

ASH HANDLING SYSTEMS

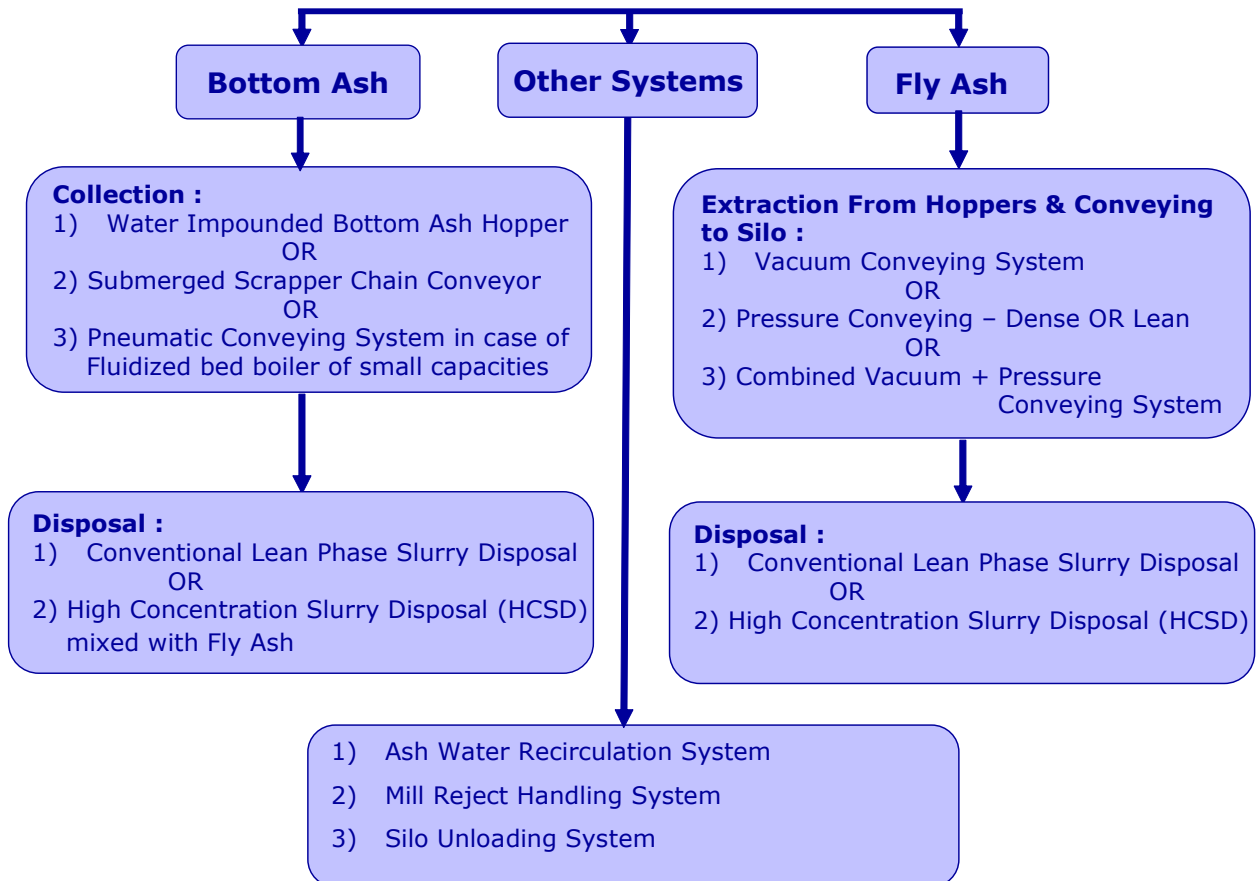
(Your Partner in Clean Environment....)

DEMECH offers total turnkey solutions in the field of Ash Handling in coal based power plants.

DEMECH has capability to handle Power Plants ranging from 25 MW to 660 MW.

DEMECH has proven track record of the last 3 decades in India & abroad. DEMECH Specialises in both hydraulic and pneumatic types of ash handling system to cover handling of ash from Bottom Ash Discharge & ESP.

