

THEREC

PNEUMATIC CONVEYING SYSTEMS

SEA BULK LOADING SYSTEMS

PROCESS DUST POLLUTION CONTROL SYSTEMS

DUST EXPLOSION PROTECTION & CONTROL SYSTEMS

AIR & GAS BOOSTING & HANDLING SYSTEMS

BULK MATERIAL FLOW MEASUREMENT & WEIGHTING SYSTEMS

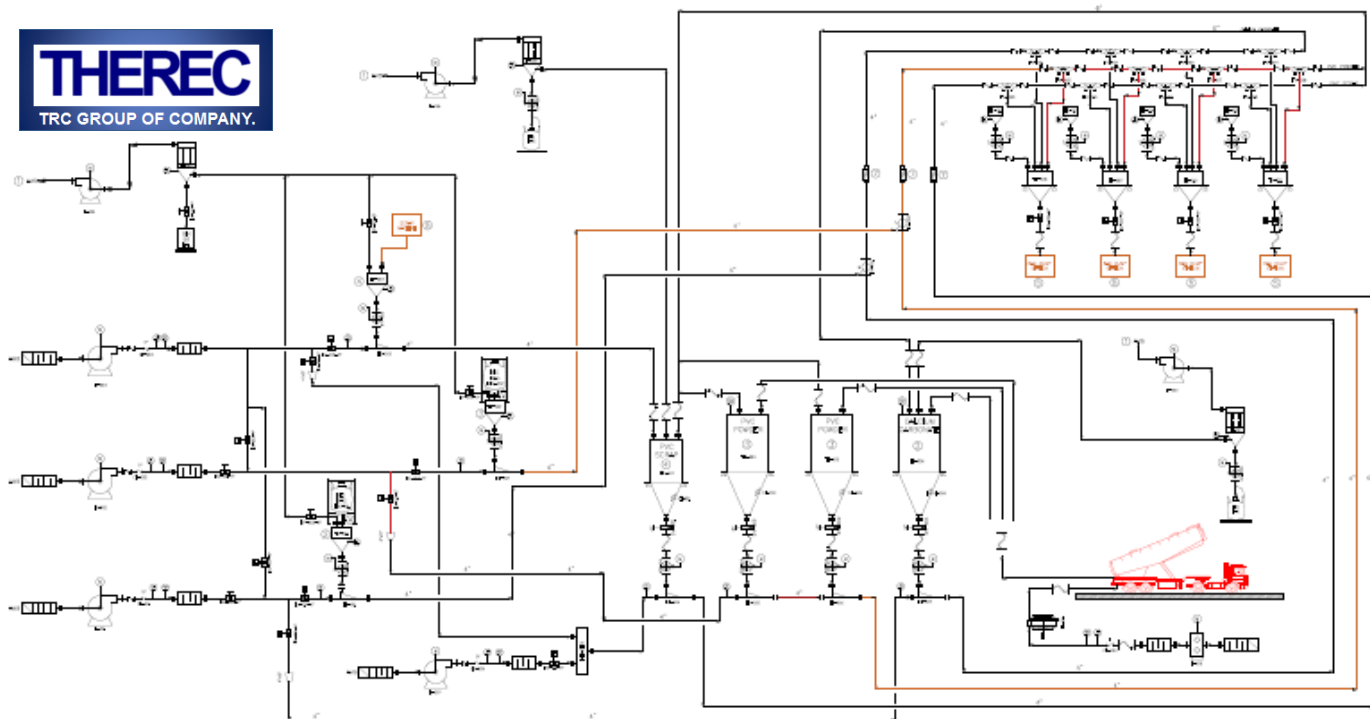
BULK MATERIAL SILOS SYSTEMS

BIG BAG & SMALL BAG HANDLING SYSTEMS

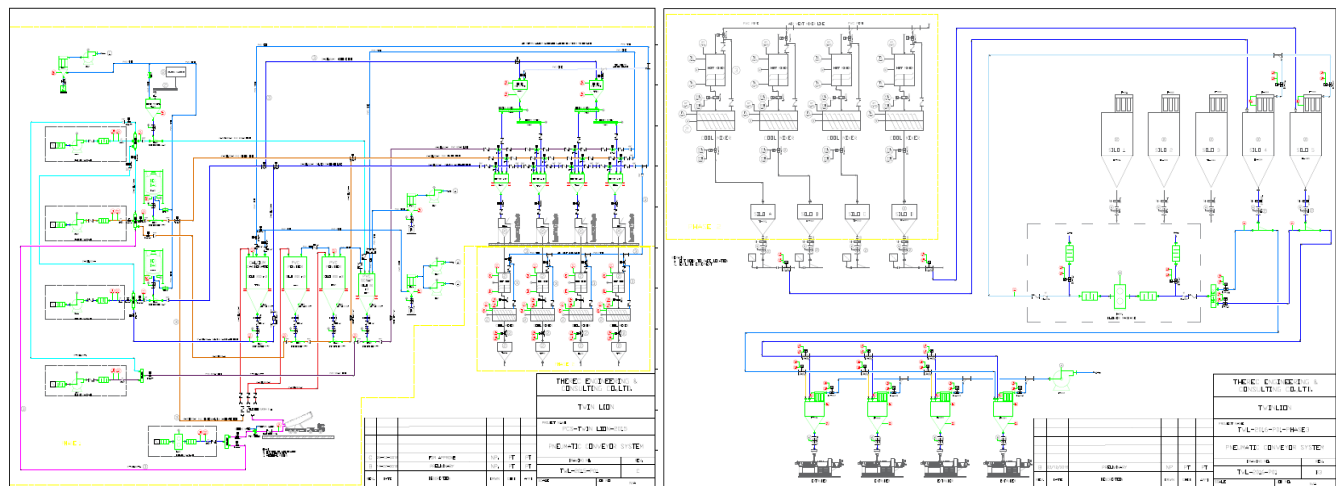
Process Systems Design

PVC pipe (PVC resin, PVC scrap and CaCa_3) processing system

Raw material Storage, Handling & Weighting system



Dry mixed material Mixing & Handling system



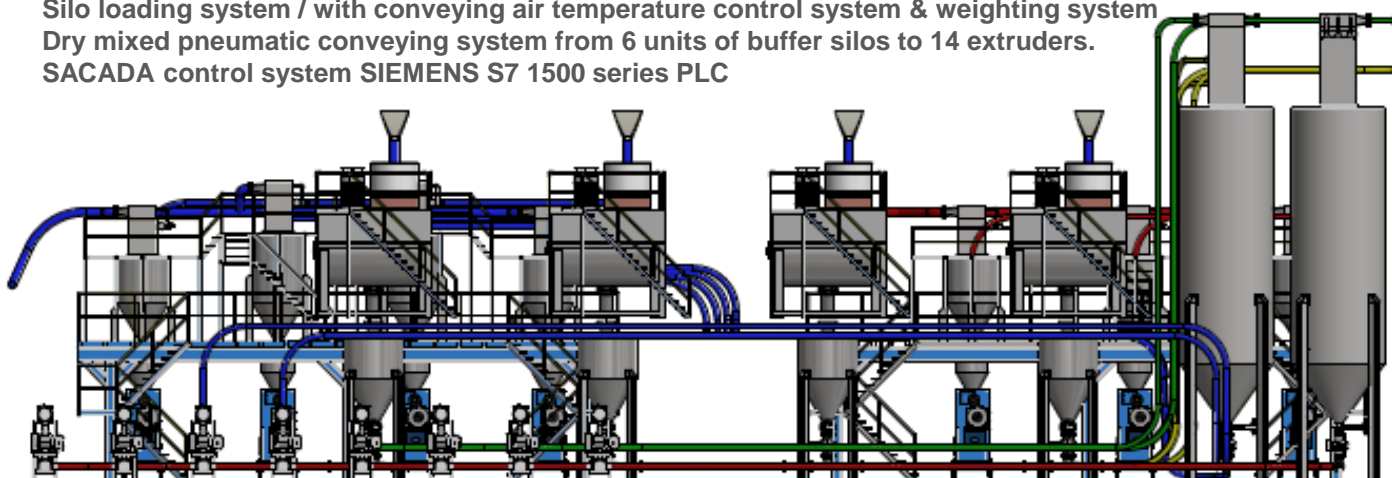
Saha Aree Industry Co., Ltd. / PVC Pipe manufacturer

