

**TECHNICAL SPECIFICATION FOR TELESCOPIC SPOUT**  
**(To be procured and installed at Fly Ash Silo-3)**

The intent of this document is to place order for Design, Engineering, Supply, Erection, Commissioning and Testing including Performance Test Guarantee of **One (01)** complete assembly of Telescopic type bulk loading Spout along with inline compact filter module, Rotary Feeder and allied equipment for loading Fly Ash from Fly Ash Silo -3, into closed body truck at Ash Handling System, as per the following Technical specifications and scope of supply:

**I. DESIGN BASIS**

Particulars	Description
DESIGNATION	Telescopic Type Bulk Loading Spout
SYSTEM CAPACITY / UNLOADING RATE	150 TPH (Dry basis)
INSTALLATION	Silo (Fly Ash Silo –Pressure system)
MATERIAL TO BE LOADED	Fly Ash (Lignite coal)
BULK DENSITY OF FLY ASH	800 KG/M <sup>3</sup> to 1100 KG/ M <sup>3</sup>
FLY ASH TEMPERATURE	100 °C
TYPE OF FEED TO SPOUT	Silo
TYPE OF PRODUCT FEED CONTROL	Pneumatically operated slide Gate Valve
TYPE OF LOADING	Enclosed Trucks / Bulklers
LOADING CONTROL METHOD	Rotary Feeder
SILO AREATION SYSTEM	Available, Fluidizing Air Blower (FAD :400 M <sup>3</sup> /HR)
TOTAL AIR QUANTITY FED INTO SILO	6400 M <sup>3</sup> /HR (Silo Loading Through Dense Phase Pneumatic Conveying System)
SILO VENTING ARRANGEMENT	Yes – By Vent Filter (Fan Capacity 8000 M <sup>3</sup> /HR, Fan static Pressure 250 MM WG)
PERFORMANCE / SYSTEM CAPACITY TEST	No Visible Emission of Fly Ash Dust (During truck loading operation). for minimum Ash unloading capacity of 150 Tonnes per Hour.

## II. SPECIFICATION - TELESCOIPIC TYPE BULK LOADING SPOUT

Particulars	Description
<b>APPLICATION</b>	Fly Ash Loading into Enclosed Trucks / Bulklers
<b>RETRACTED HEIGHT</b>	1384 mm
<b>VERTICAL TRAVEL</b>	2184 mm
<b>TOTAL EXTENSION</b>	3568 mm
<b>DRIVE</b>	<ol style="list-style-type: none"> <li>1. Heavy Duty worm gear box (Make: Siemens/ greaves (premium).)</li> <li>2. Electric Motor: Brake Motor (Make : Siemens/CG/ABB),TEFC Motor</li> </ol>
<b>BEARINGS</b>	Make : SKF/FAG/NTN only
<b>DUST OUTLET CONNECTION</b>	Vent Thru Inline Filter Module
<b>LIFTING ROPES</b>	Spliced steel ropes (Make: Usha Martine or equivalent, reputed make)
<b>ESTIMATED WEIGHT</b>	Maximum 450 Kgs. (Approx.)
<b>UPPER &amp; LOWER DRIVE LIMITS</b>	IP67 Full Up and Combination Full Down Limit Switches,
<b>INNER CONES</b>	Precision fabricated from Abrasive resistant material, 4MM (Min.) Thick, 200 AR STEEL/Hard plate material/Minimum 400 BHN.
<b>OUTER SLEEVE</b>	Urethane / Nylon with support rings
<b>DISCHARGE</b>	<b>Carbon steel construction, tapered design with Self sealing cones</b>
<b>PAINT</b>	(2) coat epoxy red oxide, (100Microns) (2) coat epoxy DA Grey, (50Microns) Total DFT – 150 microns

