PRODUCT DATASHEET

Fly Ash Silo Technical Specifications

Technical specifications for fly ash silos: ceramic lining options, fluidization design, dust collection, and conveying systems.

Doc. No.	Version	Issued	Category	Website
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1. Material Characteristics

Dry fly ash is a fine, free-flowing powder with low bulk density and mild abrasiveness. When moist it becomes cohesive and can bridge in hoppers. Manxing fly ash silos are designed around these properties to guarantee reliable extraction, clean emissions and low maintenance in power plants, cement plants and ash handling terminals.

Property	Typical Value	Design Implication
Bulk density (dry)	0.55-0.90 t/m3	Large volume per tonne; tall slim silos preferred
Particle size (fineness)	10-100 micron (residue 45 um 10-30%)	Fine dust: high-efficiency filtration required
Angle of repose	25-40 deg	Shallow hoppers possible; aeration assists flow
Flowability	Free-flowing dry / cohesive wet	Moisture control, heating and aeration
Abrasiveness	Low to medium	Standard steel with wear plates at outlets
Moisture	0.5-2% typical	Above 2% bridging risk; consider heating or liner

2. Model Range

Model	Capacity (t)	Silo Dia. (m)	Height (m)	Construction	Discharge
MX-FA-50	50	3.2	9.5	Bolted	Cone + aeration
MX-FA-100	100	4.2	11.0	Bolted	Cone + aeration
MX-FA-200	200	5.6	13.0	Bolted	Cone + aeration
MX-FA-300	300	6.5	14.5	Bolted	Cone + aeration
MX-FA-500	500	8.0	16.0	Welded	Flat + aeration
MX-FA-800	800	9.5	18.0	Welded	Flat + aeration
MX-FA-1000	1,000	10.5	19.5	Welded	Flat + aeration

3. Ceramic Lining and Wear Options

Option	Thickness	Coverage	Benefit
Alumina ceramic tiles (92-95% Al2O3)	10-20 mm	Cone, outlet zone, impact areas	Excellent abrasion and impact resistance
Wear-resistant steel plate (Hardox type)	6-10 mm	Hopper and outlet transition	Cost-effective for medium abrasion
PU / rubber lining	6-12 mm	Chutes and transfer points	Noise damping, easy cleaning
Basalt cast lining	20-30 mm	High-impact chutes	Very high impact resistance

4. Fluidization Design

- Aeration pads: porous ceramic or sintered metal, spacing 300-500 mm over the discharge area
- Air consumption approx. 1.2-2.0 m3/min per m2 of aeration floor
- Aeration air pressure 50-70 kPa, dry and oil-free air required
- Zone-wise aeration control with sequential start to avoid channeling
- Hopper angle 45-60 deg with aerated cone floor to prevent bridging and rat-holing
- Vibration or air-blowing nozzles as backup for cohesive ash
- Optional heating of the cone zone for high-moisture ash in humid climates

5. Dust Collection

- Pulse-jet cartridge filter mounted on the silo roof or adjacent
- Filtration area sized to filling rate: 1.0-1.5 m2 per 1,000 m3/h of displaced air
- Filtration efficiency 99.9%; emission below 10-30 mg/Nm3
- Explosion vent panel and isolation valve for combustible dust zones
- Differential pressure monitoring with automatic cleaning control
- Return of collected ash to silo; optional separate ash conveying

6. Conveying and Discharge Systems

System	Description	Notes
Dense-phase pneumatic conveying	Pressure 2.0-6.0 bar, batch or continuous	Long distances, low degradation, high capacity
Lean-phase / dilute conveying	Blower pressure 0.3-0.8 bar	Simple, economical for shorter routes
Rotary valve + airslide	Aerated gravity conveying along the silo bottom	Low power, continuous duty
Screw conveyor	Shafted or shaftless in trough	Short transfers, enclosed and dust-tight
Bulk bag / big-bag filling	Semi-automatic or automatic filling station	Dispatch of small volumes

7. Standard Supply Scope

- Silo shell, cone, support structure, roof and access (ladder, platform)
- Aeration system with blower, dryer, distribution piping and control cabinet
- Level and temperature instrumentation; pressure relief valve
- Dust collector with ducting and fan; explosion protection where required
- Surface preparation and protective coating system
- Installation supervision, commissioning and operator training

Contact Manxing

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