Raw material pneumatic conveying system with/ Big bag unloading system / weighing & mixing system

Silo loading system / with conveying air temperature control system & weighing system

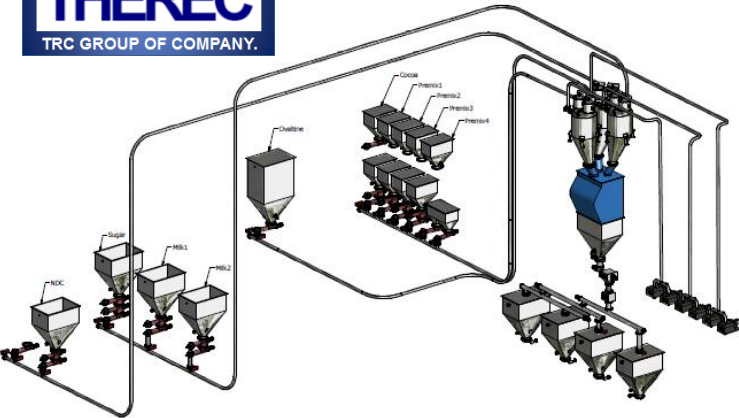
Dry mixed pneumatic conveying system from 6 units of buffer silos to 14 extruders.

SACADA control system SIEMENS S7 1500 series PLC

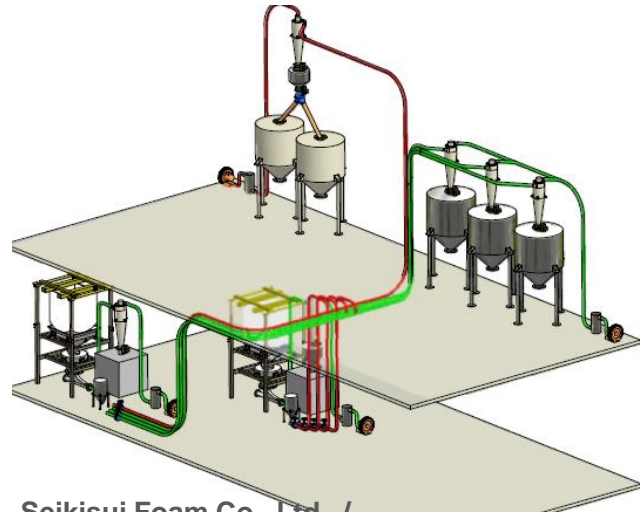


Pneumatic Conveying Systems

Lean (Loose, Dilute) phase negative pressure / vacuum / system
(Mass ratio up to 1:4)



AB Food (Thailand) Co., Ltd. / Ovaltine
Three in one raw material conveying system
Sugar, Coco powder, Milk powder

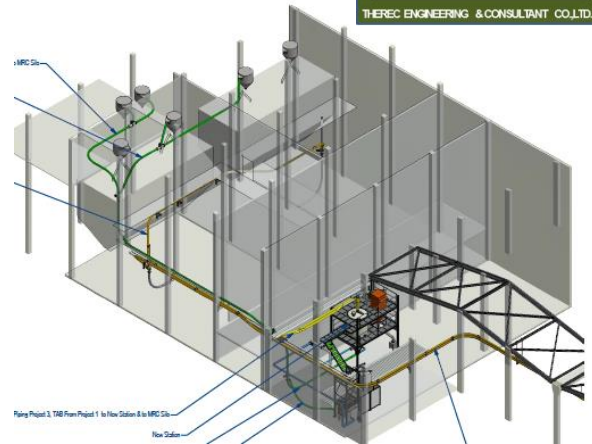


Seikisui Foam Co., Ltd. /
Poly ethylene powder conveying system.

Lean (Loose, Dilute) phase positive pressure system
(Mass ratio up to 1:6)



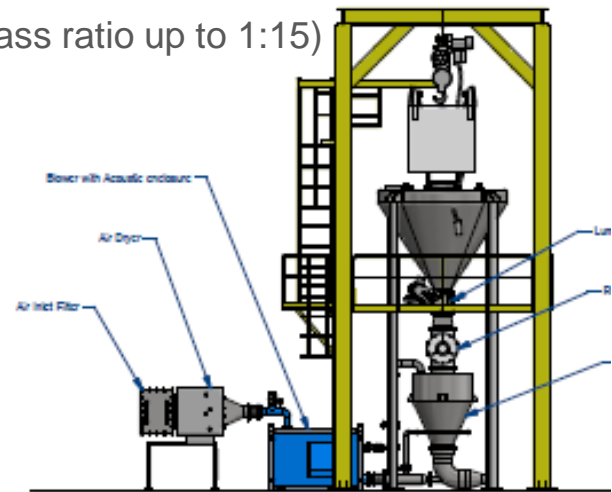
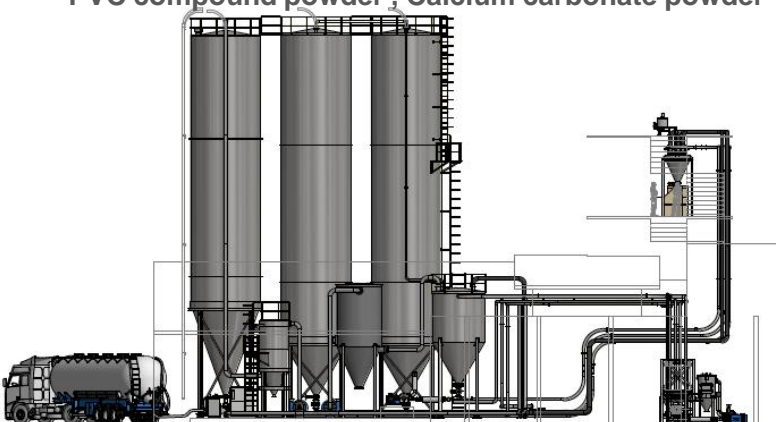
Bangkok PVC Co., Ltd.
PVC door raw material conveying system
PVC compound powder, Calcium carbonate powder



Quality Coffee Co., Ltd. / Nest Café
Roasted coffee bean conveying system

Mixed phase positive pressure system (Mass ratio up to 1:15)

