



MATPRO SOLUTIONS

PRIVATE LIMITED

Introduction

Who We Are

- **MATPRO** Solutions are specialize and leading supplier of for Bulk material handling and weighing Automation solution.
- We Started by March 2017
- We are Three Promoters with individuals 25-30 years experience in the same field.
- Our fundamentals are development, Stability, Innovation, consistency, reliability and customer satisfaction.
- We listen to our customer's needs, as their process / business developmental requirements and we design & deliver customized solution to address their existing challenges and further improvements.
- We serve wide range of industrial sector like Food, Pharma, Chemicals, Steel, Power, Cement, Port, Fertilizers etc.

Introduction

Our Services:

Onsite expert supervisory services

We provide onsite supervisory Services for

- Maintenance
- Trouble shooting
- Calibration
- Installation & commissioning
- Supply of equivalent and compatible spare parts

for all kinds of existing of and any make of weighing systems.

Introduction

Our product range ,

1. Conveyor Belt scale
2. Gravimetric Weigh Feeder
3. Loss In Weight Feeder
4. Tank/Silo/Bin/batch weighing system
5. Jumbo Bag Filling system
6. Solid Mass Flow Meter
7. Continuous Level measurement system
8. Coal Sampling system
9. Material Handling equipment

Conveyor Belt Weigh Scales

- **Application**

- Process measurement & monitoring
- Inventory Monitoring & Control
- Material for blending Process
- Controlled Feed rate
- Batch loading
- Calculating basis of payment for custody transfer

- **Function**

To calculate flow rate two inputs are needed:

- Belt Load - measured by the weigh frame of the belt scale system
- Belt Speed - measured by the speed sensor of the belt scale system

- **BELT LOAD X BELT SPEED = FLOW RATE**

By integrating instantaneous flow rate with time the Integrator also calculates total material weight

Conveyor Belt scale : Weighing Frame



Belt scales are state-of-art design ,Heavy duty ,Fully floated , Unitized , direct loading weighing frame suspended by Four Precision strain gauge Tension type Loadcell and suitable for 2/3/4 lders, capacity upto 10000 TPH and conveyor speed upto 8 m/s. and confirm to deliver desired accuracy of +/- 0.25% of rated capacity,



Loadcell- Dynamic application



- “S” Tension Type Loadcells
- Environmental Protected Alloy Steel IP 67 Loadcell
- Sensitivity 3 mv/V
- Integral Cable 5 Mtrs
- Excitation Voltage 10 -15 VDC
- Non Linearity <0.025% of FS, Non Repeatability <0.01% of FS
- Hysteresis <0.020% of FS
- Operating Temperature -18 Deg C to +65 Deg C
- Over Load 150% and Ultimate to 300% of FS

Weight Controller – MATPRO 7003



- 7" 800×480 TFT touch HMI panel.
- 24-bit ADC with internal resolution 1/1,000,000.
- High sampling frequency 400Hz.
- Definable DI/DO/AO
- Loadcell Excitation Voltage/Current: DC10V/250mA.
- 3 Nos. Analog Output [AO]: 4~20Ma for Flow rate, Speed & Belt Load
- 9 Digital Input & 12 Digital Output (optional).
- COM1: RS232&RS485.
- Operating Temperature: -25°C~+45°C.
- Field Mounted Enclosure Environmental Protection Level of IP65.
- Power required 230 VAC , Single Phase, 50 Hz

