

DATA SHEET OF POWER MANIPULATOR ALONG WITH TELESCOPIC CRANE

F/A

Power Manipulator with Telescopic Crane		QTY=02
1. XY- Direction Motion System		
i) Big Cart	Span (mm)	4000
	Stroke (mm)	3500
	Speed (m/min)	0 -10
ii) Small Cart		
	Stroke (mm)	3500
	Speed (m/min)	0 -10
2. Z-Direction Motion System		
	Allowable Carrying Weight of lifting Hook (kg)	2000
	Stroke (mm)	4000
	Speed (m/min)	0 - 2.5
	Rotation Angle	Continuous rotation
	Rotation Speed (min ⁻¹)	0-3
	Torque (Nm)	500
	Scope Sections (No.)	12

Section Size (mm)	350	
3. Manipulator Arm		
Grasping force at any position (kg)	≥ 200	
The maximum length (mm)	1000	
Rotation speed of joints (except wrist joints) (min^{-1})	0 - 0.7	
4. Clamp		
Rotation Angle ($^{\circ}$)	Continuous rotation	
Rotation Speed (min^{-1})	0 - 4	
Torque (Nm)	0 - 120	
Telescopic Stroke (mm)	120	
Adjustable Speed (m/min)	0 - 0.6	
The force of stretching (N)	0 - 1800	
Opening Size (mm)	150 - 300	
Closure Speed (m/min)	0 - 0.8	
Clamping Force (N)	0 - 2000	
5. Mode of Operation		
Mobile Station + Remote Control		
6. Electrical Protection Class	IP55	
7. Electrical Power	440 V AC, 50Hz, 3 Phase	
8. Radiation Hardening [Accumulated dose (Gy)]	Gamma dose $\geq 1\text{E}6$	
9. Indoor Temperature	10°C - 50°C	
10. Ambient Medium	Acidic / Corrosive	