DEMECH has capability to offer following various ash handling systems & also adapting new technologies time by time.



DEMECH has inhouse facility of manufacturing of critical components for above ash handling systems. Some of the major components are listed below -

A] Wet Ash Handling System :

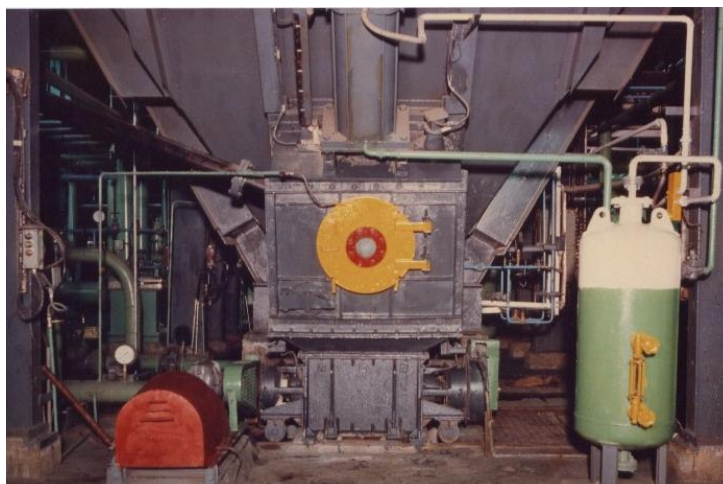
- 1) Water Impounded Bottom Ash Hopper
- 2) Hydro-pneumatic Operated Ash Gate
- 3) Toothed type Clinker Grinder -
 - a) Single Roller Type
 - b) Double Roller Type
- 4) Jet Pump / Hyjector
- 5) Feeder Ejector
- 6) Cast Basalt Lined Pipes

B] Pneumatic Ash Handling System :

- 1) Air Lock Vessel
- 2) Rotary Feeders
- 3) Valves -
 - a) Air Intake Valve
 - b) Ash / Material Intake Valve
 - c) Spherical Dome Valve
 - d) Tight Shut Off Valve
 - e) Ceramic Fluidizing Tiles
 - f) DRC lined Pipes & Fittings

HYDRAULIC ASH HANDLING SYSTEM :

Hydraulic Ash Handling Systems use force of water to convey ash from one point to another. Backed by a 12 years of technical collaboration with - '**Babcock Hydro - Pneumatic Ltd., UK.**' the world's leading ash handling system manufacturer - Demech designs and manufactures ash handling systems for Thermal Power Stations in-house.



Major System Components :

1) Water Impounded Bottom Ash Hopper - Upto 500 Cu. m capacity with double 'V' type

2) Ash Gate -

Hydro- Pneumatic Operated with following available sizes

- a) 600 x 600 mm opening for upto 40 TPH
- b) 600 x 900 mm opening for upto 80 TPH



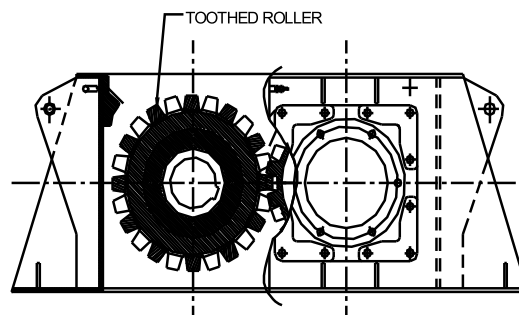
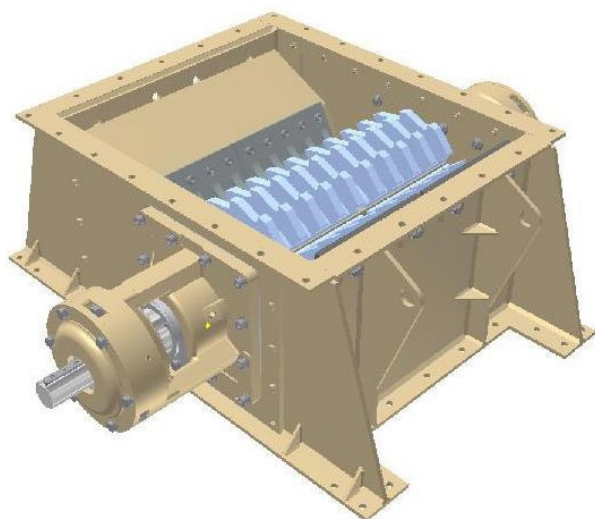
3) Clinker Grinder