Tacho – Speed Sensor

➤ High resolution –Tacho

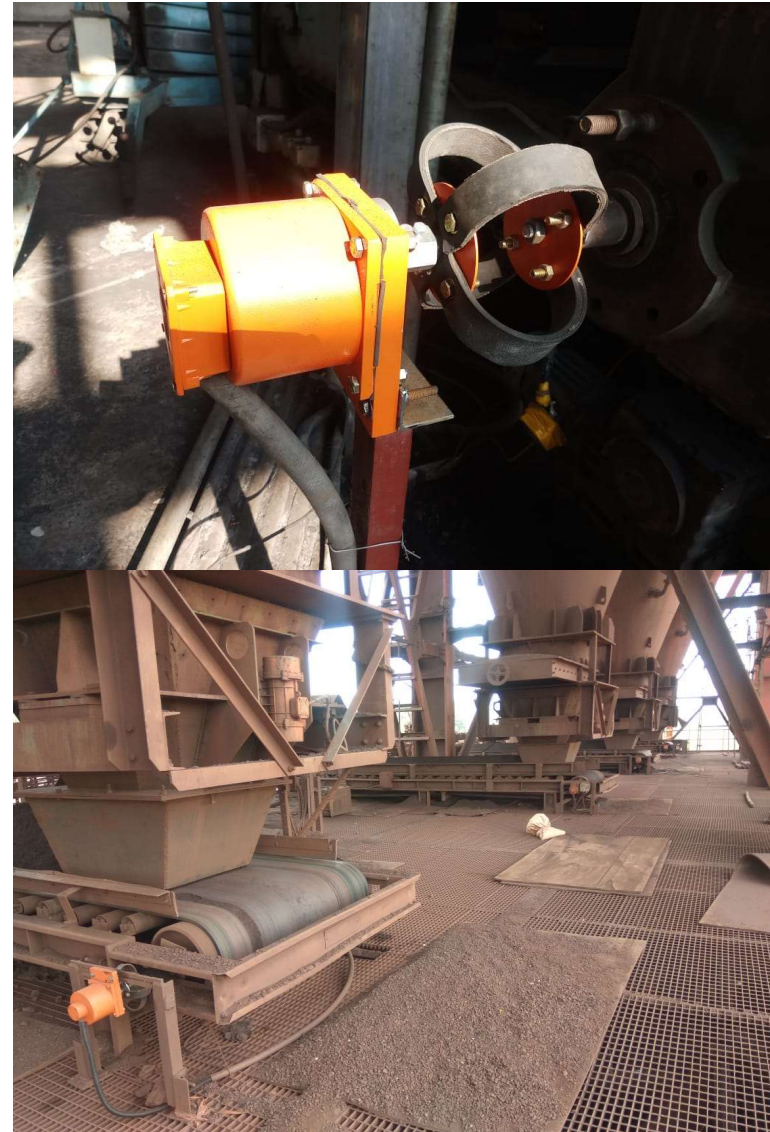
Heavy Duty, suitable for outdoor installation,

Aluminum –Die Cast enclosure

Digital, Self Pulse Generator coupled type speed sensor with 50 , 1000, 2500 PPR

Optionally – with Dual output

- a) Belt scale controller
- b) ZSS



Belt Scale – Installation



Belt Scale – 6 Point Piano wire alignment



Gravimetric Belt Weigh Feeder - Introduction

Gravimetric Belt Weigh Feeder is designed for precise accuracy on materials with high flow rates and bulk densities in your most demanding applications. Weigh Belt Feeder allows you to accurately control feed rates to your process with a guaranteed accuracy of $\pm 0.5\%$. It can accommodate flow rates over 1000 TPH.



Scope of Services

- **Application**

- Material for blending Process
- Controlled Feed rate
- Batch loading`

We design and built Gravimetric Weigh Feeder for,

- Light Duty
- Mid Range
- Heavy Duty applications

Gravimetric Belt Weigh Feeder - Applications

Gravimetric Belt Weigh Feeder can be used in following industries:-

- ☐ Cement
- ☐ Steel
- ☐ Power
- ☐ Glass
- ☐ Chemical
- ☐ Tobacco



Gravimetric Belt Weigh Feeder – Four Essential Components

Weigh Frame



Speed Sensor



Weight Controller



Belt Conveyor



Gravimetric Belt Weigh Feeder - Applications

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Coal Feeder - Retrofit

- We undertake retrofitting of existing Coal Feeder by supplying compatible Loadcell , Tacho and Programmable Weight controller, without any modification at existing Control panel and Mechanical structure

