



MD-Pump Anti-Blocking System

Pneumatic Bulk Solids Handling
Document No. CPC-INF-2180

The Clyde MD-Pump fly ash conveying system developed mainly for large capacity ESP or Fabric Filter collection systems with multiple collection hoppers.

The unique anti-blocking or auto-unblocking system has been developed to ensure operators receive the highest possible availability of their plant during normal operation.

This feature is particularly useful when fuel types are expected to change.

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ISO9001 | ISO14001

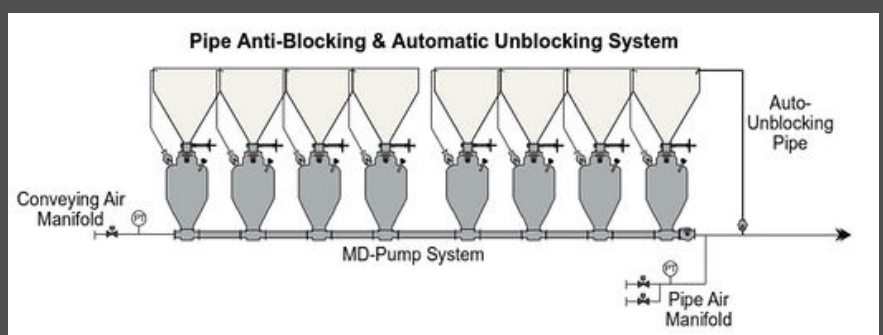


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Normal Operation

During normal operation all MD-Pump vessels in the system generally operate simultaneously to discharge material into the conveying pipeline for transfer to the reception silo by using a controlled amount of conveying air which enters the system through the conveying air manifold and pipe air manifold.

When the conveying air manifold pressure is equal to the pipe air manifold pressure, indicating that the material has exited from the MD-Pump vessels, the conveying air manifold blow valve and 2nd pipe air manifold blow valve close and open simultaneously whilst at the same time the system outlet Dome Valve closes and seals allowing material to continue to be conveyed to the silo whilst the MD-Pump vessels can de-pressurise and refill as necessary. At the end of the conveying cycle all blow valves close.



Pipe Anti-Blocking

During the conveying cycle whilst the MD-Pump vessels are discharging into the pipeline, should the conveying air manifold pressure exceed the pipe air manifold pressure by more than the pre-set limit, indicating difficulties in discharging the vessel into the pipeline, then the conveying air blow valve will close to restrict further material entering the conveying pipe until the pressure differential is again within the pre-set limit when the valve will open again.

If the pipe air manifold exceeds the maximum pre-set conveying pipeline pressure (P_{max}), indicating a pipeline blockage is forming, then all open blow valves will close until the pipeline pressure has reduced when they will once again open to complete the conveying cycle.

Pipeline Auto-Unblocking

If the pipe air manifold pressure remains above P_{max} for a pre-set time, indicating that a pipe blockage has actually formed, then the system outlet Dome Valve will close and seal (if not already in this mode) and the Dome Valve in the auto-unblocking pipe (which is connected to a suitable vent port) will open to allow the pipeline to fully depressurise.

Once this happens, the auto-unblocking Dome Valve will close & seal and the pipe air manifold blow valve will open again to remove the blockage.

This sequence will repeat until the blockage has cleared and conveying can continue as normal. Experience has shown that all blockages can generally be cleared in this manner through two depressurisation cycles.