

**Ingredient  
Batching  
Systems**

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**SIEVE  
CONVEY  
AUTO  
WEIGH**



# Ingredient Batching Systems



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## Craft Bakery Solutions – SCAW System

Do you want to move from a labour-intensive batch preparation process to a fast & acutely accurate solution with continual repeatability, whilst eliminating H&S issues? Ingredient Batching Systems are pleased to have developed the Sieve Weigh Auto Conveyor (SWAC) System which overcomes these issues with our cost effective solution.

Yours faithfully

### How it works

The flexibly designed system takes in product from either a sack tip, bulk bag discharger or silo and pneumatically conveys product through a deck sieve into a receiving vessel where it is weighed. The product is then discharged in weighed batches through a rotary valve into the users next process such as a craft mixer. The whole system is dust free and has the option to be connected to an LEV if necessary.

The Sieve Convey Auto Weigh System comprises of a sack tip, sieve, receiving vessel, load cells, rotary valve, filter unit and exhaustor. The connection to the mixing bowl, craft mixer or other equipment is designed to suit the user's application.

All the components that make up the SCAW system can be picked from a catalogue of standard parts, dramatically reducing design lead times and cost. The design uses food safe design standards that reduce dust collecting points, in turn reducing cleaning frequency - this being beneficial in any environment where dry powder is being handled.

**Please take time to review the options and talk to us about your requirements, time scale and budgets, we can tailor a solution that best suits your application.**

