

## OIL TEST CENTRIFUGE

### 90000-2 SETA OIL TEST CENTRIFUGE

ASTM D91; D96 (obs); D893; D1290; D1796; D1966; D2273; D2709; D2711; D4007; D5546; IP 75 (obs); IP 359; BS 2882 (obs); ISO 3734; ISO 9030; FTM 791: Methods 3000; 3003; 3004; 3101; 3121; 5661; DIN 51 793; NF M07-020; API 2542; API 2548; API MPMS Chapter 10.3

- Specifically designed for testing oils
- Heated chamber, 30°C to 70°C
- 4 place swing out rotor
- Microprocessor control with 9 programme memory
- Universal buckets for 6 and 8 inch glassware
- Static, near vertical bucket positioning
- Conforms to safety requirements EN6101-2-020
- Optional 'Setafuge' Hazard Reduction System

Seta Oil Test Centrifuge is a microprocessor controlled, heated centrifuge manufactured exclusively for Seta by Hermle Laborotechnik. The instrument is fully programmable allowing automatic configuration to the specified oil test parameters.

A four place swing out rotor and universal bucket assembly accommodates low cost adaptors and cushions suitable for borosilicate glass centrifuge tubes of the types specified for oil testing: 6 or 8 inch conical, 8 inch trace sediment or 8 inch pear-shaped. To reduce errors in measurement of tube content, the rotor design allows tubes to stand in a near upright (vertical) position at rest.

Speed, temperature, and timing are microprocessor controlled and run parameters are entered via the panel controls and digital displays.

Speed can be specified and measured in either RPM (revolutions per minute) or RCF (relative centrifugal force) mode and 9 run profiles can be stored in memory. The run duration can be set between 1 and 60 minutes in one-minute increments, or set for continuous operation. A 'Quick Run' mode is also provided. The braking time is programmable between 30 and 110 seconds.

A controlled isothermal band heater holds the temperature between 30 and 70°C ±1°C, and is programmed to compensate for friction heating effects during operation thus ensuring correct sample temperatures throughout the test.

A brushless asynchronous motor ensures high reliability with low maintenance and the centrifuge has in-built error messaging and diagnostics.

SAFETY features include a motor driven lid latch with a safety interlock to prevent centrifuge operation while the lid is unlocked, imbalance detection, and over-temperature protection for both the motor and the chamber. The Seta Oil Test Centrifuge meets the safety requirements of BS 4402, DIN 58970, EN 61010-2-020 and UVV VBG 7Z, and is almost silent in operation with measured noise levels below 65 dB (A).

Two types of trolleys are available as optional accessories to allow easy movement of the instrument.

**SUPPLIED WITH:** rotor, buckets, and cushions.

*Note: Bucket adaptors and tubes should be selected from the method table according to test method requirements.*



BIO-FUEL TESTING



90000-2



Oil Test Tubes and Bucket Adaptors

### SPECIFICATIONS

<b>Maximum Relative Centrifugal Force (RCF):</b>	2254g
<b>Maximum Rotational Speed:</b>	3000 rev/min
<b>Temperature Range:</b>	30 to 70°C ±1°C
<b>Timer Range:</b>	1 to 60 minutes or continuous operation
<b>Control:</b>	Microprocessor with 9 memory capacity
<b>Capacity:</b>	4 Samples
<b>Voltage range:</b>	220/240V, 50/60Hz (Optional transformer for 110/120V)
<b>Power:</b>	1000W
<b>Size (HxWxD):</b>	44.5 x 61 x 73cm
<b>Weight:</b>	86kg

## CENTRIFUGE ACCESSORIES

### ACCESSORIES – Oil Test Centrifuge

#### REQUIRED

Refer to the table of "ITEMS REQUIRED FOR EACH TEST" and select from the following options:

- 90001-2 ADAPTOR, for 90040-0 / 90060 glassware, pack of 4.
  - 90003-2 ADAPTOR for 90050-0 glassware, pack of 4.
  - 90005-2 ADAPTOR for 90011-0 glassware, pack of 4.
  - 90011-0 TUBE, 100ml cone-shaped, 6 inch, graduated to 0.05ml, pack of 6.
  - 90040-0 TUBE, 100ml cone-shaped, 8 inch, graduated to 0.05ml, pack of 6.
  - 90050-0 TUBE, 100ml pear-shaped, 8 inch, tip graduated to 0.01ml over the range 0 to 0.2ml, pack of 6.
  - 90060-0 TUBE, 100ml trace-sediment, 8 inch, tip graduated to 0.005ml over the range of 0 to 0.01ml, pack of 6.
- Note: Other items which may be required include: Funnel, Demulsifier, Solvents, Pipette, Stirrer, Desiccator.