The Scope Of Power Manipulator's Supply

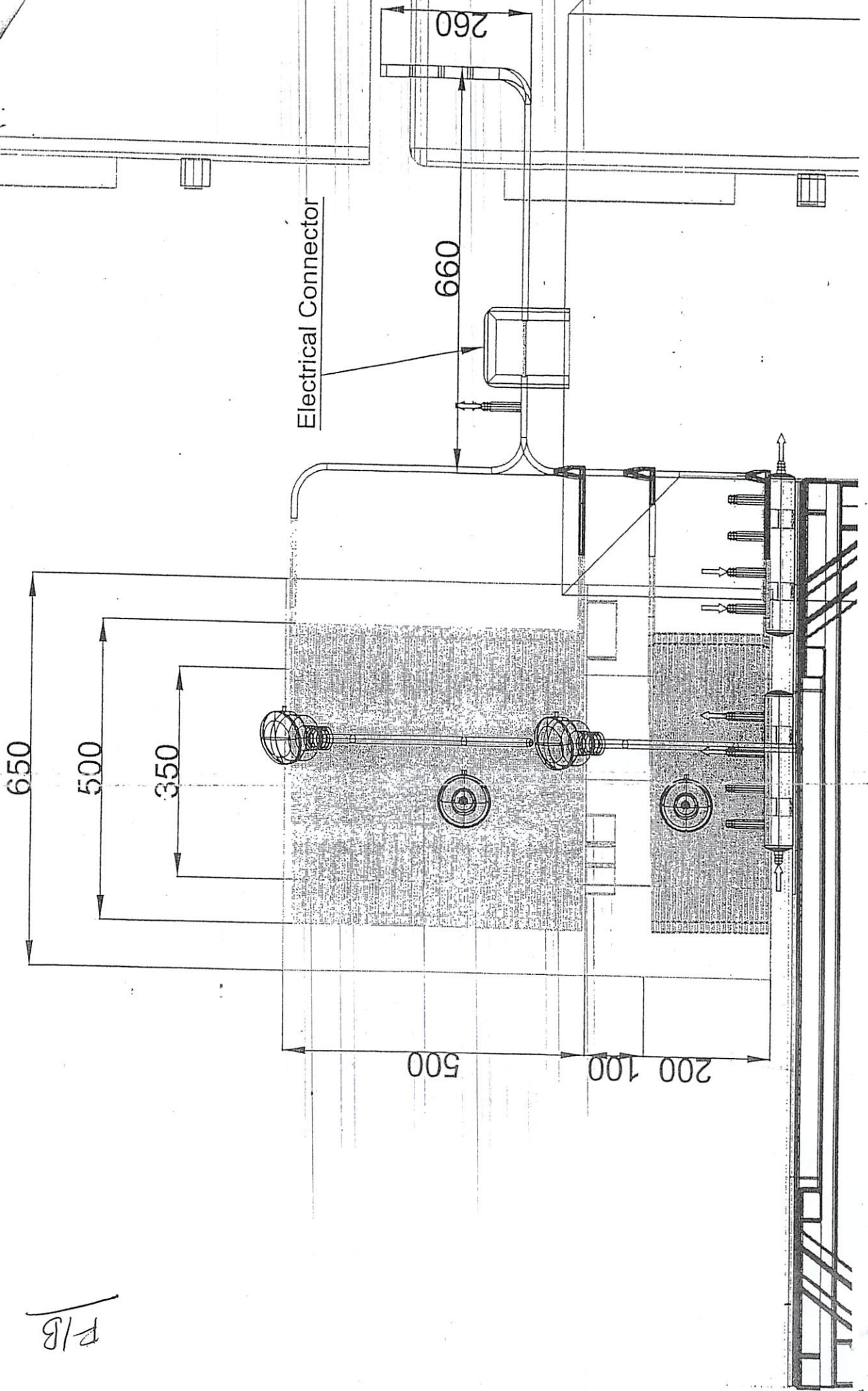
SR NO.	COMPONENT NAME	FUNCTION
1	Crane (include big cart, small cart and drag chain etc)	Reach to set the position
2	Telescopic Sleeve	Reach to set the position
3	Manipulator	Six degrees of freedom
4	Monitoring and Video System	Single/double Cameras
5	Controller	Control System
6	HMI	Video Display, Motion Input, Status Display
7	Spread Tools	1)The Electric Reciprocating Saw 2)The Finger Clip Hand 3) Electric Screw Drill 4) The Electric Angle Grinder 5)The Electric Screw Driver

Specifications of Solid State Medium Frequency Generator with Coil

Specifications Data Sheet

System Description		Qty.
Specifications of Solid State Medium Frequency Generator		
Induction Frequency Generator	➤ Two independent induction frequency generators	2
Operating Frequency	➤ 1 KHz	
Induction Coil Mechanism	➤ Mechanism consists of two coils, as shown in attached drawing sheet, to transfer electrical power to work piece.	2
Work Piece Material	➤ SS-304	
Bus Bar Connections	➤ Plug and play based fitting as per attached drawing sheet.	
Rated Input Power		
Generator-I	➤ 100 KVA	
Generator-II	➤ 50 KVA	
Temperature Range		
Desired Temperature	➤ 1200 °C	
Critical Temperature	➤ 1000 °C	
Max. Temperature Range	➤ 1400 °C	
Control System Specification		
Control Technology	➤ Insulated Gate Bipolar Transistor (IGBT) or advanced to IGBT.	
Temperature Measurement	➤ Pyrometer Based	
Control Unit	➤ PLC based control system with HMI	
Auxiliary System		
Induction Coil Cooling System	➤ Separate Cooling Header with Push-In Fitting Mechanism	
Coil Data		
Coil 1 & 2 Dimension	➤ As per Attached Drawing	