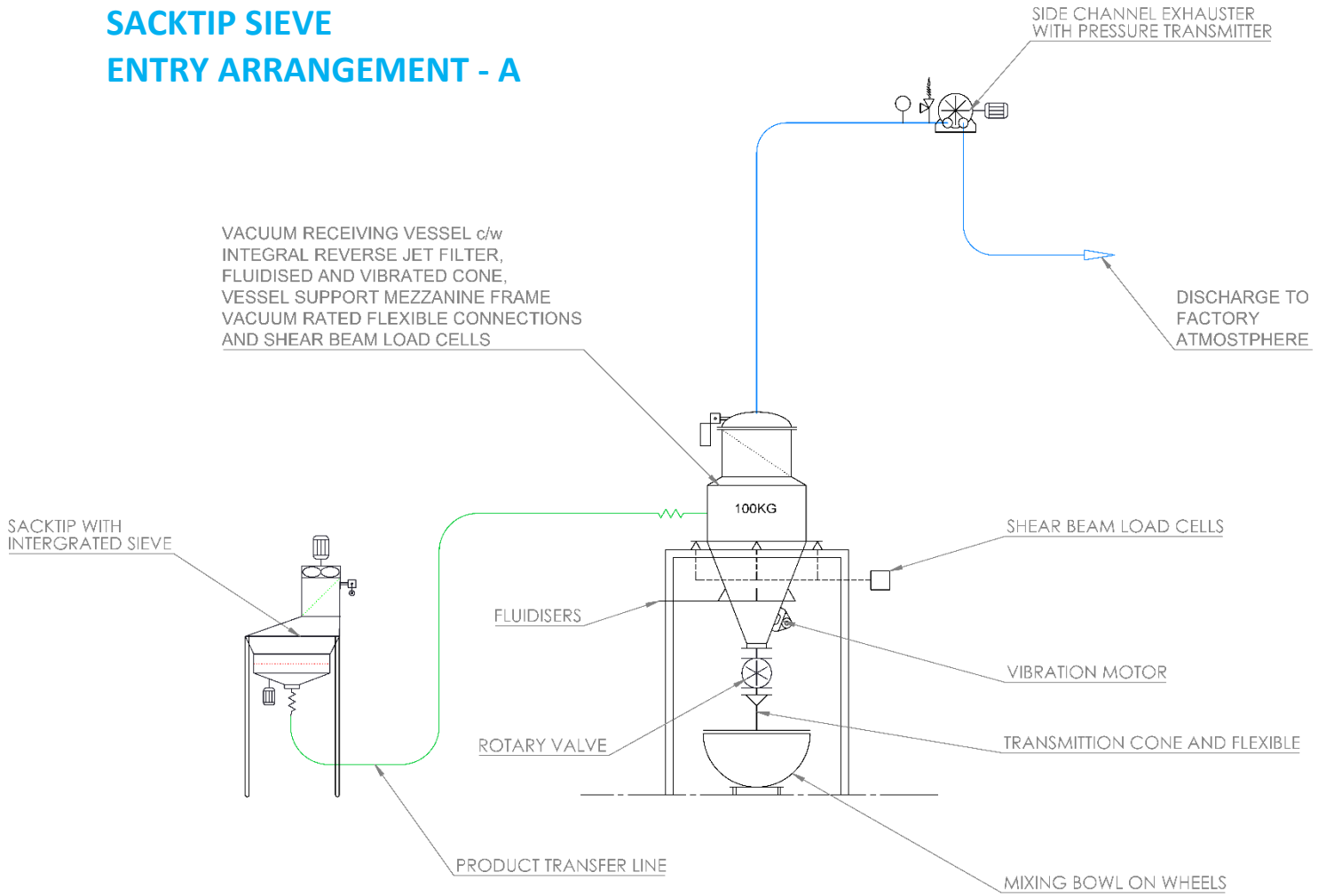
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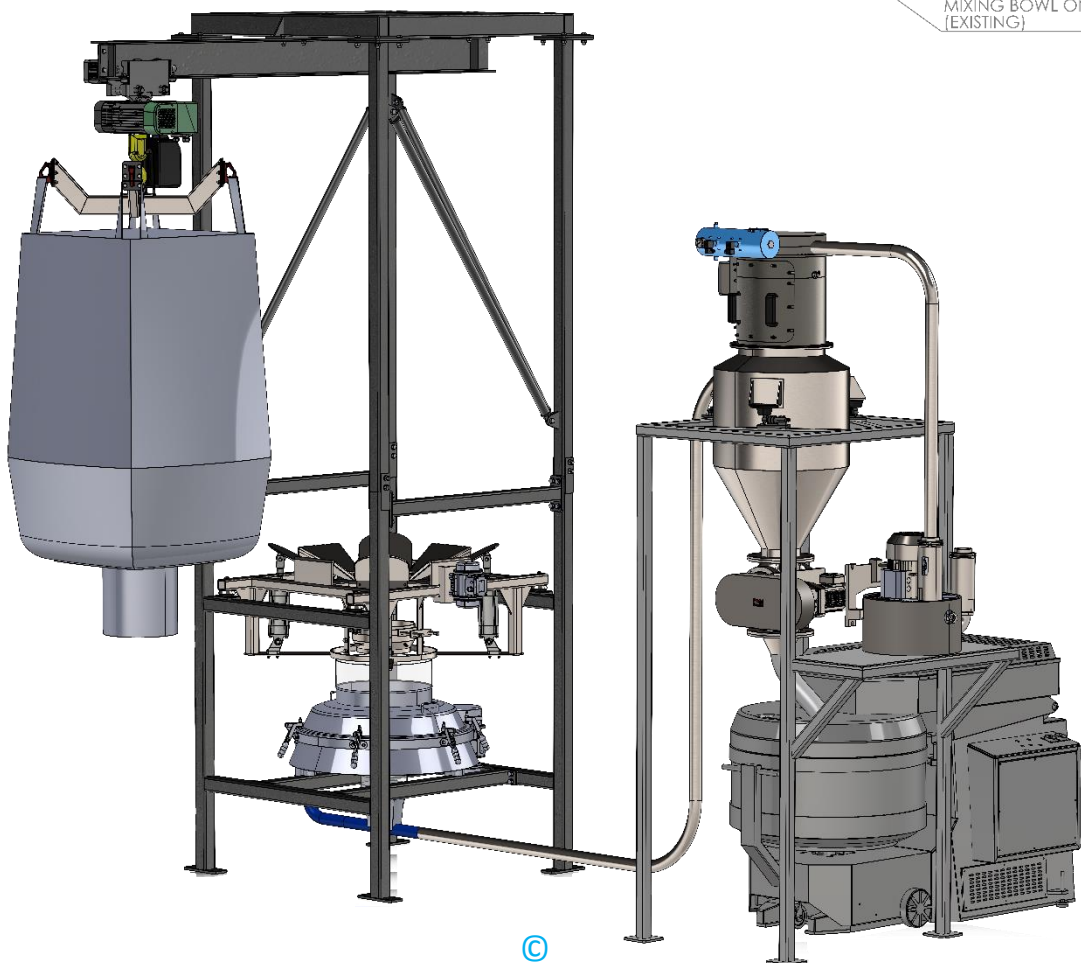