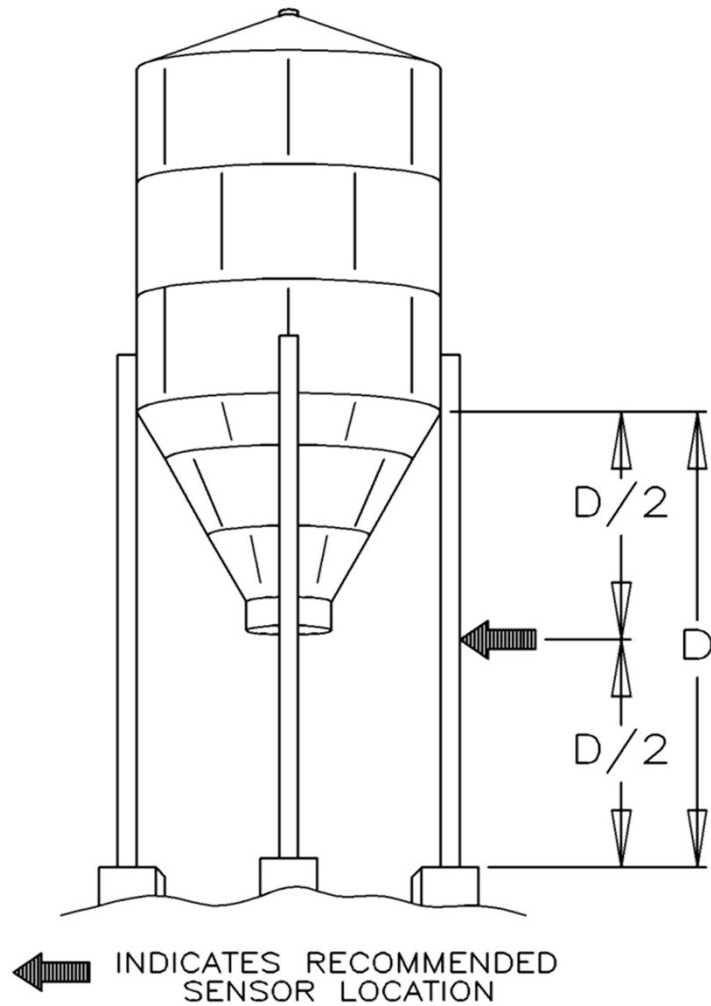


Bunker/ Silo Level Measuring system

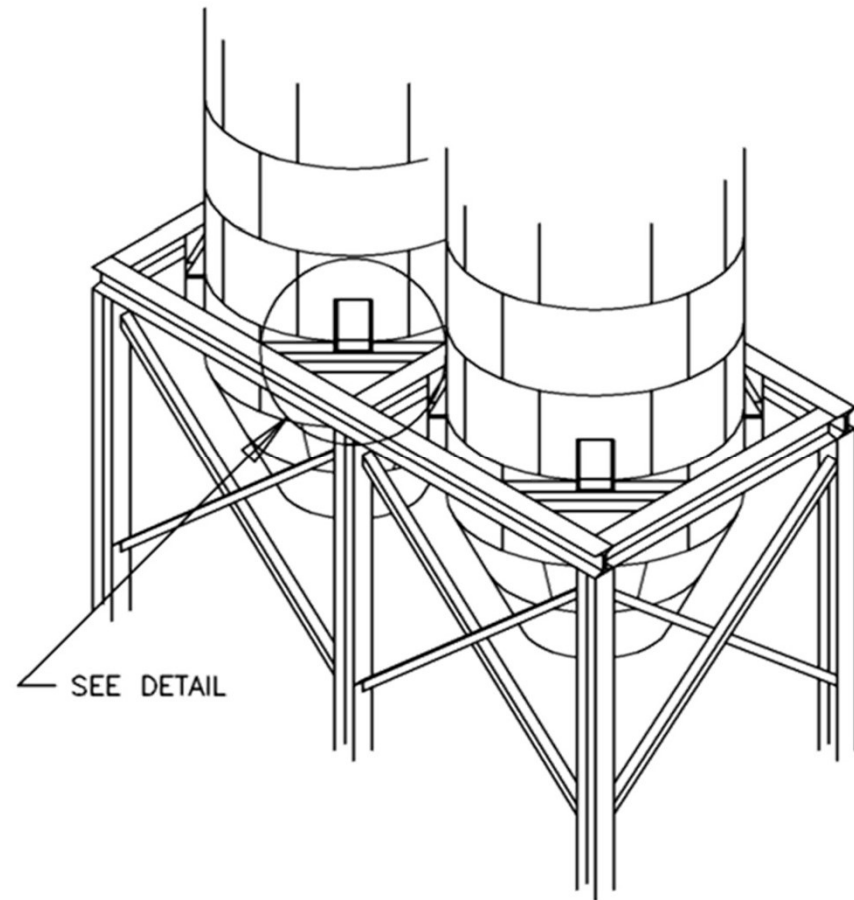
Bunkers / silos are always supported with multiple 4/ 6 / 8 points. Nos. of support of Bunker/silo are always depends upon its capacity and its diameter.



Bunker/ Silo Level Measuring system



Bunkers are Leg supported



Bunkers are Suspended on support Structure

Bunker/ Silo Level Measuring system

Current Conventional Technologies

- RADAR type level transmitter
- ULTRASONIC type level transmitter.
- Disadvantage of conventional Technology:**
 - Frequently failure of sensor due to dusty atmosphere of coal.
 - Frequently calibration require
 - In correct measurement due to different profile of material during feeding and discharging.
 - Incorrect measurement due to difference in volume of material due to vary in % of moisture.
 - Short term solution.