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REMOTE HOT CHAMBER WELDING MACHINE SPECIFICATION

1. Power source:

Input power supply	3-phase, 415V, 50Hz
Rated output current	Min 315A
Insulation	Radiation resistance
Cooling	Forced air cooling
Rated duty cycle	40 at 315A, 100 at 200A
Temperature increase	90-160C
Pre flow time	1-10sec
Post flow time	3-10sec

2. Control unit:

Algorithm for welding energy parameters for accuracy	Yes
Camera for support	yes
Adaptable clamping position sensor feedback	yes
GUI	Yes
Computer interface	Yes

3. Remote welding head:

Size (Dia X Height)	312 X 484mm
Welding diameter range	100mm-250mm
Weight	<30Kg
Centering and positioning required with feed back	Yes
Elevation required for multilayer welding	Yes
Camera option	Yes
Modular design for quick replacement/ Maintenance	Yes

4. Quick connection

Power supply line	Yes
Control line	Yes
Compressed air	Yes
Welding gas	Yes
Colling water	Yes

5. Shielding gas:

Shielding gas composition

Ar+CO₂+O₂**6. Test and Inspection (Cold Tests):**

NDT before hot cell operation	Yes
For Quick connection	> 20 times
For welding	5-7 times

7. Design drawings and instruction manuals:

The supplier in English shall provide two sets of the following drawings.

- i. General layout of remote welding
- ii. Details of the assemblies and sub-assemblies
- iii. Details of remote welding head
- iv. Details of welding torch
- v. Electric circuit drawings

The supplier in English shall also provide instruction manuals.

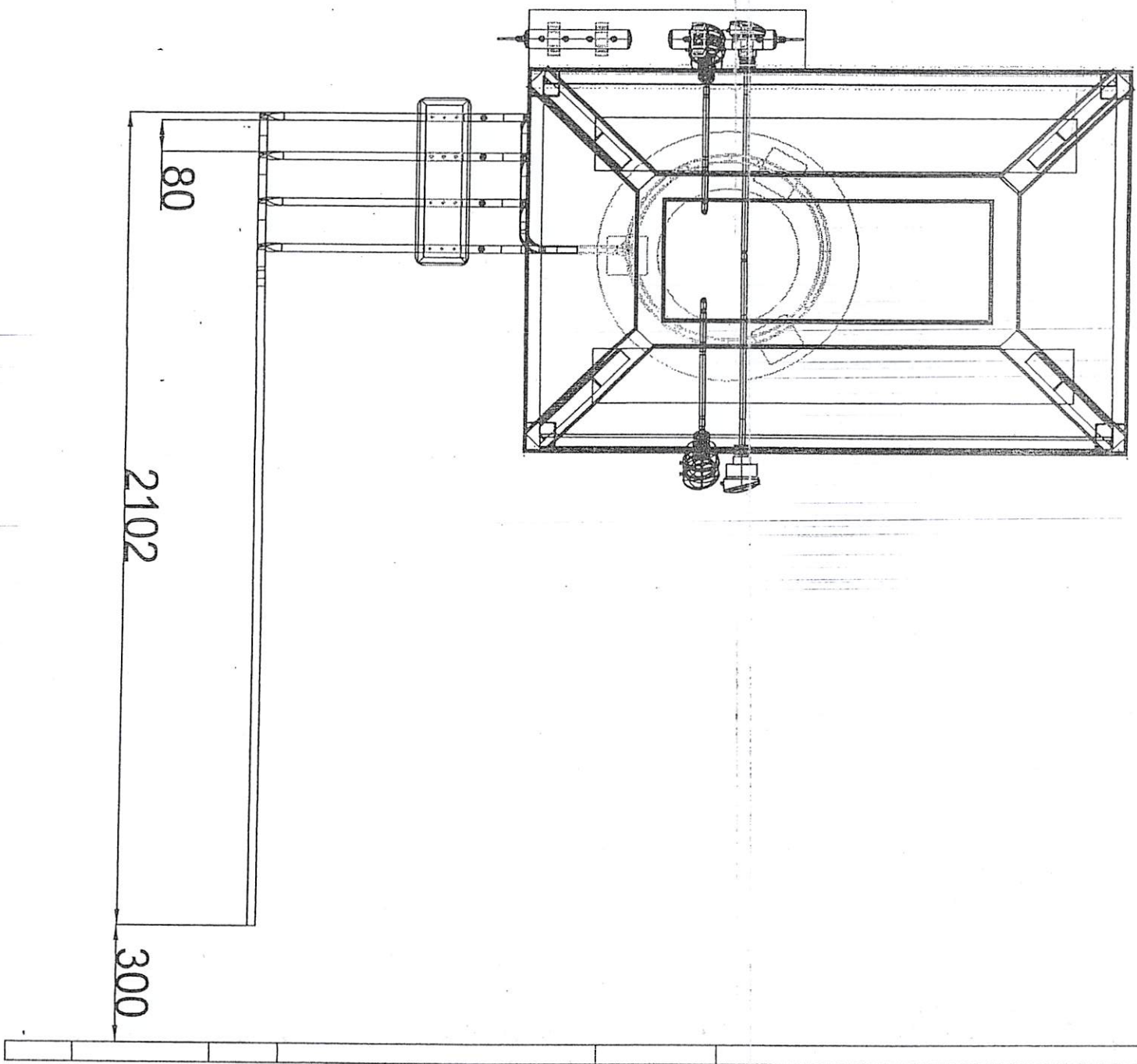
8. Trainings:

