**Bottom ASH HANDLING**

**Jet Pumping System**

Uttam Fabricators product profile includes Jet Pumping System for intermittent removal of bottom ash collected at furnace bottom of PF type boilers. System comprises of water impounded refractory lined Bottom Ash Hopper (BAH) of adequate capacity with water seal trough and dip plates, allowing free expansion of the furnace without any air ingress. Continuous water make-up and overflow system keeps the temperature at 60°C in the BAH. Intermittently, de-ashing is done through operation of the inclined hydro-pneumatically operated feed gate, clinker crusher and jet pump. High pressure water supplied to the jet pump acts as motive water to pump the bottom ash slurry to dewatering bins/slurry sump. Uttam Fabricators Jet Pumping Systems are installed up to capacity of 85TPH and for power plants up to 600 MW.

**Bottom Ash Handling**

**Submerged Scraper Chain Conveyor System**

For projects demanding continuous removal of bottom ash collected at furnace bottom, Uttam Fabricators offers Submerged Scraper Chain Conveyor (SSCC) System. The system comprises of dry type refractory lined Bottom Ash Hopper (BAH) of adequate capacity with water seal trough and dip plates, allowing free expansion of the furnace without any air ingress.

BAH protects the conveyor from the direct impact of hot ash and hot ash is smoothly discharged to the water bath of the SSCC through horizontal hydro-pneumatically operated discharge gates provided below the BAH. The discharge chute at the hopper outlet remains dipped into the water slag bath of SSCC ensuring sealing of furnace bottom. Storage capacity of BAH permits sufficient maintenance time for the SSCC as well as reduces the extraction load on the SSCC. Within SSCC, a temperature of 60°C is always maintained. Bottom ash is extracted from the trough continuously using high quality chains, sprockets and bars. After the dewatering at the sloping portion, moist ash is discharged to a clinker crusher for onward disposal through hydraulic sluice ways or belt conveyors. For higher capacity SSCC, Hydraulic drive units, hydraulic chain tensioning units and motorized traverse drives for taking it to maintenance are provided. Uttam Fabricators SSCC systems are installed up to capacity of 70TPH and for power plants up to 700 MW.

**Bottom Ash Handling**

**De-watering Bin System**

In certain applications, which call for bottom ash available in slurry form to be disposed off through trucks or through high concentration slurry disposal system along with fly ash, Uttam Fabricators De-watering Bin System takes precedence. De-watering bins with the decanting system removes water from the bottom ash and this water can be recycled through a set of settling tanks, surge tanks, transfer pumps, etc. The bottom ash collected in the bin can be either periodically removed through trucks or can be fed to high concentration slurry disposal system for disposal in paste form along with fly ash. Uttam Fabricators De-watering Bin Systems are installed up to capacity of 1022MT/1500M³ and for power plants up to 600 MW.
Dry bottom ash handling – drycon

Dry Bottom Ash Handling (DRYCON) System is a complimentary world-class product added to the product portfolio of the Clyde Bergemann Power Group. Dependent on the quality, quantity and utility of bottom ash, it is absolutely advantageous to adopt a DRYCON system for Dry Bottom Ash extraction.

The DRYCON system is mounted fully sealed to the combustion chamber. The negative pressure inside the boiler sucks air in a controlled manner mainly at the top end of the DRYCON system into the DRYCON system. This air travels in counter flow direction along the surface of the ash, which rests on the conveyor belt. This activates a re-burning process of the glowing ash, which reduces the unburned carbon level and frees up additional thermal energy. The air is heated up before it enters the combustion chamber and adds additional thermal energy to the steam generating process inside the boiler.

Key Advantages of DRYCON

- Totally dry system. With preheating of air, more thermal energy is available.
- Unburned carbon of the bottom ash will be reduced.
- Fine ash, produced by the re-burning process, will be sucked into the boiler by air and discharged as fly ash.
- Milled to a fine grain size, the bottom ash can be used together with the fly ash.

Dry bottom Ash Handling
Pressure Pneumatic Conveying System

Dry bottom ash collected in hopper/silo through DRYCON sometimes needs to be transported beyond the plant boundary for utility purpose. For such applications, Uttam Fabricators Pressure Pneumatic Conveying System takes precedence. Uttam Fabricators Pressure Pneumatic Conveying System operates on batch/continuous operating concept and can convey the much coarser particles of bottom ash. Uttam Fabricators Pressure Pneumatic Conveying Systems are installed upto capacity of 88TPH, for distance upto 800 M and for power plants upto 600 MW.

Fly ash handling
Vacuum Extraction System

Uttam Fabricators product profile includes Vacuum Extraction System for extraction of fly ash collected at Air Pre Heater/Electrostatic Precipitator hoppers of PF type boilers. Vacuum Extraction System is generally adopted when the extraction distance is less, when the number of hoppers are more and when project layout demands for two-stage conveying. Vacuum Extraction relies upon an air stream generated by partial vacuum drawn on the receiving station, by means of mechanical exhauters, material being dragged into the pipeline by vacuum created and moving in suspension. A bag filter unit with air lock unit, separates the material from the air at the receiving station for onward conveying to remote silos/for hydro sluicing. Uttam Fabricators proprietary design Dome Valve has proven to be one of the best valves for the vacuum application also. Uttam Fabricators Vacuum Extraction Systems are installed upto capacity of 74TPH and for power plants upto 600 MW.
Fly ash handling
Pressure Pneumatic Conveying System

Uttam Fabricators offers Pressure Pneumatic Conveying System for conveying of coarse ash/fly ash collected at Economiser/Air Pre Heater/Electrostatic Precipitator hoppers. Pressure Pneumatic Conveying System is generally adopted on account of many of its advantages like positive pressure system, low velocity, lesser erosion rates, conveying of fine and coarse ash separately as collected (thus increasing its utility), capability to convey longer distances in a single stretch (upto 1 KM directly from ESP and upto 3 KM from intermediate silo to remote silo), etc. The system operates on a batch concept for the first stage conveying system and on a continuous mode for second stage transportation system. Pneumatic vessels provided below the multiple hoppers of the ESP/APH/ECO fills and conveys in tandem with compressed air from compressors as the medium of conveying. Uttam Fabricators Dome Valve has been the best proven valve for the pneumatic material handling application. MBPL’s Pressure Pneumatic Conveying Systems are installed upto capacity of 150TPH, for distances upto 1.7 KM and for power plants upto 660 MW.

Fly ash handling
Hydro-sluicing System

For projects requiring Hydro-sluicing System for transfer of coarse ash/fly ash collected at Economiser/Air Pre-Heater/Electrostatic Precipitator hoppers or along vacuum system or at buffer hoppers/silo’s of PF type boilers, Uttam Fabricators provides various modules like flushing apparatus system, wetting head-cum-slurrifier system, feeder ejector/hydro ejector system, etc. depending upon the application requirement. BSBK’s Hydro-sluicing Systems are installed upto capacity of 120TPH and for power plants upto 600 MW.