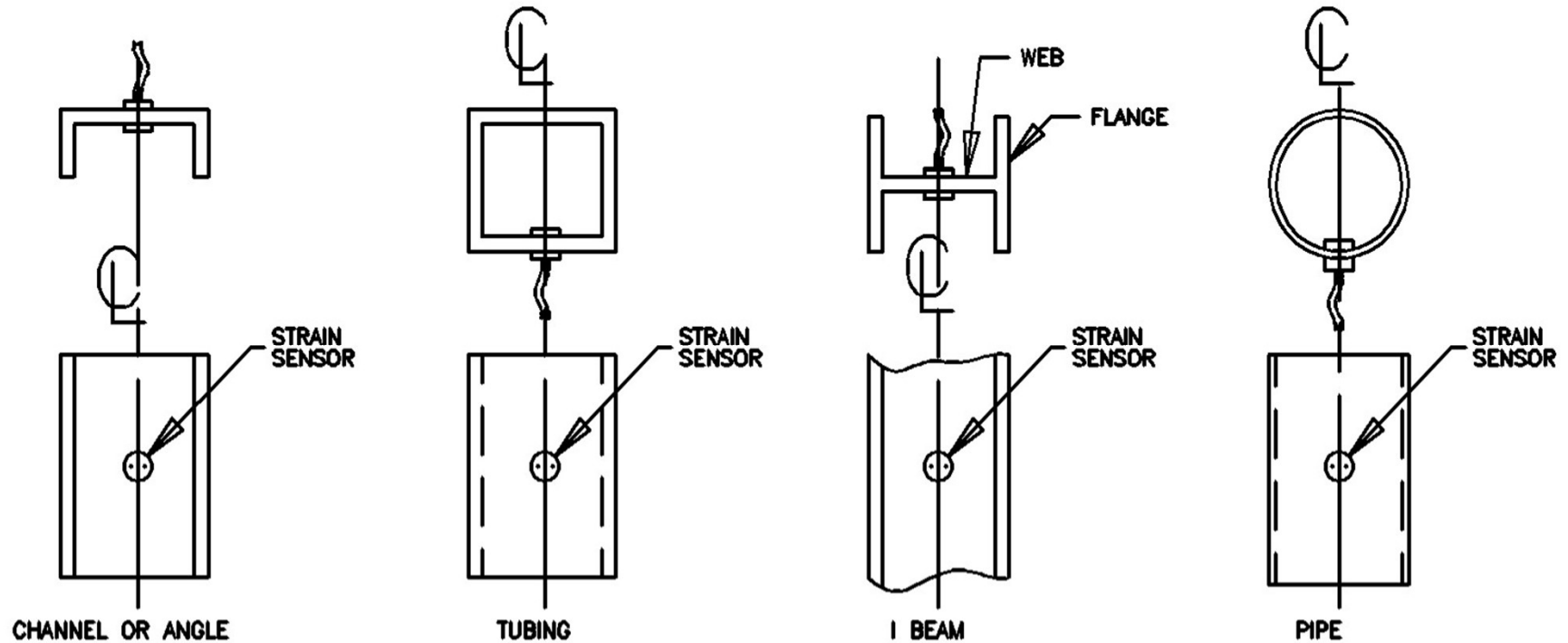
Bunker/ Silo Level Measuring system

- A round strain sensor is press fit into the steel supports of Bunker/Silo
- Installing the strain sensor turns the support into a virtual load cell
- A insert type Strain Sensor based system infers level by measuring the weight of material inside a bunker/silo.
- A insert type Strain Sensor measures weight by physically measuring the strain in the steel structural supports
- Substantially different and more accurate than measuring the distance to the top of the material



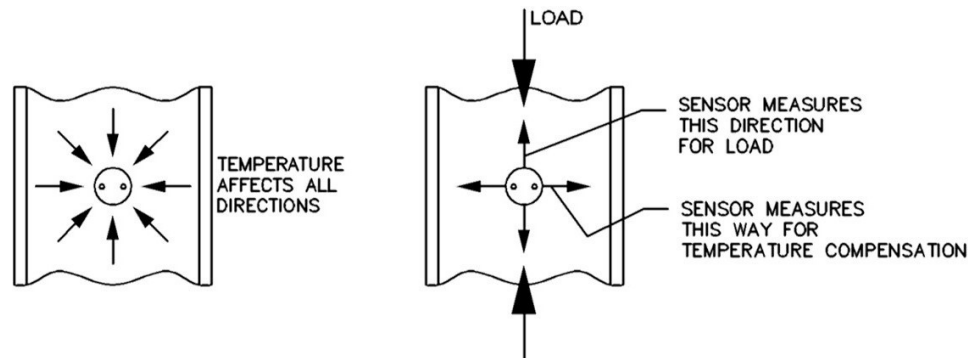
Bunker/ Silo Level Measuring system

A Strain sensor can be placed in any structural steel shape large enough to use the installation tools.



