

# CASTHOUSE TECHNOLOGY

FOR PRIMARY ALUMINIUM  
SMELTERS

MELTING FURNACES  
HOLDING/CASTING FURNACES  
DEGASSING & FILTRATION  
LAUNDER SYSTEMS  
VDC CASTING MACHINES  
WATER COOLING PLANTS



suppliers of standard plant  
or custom designed to suit  
individual requirements



**Mechatherm International Limited**

*applying the heat*

## MELTING FURNACES & HOLDING/CASTING FURNACES

Mechatherm has vast experience in supplying Aluminium Melting and Holding/Casting furnaces to the Aluminium industry with many references worldwide. Mechatherm can offer full 'turn key' supply contracts as well as 'part' supply to suit our client's requirements. Mechatherm holding/casting furnaces are custom designed and constructed for arduous foundry conditions.

### Features include:

- Heavy duty casing construction to withstand thermal and mechanical stresses.
- Hydraulic or Electro Mechanical door lifting with synchronisation.
- Static furnace or tilting furnace designs.
- Positive pneumatic door clamping and sealing systems.
- Long lasting refractory block, cast steel or water cooled door surrounds.
- Furnace chamber exhaust ducting systems and stacks to atmosphere
- Door fume extraction hoods
- Automatic pressure control regulation using an actuated 'mechanical damper'
- Gas fired, Oil fired or electrical heat input systems
- Electronic Fuel/Air ratio control or Thyristor control on heating elements
- Manual or automatic metal pouring operation to suit specific casting requirements
- Durable refractory linings in monolithic, brick or pre-cast blocks.
- Molten metal receiving wells with hot metal crucible tilting mechanisms for furnace filling.
- Specialised PC/PLC based control systems with human/machine interface giving 'Set point' control
- SCADA control systems.



70T Gas Fired Tilting Melting Furnace



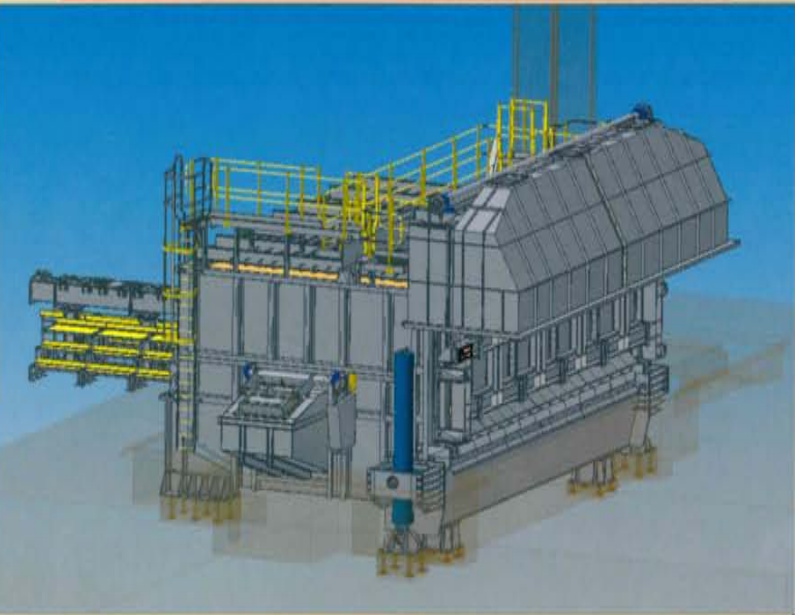
4 x 45T Gas Fired Tilting Holding Furnaces Feeding Two Continuous Casting Machines



2 x 55T Gas Fired Tilting Holding Furnaces



2 x 60T Electrically Heated Tilting Holding Furnaces Feeding Two Continuous Ingot Casting Machines



3D Solid Modelling Design Process Utilising FEA Analysis



55T Tilting Holding Furnace Pre-assembled Ready For Transportation to Site



Hot Metal Crucible Tilt Machine for Furnace Filling

## WHY MECHATHERM INTERNATIONAL LTD?

- ☉ Experts in furnaces technology and practices
- ☉ State of the art equipment to suit individual production requirements
- ☉ Projects involving either continuous or batch processes
- ☉ Either standard plant or custom designed
- ☉ Full turnkey or part supply – **Worldwide**
- ☉ **A team with unrivalled experience, knowledge and support**



Casting Machine



## VDC CASTING MACHINES

Mechatherm have supplied and installed several Vertical D.C. (Direct Chill) casting machines for plants looking to produce anything from 5,000T/A up to 100,000T/A or greater. We design machines to cast extrusion billet, rolling ingot or T-bar.