Type : Single / Double Roller

Capacity : upto 80 TPH

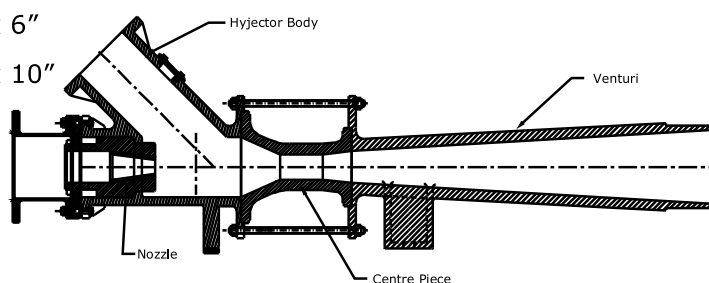
Max. Input Particle Size : 300 mm

Max. Output Particle Size : 25 mm



3) Jet Pump - Capacity upto 80 TPH with various sizes available as below -

- (a) 3" x 4"
- (b) 4" x 6"
- (c) 6" x 8"
- (d) 8" x 10"



SUBMERGED SCRAPER CHAIN CONVEYOR :



Submerged Scraper Chain Conveyors are specifically designed for handling high temperature bottom ash which is quenched and dewatered continuously.

Parameters :

- 1) Capacity : upto 40 TPH
- 2) Inlet to Outlet Distance
- Upto 12 meters
- 3) Speed Variation - 10% to 100%

- Features :**
- 1) Low Power and Water consumption
 - 2) Full Load restart Capacity
 - 3) Provision of special wear resistant material like Cast Basalt liners.

LEAN PHASE SLURRY DISPOSAL SYSTEM :

System Parameters :

- 1) Slurry Concentration :
25% to 30% (w/w) (Ash : Water)
- 2) Type of Pump Used :
Slurry Duty Centrifugal type
- 3) Conveying Velocity :
2.0 to 2.8 m/s



- 4) Conveying Distance : DEMECH has supplied no. of long distance systems.
Longest system supplied till today is of 15 kms distance at Chandrapur, Maharashtra.

HIGH CONCENTRATION SLURRY DISPOSAL (HCSD) SYSTEM :

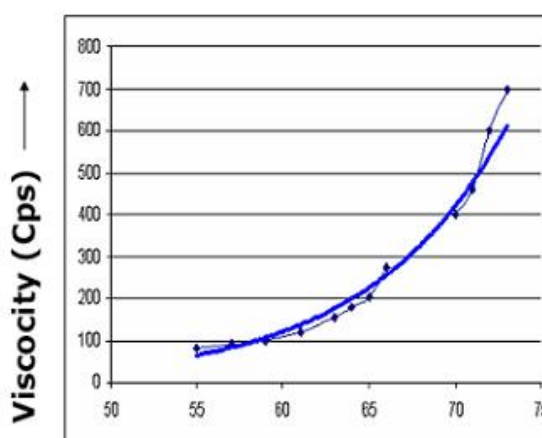
DEMECH has also developed latest technology of dense phase pumping of ash.

System Parameters :

- 1) Slurry Concentration : 60% to 65% (w/w) (Ash : Water)
- 2) Type of Pump Used : Piston Diphargm Pump
- 3) Conveying Velocity : 1.5 to 2.2 m/s

In technical collaboration with one of the leading pump manufacturer '**Joseph Emmerich, Germany**' DEMECH provides complete turnkey solution for HCSD system.

DEMECH / Collaborator has inhouse laboratory & reasearch facilities for study of various Ashes & it's Rheological Characteristics.