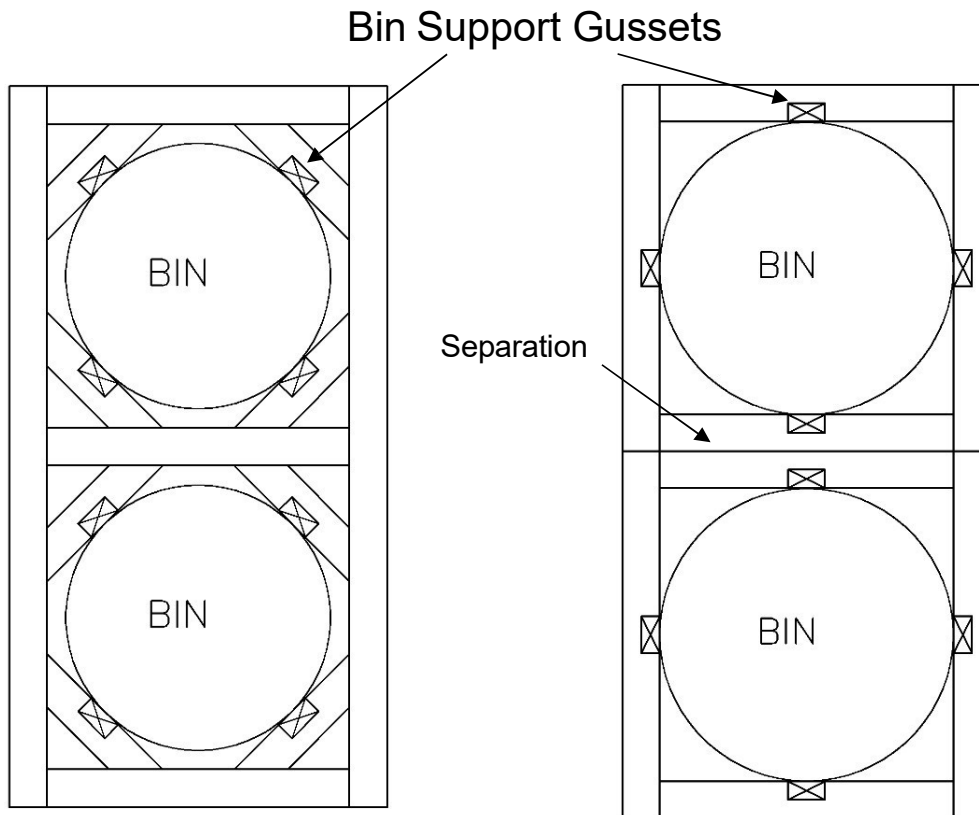
Bunker/ Silo Level Measuring system

- The sensor has a full Wheatstone bridge circuit, which means:
 - The sensor measures the change in shape in two directions
 - This allows the sensor to automatically ignore changes due to ambient temperature changes