The supplier will provide training at the supplier site to the two officials in the following fields.

- i. Installation
- ii. Operation
- iii. Maintenance

Note: All the equipment should be radiation hardened (Radiation Level > 1xE6 Gy).

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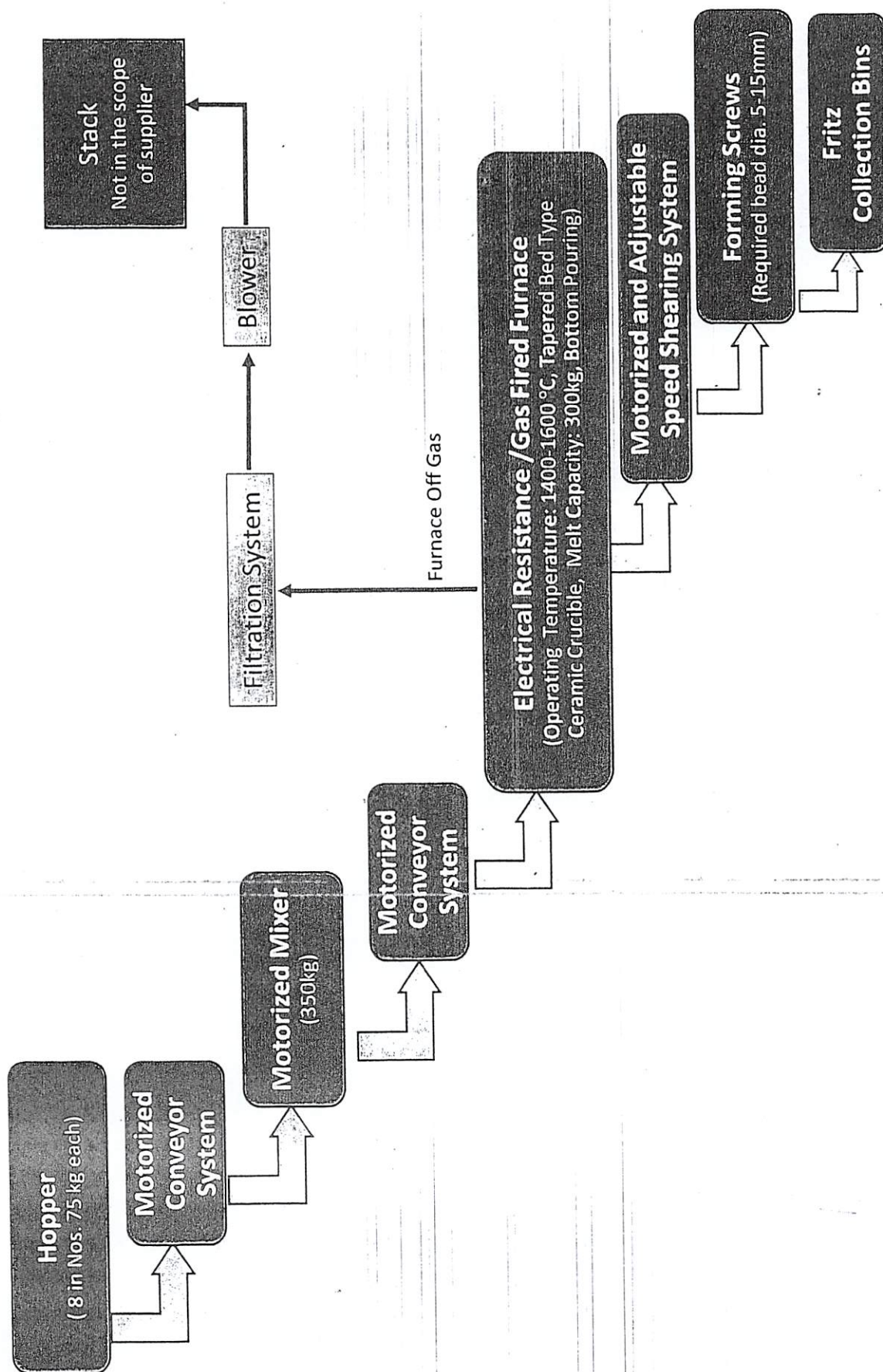
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Glass-Frits Production Unit