Slurry Concentration (% w/w) →

PNEUMATIC CONVEYING SYSTEMS :

Pneumatic Conveying systems use force of air to convey material from one point to another. Backed by technical collaboration with '**Rolls Royce, Australia,**' Demech is providing complete range of pneumatic conveying systems

1) VACUUM CONVEYING SYSTEM -

This is the most economical pneumatic conveying system. The system is operationally very simple. Vacuum is created in conveying pipelines by means of vacuum pumps & ash is extracted from ESP hoppers to intermediate hopper or Silo.

System Parameters :

- 1) Capacity : Upto 60 TPH per stream
- 2) Conveying Media : Vacuum created by liquid ring type vacuum pump.
- 3) Vacuum Rating : 12" to 16" of Hg
- 4) Conveying Distance : Upto 150 mtrs.
- 5) Pipeline : Cast Iron Pipes

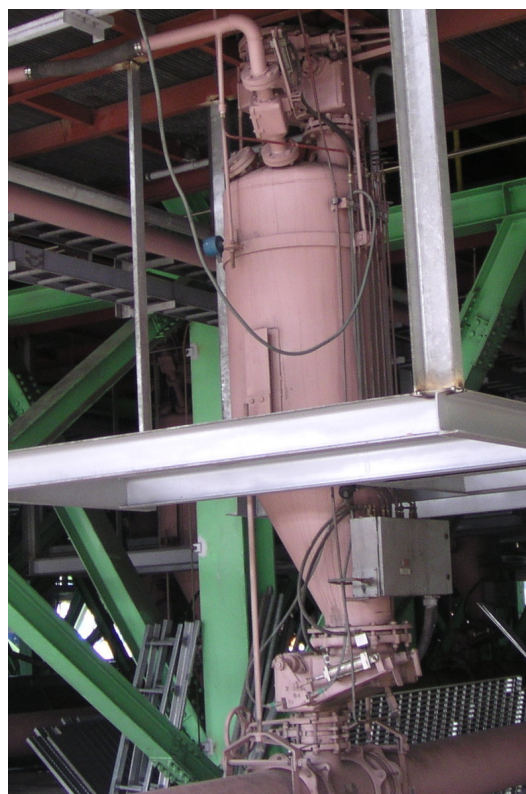
2) PRESSURE CONVEYING SYSTEM -

For Higher distances pressure conveying system is economical. This system uses specially designed air lock vessels to create air pressure to convey the ash directly from ESP hoppers to silo OR from Intermediate hoppers to Silo.

System Parameters :

- 1) Type : Lean Phase or Dense Phase.
- 2) Capacity : Upto 120 TPH per stream.
- 3) Conveying Media : Pressurised
Conveying Air
- 4) Conveying Distance :
Upto 1200 mtrs.
- 5) Source of Air -
Lean Phase - Compressor / Blower
Dense Phase - Compressor
- 6) Pipeline - MS ERW OR
DRC lined MS ERW

In addition to above system DEMECH is also offering advanced technology of Air assisted type Dense Phase pressure conveying system.



