MACINTYRE REFINER/CONCHE

NEW GENERATION
CHOCOLATE REFINER/CONCHES

MACINTYRE 500
MACINTYRE 1250
MACINTYRE 2000
MACINTYRE 3000
MACINTYRE 5000
MACINTYRE UNIVERSAL CHOCOLATE REFINER/CONCHE

500KG, 1250KG, 2000KG, 3000KG & 5000KG “NEW GENERATION”
MACINTYRE CHOCOLATE REFINER/CONCHE

Benefits
• Cost effective system for the production of
  
  pure chocolate, compound, couverture, praline, truffle, creams, cocoa nib grinding, nut grinding, low sugar, sugar free, dairy free and much more

We can assist with research & development including product trials

• Requires the minimum of floor space as this universal system performs the function of a sugar mill, cocoa mill, pre-mixer, refiner and conche, all in the one machine [the non requirement of milled sugar reduces the requirement for additional fats (cocoa butter)]
• Low energy consumption
• Easy to operate, minimal labour requirements
• Moisture content achievable as low as 0.3%
• Low metal count (approximately 23 added parts per million, iron 4 added parts per million [manganese])
• Fat contents of 24% to 60% can be handled
• No initial lecithin dose required for most standard recipes

New Generation MacIntyre Refiner/Conche
Incorporating:
• energy efficient geared motor assembly - for rotating of the refining assembly
• refining pressure geared motor assembly - for varying refining pressure
• electric immersion heaters, controlled by PT100 probe, 4-20 mA, within the jacket water system
• electric extract fan, providing cross refiner air flow through hopper vent, for reduction of volatiles, acidity & moisture
• product temperature control using PT100 probe, 4-20 mA
• chilled water inlet solenoid valve, 1” BSP, 24V DC, controlled by product temperature probe
• loading of powders through machine hopper
• two infeed pipes for liquid materials at gearbox end of machine, DN50 flanges
• low maintenance mechanical food grade product seal for rotating shaft at gearbox end using constant 0.5 bar air pressure
• safety protected access cover for maintenance purposes
• M Guard fitted to control panel for instant secure remote service

Control System - Schneider -
• operator interface by 10” colour touchscreen for set up, process control and machine diagnostics

• Standard 10m Cable from control to machine (extra length available at additional cost)

Optional Extra
• NEW Sound Reduction Booth (available for 500kg & 1250kg models) - noise reduction by approximately 20 decibels
• Note: from operators position Lwa = 100 dB depending on installation environment
• Anti Vibration Strip – reduces vibration and therefore transmitted noise (available for 1250kg models upwards, 500kg model supplied on feet)
• Shear Attachment – to enable processing of low fat masses
• Integration into SCADA systems and interlinking with existing equipment on site (available through Refiner PLUS range)

<table>
<thead>
<tr>
<th>Machine Capacity (kg)</th>
<th>Main Drive Motor (kw)</th>
<th>Power Assisted Motor (kw)</th>
<th>Electric Immersion (kw)</th>
<th>Length (mm)</th>
<th>Width (mm)</th>
<th>Height (mm)</th>
<th>Net Weight (kg)</th>
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<tbody>
<tr>
<td>RC500</td>
<td>15</td>
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</table>

Subject to technical alterations!
New Pressurised Air Chocolate Seal replaces traditional gland packing on gearbox end - providing a leak free solution.

New Linear "no contact" transducer to monitor position of pressure system, creating a virtual pressure scale viewable on the HMI.

New hygienically designed cable trays.

New PLC software with improved HMI to enable a user friendly system, incorporating:
- Multi step recipe programming (enabling a product specific set of process parameters to be stored on the PLC)
- A comprehensive suite of control and monitoring functions including maintenance alerts, energy monitoring, storing and download of actual, run data for production traceability.

Liquid infeed pipes and 150mm ventilation fan at gearbox end, replaces previously supplied hopper.

Inspection hatch for observation and basic maintenance.
Service Requirements

- Ideally a minimum 1 metre clearance is required around the equipment’s perimeter. The area should be adequately ventilated to prevent overheating of the motors and gearboxes.
- The machine is best installed on a flat reinforced concrete foundation floor – minimum thickness 230mm (9”) of 30 Newton grade concrete. The machine does not have to be bolted to the floor.
- It is advisable that the machine be mounted on anti-vibration pads (available for 1250kg model upwards, 500kg model supplied on feet).
- Control panel is a standalone unit but should be located so operators can observe and monitor the equipment in operation.
- Consideration of service provision to and from the machine should also be made. Electrical supplies should be carried to the equipment using cable trays or trunking.
- Three phase electrical supply is required.
- Water feed and return lines will need to be connected to the machine to provide cooling.
- 0.5 bar continuous air supply to the pressurised air chocolate seal.

<table>
<thead>
<tr>
<th>Machine Capacity (kg)</th>
<th>Cylinder Capacity (Litres)</th>
<th>Consumption (Litres per Hour)</th>
<th>Water Cooling Capacity (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>126</td>
<td>750 - 1000</td>
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<td>1250</td>
<td>265</td>
<td>1200 - 1900</td>
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<td>3000</td>
<td>392</td>
<td>2600 - 2800</td>
<td>42.4</td>
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<tr>
<td>5000</td>
<td>513</td>
<td>3900 - 4100</td>
<td>53.4</td>
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</table>

Notes

- Values are for guidance only and will vary depending upon the ambient temperature, the cooling water temperature, the product being manufactured and the machine’s settings.
- If the ambient temperature in the room where the machine operates is between 35 – 40°C then the above water consumption values should be increased by 40%.
- When cooling water temperature is 25 – 30°C and ambient temperature is 25°C then the above water consumption values should be increased by 60%.
- Maximum pressure permitted in the cylinder water cooling jacket is 1.5 bar (21.5 psi).
- Cooling capacity based upon 6.5 kW/m2 transferred to cooling water over effective area of internal cylinder wall giving a 5°C temperature gradient through the wall and 0.2 kW/m2 lost to ambient atmosphere through cylinder jacket giving a 1°C temperature gradient through the jacket wall.
- We recommend that product ingredients will need to be conveyed to the machine and processed product piped from the machine for downstream processing (additional equipment available from MacIntyre for this purpose). Pipe runs for these elements should be planned before equipment installation commences.

Cycle Times

- Cycle times are dependant on recipe, quality of raw materials, fineness required and model of Refiner/Conche being used. Please contact the sales office for a cycle time estimation.