



IDEAS ENGINEERED



# Sugar



# Air Cooled Steam Condensers

Jord air cooled steam condensers provide a viable alternative to water cooled condensers for condensing pan and evaporator steam.

## Benefits of ACC's

- Zero water requirement
- Simple modular design and installation
- Minimal maintenance
- Proven effectiveness even in high ambient temperatures

In designing an air cooled vacuum steam condenser for a sugar refinery, there are several additional considerations compared to a steam turbine condenser;

- Corrosive vapours – material of construction is critical.
- Fouling – sugar is fouling and a significant fouling factor must be incorporated in the design.
- Non-condensibles – sugar refinery vapour has more than ten times the entrained air than turbine vapour and the condenser must be designed to accommodate this.
- Syrup boil over – the single most important design consideration in incorporating an air cooled condenser is that syrup boil-over does not reach the main steam duct and the heat exchanger tubes.



# GAC Decolourisation Plant

Jord Granular Activated Carbon ('GAC') sugar decolourisation plants offer excellent colour removal and process resilience.

## Benefits of GAC

- High performance colour removal
- Zero liquid discharge
- Environmentally friendly technology
- Suits both large and small refineries

## GAC PROCESS

Feed liquor passes through columns packed with granular activated carbon, the carbon adsorbs colour and other contaminants from the liquor producing a fine liquor. Jord offers both Fixed Bed and Pulse Bed adsorption columns depending on the refinery requirements.

## ACTIVATED CARBON

Is a broad spectrum adsorption agent effective on both plant pigments, melanoidins and caramels plus it will remove any odours in the liquor.

There is no requirement to replace the entire carbon inventory after the initial fill however to maintain effective adsorption of the carbon over time it is periodically withdrawn from the columns and regenerated in a multiple hearth furnace ('MHF') at high temperature.



# GAC Reactivation Plant – Multiple Hearth Furnace

Jord Multiple Hearth Furnace's are used to effectively reactivate exhausted GAC from the decolourisation plant ready for reuse.

The multiple hearth furnace provides the environment for releasing the impurities adsorbed onto the carbon from the sugar liquor. In the furnace the carbon is gently raked by rabble teeth over a number of hearths where it is exposed to temperatures up to 950°C. Conditions within the furnace are closely controlled to provide a high temperature, low oxygen atmosphere that restores the carbon adsorptive capacity by driving off and destroying the contaminants without burning or destroying the carbon.

Emissions from the MHF are treated to meet the most stringent environmental standards with a high efficiency cyclone and afterburner (also known as a thermal oxidiser). Heat used in the process can be recuperated to produce steam for use in the MHF itself or elsewhere in the refinery. Such recuperation technology can reduce the net energy consumption by up to 65%.



# Pressure Filtration

Jord's extensive range of filter presses offer a reliable and proven solid – liquid separation solution for your sugar refinery.

Our focus has been on fast-acting filter presses that deliver optimum speed while delivering consistent and reliable operation.

Automating the process for minimal operator involvement has been achieved with novel process control logic and easy-to-use operator interfaces.



# Vacuum Filtration

Jord's history with Rotary Drum Vacuum Filters (RDVF) dates back 45 years to its very first order, a cane mud filter for the Racecourse sugar mill in QLD.

This order spawned an installation list of many hundred RDVF's across the globe, renowned for their longevity and superior design.

Jord's range of RDVF's extends to 4.88m diameter by 5.7m long offering a huge 240m<sup>2</sup> of filtration area. An added advantage of Jord RDVF's is the single filtrate receiver to handle both the wash and form filtrate.

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