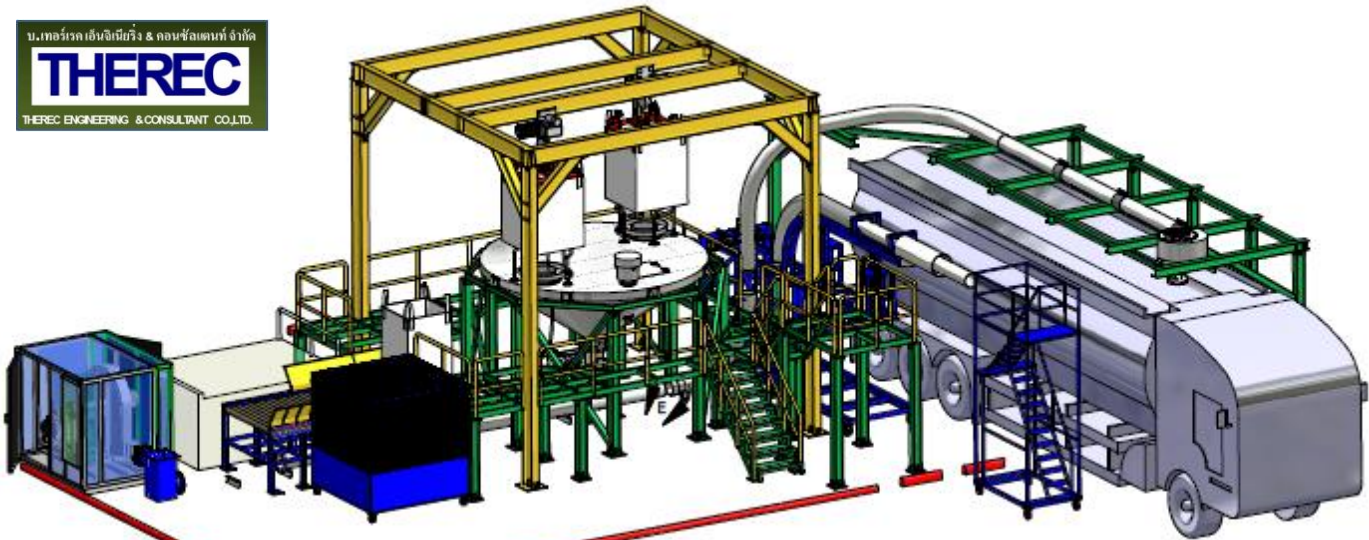
Saha Aree Industry Co., Ltd. / PVC Pipe raw material
conveying Bulk truck to Silo loading system
PVC compound powder, Calcium carbonate powder



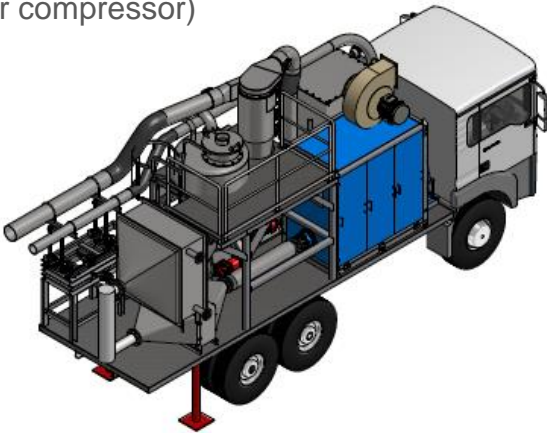
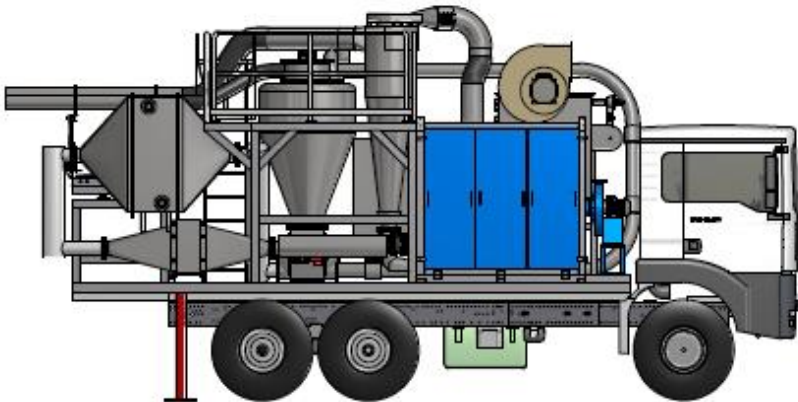
Mitr Phol Sugar Corp., Ltd.
Sugar loading system from big bag unloading
station to container loading station

Sea Bulk (Container & Bulk truck) Loading Systems

Low pressure Loading system (Centrifugal blower)

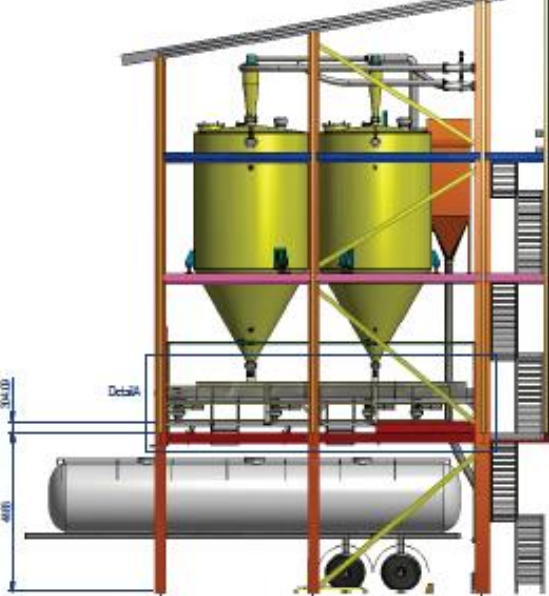


PTT Global Chemical (Public) Co., Ltd. / Poly ethylene Pellet Seal bulk loading systems , from big bag to container and bulk truck
High pressure loading system (Roots blower / Air compressor)



Thai Plastic (Public) Co., Ltd. / SCG Chemical PVC powder container loading system , from 100 tons storage silos to container
Mobile (on truck) special design for inter plant movement

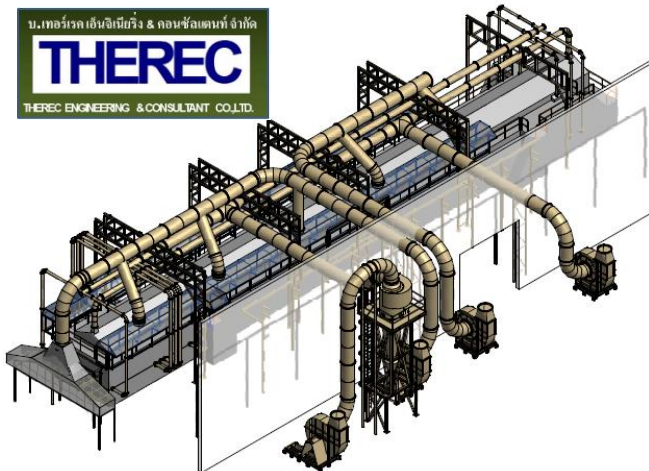
Gravity feed Loading system



Quality Coffee Co., Ltd. / Nest Café Roasted coffee bean Bulk truck loading system
With chain conveyor and loading bellow ,no need to move the truck during the loading period of time.

