Oxidation Stability of Lubricating Oils used in Automotive Transmissions by Artificial Ageing

CEC L-48-00 (B)





Stainless steel bath
Bath drain
Easy to operate
Six positions
Complete apparatus for six tests

General

The CEC L-48-00 (B) test method covers the oxidation stability of lubricating oils used in automotive transmissions by artificial ageing. CEC L-48-00 assesses resistance of lubricants to high temperature oxidation and the ability to resist oil degradation and sludging. A lubricant is heated and aerated under controlled conditions.

Construction

The apparatus consists of a six position TC40 circulator bath and it is standard delivered with six sets of glassware. The cover of the bath has six openings with lids. Stand-rods with clamps to hold the glassware in the same position, flowmeters and tubing are standard included. Please see table 1 for more information. The temperature range of the bath is from ambient +5°C to 250°C. Other accessories for this test method are supplied by Tamson, please see table 2.

Accuracy

The insulation of the bath and electronic design result in a very stable working temperature of \pm 0.02°C The set point can be set in steps of 0.1°C in the range of 0°C up to 250°C (148.482°F). The readout is displayed in 0.1°C. The controller has an internal accuracy of 0.01°C.

Item	Unit	TC40	
P/N apparatus CEC L-48-00(B) 230V/50-60Hz		00T2050	
P/N apparatus CEC L-48-00(B) 115V/60Hz		00T2051	
Power	[kW]	230V: 3.0 / 115V: 1.8	
Range	°C °F	Ambient 250 Ambient482	
Reading	[°C/°F]	°F on request	
Setting	[°]	0.1	
Stability	[°C]	0.02	
Heating	[kW]	230V: 2.8 / 115V: 1.75	
Bath volume	[L]	40	
Bath openings	[mm]	6	
Bath depth	[mm]	200	
TC40 dimensions (L x W x H)	[mm]	705 x 375 x 440	
Complete apparatus dim. (L x W x H)	[mm]	760 x 650 x 880	
Materia l s	Used inside bath: stainless steel 304, brass		
CE	Conforms to CE regulation		

Temperature readout

Standard available in °C, on request in °F.

Pump

When not used for oxidation tests, the pump can be used to circulate the bath content to an external application.

Safety

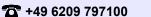
The bath conforms to CE regulation. It is further equipped with a mechanical resettable safety thermostat. A low liquid float (P/N 07T0080) is included and will switch-off the apparatus when the bath fluid is too low.

The apparatus should be placed in a fume hood to avoid oil vapours spreading into the laboratory.

Test evaluation

For the test evaluation, two additional instruments are needed. One instrument to determine the kinematic viscosity of the sample, which is also manufactured by Tamson. The degree of oxidation is measured by FTIR in accordance with ASTM D7214 which quantifies the Peak Area Increase (PAI) in the carbonyl region.









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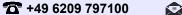
Į		Table 1: Apparatus CEC L-48-00 B P/N 00T2050 or P/N 00T2051 consists of the following parts:					
	P/N	Picture	Quantity	Description			
	00T0681	00Т0681		TC40 circulator bath, 230V/50-60Hz.			
	00T0851		1	TC40 circulator bath, 115V/60Hz			
	03T2027		1	Levelling platform for CEC L-48-00 (B) tests, including cover with lids and brackets to hold flowmeters and dryer			
	31T2100		6	Complete set of glassware for CEC L-48-00 (B)			
	24T0072	-app	6	Double boss head cross with brass clamping screws			
	24T0078		6	Cooler clamp for stand-rod			
	24T0079		2	Stand-rod			
	24T0043		10	Tubing silicon rubber 5 mm, 1 meter			
	31T2070		6	Airflow meters suitable for a flow rate of 5L/h			
	34T0000	0	1	FESTO Blue PU tubing 6 mm, 50 meter			
	34T0031		6	Hose barb fitting G1/4" to I.D. 7 mm			
	34T0048		1	Hose adapter 6mm O.D. to G1/4" quick fit			
	34T0061		5	Hose adapter T-shaped 6mm O.D. to G1/4" quick fit			

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[Table 2: Accessories for CEC L-48-00 B				
	Item	Picture	Suggested quantity	Description	
	00Т0238	(ED)	2	Bath fluid silicon oil 550 - 20 litres transparent, 80250°C	
	31T2038	200	1	Thermocouple device to measure the sample temperature	
	00T0565		1	TLC15-5 230V/50-60Hz external cooling circulator	
	00Т0570		1	TLC15-5 115V/60Hz external cooling circulator	
	00Т0782		1	TV2000MKII viscosity bath. For more information, please see specification sheet 'tv series'	
	31T2060		1	Air compressor 230V/50-60Hz	
	31T2061			Air compressor 115V/60Hz	
	31T2044		1	Gas drying tower, 75 mm x 289 mm, with 1/8" stainless steel NPT fittings and connectors to mount on TC40	
	31T2041		1	Refilling for dryer (P/N 31T2042), 5 lbs, 8 mesh	







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	Table 3: Spare parts for air compressor after one year or 2000 hours of use				
Item	Picture	Suggested quantity	Description		
31T2065		1	Intake filter		
31T2066		1	Non return valve		
31T2067	and the second s	1	5 micron filter		
31T2068	MONTH CONTROL OF THE PARTY OF T	1	SJ27 oil bottle 0,5L		





G-Labo GmbH