



**RYLAND
RESEARCH**

SELF-CONTAINED GREASE MANUFACTURING MODULE BASED ON 1 TONNE GREASE KETTLE

*Do you want to manufacture specialist grease in
small to medium volumes?*

Our skid mounted module produces up to 250 Tonnes per year of products like:

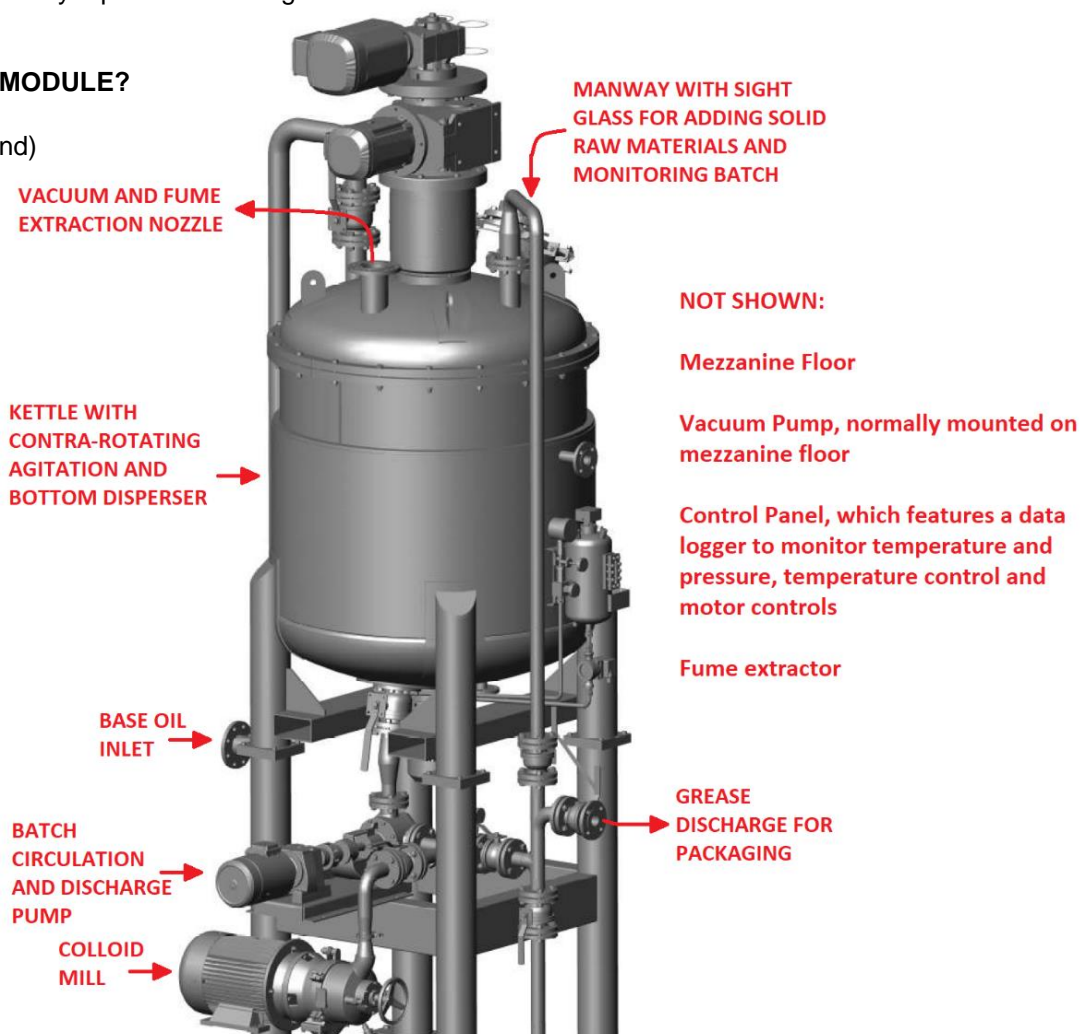
- Grease for the food processing industry
- Synthetic grease for temperature extremes
- Aerospace greases
- Harsh environment greases
- Complex Soap Greases

It is self-contained with its own heating, cooling milling and de-aeration capabilities. Skid-mounting makes installation easier and quicker than floor-mounting individual pieces.

It is based on a 1 Tonne sealable 304 Grade Stainless Steel vessel. It has a side and bottom jacket and is fitted with a fully scraped contra-rotating paddle system driven by a pair of stacked gearmotors and a bottom disperser.

WHAT IS IN THE MODULE?

(Viewed from behind)



FOOTPRINT, HEADROOM AND POWER REQUIREMENT

Minimum footprint and headroom, based on a 2.5m mezzanine floor:
Power Requirement:

3m x 1.7m Footprint and 4.7m Headroom
400V 3 Phase 250A

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THE PLANT'S OPERATION

- Pump in base oil from bulk or IBC storage and pour in thickeners through the manway.
- Heat the batch with or without pressure to form the grease. Towards the temperature peak, release the pressure if it has been used and turn on the fume extraction.
- After reaching peak temperature, start the cooling. This is the time to introduce dilution oil and additives, then, if needed, de-aerate the grease by using the vacuum pump.
- Mill if required, then package.

CAN IT BE SCALED UP OR DOWN?

It can be scaled up to 2 Tonne capacity, above which the practical upper limit is approached for electrical heating. For larger capacities, look at our plants serviced by a gas-powered thermal oil heater.

It can be scaled down to 500Kg capacity, below which, a plant based on a hydraulic lift and lower agitation system becomes the better option – see our Pilot Plant data sheet.

SPECIFICATION

Kettle:

Vessel Shape:	Vertical cylinder with torispherical top and bottom
Vessel Pressure Rating:	Vacuum – 1.0 Bar, PED 5500
Jacket:	Spiral Baffle Bottom and Sides, rated 5.4 Bar to match heater
Anchor Agitation:	5.5 KW, 21 RPM (Max) Variable Speed Inverter driven gate paddle with side and bottom scrapers
Contra-Rotating Incorporator	7.5 KW, 150 RPM (Max) Variable Speed Inverter driven incorporator with turbines that drive the product downwards in the centre and radially outwards at the bottom, setting up a toroidal flow pattern
Bottom End Disperser	5.5 KW bottom-entry disperser with inverter drive to vary the speed and a double mechanical seal with thermo-siphon to ensure no product leakage. This improves the production of grease types such as Lithium, Aluminium or Calcium Complex by dispersing the heavier bivalent acids typically used

Mezzanine Floor Mounted Control Panel:

Panel with Variable Speed Inverter drives for agitation, pump and fume extractor, fixed speed drive for mill, data logger and temperature control.

Circulation/Transfer Pump:

4m³/hour Stainless Steel Internal Gear Pump with 5 bar pressure

Mill:

22 kW horizontal Colloid Mill with slotted rotor and stator with adjustable clearance

Vacuum Pump:

0.75 kW, 25m³/hour rotary vane unit

Thermal Oil Heater and Cooler:

72 kW electrically powered Thermoregulator with built in temperature control system
51kW Adiabatic water/glycol cooler with pump set that cools the heat exchanger in the thermoregulator.

Fume Extractor:

Combination of a separation tank to remove the vapours, a bifurcated fan and a vertical chimney.