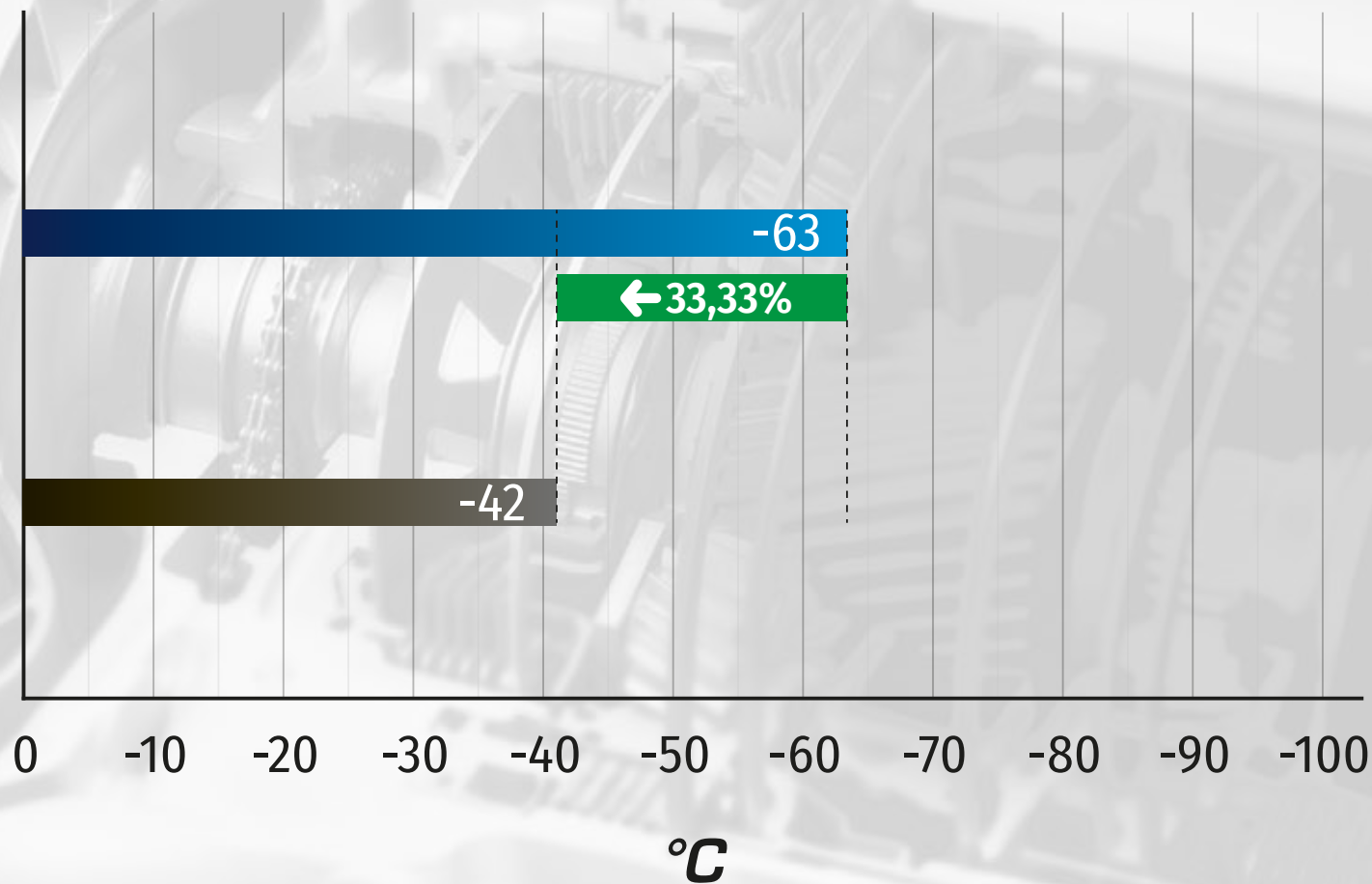
POUR POINT

DIN ISO 3016

At its pour point, RAVENOL AWD-H Fluid delivers 33,33% higher performance than the original oil VW G060175A2.