Process Dust pollution Controlling Systems

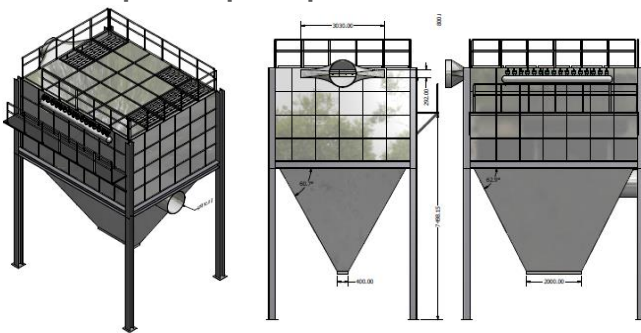
Bulk Material process Loading & Unloading Dust Controlling system



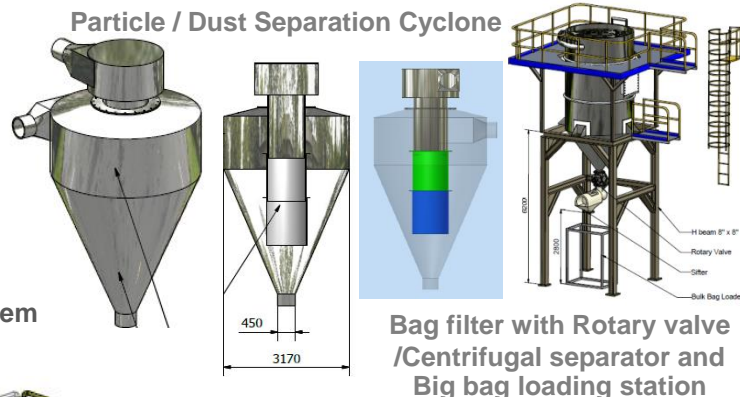
Noble NC Co., Ltd. /
Paper dust Separating
and Collecting system
Paper Piece / Dust
separation cyclone and
Bag filter with
Centrifugal separator
and Big bag loading
station



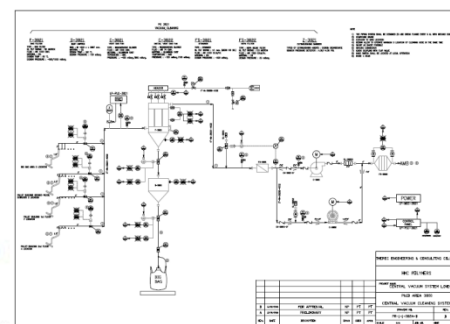
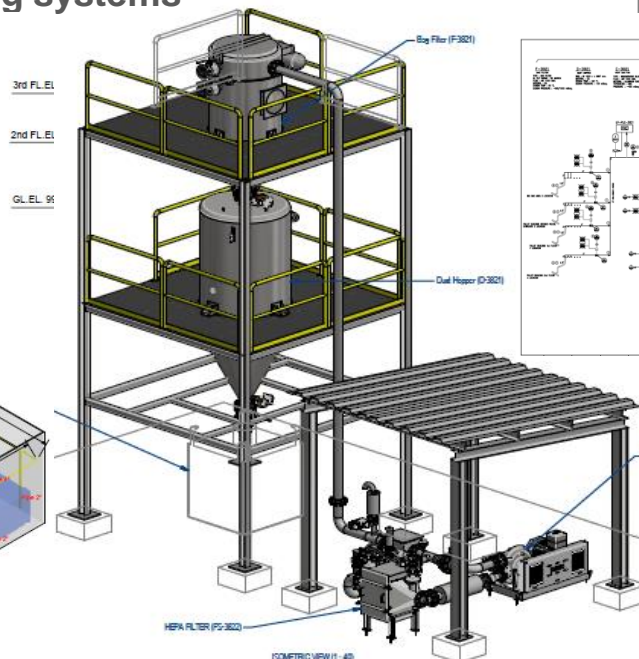
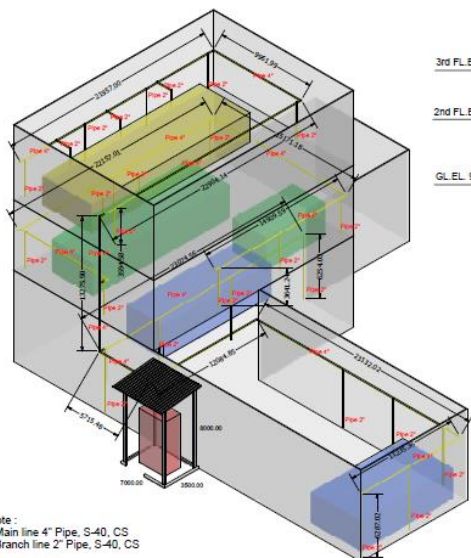
Rayong MDF Co., Ltd. /
MDF Wood dust pollution control system
with Explosive panel protection set



Evonik United Silica Co., Ltd
Air volume 50,000 m³/hr / body in SUS 304
Bag filter/ Silica powder dust pollution control system



Central Vacuum Cleaning systems



Note :
- Main line 4" Pipe, S-40, CS
- Branch line 2" Pipe, S-40, CS

Pipe line floor#1
Line no.1 Total = 54482.01 mm.
Line no.2 Total = 35011.06 mm.

Pipe line floor#2
Line no.1 Total = 77635.26 mm.

Pipe line floor#3
Line no.1 Total = 75000.09 mm.

HMC Polymers(Public) Co., Ltd. / PTT Group/ in cooperation with CR Asia Co., Ltd.

PP powder dust cleaning system , 20 suction points, with 3 points on operate in the same time
Full automatically operation with full dust explosion protection system , in hazardous area zone 22

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Process Dust Explosion Protection & Control Systems

Explosion Prevention system

- Early fire detection of burning products (ATEX CO Monitoring)
- Infrared spark detection systems
- Rapid fire extinguishing systems



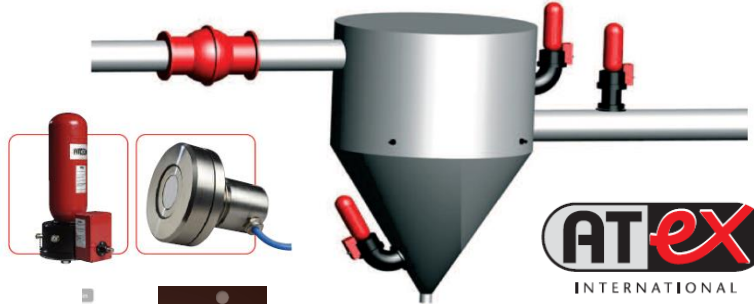
Explosion Isolation system

- Active Quick Sliding valves
- Passive Barrier valves
- Explosion diverters
- Extinguishing barriers



Explosion Suppression system

- Pressure detection (dynamic/static)
- Infrared detection
- Suppression systems with reusable valves
- Hot Water Advanced Inserting Systems
- ATEX Powder Suppression



Explosion Venting system

- Explosion Bursting discs
- Explosion doors
- Q-Pipe (flameless venting)

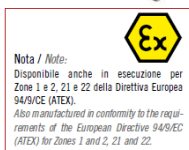


Explosion Component and Machine

- Blowers and Exhauster
- Rotary and Diverter valve
- Load cell & Indicator
- Mass flow Sensor & Meter
- Electrical & Control panel



The **Original** Roots Blower
ATEX Conformity Certificate



- Versions conforming to ATEX 94/9/EC available



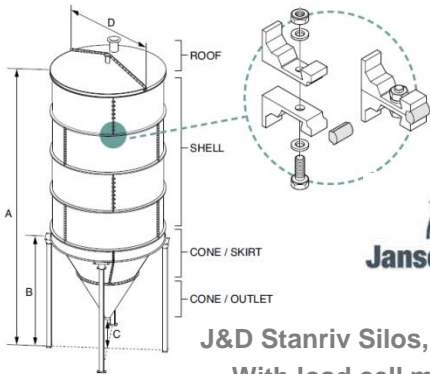
ATEX and IECEx CERTIFICATION



Bulk Material Silos Systems

Silo Loading & Unloading system

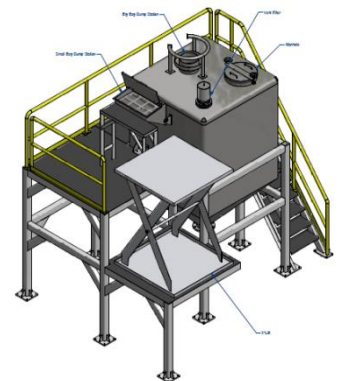
CNC (CP Petro-Chemical Group)
PE Pellet Silo System 800 m³
Silo Loading System 25 ton/hr.



