

Oxidation Characteristics of Light Oils - TOO - FTM 791-5308

DIN 51394 (obs.), FTM 791-5308

Product group(s): Oil

User group(s): Diesel, Fuel, Light Oil, Lubricating Oil, Mineral Oil, Turbine Oil

Scope: FTM 791-5308 - Corrosiveness and Oxidation Stability of Light Oils (Metal Squares)

Use: To measure the ability to resist oxidation and their tendency to corrode various metals of hydraulic oils and similar, highly refined and light oils.



TOO Test Equipment

to be composed of:

- **Bath** (Dry-Heat or Liquid Bath with 4 or 8 testplaces)
- **Glassware & Accessories**

Note! Some items are not required to the standards DIN 51 394 and FTM 791-5308 but recommended.

Technical Data

Dry-Heat Bath

Temperature range: ambient to +220°C
Heating capacity: 2000 W
Opening size: Ø 54 x 400 mm
Dimensions (WxDxH): 382 x 436 x 580 mm

Liquid Bath

Temperature range: ambient to +175°C
Heating capacity: 2100 W
Opening size: Ø 51 mm
Dimensions (WxDxH): 280 x 430 x 650 mm, 35 kg

Main Unit

16-0545 Glassware Set DIN 51 394 (obsolete)
Consisting of:
 4x air inlet tube (Ø 8 x 930 mm)
 4x connection head, for air tube (NS 29/32, 68 mm)
 4x PTFE sleeve (NS 29/32)
 4x Alihn condenser (NS 29/32 + NS 45/40, 340 mm)
 4x PTFE sleeve (NS 45/40)
 4x oil test tube (NS 45/40, Ø 50 x 500 mm)

16-0551 Assembly Device for specimen sheets
 (DIN 51 394) - FTM 791c-5308

13-0719 Silicon Carbide Grit Paper, 150 grit (P150), 10 sheets

13-0720 Silicon Carbide Grit Paper, 240 grit (P280), 10 sheets

16-0550 Metal Test Specimens Set - Code: 401
for Oxidation Stability of Light Oils
 FTM 791-5308 - (DIN 51 394)

Material/Composition: Code 401 A - E
 Dimension: 1" x 1" x 0.03" with 2 holes
 Pack/Set: 1 each

40-4010

**Metal Test Specimens - Code: 401 A
for Oxidation Stability of Light Oils**
FTM 791-5308 - (DIN 51 394)



Material/Composition: Copper
Dimension: 1" x 1" x 0.03" with 2 holes
Pack/Set: 10

40-4011

**Metal Test Specimens - Code: 401 B
for Oxidation Stability of Light Oils**
FTM 791-5308 - (DIN 51 394)

Material/Composition: Steel 10
Dimension: 1" x 1" x 0.03" with 2 holes
Pack/Set: 10

40-4012

**Metal Test Specimens - Code: 401 C
for Oxidation Stability of Light Oils**
FTM 791-5308 - (DIN 51 394)

Material/Composition: Aluminum
Dimension: 1" x 1" x 0.03" with 2 holes
Pack/Set: 10

40-4013

**Metal Test Specimens - Code: 401 D
for Oxidation Stability of Light Oils**
FTM 791-5308 - (DIN 51 394)

Material/Composition: Magnesium
Dimension: 1" x 1" x 0.03" with 2 holes
Pack/Set: 10

40-4014

**Metal Test Specimens - Code: 401 E
for Oxidation Stability of Light Oils**
FTM 791-5308 - (DIN 51 394)

Material/Composition: Cadmium, pure
Dimension: 1" x 1" x 0.03" with 2 holes
Pack/Set: 10

40-4002

**Metal Test Specimens Set - Code: 401
for Oxidation Stability of Light Oils**
FTM 791-5308 - (DIN 51 394)

Material/Composition: Code 401 A - E
Dimension: 1" x 1" x 0.03" with 2 holes
Pack/Set: 10 each

40-4003

**Metal Test Specimens Set - Code: 401
for Oxidation Stability of Light Oils**
FTM 791-5308 - (DIN 51 394)

Material/Composition: Code 401 A - E
Dimension: 1" x 1" x 0.03" with 2 holes
Pack/Set: 50 each

16-1418

Dry Heat Bath & Flow Meter Set (4-place & <6 l/h)
FTM 791-5308 (DIN 51 394)



Consisting of:

stainless steel constant-temperature bath for tests up to 230°C,
aluminum block with 4 wells (Ø54x400 mm) for the glassware,
4 lids, bath-thermometer ASTM 40C / IP 80C, spirit level,
4 flow meters (0.4 ... 6 l/h), silicon hose (4 m).

Power supply: 230 V, 50/60 Hz

16-1417 Dry Heat Bath & Flow Meter Set (4-place & <6 l/h)

Like 16-1416 but:
Power supply: 115 V, 50/60 Hz

16-0583 Liquid Bath & Flow Meter Set (4-place & <6 l/h)

ASTM D 943 / JIS K2514 (BS 4388) - ASTM D 2274 - ASTM D 4310 / IP 157 / JIS C2101 - ASTM D 7462 - ISO4263 - ISO 12 205 / IP 388 - DIN 51 587 - FTM 791-5308 (DIN 51 394)



Consisting of:
stainless steel constant temperature bath (33 l) for tests up to 175°C
with 4 openings (Ø51 mm) for the glassware, 4 lids,
bath-thermometer ASTM 40C / IP 80C, thermometer support, spirit level,
4 flow meters (0.4 ... 6 l/h), silicon hose (4 m).