RAVENOL
AWD-H FLUID

VW
G060175A2



VKA AW 40KG 1H

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

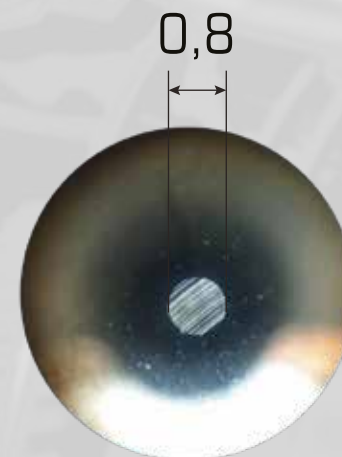
Wear mark, the smaller the better. With regard to its anti-wear characteristics, RAVENOL AWD-H Fluid delivers 27,5% higher performance than the original oil VW GO60175A2.



RAVENOL
AWD-H FLUID



VW
GO60175A2



MM



VKA EP WELD-LOAD

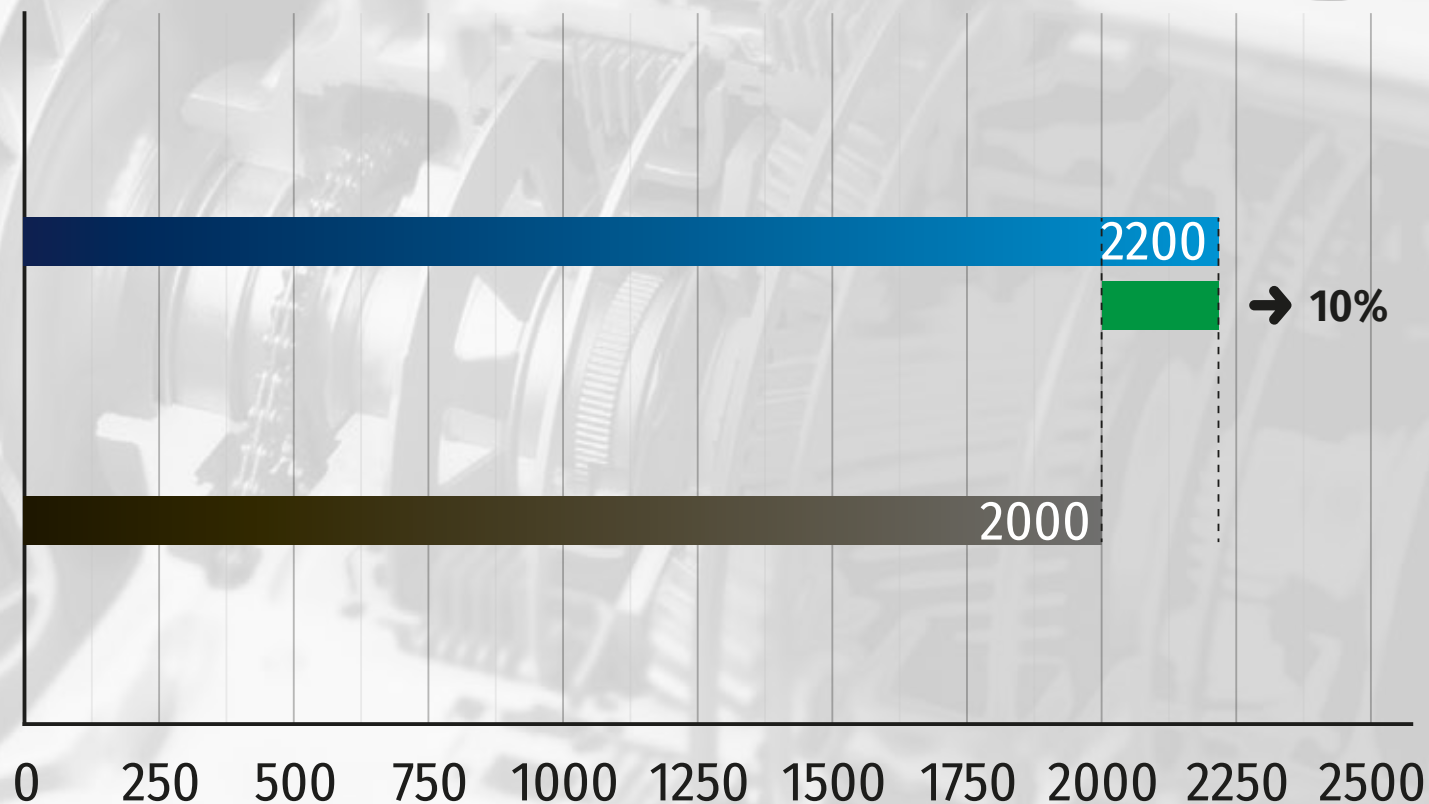
DIN EN ISO 20623:2018-04

The higher the strain it withstands, the better. RAVENOL AWD-H fluid withstands 10% more strain than the original oil VW G060175A2.



RAVENOL
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VW
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KG

