



BIO RIG 400

LP BR 400

Maximum output per batch: 420 litres of biodiesel
Maximum output in 24 hours: approximately 10,000 litres

PRODUCTION UNIT FOR CHEAP AND SUSTAINABLE BIODIESEL

ABOUT THE BIO RIG 400

This innovative easy-to-use unit produces biodiesel from vegetable oil and methanol, using a catalyst of caustic soda.

MAIN BENEFITS

- cheap and sustainable fuel production
- programmed operation if needed
- versatile manual operation if desired

ABOUT BIODIESEL

Biodiesel made with the Bio Rig 400 is:

- cheap to produce, using pure vegetable oil (eg. palm oil, rapeseed oil, peanut oil)¹
- carbon neutral²
- renewable
- cleaner than fossil fuels (see table)
- suitable for use in specially adapted engines³
- suitable for blending with conventional diesel in concentrations of 5%, 10%, 20% etc (B5, B10, B20) which can be used in most diesel engines without modification³
- much better for engine lubrication
- less flammable than conventional diesel

DESIGN FEATURES

- twin vessel stainless-steel unit
- circulation pump for each vessel
- 5 cm insulation cavity (main vessel)
- immersion heater (main vessel)
- valve levers painted red for visibility
- electronic control unit (ECU) with umbilical cable for remote mounting

ECU FEATURES

- liquid crystal display (LCD)
- monitoring lamps
- alarm and shutdown safety protection
- emergency stop button

WARRANTY

- Standard: two years from manufacture



THE BIO RIG 400 (ABOVE)

LEFT:
THE ELECTRONIC
CONTROL UNIT



TECHNICAL DATA			
Power required	14.4 kW at 415 V, three-phase, 50Hz (60 Hz version available on request)		
Empty weight	N/D		
Vessel capacity	550 litres (TBC)		
Dimensions (approximate)	width	length	height
	850 mm	1420 mm	2060 mm
Raw materials per batch	Substance		Quantity
	palm oil/rapeseed oil/peanut oil/soy oil/other vegetable oil (including cooking oil, new or used)/tallow		420 litres
	methanol (methyl alcohol, CH ₃ OH)		80 litres
	caustic soda (sodium hydroxide, NaOH)		2.2 kilograms
Output per batch	biodiesel		420 litres
	glycerol		80 litres
Ester conversion	The unit will regularly achieve in excess of 98.5 % ester conversion ratios.		
Temperature inside vessel	Setting/Position		Temperature not exceeding
	1: When preheating mixture of methanol and caustic soda		60° C
	2: During reaction process		80° C

*Amount of biodiesel per batch (in addition, 80 litres of glycerol are produced).

BIODIESEL ENVIRONMENTAL DATA ⁴		
	B100 (pure biodiesel)	B20 (20% biodiesel)
Carbon dioxide (CO ₂)	CO ₂ neutral ² or better	
Sulphur dioxide (SO ₂)	100% less	estimated 20% less
Unburned hydrocarbons (HCs)	67% less	20% less
Carbon monoxide (CO)	48% less	12% less
Oxides of nitrogen (NOx)	no data	2% less
Polycyclic aromatic hydrocarbons (PAHs)	80% less	13% less
Particulates	47% less	12% less

1. Glycerol is also produced as a saleable by-product.
2. Depending on the process of plant-oil production and on the method of producing energy to power the reactor (an overall "greenhouse gas" rating would also have to take account of methane as a by-product of the oil production process).
3. Always follow manufacturers' recommendations.
4. Data from Environmental Protection Agency (EPA). Comparisons are with mineral oil diesel.

UK

LISTER PETTER LIMITED
 Long Street, Dursley, Gloucestershire, GL11 4HS, England
 TEL: +44 (0)1453 544141; FAX: +44 (0)1453 546732
 E-mail: sales@lister-petter.co.uk
 www.lister-petter.co.uk

UAE

LISTER PETTER FZE
 Dubai Silicon Oasis Headquarters,
 PO Box 341077, Dubai, UAE
 TEL: +971 4 372 4331; FAX: +971 4 372 4318
 E-mail: sales@listerpettergroup.com
 www.lister-petter.co.uk

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