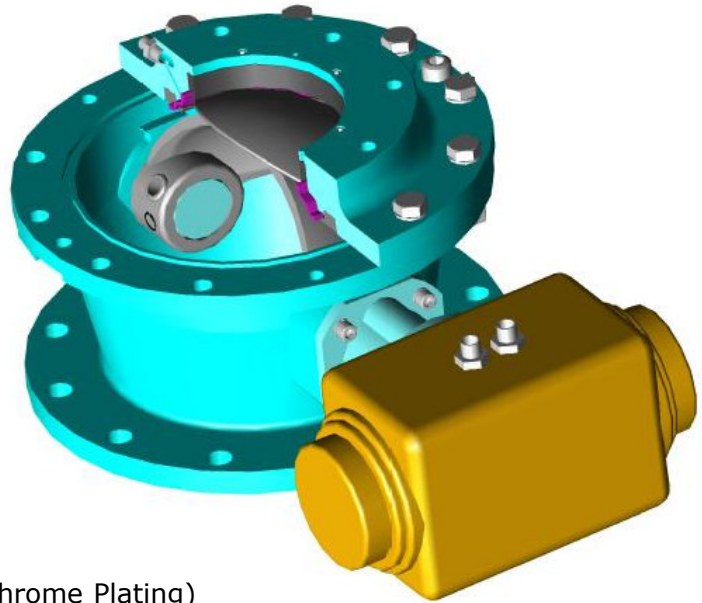
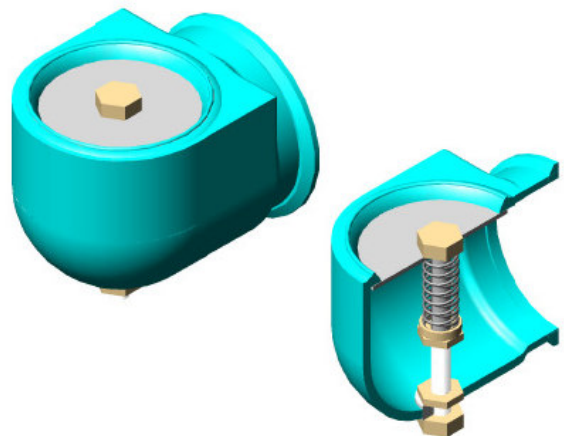
3) COMBINATION SYSTEM - In case of higher conveying distance and more no. of ESP hoppers, Vacuum plus pressure combination system is used. Ash is extracted from ESP hoppers to intermediate hopper by vacuum system and further conveyed upto silo by pressure conveying system.

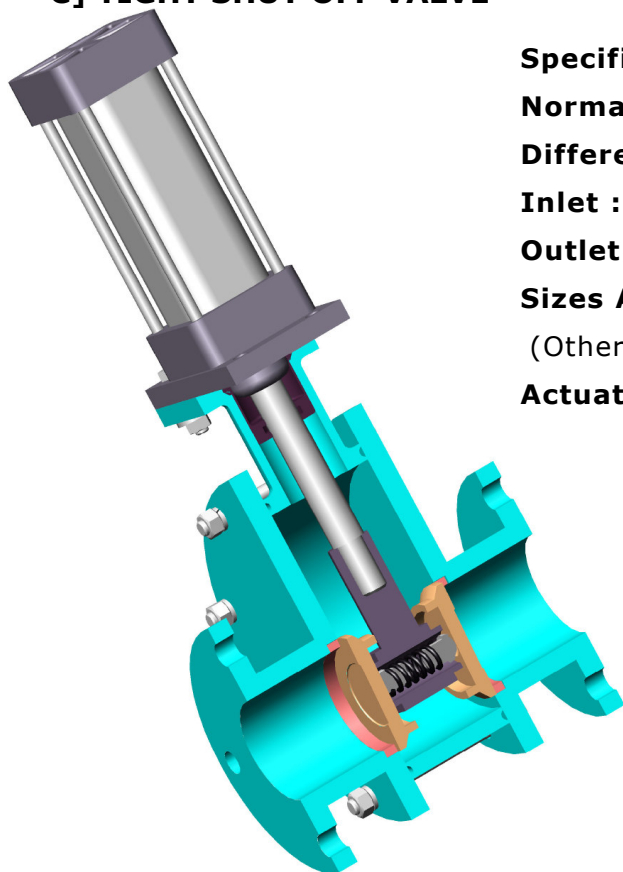
VALVES :**A] DOME VALVE -****Specifications :****Temperature range :** upto 230°C**Differential Pressure Range :** Vacuum to 6 bar.**Inlet :** ANSI B16.5 #150 / BS 10 Table D**Outlet :** ANSI B16.5 #150 / BS 10 Table D**Sizes Available :** 150 NB, 200 NB, 250 NB

(Other Sizes can be developed as per requirement)

Actuators : 1) Manual handle with position Lock.

2) Pneumatic Cylinder Type.