SHEAR STABILITY, KRL, LOSS OF VISCOSITY

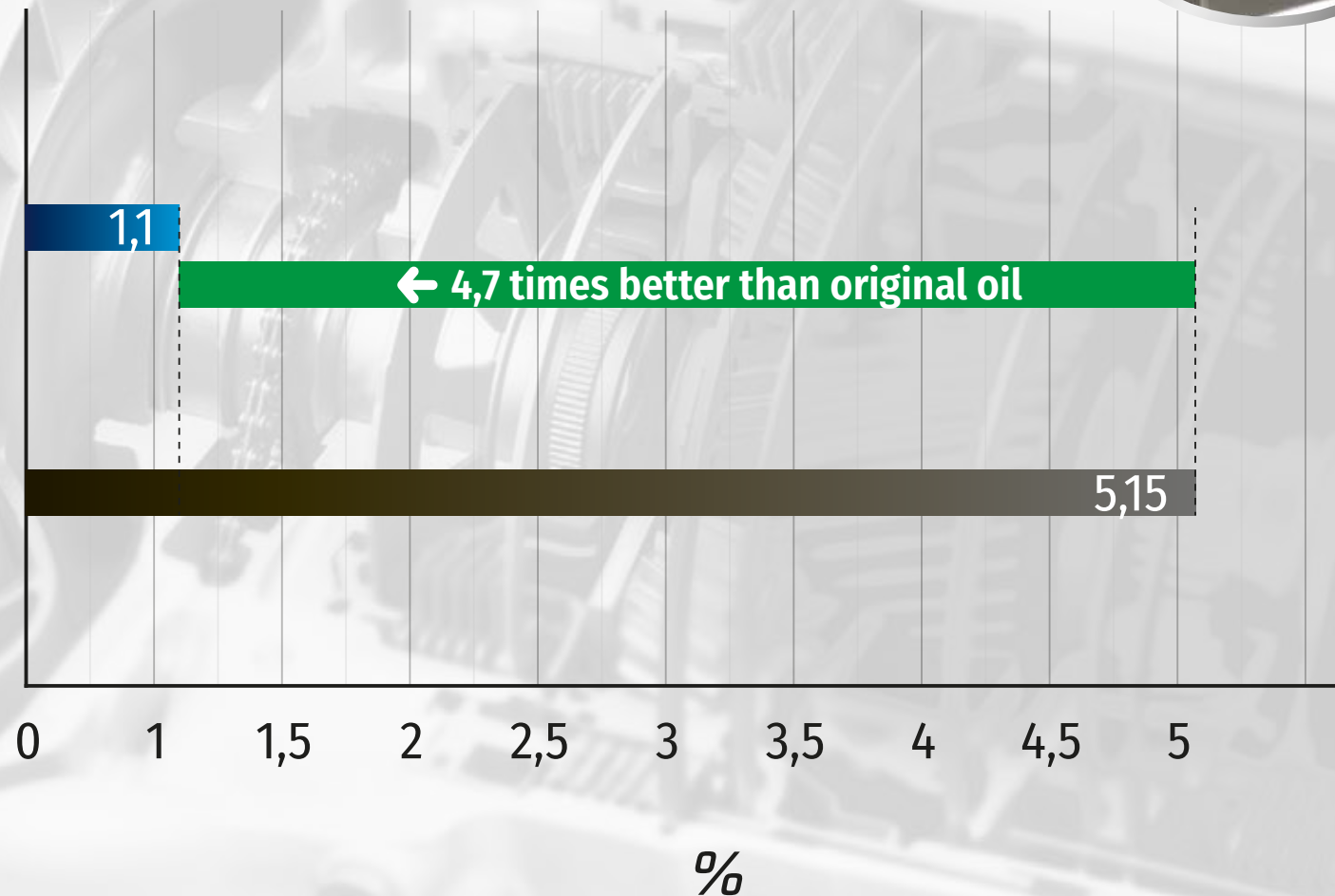
DIN 51350-6

TAPERED ROLLER BEARING TEST 20-HOUR



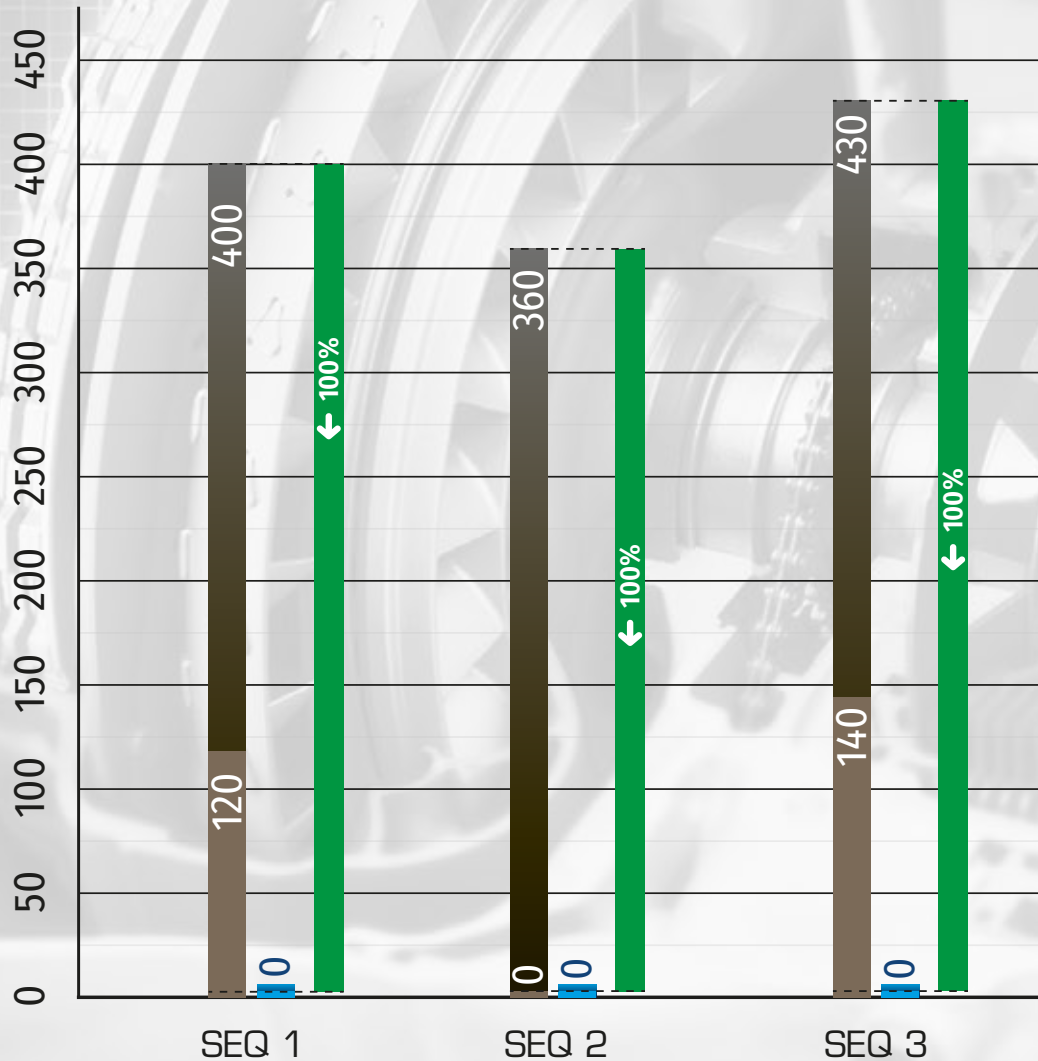
RAVENOL
AWD-H FLUID

VW
G060175A2



FOAM TEST

The less foam the better.



Parameters Measurement	SEQ 1 ASTM D 892:2013	SEQ 2 ASTM D 892:2013	SEQ 3 ASTM D 892:2013
Unit	ml/ml	ml/ml	ml/ml
VW G060175A2	400/120	360/0	430/140