### III. SPECIFICATION - COMPACT FILTER MODULE (Inline dust collector) (PULSE JET MECHANISM)

Particulars	Description
APPLICATION	To collect dust, <b>Note :</b> 1. <i>To be inline and integral with loading spout.</i> 2. <i>To be accommodated in the existing space at site.</i>
TYPE	Cartridge Filter with Pulse Jet Mechanism with Pre piped Solenoid
FILTER MEDIA	Polyester Cartridges or superior
NET WEIGHT	Maximum 350 Kgs. (Approx.)
PRODUCT INLET	MOC: Precision fabricated from Abrasive resistant material, 4MM (Min.) Thick, 200 AR STEEL/Hard plate material/Minimum 400 BHN.
FILTER ACCESS Top Removal Design	Top Removal Design
VALVES	Make of diaphragm valve shall be ASCO with 110VAC supply in NEMA 4 Housing
PULSE TIMER	Pulse Jet Timer : Make of pulse jet timer shall be 'EAPL' ST10M1 model in NEMA 4 Housing
PRESSURE DIFFERENTIAL GAUGE	Magnahelic Dial Type, Mounted to Collector Housing
COLLECTOR HOUSING	Mild Steel as per IS2062
CLEAN AIR PLENUM CONSTRUCTION	Mild Steel as per IS2062
WITHDRAWAL FAN	AC induction Motor of Make : Siemens / CG / ABB, TEFC Motor
BEARINGS	Make : SKF/FAG/NTN only
VENT FILTER EXHAUST AIR QUALITY	< 30mg/Nm <sup>3</sup> ,
PAINT	(2) coat epoxy red oxide, (100Microns) (2) coat epoxy DA Grey, (50Microns) Total DFT – 150 microns

#### IV. SPECIFICATION – ROTARY FEEDER

DESCRIPTION	Rotary feeder with with Gearbox Motor
MATERIAL TO BE HANDLED	Fly Ash, Temperature of conveying material:100°C, Bulk density - 0.8 - 1.1 Tonne/M <sup>3</sup>
CAPACITY	150 TPH operating /160 TPH design
DRIVE ARRANGEMENT	Pin & Bush Type (Make-Fenner or equivalent)
ALL BEARINGS	Make : SKF / NTN/ equivalent.
WEAR BLADES	Spring steel
DUTY TYPE	Continuous
HOUSING	MS Fabricated IS: 2062-10 mm thk

#### V. SPECIFICATION – PNEUMATICALLY OPERATED KNIFE GATE VALVE

TYPE	Uni-directional Metal seated, Knife gate valve with Pneumatic actuator.
SIZE	300 NB
MAKE	Bray/Vass / Orbinox.
BODY MATERIAL	Alloy CI, Hardened to 350 BHN
GATE MATERIAL	SS304, edge stelling & hard chrome on both side
END DETAILS	Drilling as per ANSI 16.5,Class 150

#### VI. SPECIFICATION – MCC PANEL

DESCRIPTION	Double door with extended canopy and Canopy should be separate from panel body, Non draw out Panel Enclosure, Fully wired and Tested With DCS Interface potential free contact.
MATERIAL OF SHEET METAL	Cold Rolled and cold annealed
SHEET THICKNESS	2 MM for Main frames / Base plate / Doors
CABLE ENTRY	Bottom
GLAND PLATE	3MM (10 SMG) HR thick removable
TYPE OF PANEL	Non draw out type, Double door with extended canopy and Canopy should be separate from panel body.

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DEGREE OF PROTECTION OF PANEL	IP55
OPERATING,MOUNTING,INSULATION	Projected type, single front, wall mounted, and indoor insulation.
RATED VOLTAGE	415 $\pm$ 10%, 50Hz $\pm$ 5%
INCOMING POWER SUPPLY	3 Phase, 3 wire AC 415 V, 50 Hz
CONTROL SUPPLY	110V AC
WIRING	1100V Grade
COLOR CODING	Control Wiring: (Phase – Grey), (Neutral-Black), 2.5sqmm cu cable. Power Wiring: Red, Yellow, Blue, Green, 3C / 4C Armoured copper cable. Size of power cable should be appropriate & should have sufficient margin of rating according to load.
CAUTION NOTICE	Caution notice in Hindi, English & Gujarati will be provided on panel front door.
CABLE TRAY	All power cable should be lay through cable tray of appropriate size. Cable tray & equipment earthing- strip is also required to install.(Material is in vendor scope)

**A. Supply:**

This shall include the Design, Engineering, Fabrication (*relevant General Arrangement / Structural Fabrication drawings shall be submitted for GIPCL's approval*) and Supply (*including Freight and insurance charges up to GIPCL – SLPP site*) of the complete Telescopic type bulk loading spout, with inline compact Filter module, Rotary Feeder, Push button control panel and allied equipments with Mandatory spares.

**SCOPE OF SUPPLY**

Sr. No.	Equipment	Qty.
1	Telescopic Type Bulk Loading Spout	1 No.

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2	Compact Filter Module (CFM)	1 No.
3	Rotary Feeder	1 No.
4	Pneumatic Operated Knife Gate Valve (300 NB)	1 No.
5	Pre wired MCC Panel	1 No.
6	Field cabling from MCC Panel	1 lot
7	All interconnection chutes, spool pieces	1 Lot
8	Compressed Air Piping to (CFM) with isolation valve	1 set.
9	Erection , Commissioning and Testing	1 No.
10	Mandatory Spares	
10	All other allied equipments associated with complete Telescopic type bulk loading spout with inline compact filter module, Rotary Feeder and MCC panel.	As per approved GA drawing.