#### OPTIONAL

- 90010-0 'SETAFUGE' HAZARD REDUCTION SYSTEM
- 90014-0 LOW TROLLEY, with lockable castors, 68cm high with centrifuge.
- 90015-0 HIGH TROLLEY, with lockable castors, 99cm high with centrifuge.
- 90016-0 TRANSFORMER, for 110/120V 60Hz operation.
- 90200-4 WATER BATH, 15 litre capacity, ambient to 100°C, for pre-heating samples (alternative to 90300-2).
- Voltage:** 110/120V, 60Hz  
220/240V, 50Hz
- 90300-2 SETA BLOCK HEATER, to dry heat tubes (requires 90301-0 BLOCK for details see below).
- 90301-0 BLOCK, aluminium, holds four 90040-0 / 90060-0 tubes for use with 90300-2 Block Heater.
- 90202-2 RACK, 5 place for 90011-0 tubes.
- 90203-2 RACK, 6 place for 90040-0 / 90060-0 tubes.
- 90204-2 RACK, 4 place for 90050-0 tubes.
- 90041-2 STOPPERS, pack of 50.
- 99100-2 ANALYTICAL BALANCE, for ASTM D893, (for details see page 159).

#### ITEMS REQUIRED FOR EACH TEST

SETA No	D91	D96	D893	D1796	D2273	D2709	D2711	D4007	D5546
90040-0	●	●	●	●			●	●	●
90050-0						●			
90060-0					●	●			
90011-0		●							
90010-0	●	●	●	●	●	●	●	●	
90001-2	●	●	●	●	●	●	●	●	●
90003-2						●			
90005-2		●							
90041-2	●	●	●	●	●	●	●	●	●
90202-2		●							
90203-2	●	●	●	●	●	●	●	●	
90204-2						●			
90200-4 or 90300-2 & 90301-0	●	●	●	●	●	●	●	●	
<b>Relative Centrifugal Force (rcf):-</b>									
90040-0	600-700 x g	500 x g	600-700 x g	500-800 x g			700 x g	600 x g	700 x g
90050-0						800 x g			
90060-0					600-700 x g	800 x g			
90011-0		500 x g							
<b>Sample Pre-heat Temp.</b>									
	32 to 35°C	60 ±3°C †	60 ±5°C	49 ±1°C or 60 ±1°C	32 to 35°C		82 ±1°C	60 ±3°C	25 ±1°C
<b>Test Temp.</b>									
	Unheated	60 ±3°C	Unheated	60 ±1°C	Unheated	21 to 32°C	60 ±1°C	60 ±3°C	Unheated
<b>Test Time</b>									
	10 mins	5 mins	20 mins	10 mins	10 mins	10 mins	10-15 mins	10 mins	10 mins

† Sample must be 52°C or above after test

### 90010-0 'SETAFUGE' HAZARD REDUCTION SYSTEM

- Vapour extraction and dilution
- Reduced chamber pressure to prevent vapour seepage
- Safety interlock



90010-0

'SETAFUGE' significantly reduces the hazards associated with vapours and gases released from volatile samples and samples with added solvents in centrifuges at elevated temperatures.

Vapours are extracted from near the top of the chamber, diluted with air, and discharged safely, via a tube, to a non-hazardous area. By maintaining the chamber at slightly below atmospheric pressure, escape of vapour into the laboratory environment is prevented.

A vacuum switch continuously monitors the vacuum inside the chamber and the unit interfaces with the centrifuge interlock to ensure that safe procedures are always followed.

Note: Requires an external compressed air supply.

SPECIFICATIONS	
Size (HxWxD):	18 x 13 x 12cm
Weight:	2kg

### 90300-2 SETA BLOCK HEATER

- Dry heating for samples
- 15°C to 130°C
- 4 tube capacity
- 9999 minute timer



90300-2 with 90301-0 Block and 90060-0 Tube

A processor controlled heater designed to be used in conjunction with a 90301-0 Block for heating centrifuge tubes. The heater has a temperature range of 15 to 130°C.

The heater is equipped with a 1 to 9999 minute countdown timer with buzzer, a temperature deviation alarm that can be set from 0.5 to 10°C allowable deviation, an external temperature probe socket, and a delay start stop feature allowing the heater to be turned on or off after a predetermined time interval.

The heater can be calibrated by the user over a wide temperature range.

SUPPLIED WITH: block extractor tool, mains lead and instruction manual.

Note: Block 90301-0 required, see accessories.

ACCESSORIES – Block Heater	
REQUIRED	
90301-0	BLOCK, aluminium, holds four 90040-0 or 90060-0 tubes.

SPECIFICATIONS	
Temp range:	15°C to 130°C
Stability:	±0.1°C
Timer Range:	1 to 9999 mins
Heater Power:	200W @110V 300W @240V
Voltage:	110/120V, 50/60Hz 220/240V, 50/60Hz
Size (HxWxD):	10 x 20 x 28cm
Weight:	3kg