RAVENOL AWD-H Fluid	0/0	0/0	0/0

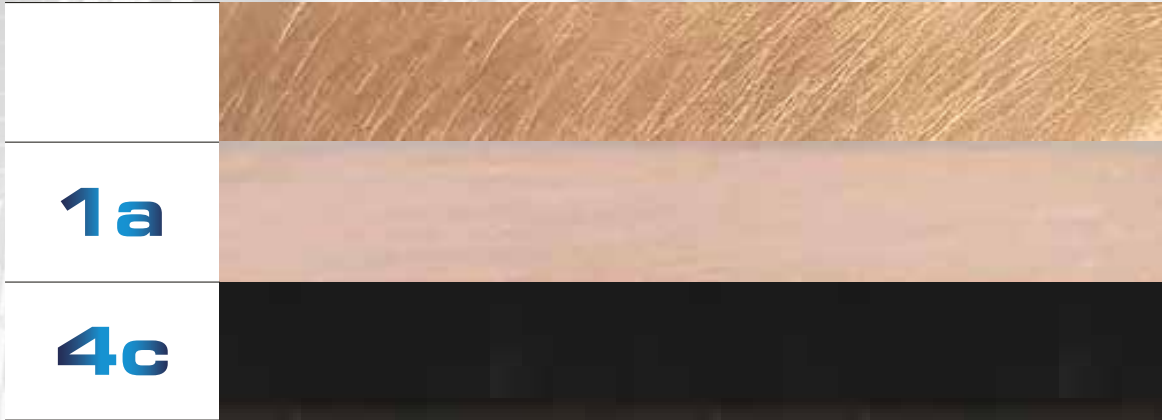
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AWD-H FLUID

VW
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COPPER STRIP TEST: EFFECT OF CORROSION ON COPPER

ASTM D130: 2012

Test duration 3 hr
Temperature: 150 °C



FRESHLY POLISHED

RAVENOL AWD-H FLUID

VW G060175A2

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

Parameters Measurement methods	Unit	VW G060175A2	RAVENOL AWD-H Fluid
Brookfield -40°C ASTM D 2983:2009	mPa·s	16400	6060
Pour Point DIN ISO 3016:1982-10	°C	-42	-63
VKA AW 40KG 1H		0,8	0,58
VKA EP WELD-LOAD	N	1800/2000	2000/2200
Shear stability, KRL, loss of viscosity	%	5,15	1,1

Shear stability, KRL

VKA EP WELD-LOAD

—●— RAVENOL
AWD-H Fluid

—●— VW
G060175A2