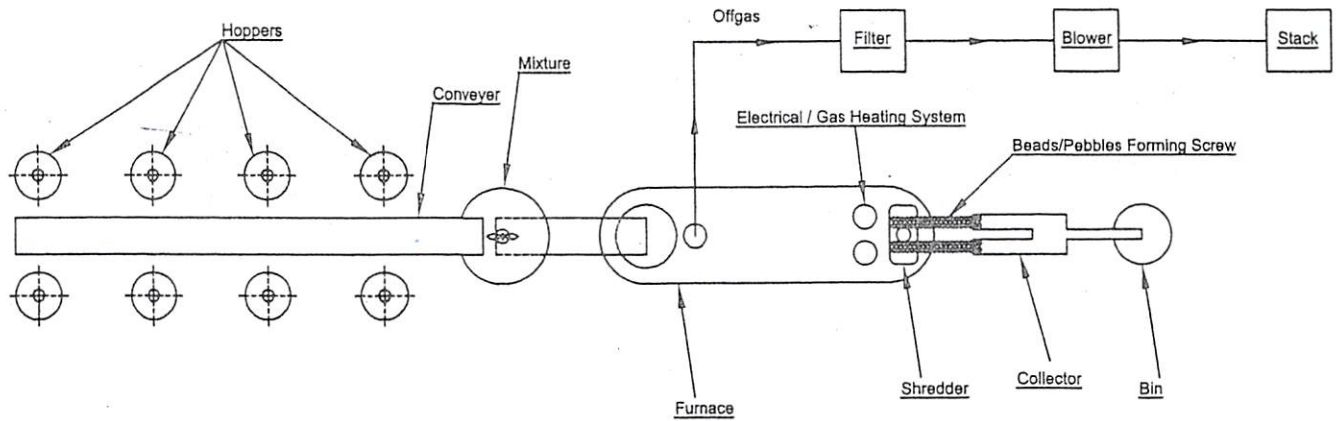
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Sr.No.	Technical Specifications
1.	Products 5-15 mm glass frits/beads/pebbles of Borosilicate Glass
2.	Hoppers Motorized Hoppers 08 in numbers Capacity 75 kg each
3.	Motorized Conveyor System 1 Motorized conveyor system is required through which Glass Forming chemicals are fed into Mixer
4.	Mixer Mixer should be motorized having capacity 350 kg and capable of mixing glass forming chemicals efficiently.
5.	Motorized Conveyor System 2 Motorized conveyor system is required through which Glass Forming chemicals from mixer are fed into furnace
6.	Electrical Resistance /Gas Fired Furnace Operating Temperature: 1400-1600 °C, Tapered Bed Type Ceramic Crucible, Melt Capacity: 300kg Bottom Pouring Furnace Lining: should not interact with molten glass (Borosilicate) and having efficient life for working Melt pool preferred will be AZS (Alumina Zirconia Silica Refractory)
7.	Filtration System Industrial particulate filters (High Temperature under moist conditions) Blower: adequate for proper off gas flow and to cover pressure drop across filtration system
8.	Motorized Shearing System Motorized Mechanical shearing system with adjustable speed to produce glass fritz of required size
7.	Forming screws Motorized forming screws whose design and length should be adequate for proper shaping and cooling of frits
8.	Collection Bins Collection bins for collecting the product
9.	Design, installation, commissioning, operation and maintenance plan in English should be provided.
10.	Inspection and Training Inspection of the components and operation shall be carried out during training at supplier's premises. Training will include that of installation, operation and maintenance