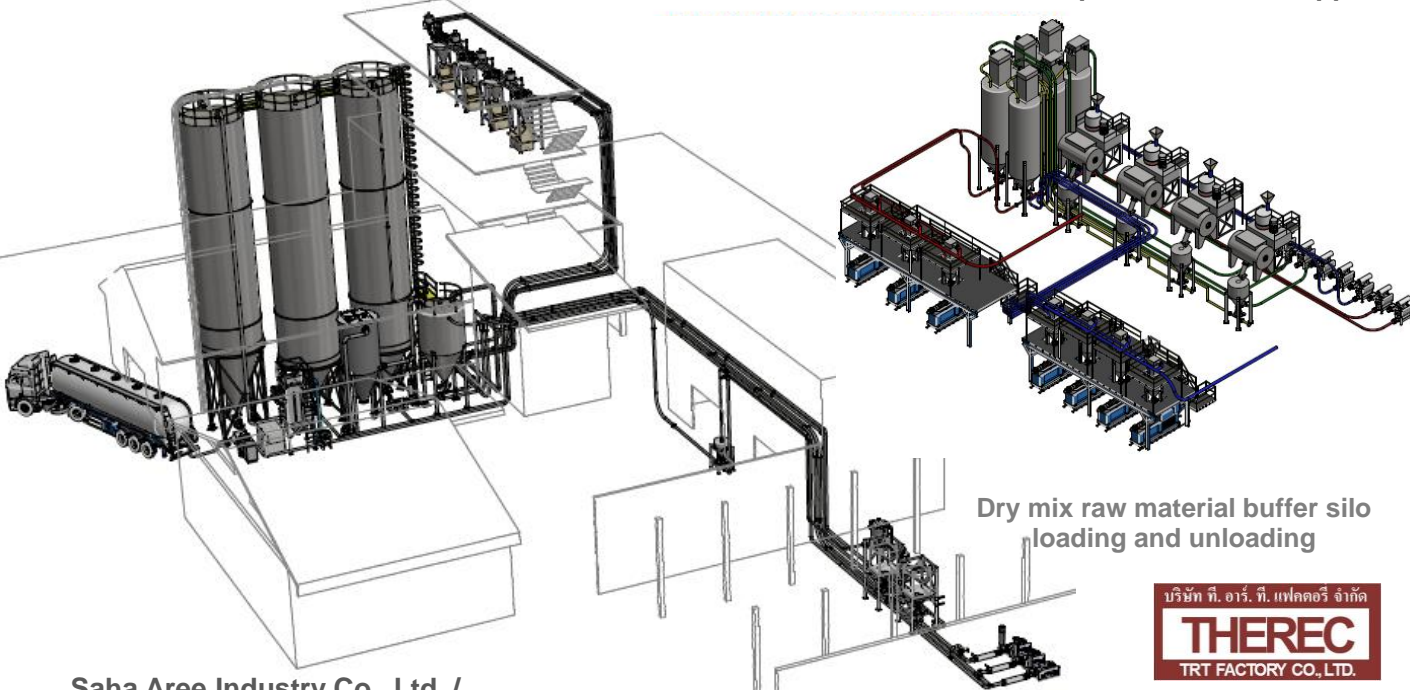
J&D Stanriv Silos, Size 200 m³
With load cell monitoring



Big bag & Small bag dumping station
With over head crane and X lifter



CNC International (Public) Co., Ltd. / CPPC Group of company
Poly propylene Pellet Silo loading & unloading systems , from big bag and bulk truck to J&D Stanriv
Aluminium knock down silos and from silos to process buffer hoppers



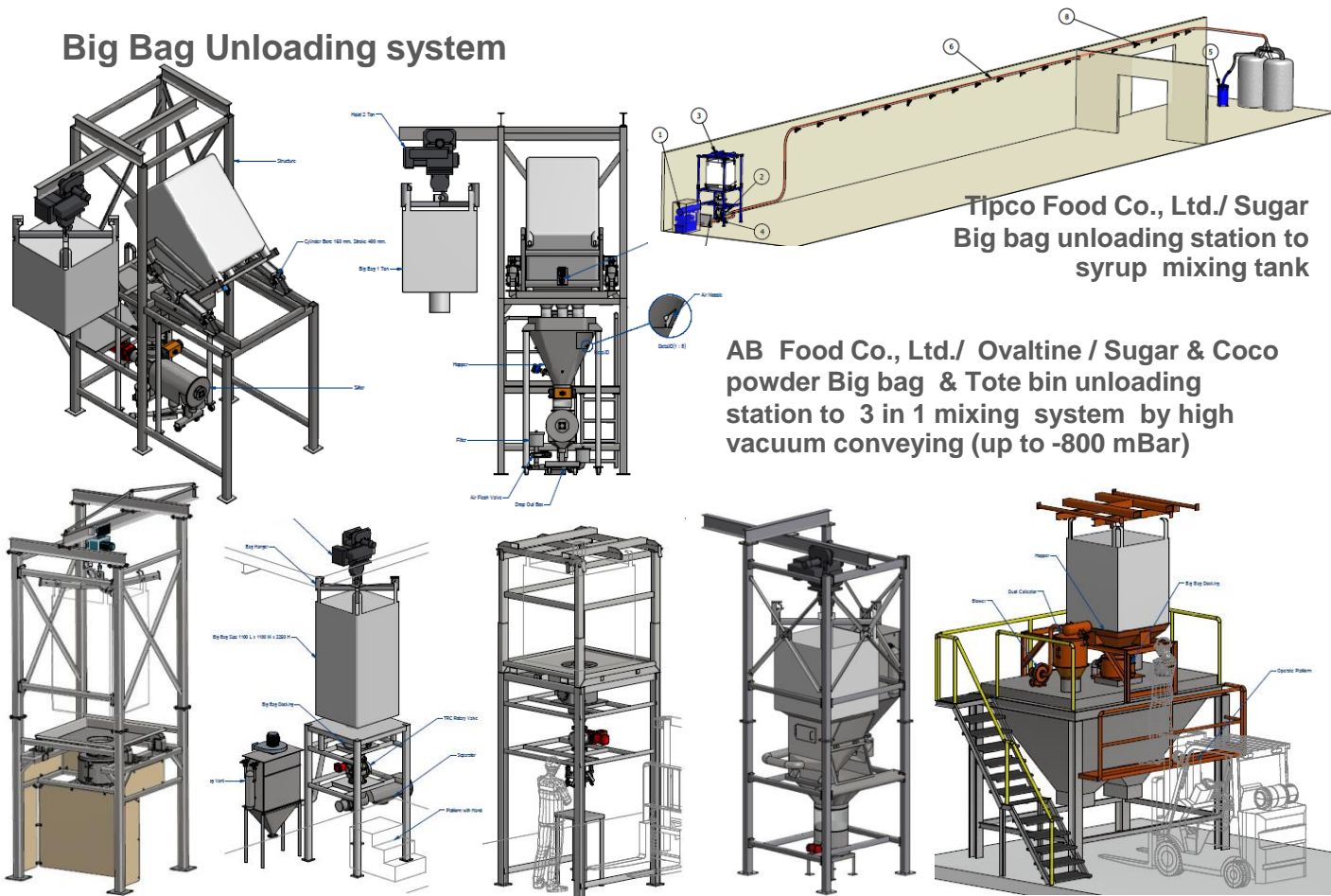
Dry mix raw material buffer silo
loading and unloading



Saha Aree Industry Co., Ltd. /
PVC powder and Calcium carbonate powder Silo loading & unloading system ,with load cell
and dust collecting bag filters, from big bag and bulk truck to Stainless steel 304 storage silos and
from silos to weighting and mixing system in the process line.