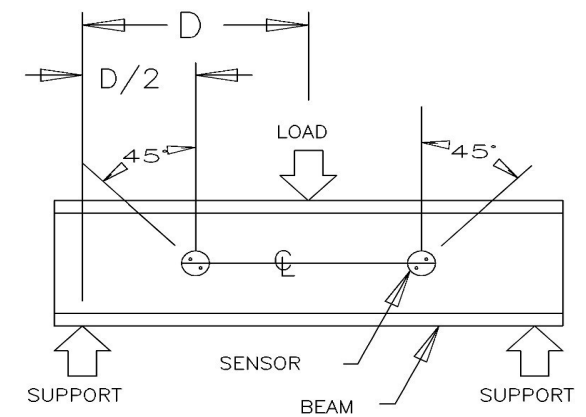
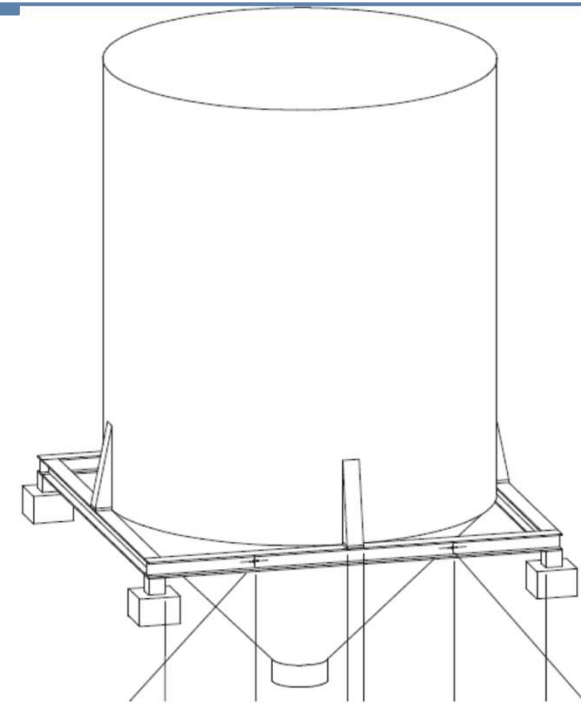
- Up to eight sensors can be used on a single Ccontinuous Level system (a function of sensor resistance)
- One problem encountered with strain sensors is welding. When welding on a vessel with a Ccontinuous level system always use good practices and ground right next to where the welding is being done. Never let the ground path cross the sensor!

Bunker/ Silo Level Measuring system



Good Application
Bin supports are on isolated horizontal members

Good Application
Bin supports are on isolated horizontal members



Bunker/ Silo Level Measuring system

Insert type strain sensor

19 mm sphere with Full Wheatstone bridge circuitry
Stainless Steel (17- 4PH) & IP 68
Input Resistance $700 \pm 20 \Omega$
Output resistance $700 \pm 20 \Omega$
Cable 0.5 Mtrs