**B. Erection / Testing / Commissioning at GIPCL – SLPP site:**

Deployment of Skilled Manpower by contractor for Dismantling of the old system and without damage to any nearby system or structure Erection of the complete supplied system comprising Telescopic spout, compact filter module, Rotary Feeder, Push button control panel, (Electrical & Automation / Instrumentation, Field wiring from MCC panel, complete in all respect) and allied equipments including the complete required structural supports / transition pieces supplied as per the approved GA / Technical drawings. (Civil work if any, is in GIPCL scope).

**C. Supervision / Performance / System Capacity Test:**

Supervision, considering the deputation of Expert representative for the successful erection, testing and commissioning, up to Performance / capacity Test for the complete supplied system. The Performance shall have to be proved for the **No visible Emission** of Fly Ash Dust during closed body Truck / bulker loading for minimum Ash unloading capacity of 150 Tonnes per Hour.

❖ **SPECIFIC REQUIREMENTS :**

1. Design should be suitable for accommodation the complete system in the space available at silo. Space availability for accommodating the complete system is indicated in the **attached drawing name SLPP Bulk Loading System (reference only)** since the dimensions are indicative only *Bidders are free to Visit the site and take measurement to avoid mismatches at later stage.*
2. G.A. / P&ID / Electrical drawings and documents of all the equipments / assemblies / system / spares to be submitted for review, information, and GIPCL approval.
3. Foundation drawing of telescopic spout assembly, venting arrangement and motor with static and dynamic loads, details of fixing, grouting and all relevant data required for design of foundation.
4. Operation philosophy is to be submitted for GIPCL approval, Provision of Selector switch on MCC Panel for Automatic / Manual operation, Provision for Interlocking or feed cut-off both with Level probe / sensor based and with Rotary Feeder (Time based on TPH rating of Rotary feeder), document should mention the sequence of operation and logic diagrams.

**The minimum required sequence of operation is as follows:**

(Note: Bidder also can propose better sequence of operation)

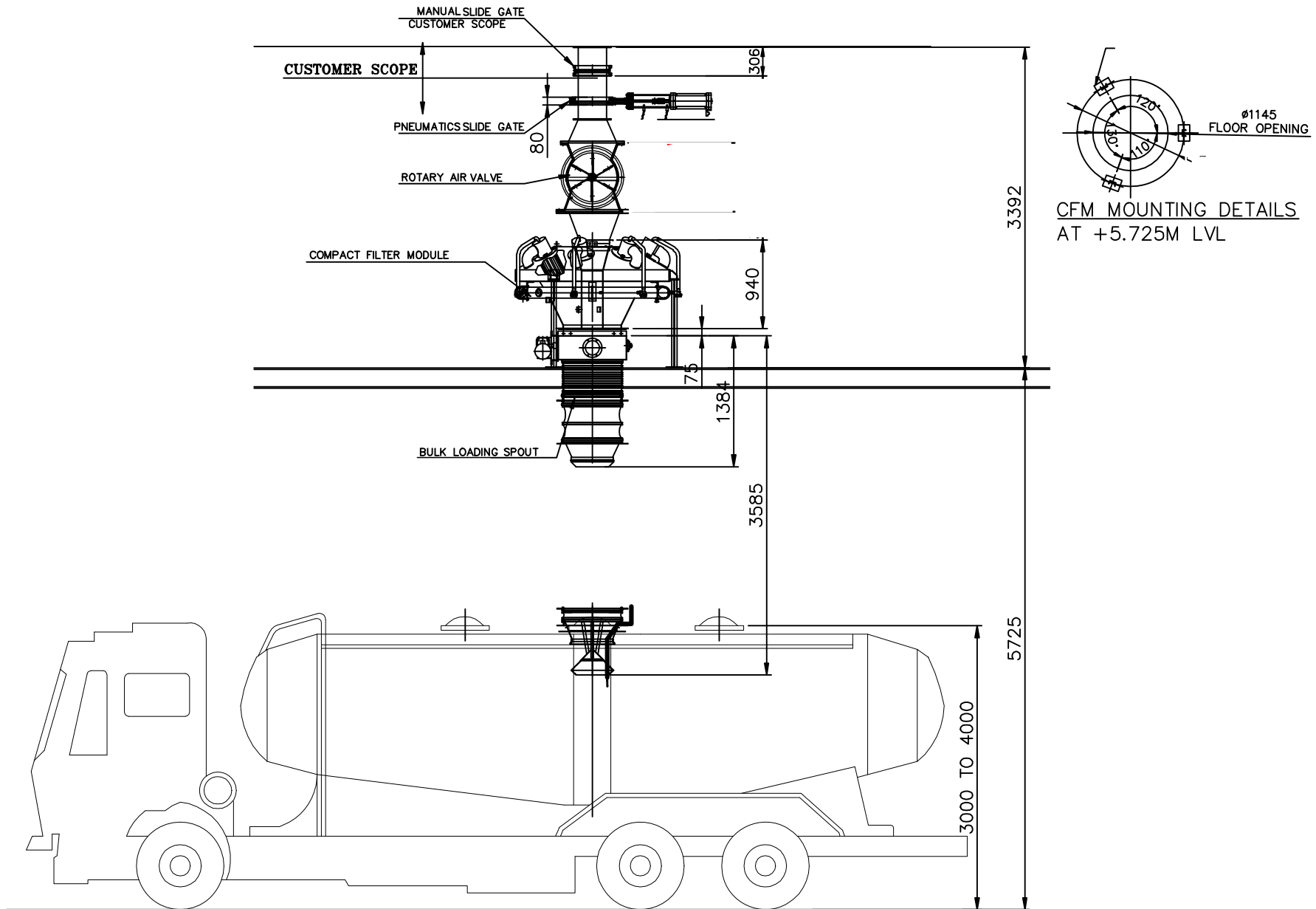
- 1) Down and Up movement of spout on push button operation.
- 2) Compact Filter Module can be made ON and OFF, both in Manual and Auto mode.
- 3) Pneumatic Knife gate valve should open, both in Manual and Auto mode.
- 4) Pneumatic Knife gate valve closing, in Manual and also in Auto mode with Truck / bulker's Ash filled Level, in interlocking with probe / sensor based and Rotary Feeder's ON and OFF (Time based) feedback.
- 5) The system should be operated by activating auto selection from the selector switch. There should be interlocks for each feeder in Auto mode to control whole operation automatically.