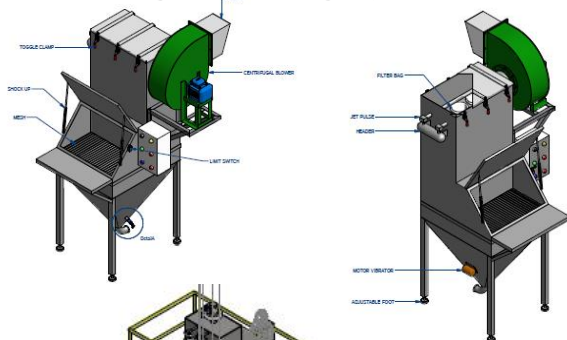
Bulk bag & Small bag Unloading Systems

Big Bag Unloading system



Various design of Big bag Unloading station to be suit with the individual need of process operation
With dust free and clean environmental

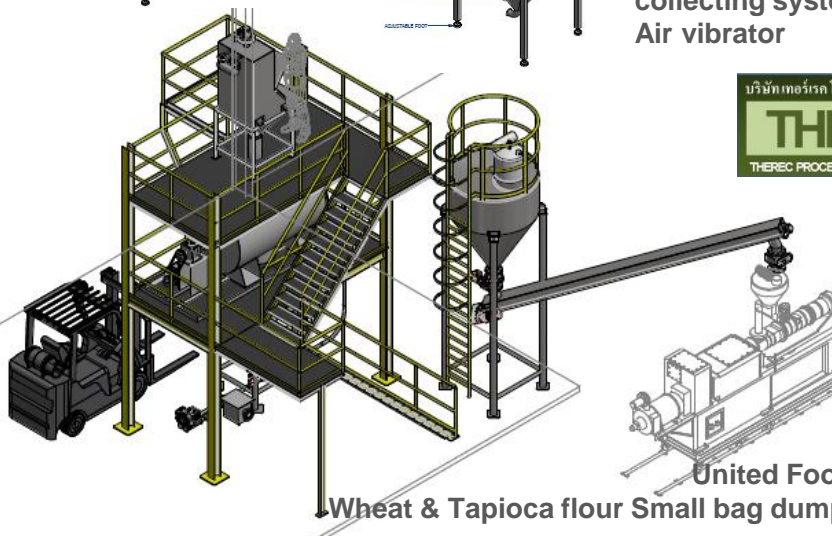
Small bag dumping system



F&N food Co., Ltd. /
Milk powder /
Small bag dumping station
with Integrated dust
collecting system and
Air vibrator

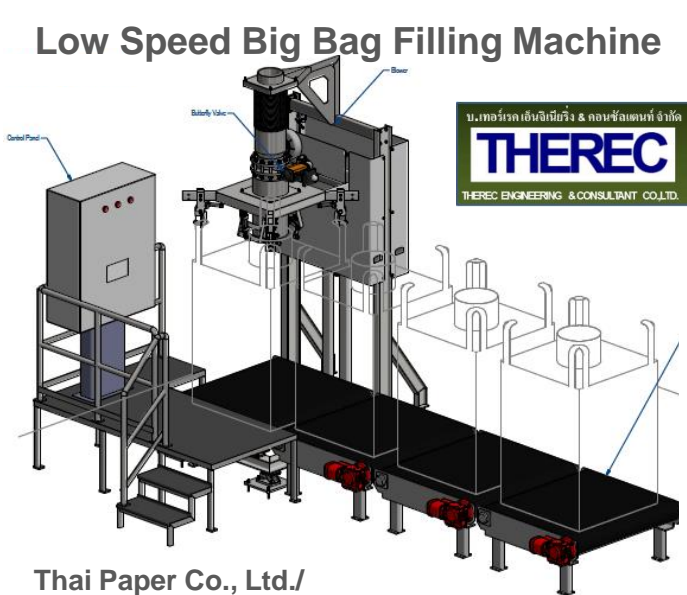


Nestle (Thailand) Co., Ltd. /
Nest Vita /
Wey powder Small bag
Dumping station with dust
collector, Lump breaker &
Moving head to Tote bin

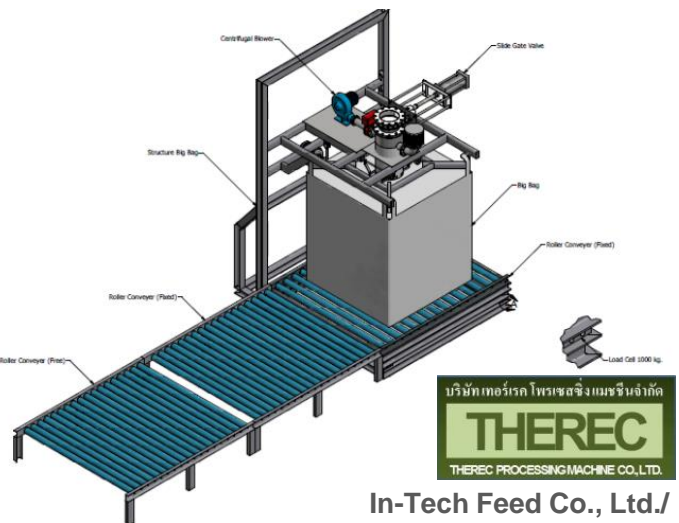


Bulk bag Filling Machine & Loading Systems

Low Speed Big Bag Filling Machine

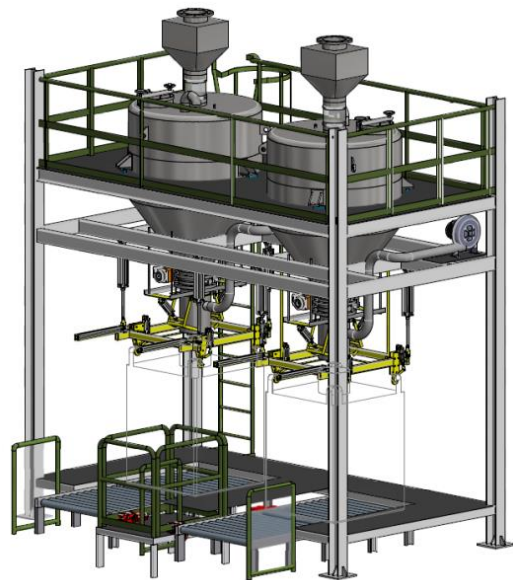
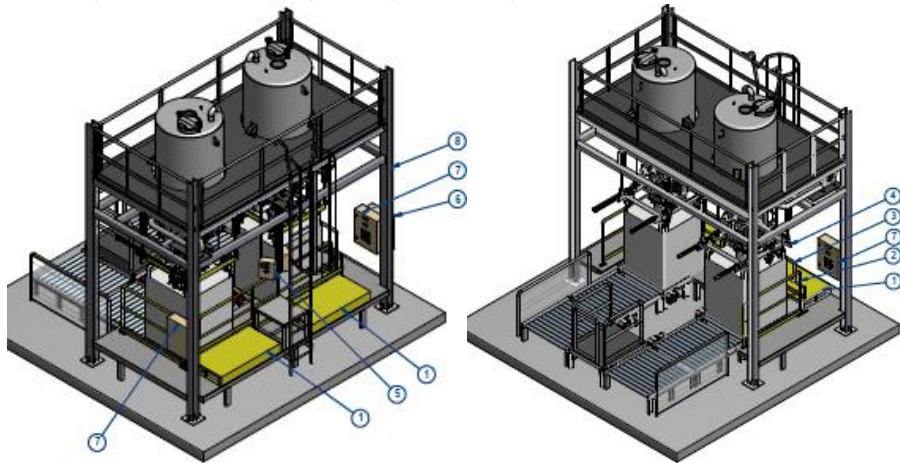