Glass Frits Production Setup

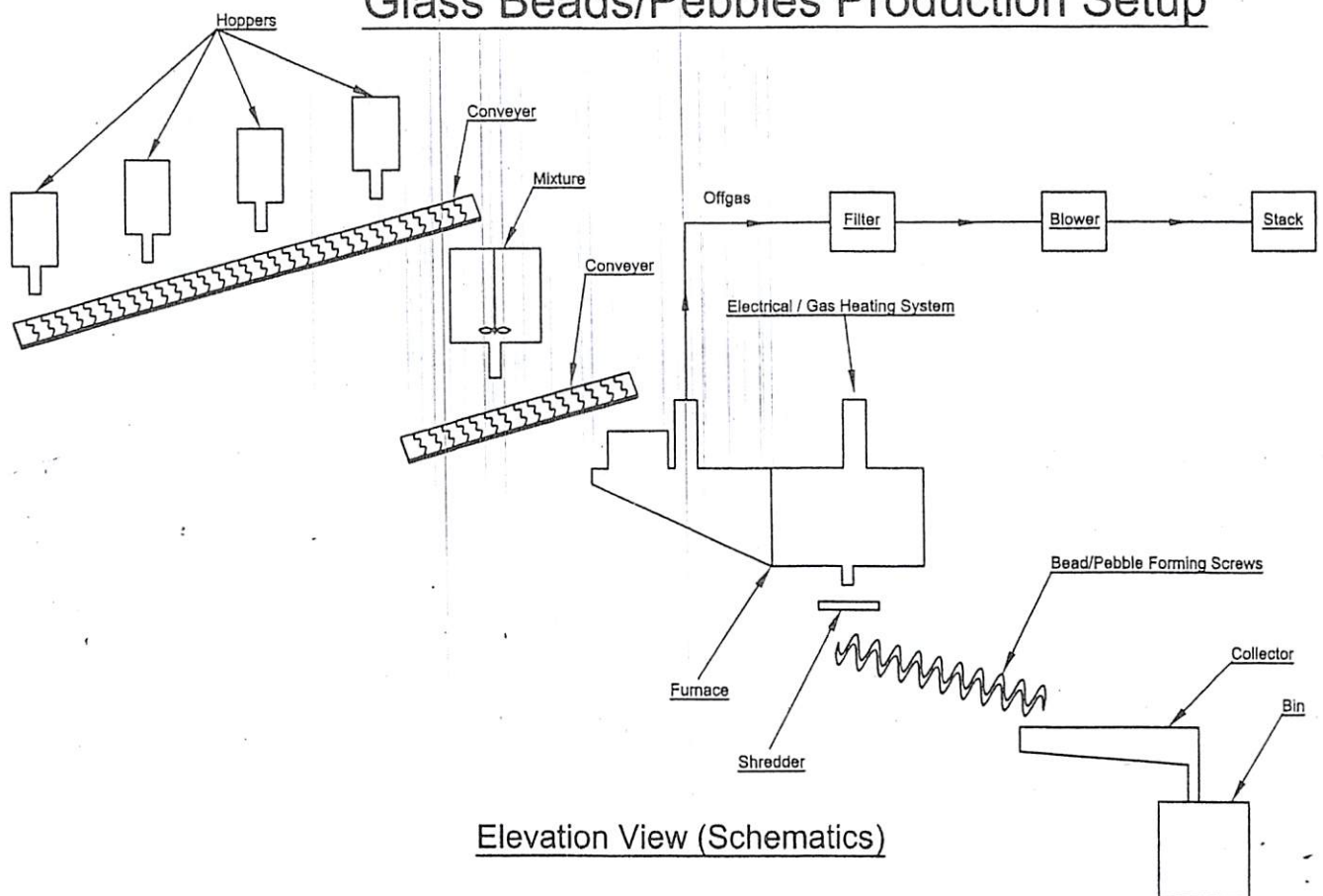


Glass Beads/Pebbles Production Setup