Power supply: 230 V, 50/60 Hz

16-0584 Liquid Bath & Flow Meter Set (4-place & <6 l/h)

Like 16-0583 but:
Power supply: 115 V, 50/60 Hz

16-0581 Liquid Bath & Flow Meter Set (8-place & <6 l/h)

ASTM D 943 / JIS K2514 (BS 4388) - ASTM D 2274 - ASTM D 4310 / IP 157 / JIS C2101 - ASTM D 7462 - ISO4263 - ISO 12 205 / IP 388 - DIN 51 587 - FTM 791-5308 (DIN 51 394)

Consisting of:
stainless steel constant temperature bath for tests up to 175°C
with 8 openings (Ø51 mm) for the glassware, 8 lids
bath-thermometer ASTM 40C / IP 80C, thermometer support, spirit level,
8 flow meters (0.4 ... 6 l/h), silicon hose (4 m).

Power supply: 230 V, 50/60 Hz

16-0458 Liquid Bath & Flow Meter Set (8-place & <6 l/h)

Like 16-0581 but:
Power supply: 115 V, 50/60 Hz

Options & Accessories

16-0450 Holder for 8 oil test tubes

ASTM D 943 / JIS K2514 (BS 4388) - ASTM D 2274 - ASTM D 4310 / IP 157 / JIS C2101 - ASTM D 7462 - ISO4263 - ISO 12 205 / IP 388 - DIN 51 587 - FTM 791-5308 (DIN 51 394)

16-0720 Drain Cock for thermostatic baths (G¹/₄"

25-0515 Cooling Coil

12-1667 Digital-Thermometer for temperature probes (Pt-100)



Application: liquids, soft media, air / gases
Min./Max. value memory: Memorizing of max. and min. values
Hold function: a button to stop the display for easy storing, while the normal display keeps running
Auto-Off-Function: 1...120 min (can also be deactivated)
Offset and slope input: offset- and scale correction can be entered digitally
Measuring Range: depending on the connected temperature probe
possible: -199.99 to +199.99°C (-199.99 to +199.99°F), resolution: 0.01°
-200.0 to +850.0°C (-328.0 to +1562.0°F), resolution: 0.1°
Temperature probe: not included
(suitable for all Pt-100 4-wire probes with 4-pin miniature DIN-plug)
Dimensions: 142 x 71 x 26 mm (H x W x D), Weight: approx. 155 g
Power supply: 9V-battery (included) & D.C. connector for external 10.5-12V direct voltage supply

Available Pt-100: 12-1666 (TOO/TOST), 12-1668 (PM 4)

12-1666	Temperature Probe Pt-100 (metal) (Ø 6 x 600 mm) Measuring range: -50 to +400 °C Suitable for: bath temperature of TOO/TOST-liquid bath
11-0091	Thermometer ASTM 40C / IP 80C Range: +72 to +126 : 0.2 °C Length: 395 mm, Immersion: 100 mm, Ø 7 mm
11-0092	Thermometer ASTM 40C / IP 80C Range: +72 to +126 : 0.2 °C (officially certified)
11-0093	Thermometer ASTM 41C / IP 81C Range: +98 to +152 : 0.2 °C Length: 395 mm, Immersion: 100 mm, Ø 7 mm
11-0094	Thermometer ASTM 41C / IP 81C Range: +98 to +152 : 0.2 °C (officially certified)
11-0247	Thermometer ASTM 102C / IP 83C Range: +123 to +177 : 0.2 °C Length: 395 mm, Immersion: 100 mm, Ø 7 mm
11-0248	Thermometer ASTM 102C / IP 83C Range: +123 to +177 : 0.2 °C (officially certified)
11-0249	Thermometer ASTM 103C / IP 84C Range: +148 to +202 : 0.2 °C Length: 395 mm, Immersion: 100 mm, Ø 7 mm
11-0250	Thermometer ASTM 103C / IP 84C Range: +148 to +202 : 0.2 °C (officially certified)
Spare Parts	
16-0546	Air Inlet Tube (Ø 8 x 930 mm) DIN 51 394 - FTM 791c-5308
16-0547	Connection Head , 68 mm DIN 51 394 - FTM 791c-5308
16-0548	Allihn-Typ Condenser , 340 mm DIN 51 394 - FTM 791c-5308
16-0549	Oil Test Tube (Ø 50 x 500 mm) DIN 51 394 - FTM 791c-5308
50-7027	Sleeve (NS 29/32) with Grip Ring, PTFE chem. resistant, gas- & liquid safe, vacuum tight (leak rate: <0.004 mbar, material thickness: 0.4 mm) for multiple use at -200 to +260 °C <u>Note:</u> not recommendable if taper clips are used.
50-7030	Sleeve (NS 45/40), PTFE, reusable improves the gas, liquid and vacuum tightness; prevents the air-inlet from jamming
25-0602	Heating Element DP, 2000 W, 230 V
25-0603	Heating Element DP, 1000 W, 115 V
13-0039	Heating Element, Power supply: 230 V (for dry heat bath)
13-0032	Heating Element, Power supply: 115 V (for dry heat bath)
16-0568	Flow Meter-Unit, 0.4 ... 6 l/h



Consisting of:

4-place bench, calibrated with needle valve, air and cooling water supply system with inlet and outlet nozzles, heavy stand, works certificate with setting values calibrated

Order Guideline

Minimum equipment:

For 4-place: 1x Bath (Liquid or Dry Heat),
1xAccessories (see main unit)

For 8-place: 1x Bath (Liquid),
2xAccessories (see main unit)

Spares (approx. 1 year):

see Spare Parts
4x (8x) Glassware, 1x Heating Element,
Specimens (as necessary)

Additional requirements:

Gas Supply