Tamson Instruments
Specification sheet

Evaluation of Corrosiveness of Diesel Engine Oil at 135°C

ASTM D6594 - D4636 – D5968

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

Item	Unit	TC58
P/N apparatus ASTM D6594 230V/50-60Hz		00T2080
P/N apparatus ASTM D6594 115V/60Hz		00T2081
Power	[kW]	3.0
Range	°C °F	Ambient .. 250 Ambient ..482
Reading	[°C/°F]	°F on request
Setting	[°]	0.1
Stability	[°C]	0.02
Heating	[kW]	2.8
Bath volume	[L]	58
Bath openings	[mm]	6
Bath depth	[mm]	300
TC58 dimensions (L x W x H)	[mm]	705 x 375 x 590
Complete apparatus dim. (L x W x H)	[mm]	760 x 650 x 880
Materials	Used inside bath: stainless steel 304, brass	
CE	Conforms to CE regulation	

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General
The ASTM D6594 test method covers testing diesel engine lubricants to determine their tendency to corrode various metals, specifically alloys of lead and copper commonly used in cam followers and bearings. Four metal specimens of copper, lead, tin, and phosphor bronze are immersed in a measured amount of engine oil. The oil, at an elevated temperature, blown with air for a period of time. When the test is completed, the copper specimen and the stressed oil are examined to detect corrosion and corrosion products, respectively. A reference oil is tested with each group of tests to verify test acceptability. This test also known as ASTM D6594 or High Temperature Corrosion Bench Test (HTCBT), is one of the required laboratory tests in the new API CK4 and API FA4 Service Categories.

Construction
The apparatus consists of a six position TC58 heating bath with an immersion depth of 30 cm and it is standard delivered with six sets of glassware. Tamson is supplying all-glass 1000 mL containers with NS29/32 connection for the condenser. Hence, a rubber stopper is not used. 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 ± 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.

Pump
When not used for corrosion 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 optional and will switch-off the apparatus when the bath fluid is too low.

ASTM D4636 & ASTM D5968
The apparatus can also be used for ASTM D4636 and D5968. ASTM D4636 is the standard test method for corrosiveness and oxidation stability of hydraulic oils, aircraft turbine engine lubricants and other highly refined oils. ASTM D5968 is the test method used to test diesel engine lubricants to determine their tendency to corrode various metals, specifically alloys of lead and copper commonly used in cam followers and bearings. Please contact us for more information.

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Table 1: Apparatus ASTM D6495 P/N 00T2080 or P/N 00T2081 consists of the following parts:			
P/N	**Picture**	**Quantity**	**Description**
00T0691		1	TC58 circulator bath, 230V/50-60Hz.
00T0881			TC58 circulator bath, 115V/60Hz
03T2028		1	Cover, lid, levelling platform, flowmeter brackets for ASTM D6594 tests
31T2125		6	Complete glassware for ASTM D6594 (sample tube, sample tube head with GL14 connector with ring to seal air tube, air tube, thermocouple tube, Condensor Allihn type 300 mm0
24T0084		6	Frame bosshead
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 10L/h
34T0000		1	Blue PU tubing 6 mm, 50 meter
34T0031		6	Hose barb fitting G1/4” to I.D. 7 mm

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Continued table 1: Apparatus ASTM D6594 P/N 00T2080 or P/N 00T2081 consists of the following parts:			
P/N	**Picture**	**Quantity**	**Description**
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
31T2044		1	Gas drying tower, 75 mm x 289 mm, with 1/8” stainless steel NPT fittings and connectors to mount on TC58

Table 2: Accessories for D6594			
Item	**Picture**	**Suggested quantity**	**Description**
08T0001		3	Bath fluid silicon oil 20..150°C 20 L
31T2126		6	Hanger for metal test specimen
31T2041		1	Refilling for dryer (P/N 31T2042), 5 lbs, 8 mesh
25T0925B		1	Thermometer similar to ASTM 26C, solid stem, 130+140:0,1°C, white backed, capillary tube specially coated inside, with non-wetting blue special liquid, 458-468x6,5-8mm, total immersion, top finish round, durable pigment with Works Certificate with 1 test point

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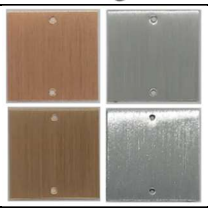
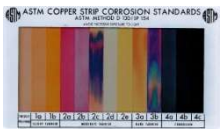
Continued table 2: Accessories for D6594			
Item	**Picture**	**Suggested quantity**	**Description**
31T2060		1	Air compressor - 230V/50-60Hz
31T2061			Air compressor - 115V/60Hz
31T2127		1	Ten complete sets with four metal: copper, lead, tin, and phosphor bronze. The test specimens are 2.5 cm or 1" square and 0.081 cm (0.032") thick; the lead test specimen is 0.157 cm (0.062") thick. These specimens are supplied with the final polished finish (240 grit aluminum oxide and 400 grit silicon carbide) per ASTM D6594.
00T0565		1	Cooling circulator TLC15-5 - 230V/50Hz. To replace tap water that circulates through the condenser
00T0567			Cooling circulator TLC15-5 - 230V/60Hz
00T0570			Cooling circulator TLC15-5 - 115V/60Hz
31T0002		1	ASTM copper strip corrosion test standard
31T0423		1	Cork for bath thermometer, pack of ten pieces.

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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		1	5 micron filter
31T2068		1	SJ27 oil bottle 0,5ltr

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