Thai Paper Co., Ltd./
SCG Paper Group Recycle Paper Pulp Big bag Filling
station Low speed machine, 16 bags/ hr, 360 kg/bag
With Automatic weighting & feeding system

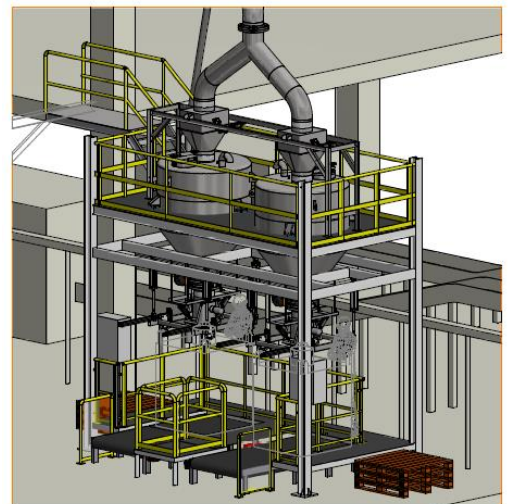
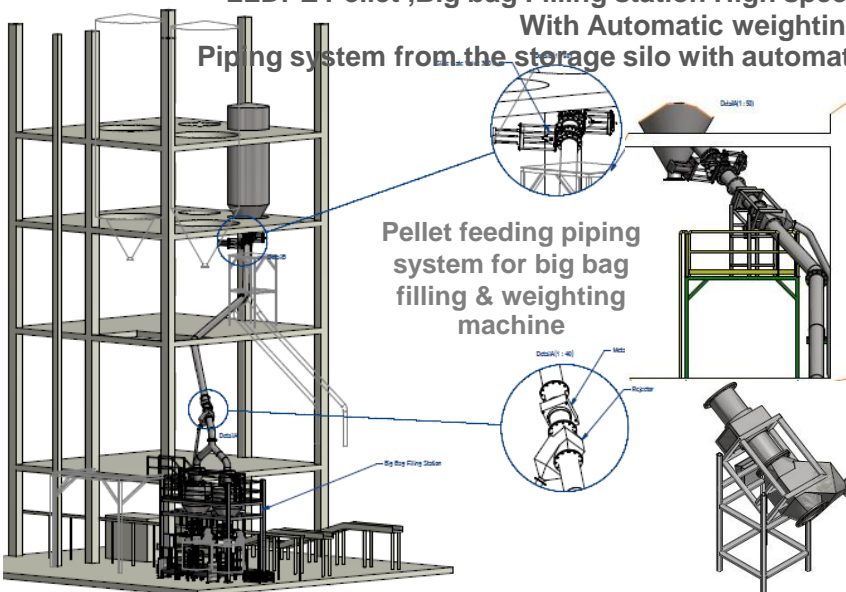


In-Tech Feed Co., Ltd./
Feed mill raw material ,Big bag Filling station
Low speed machine, 10 bags/ hr, 1200 kg/bag
With Automatic weighting & feeding system

High Speed Big Bag Filling Machine



Thai Polyethylene(Public) Co., Ltd./SCG Chemical group
LLDPE Pellet ,Big bag Filling station High speed machine,60 to 90 bags/ hr, 735 kg/bag
With Automatic weighting system and check weight load cell set
Piping system from the storage silo with automatic shut off valve and metal detector set



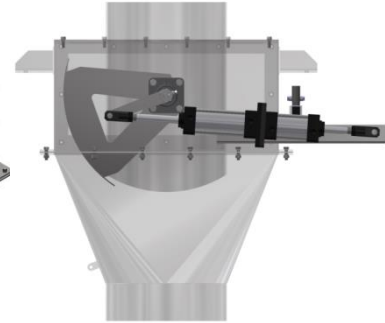
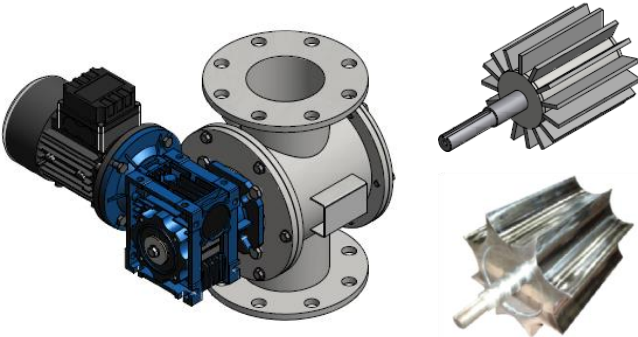
Bulk Material flow Measurement & Weighting system

Mixing & Filling process weighting system



Saha Aree Industry Co., Ltd./ PVC and Calcium carbonate powder weighting system by Scale (Fill vent) valve

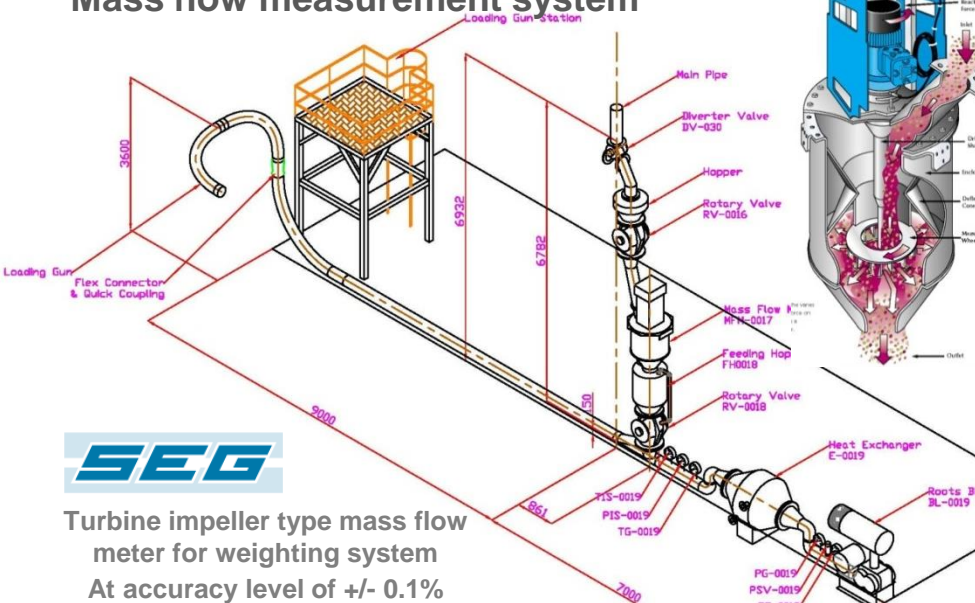
Saha Aree Industry Co., Ltd./ PVC pipe Additive powder weighting system by Dosing screw feeder



Thai Plastic Bag Co., Ltd./ Calcium carbonate powder weighting system by Dosing rotary valve

Thai Poly Ethylene Co., Ltd./ LLDPE Big bag filling station weighting system by Cut off valve

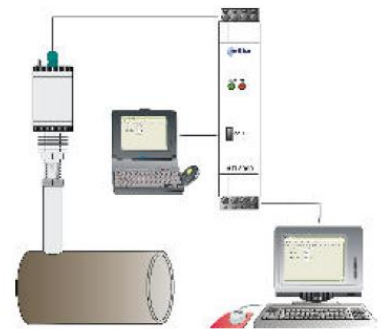
Mass flow measurement system



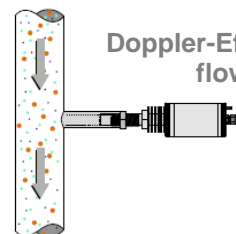
Turbine impeller type mass flow meter for weighting system
At accuracy level of $\pm 0.1\%$

Thai Polyethylene(Public) Co., Ltd./SCG Chemical group
HDPE Pellet ,container loading station flow measurement system by Mass flow meter

System components



A complete measuring system MF3000 contains the sensor, a cable, a DIN-rail transmitter and the software MF-SMART .