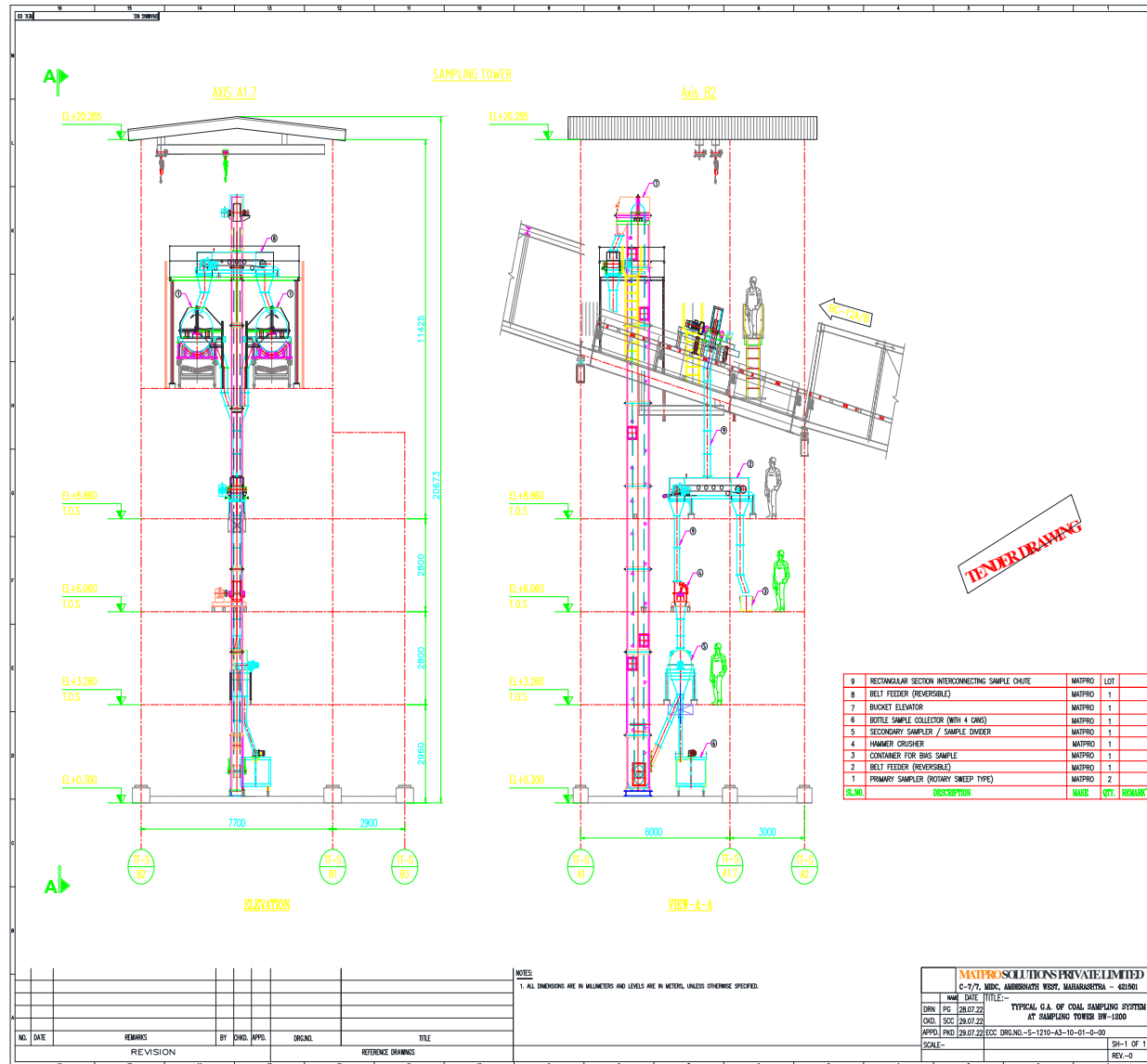


Digital Weight Transmitter

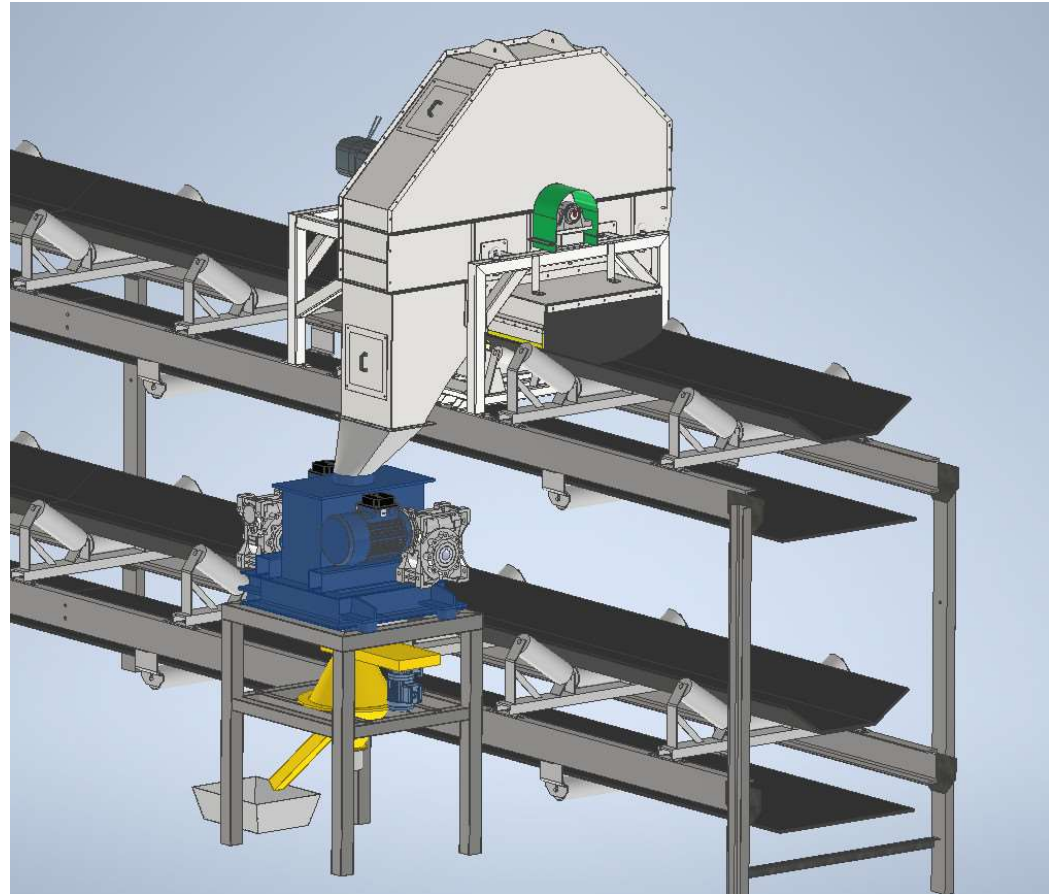
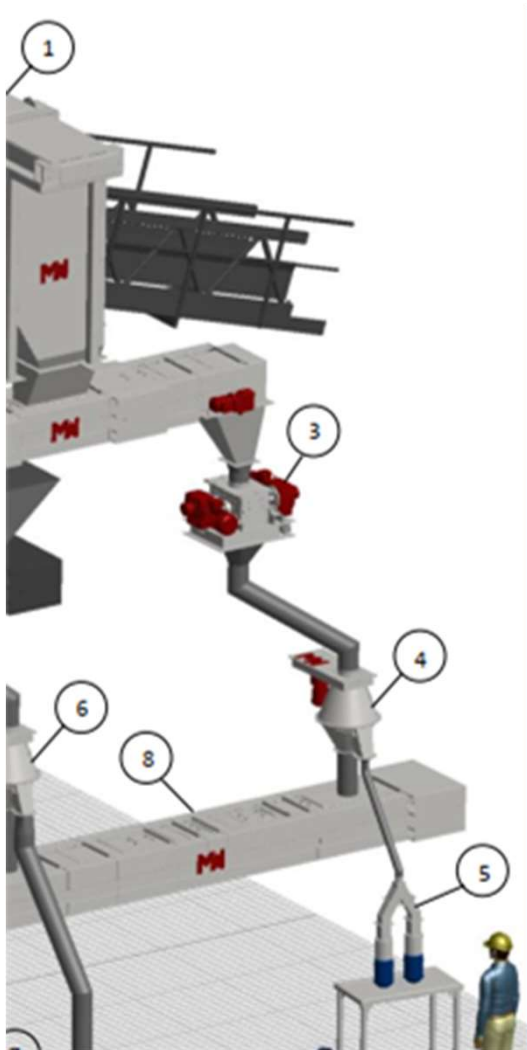
Digital, 24 bit A/D highly accurate Microprocessor based weight Indicator
Upper display: 0.60" (15 mm) high. Lower display: 0.46" (12 mm) high.
tare is used to eliminate container weight and provide net weight readings.
It is equipped with a means of simulating strain in a strain gauge bridge circuit, via an included shunt resistor in the Indicator.
Two digital input as a standard feature. This digital input can operate with the tare, reset tare,
Two Digital output for High & Low Alarm
Isolated 4-20 mA analogue output for net weight
Suitable for Field mounted and Powered supply 230 VAC