Top View (Schematics)

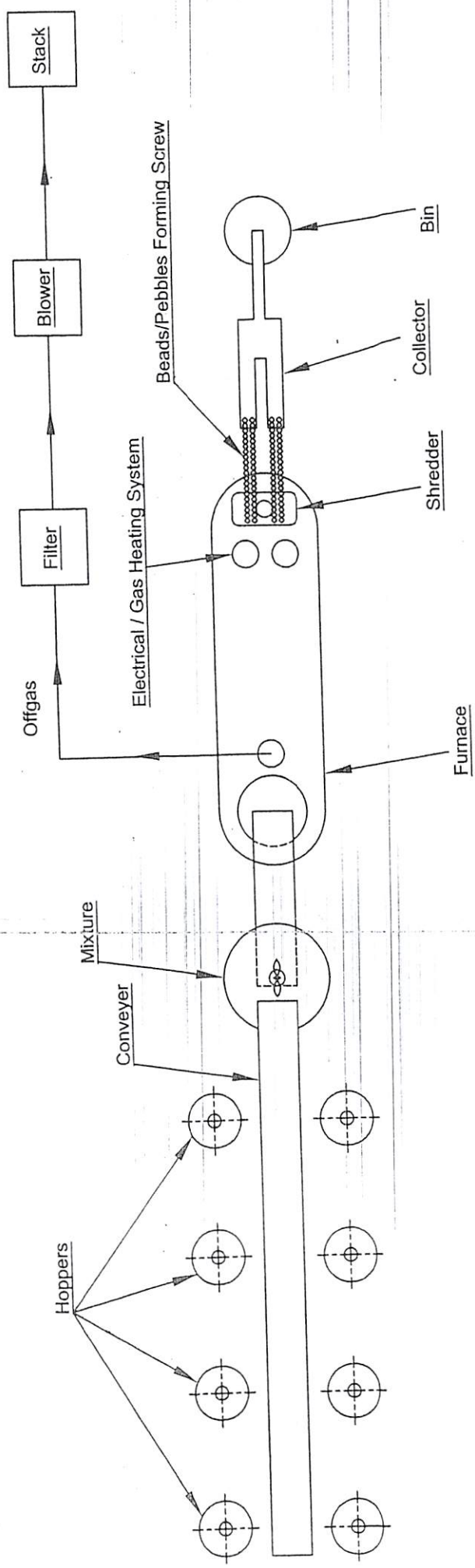
Glass Beads/Pebbles Production Setup



Elevation View (Schematics)