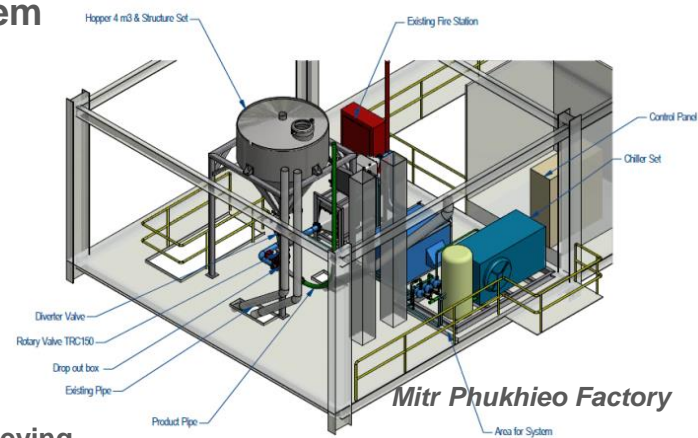
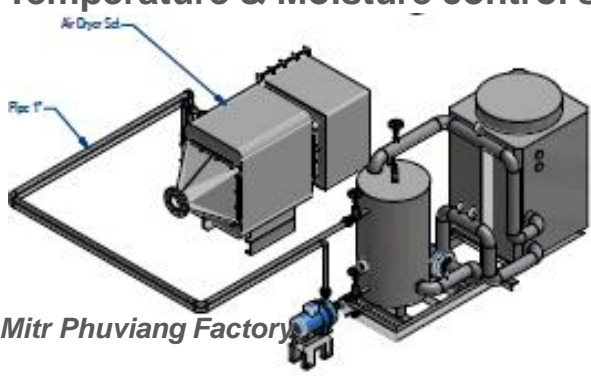


Doppler-Effect type mass flow meter



Air & Gas Boosting & Handling system

Temperature & Moisture control system



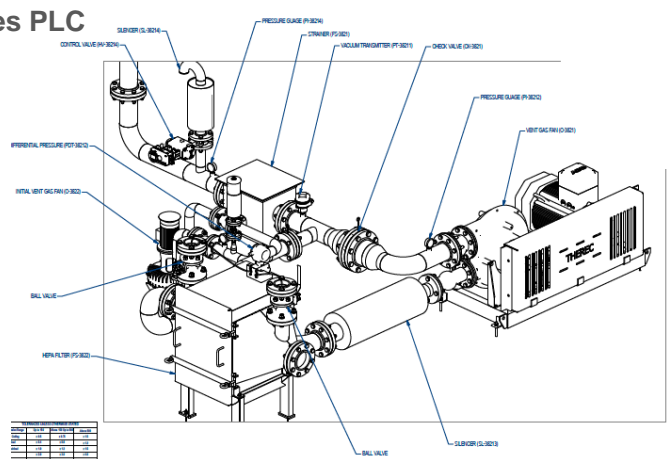
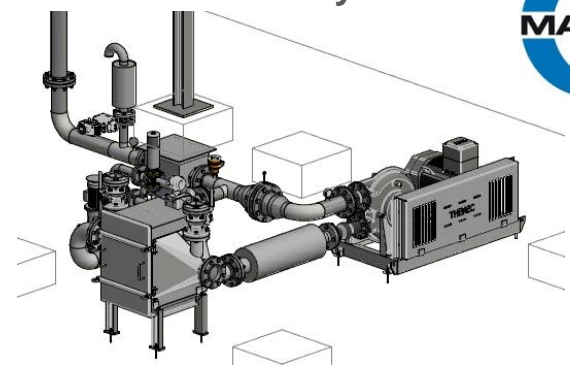
Mitr Phol Sugar Corp., Ltd./ Sugar pneumatic conveying

Contacted conveying air moisture control to the level below 35% relative humidity to protect the sugar lump and stickiness from ambient moisture.

Contacted temperature to be under 38 degree C, to protect the internal moisture from flashing out and make the crystal to be dim.

SCADA control system with SIEMENS S7 300 series PLC

Vacuum control system

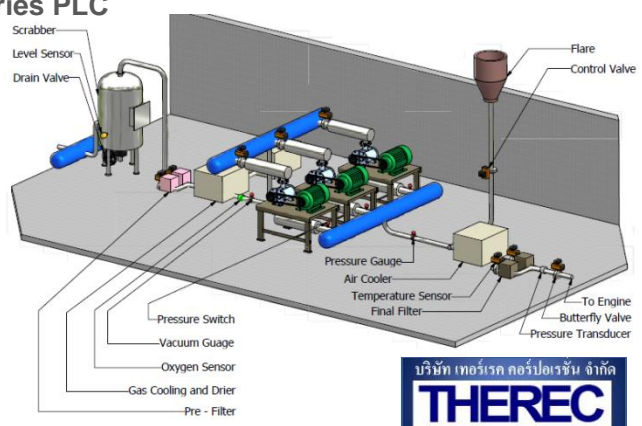
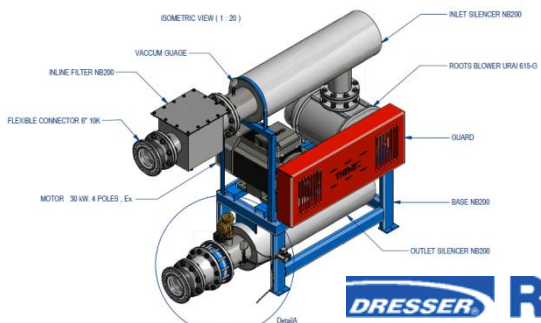


HMC Polymer Co., Ltd./ PTT Group of company, job in cooperation with CR Asia

Vacuum control system for central vacuum cleaning system operation, operated by vacuum transmitter and pneumatic control valve to maintain the vacuum level of the system at -300 mBar and maintain the averaged suction air volume of each individual suction point at around 200 cfm of all working condition. Also the differential pressure switch for the filters.

SCADA control system with ALAN BRADLEY 500 series PLC

Pressure control system



Charoen Sompong Co., Ltd./ Underground Biogas from landfill site

Pressure control system for bio gas boosting station / supply to gas engine of electrical generator By pressure transmitter and pneumatic control valve to maintain the pressure of 7 PSI supply to engine regulator and over supply gas to the flare with gas cooler and cooling tower set to maintain the feed in gas to be under 50 degree C and reduced the water content level in the biogas.

Also with oxygen sensor/transmitter and safety vacuum switch.

SCADA control system with SIEMENS S7 200 series PLC

TRC / The High Pressure Blower Company

Total solution for high pressure blower application

TRS / The Service Company

Premium quality of service and repair work

TRTT / Therec's Knowledge Base Company

Production with fully specific knowledge and experience
Rotary & Diverter Valve maker / High pressure blower packer

TRT / Stainless Steel Tank Making Company

Food grade stainless steel work shop.
Stainless steel Hopper Tank and Silos

TRPM / Bulk Material Processing Machine Company

Bulk Bag filling & unloading station / Weighting system
/Bulk Material Handling equipment and Machines

TRE&C / The Pneumatic Conveying System Company

Bulk material handling process turn-key solution

Clear & **C**omplete engineering process design with the main components
of the process coming from a single group, precisely matched
for the influences system operation with the full reliable service team.

“Over all knowledge summation of the 20 years experience”

Therec Engineering & Consulting Co, Ltd.

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