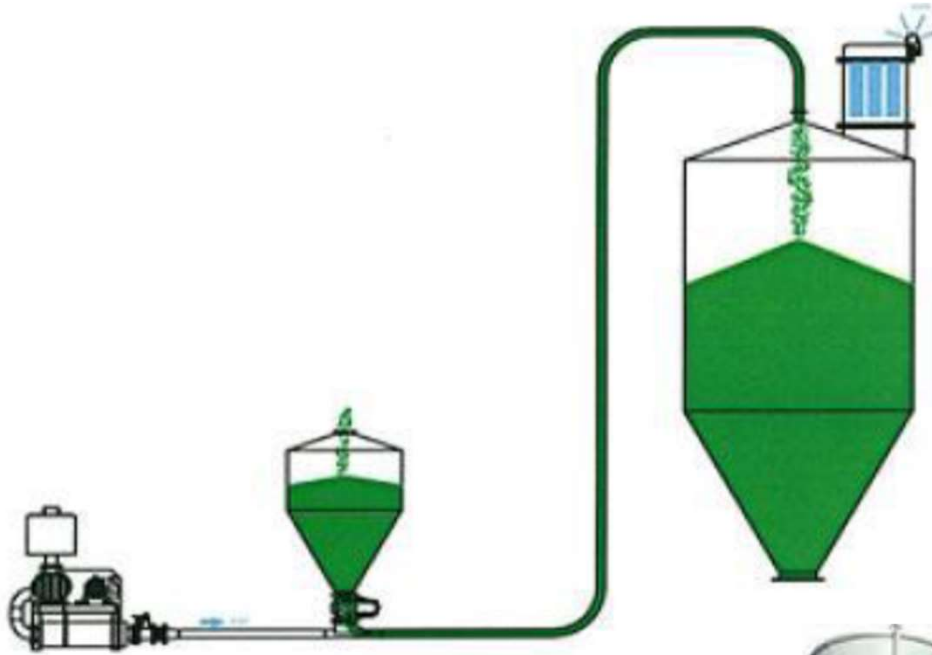
Two Stage Coal Sampling system



Two Stage Coal Sampling system



Bull Material Handling equipment



THANK YOU

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