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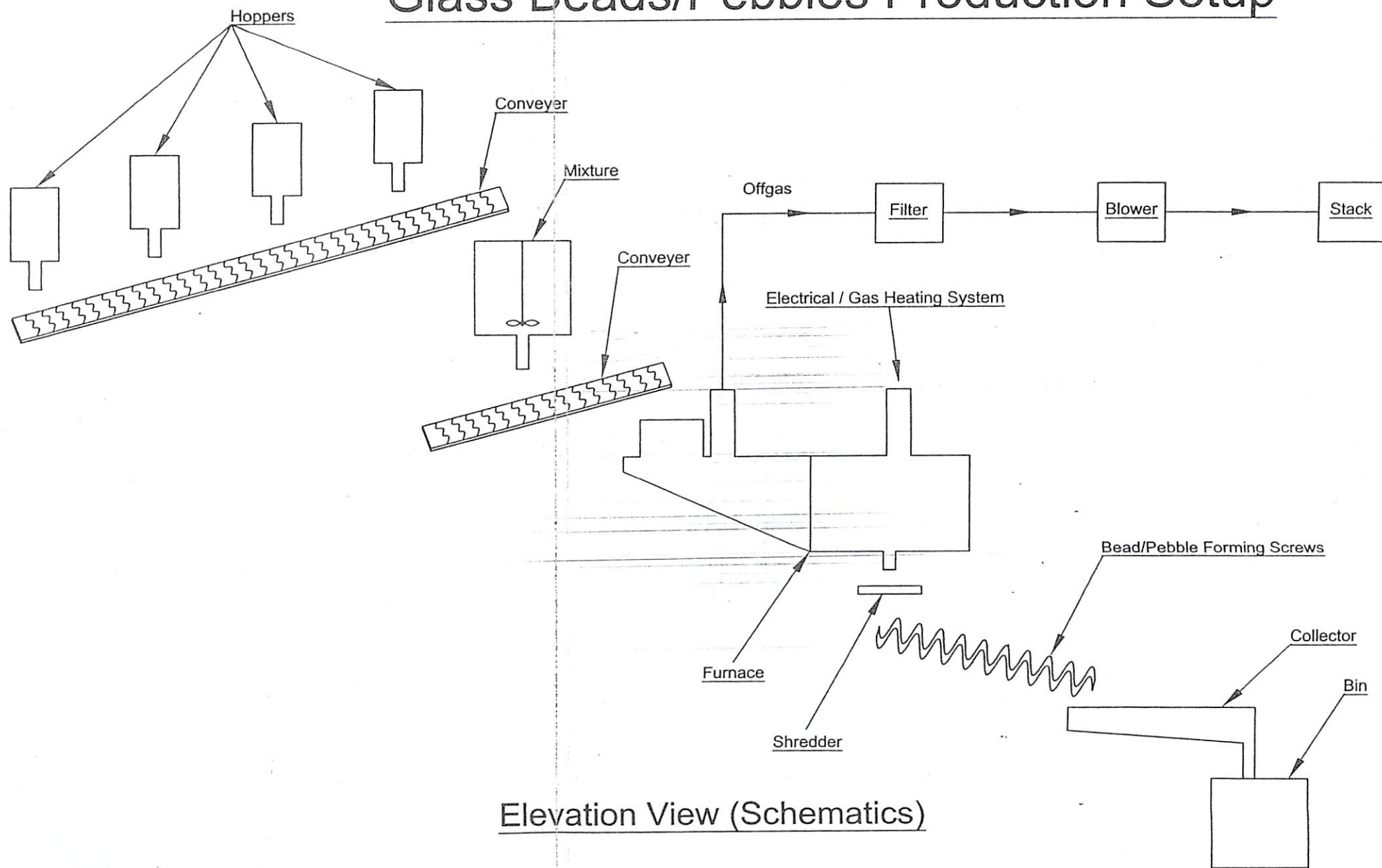
Glass Beads/Pebbles Production Setup



Top View (Schematics)

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Glass Beads/Pebbles Production Setup



Elevation View (Schematics)