**Materials :****Body :** Cast Iron**Dome :** Alloy Cast Iron (with Hard Chrome Plating)**Seat :** EPDM / Viton**Salient Features :****1) Inflatable Seat :** Due to use of inflatable seat, there is no contact between Dome & Seat during valve operation.**2) Uninterrupted flow :** In open Position, Spherical Dome is completely out of the conveying path, hence there is no obstruction for material flow.**3) Quarter Turn Operation :** Spherical Dome Valve requires only a quarter turn from full closed to full open condition.**4) Lesser Maintenance & Longer Operating Life.****B] AIR INTAKE VALVE****Specifications :****Normal Temp. range :** Ambient**Vacuum Rating :** upto 16" Hg**Sizes available :** 150 NB (upto 40 TPH)
200 NB (upto 60 TPH)**Materials :****Body :** Cast Iron**Disc :** Stainless Steel**Shaft :** Stainless Steel

C] TIGHT SHUT OFF VALVE -**Specifications :****Normal Temp. range :** upto 200°C**Differential Pressure Range :** -0.5 to 7 bar.**Inlet :** ANSI B16.5 #150 / BS 10 Table D**Outlet :** ANSI B16.5 #150 / BS 10 Table D**Sizes Available :** 25 NB to 250 NB

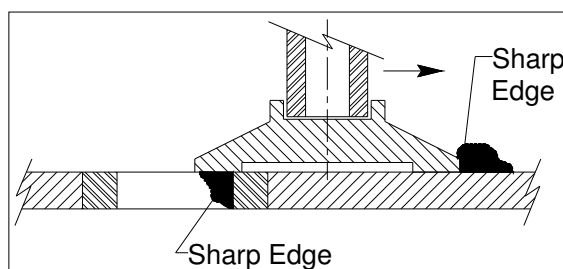
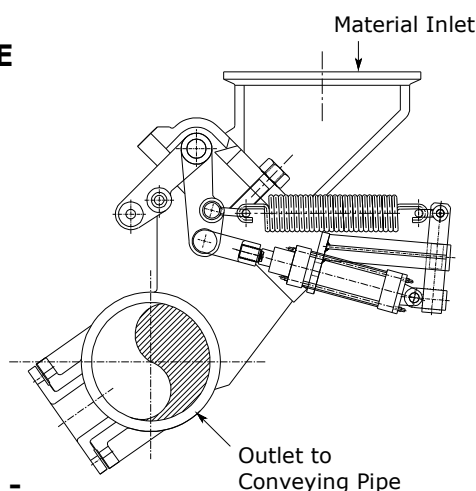
(Other Sizes can be developed as per requirement)

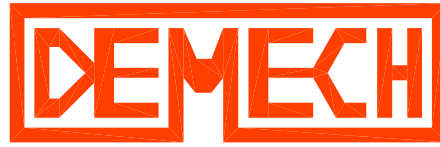
Actuators : 1) Manual handle with position Lock.

2) a) Reciprocating Cylinder Type.

b) Vane Type.

c) Rack & Pinion Type.

Materials :**Body :** Cast Iron**Disc :** Stainless Steel / Ceramic**Seat :** Stainless Steel / Ceramic**Salient Features :****1) Positive Shut off :** Sealing surfaces are machine lapped hence ensure lesser leak rates than metal seated valves.**2) Self Lapping Discs :** During the operation of closing & Opening of Valve, sealing discs rotate as the centre of applied force and the centroid of friction force move towards alignment & Scratches that develop on the wide sealing surfaces are polished away.**3) Sealing surfaces protected :** The spring loaded discs are held firmly against the path they travel & then shields their sealing surfaces from exposure to any harsh process while the valve is open. Deposited material form will be shared from the sealing surfaces by sharp edges of the seat rings and rotating discs.**4) No Pressure Drop :** In Common Valves like Ball, Plug or Butterfly, Flow path is restricted when valve is open, Whereas in this case there is full port flow through the valve.**D] ASH / MATERIAL INTAKE VALVE****Specifications :****Normal Temp. range :** upto 230°C**Vacuum Rating :** upto 16" Hg**Inlet Size :** 300 NB**Outlet Size :** 150 NB / 200 NB**Actuators :** Pneumatic Cylinder**Materials :****Body :** Alloy Cast Iron**Disc :** Alloy Cast Iron**Stem :** EN8 / SS



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