

## Constituent Separation by Centrifuge - PetroCEN (semi-automatic) ASTM D 4007

ASTM D 4007, IP 359 (obs.)

**Product group(s):** Fuel

**User group(s):** Crude Oil, Fuel Oil

**Scope:** This test method describes the laboratory determination of water and sediment in crude oils by means of the centrifuge procedure. This centrifuge method for determining water and sediment in crude oils is not entirely satisfactory. The amount of water detected is almost always lower than the actual water content.



### Constituent Separation Test Equipment

ASTM D 4007 (IP 359)

to be composed of:

- **Centrifuge "Heatable"**

Requirements:

Test Temperature: 60 ±3 °C

Relative centrifugal force: 600 rcf

Test time: 10 min.

- **Swing-out Rotor Set**

- or **Swing-out Rotor & Accessories**

### Technical Data

#### Heated Bench Top Centrifuge


<u>Type:</u>	electronic without rotor
<u>Temperature range:</u>	ambient to +70°C ±1°C
<u>Max. capacity:</u>	4 x 100 ml buckets
<u>Cooling:</u>	air cooled
<u>Min. speed rpm:</u>	100 min <sup>-1</sup> (in steps of 1 rpm)
<u>Max. speed rpm:</u>	13500 min <sup>-1</sup> (actual achievable speed depends on the rotor-type)
<u>Max. permitted speed rpm:</u>	3000 min <sup>-1</sup> (due to safety reasons)
<u>Timer:</u>	0 to 60 min or permanent mode and automatic cut-off
<u>Pre-selectable:</u>	speed, gravitational field, time and temperature
<u>Digital indication:</u>	speed, working time, rotor & bucket combination with their data and heating temperature
<u>Programming:</u>	all parameters, customer programs, program memory of 50 data sheets
<u>Operation:</u>	self-explanatory single-knob control
<u>Noise level at max. speed:</u>	approx. 73 dB (A)
<u>Max. acceleration:</u>	approx. 29 sec.
<u>Max. deceleration:</u>	approx. 28 sec.
<u>Kinetic energy max.:</u>	106.950 Nm
<u>Safety:</u>	vibration detector, cover (not explosion proof!)
<u>Dimensions (H x W x D):</u>	425 x 574 x 685 mm
<u>Weight:</u>	116 kg without rotor

## Main Unit


<b>13-2160</b>	<b>Centrifuge PetroCEN "Heatable" up to +70°C ±1°C</b> <u>Lubricating Oil Tests:</u>
	ASTM D 91 - JIS K2503      Precipitation Number
	ASTM D 893                      Insolubles in Used Lubricating Oil
	ASTM D 2273 - JIS K2503   Trace Sediment
	ASTM D 2711                    Demulsibility Characteristics
	 <u>Amount of Water &amp; Sediment:</u>
	API 2542 - AASHTO T 55 - JIS K2601 (ASTM D 96, BS 4385)      Crude Oil (Field Test)
	ASTM D 4007 (IP 359)      Crude Oil (Laboratory Test)
	ASTM D 1796 - API 2548 (DIN 51 793, IP 75)          Fuel & Crude Oil (Laboratory Test)
	ASTM D 2709                    Middle Distillate Fuel
	ISO 3734                         Residual Fuel Oil
	ISO 9030                         Crude Petroleum
	 <u>Note!</u> For more details see "Technical Data" section
	Power supply: 230 V, 50/60 Hz, 7 A only!

<b>13-2161</b>	<b>Centrifuge PetroCEN "Heatable" up to +70°C ±1°C</b> <u>Like 13-2160 but:</u> Power supply: 120 V, 50-60 Hz, 7 A only!
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## Options & Accessories

<b>13-2142</b>	<b>Rotor Set with conical 8"-tubes</b> ASTM D 91, ASTM D 96, ASTM D 893, ASTM D 1796, ASTM D 2711, ASTM D 4007, ISO 3734, ISO 9030
	<u>Consisting of:</u> 1 swing-out-head with 4-test places (13-2143), 4 buckets with thread (13-2144), 4 conical, 8-inch test tubes (13-2145)
	<u>Note!</u> Max. permitted speed 3000 rpm

<b>13-2143</b>	<b>Rotor, swing-out type with 4-test places</b> ASTM D 91, ASTM D 96, ASTM D 893, ASTM D 1796, ASTM D 2273, ASTM D 2709, ASTM D 2711, ASTM D 4007, ISO 3734, ISO 9030
	<u>Note!</u> Already included in Rotor-Set (13-2142)! Test tubes, buckets and pads are subject to separate order. Max. permitted speed 3000 rpm

<b>13-2145</b>	<b>Conical Tube, 8" , 100 ml, approx. Ø 37 x 200mm</b> ASTM D 91, ASTM D 96, ASTM D 893, ASTM D 1796, ASTM D 2711, ASTM D 4007, ISO 3734, ISO 9030
	(range:subdivision 0-0.5:0.05 / 0.5-2:0.1 / 2-3:0.2 / 3-5:0.5 / 5-10:1 / 10-25:5 / 25-100:25 ml)
	Already included in Rotor-Set (13-2142)!

<b>13-2146</b>	<b>Rubber Pad for 8" conical / trace tube</b> Already included in Rotor-Set (13-2142)!
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<b>13-2144</b>	<b>Bucket</b> with rubber pad and thread for 8" conical / trace tube. <u>Note!</u> Already included in Rotor-Set (13-2142)!
<b>13-2153</b>	<b>Hazard-Reduction-Cap for 8" conical / trace tube</b>
<b>13-1077</b>	<b>Rack, 6-place, for 8" conical / trace tube</b>
<b>13-0087</b>	<b>Liquid Bath, 6-place</b> Range: ambient to +150 °C Openings: Ø 51 mm  Power supply: 230 V, 50/60 Hz
<b>13-1078</b>	<b>Stoppers, cork (19-16/27), pack of 50</b>
<b>13-2151</b>	<b>Rack on castors with 2 doors</b> Dimensions (W x D x H): 571 x 635 x 470 mm

### Spare Parts

<b>13-2157</b>	<b>Seal for centrifuge lid</b>
<b>13-2158</b>	<b>Wedge Belt for centrifuge</b>

### Order Guideline

Minimum equipment:	1x 13-2160, 1x 13-2142
Spares (approx. 1 year):	Tubes (see above)
Additional requirements:	