Some of our casting machine design features include:

- ☛ Remote hydraulic tilt frames
- ☛ Moving pit cover platforms for operator access and safety
- ☛ Moving scissor lift platforms for mould maintenance
- ☛ Integrated steam extraction systems
- ☛ Emergency water supply systems
- ☛ Either fixed or moving mould support carriages



30T VDC Casting Machine with Moving Carriage and Remote Tilt Frame

## ANCILLARY EQUIPMENT

Mechatherm has designed, installed and commissioned many items of ancillary equipment to compliment our casting centres. We have also undertaken projects to install other proprietary equipment to give our client's a complete project management and installation package.

Mechatherm has supplied and installed:

- ☛ Interconnecting Launder systems
- ☛ Launder pre-heating solutions using gas or electricity
- ☛ Grain refining rod feeder systems
- ☛ Laser metal level control
- ☛ Degassing units from various suppliers
- ☛ Ceramic foam filters with gas fired pre-heat systems
- ☛ Hot metal crucible tilting machine for furnace filling



Interconnecting Launder System with Pre-heaters



SNIF Degassing Unit and Ceramic Foam Filter installed by Mechatherm



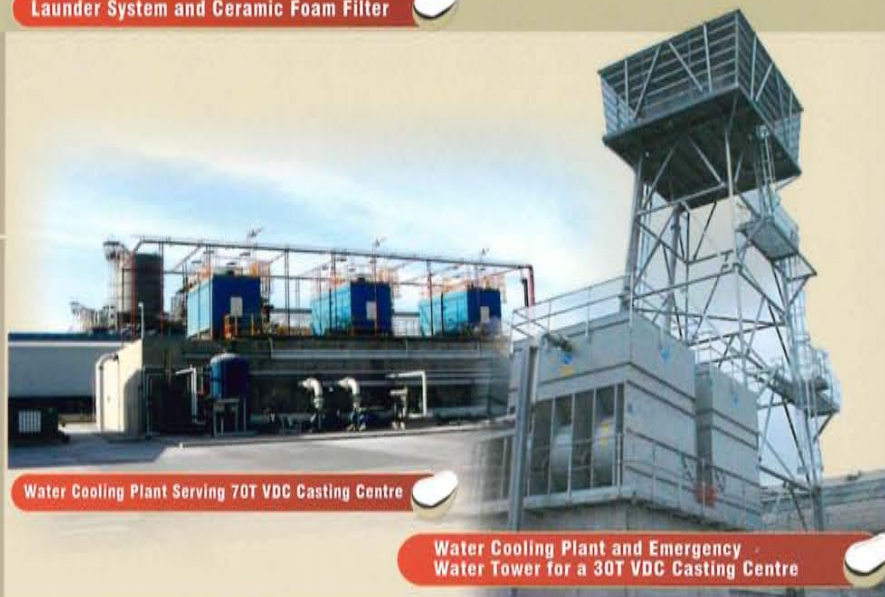
Launder System and Ceramic Foam Filter

## WATER COOLING PLANTS

Mechatherm have supplied and installed several closed loop water cooling plants to feed various types of casting machine.

Some of the water cooling plant features include:

- ☛ Hotwell & Coldwell design philosophy
- ☛ Forced draft cooling towers
- ☛ Heat exchanger water cooling
- ☛ Chemical dosing systems
- ☛ Water/Oil separation systems
- ☛ Casting machine water 'Backflush' filtration system
- ☛ Emergency water towers



Water Cooling Plant Serving 70T VDC Casting Centre

Water Cooling Plant and Emergency Water Tower for a 30T VDC Casting Centre



**Mechatherm International Limited**