The following sequence of AUTO operation is to be followed for starting and stopping of drive motor:

- After ensuring vehicle position, bulk loading spout motors will start down motion by pressing respective push button which is mounted on the MCC / pendant.
- Spout to be positioned on the truck hatch.

- Select the Rotary feeder ON Time with selector switch for Time based operation (Time based on TPH rating of Rotary feeder) of Rotary feeder to fill the truck / bulker.
  - Then Compact filter module motor switched ON, simultaneously purging timer switched ON. Soon after Rotary feeder and Pneumatic knife gate valve should open.
  - Once the material is full in the vehicle then level full signal or if ON time of Rotary feeder is complete (whichever is earlier) will be received from Pneumatic probe or Rotary feeder motor, this signal is linked up to on delay timer so that the Respective Pneumatic gate closes, Rotary Feeder Motor stops, CFM Blower is switched OFF automatically.
  - After closing of all the gates then spout will be taken up manually until Full up limit switch activates.
5. Vendor shall Submit Master Schedule for Design, Engineering, Supply, Erection / Testing / Commissioning.
  6. Vendor shall depute Expert Engineer for Erection, commissioning and Capacity Testing of supplied System as per the communication from GIPCL. (Intimation for Erection & commissioning (E&C) shall be given well in advance and same shall be as per the availability of Silo for E&C jobs.)
  7. List of make of all components including that of bought out items.
  8. Trouble shooting & rectification of defects if any, occurring in the supplied system at free of cost during warranty period, Training to our Engineers / Operators regarding Operation and Maintenance of the System shall be in bidders scope.
  9. Bidder shall submit List of spares, Bill of Material, list of mandatory spare to be maintained for uninterrupted operation of complete system along with vendor details.
  10. Supply of spares as and when ordered by GIPCL after warranty period. (For minimum 10 years).
  11. Catalogues data sheets and drawings for Mechanical / Electrical / instrumentation etc. (Soft copy with 3 Set of hard copies).
  12. Operation and Maintenance Manual. (Soft copy with 3 Set of hard copies).
  13. Bidder shall furnish all the Material Test certificates, Test certificates, Inspection report and relevant legal documents shall be produced along with consignment.
  14. Laisoning (if any) fee will be in your scope.
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**SCHEMATIC DRAWING FOR BULK LOADING SPOUT**  
 (Ref : SLPP/AHS/TELESCOPIC SPOUT/2020)

Note: For Reference Only.