

Malting Projects Berwick



Feed and recovery conveyors to 2 x 350 te GKV's shown during construction.



View of feed to 350 te GKV vessel.

350 TONNE GKV PLANT - SCOPE OF WORKS

The scope of works was for the mechanical and process design, manufacture, supply, install and commission of four 350 tonne germinating / kilning vessels and associated ancillary equipment.

The plant comprised in brief of the following:-

- 1 x Glass tube heat exchanger sized to suit 20MW heating system.
- 4 x Flucorrex gas fired indirect air to air heat exchangers.
- 4 x Weishaupt 5MW gas burner assemblies to suit the above heaters.
- 2 x Single inlet, single outlet 675,000 m³/hour centrifugal kiln fans.
- 1 x Heater house building with suitable air supply, exhaust and recirculation ducts.
- 1 x Set of kiln air recirculation dampers.
- 4 x Single inlet, single outlet 240,000 m³/hour centrifugal germination fans.
- 4 x Germination ducts systems with facility to recycle air off of grain bed.
- 4 x Dia. 30 m, 350 tonne batch capacity, GKV vessel structures of modular construction with stainless steel lining and external insulation and cladding.
- 4 x Sets of manually operated stainless steel vessel plenum isolation doors.
- 4 x Sets of manually operated stainless steel exhaust duct plenum isolation doors.
- 4 x Sets of manually operated germination fan outlet isolation doors.
- 4 x Sets of manually operated germination pressure relief doors.
- 4 x 3 m diameter vessel centre cores with stainless cladding in plenum and above vessel floor.
- 4 x Stainless steel plenum floor with chemically inert under floor insulation.



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- 4 x 30 m rotating floors with galvanised radial beams, stainless perforated floor plates, stainless peripheral roller support columns, stainless drive racks and variable speed drive units.
- 4 x Stripper / loader / turner machines with 24 turning screws, 6 turner drive units, 700 mm diameter stripper/loading screw with raise lower mechanism, machine walkway, malt spray manifold, grain bed temperature probe assembly and beam ventilation fan.
- 4 x vessel control rooms.
- 4 x vessel discharge hoppers and shutoff doors.
- 1 set interconnecting kiln fan outlet and return exhaust air ducts between vessels and heater house.



Central floor supports.



Floor drive.



Internal view of air intake chamber showing glass tube heat exchanger for a 20MW (350t batch) kiln heating system. The design gives 80% heat recovery from 1.3t/h of saturated air.



Recirculation door operating mechanism inside air intake chamber.



Stripper / loader / turner inside a 30m diameter rotating floor GKV.



Stripper / loader / turner access walkway.



Stripper loader turner in a 30m diameter rotating floor Germination / Kilning vessel.



Loader / stripper screw attached to turner beam In its raised loading position.



Inside 30m dia GKV with air on / off doors in background.



30m dia rotating floor GKV during filling With its 350 te batch.





Loading a GKV.



Loading a GKV with distribution screw conveyor in background.



Two 350 te GKV's, heater house and feed System during construction.



Heater house and air inlet shroud to heat exchanger.



Four 5 MW gas burners.



Germination fan for 350 te per batch GKV.