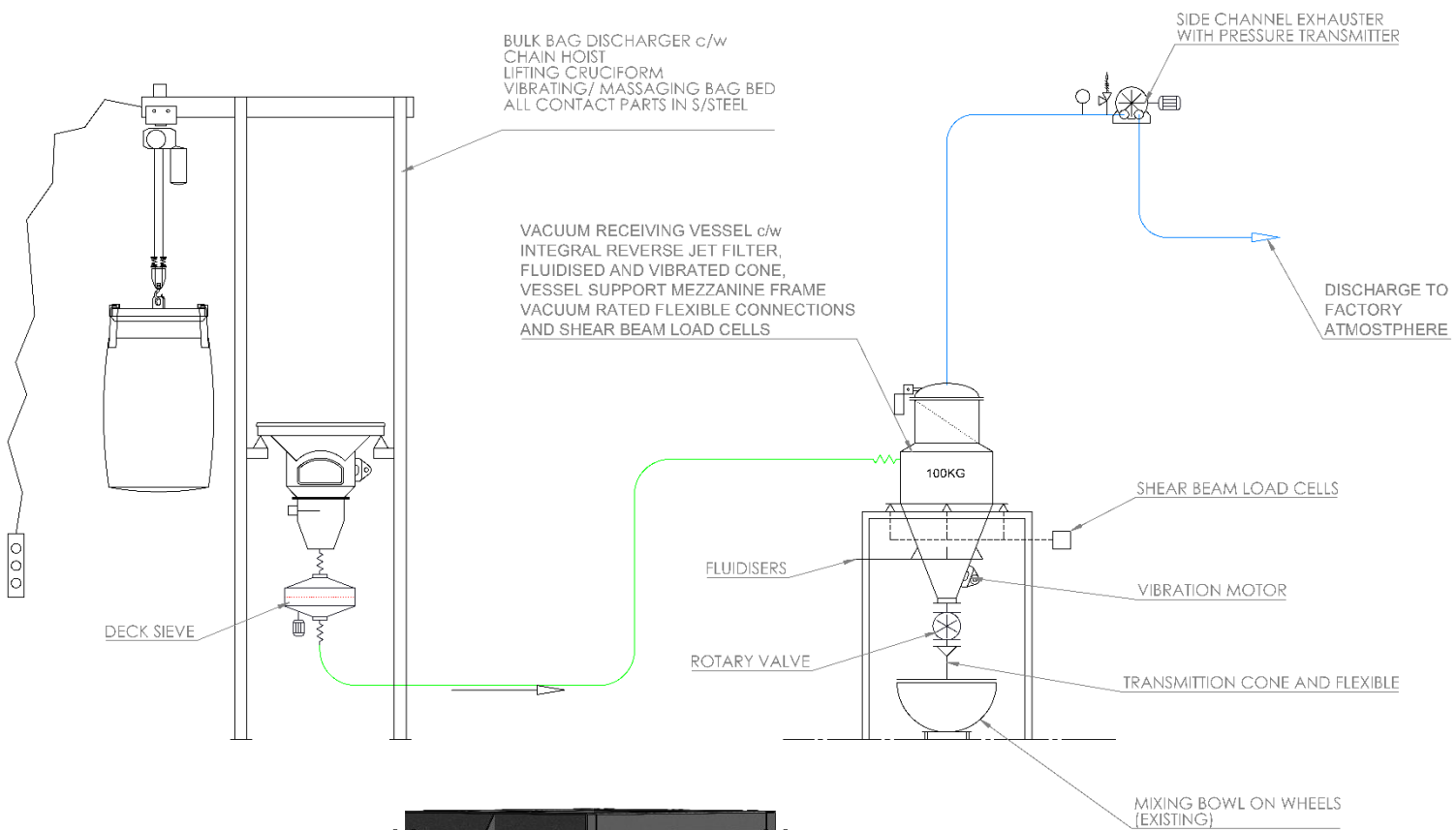
# 1. Entry Arrangements

## SACKTIP SIEVE ENTRY ARRANGEMENT - A

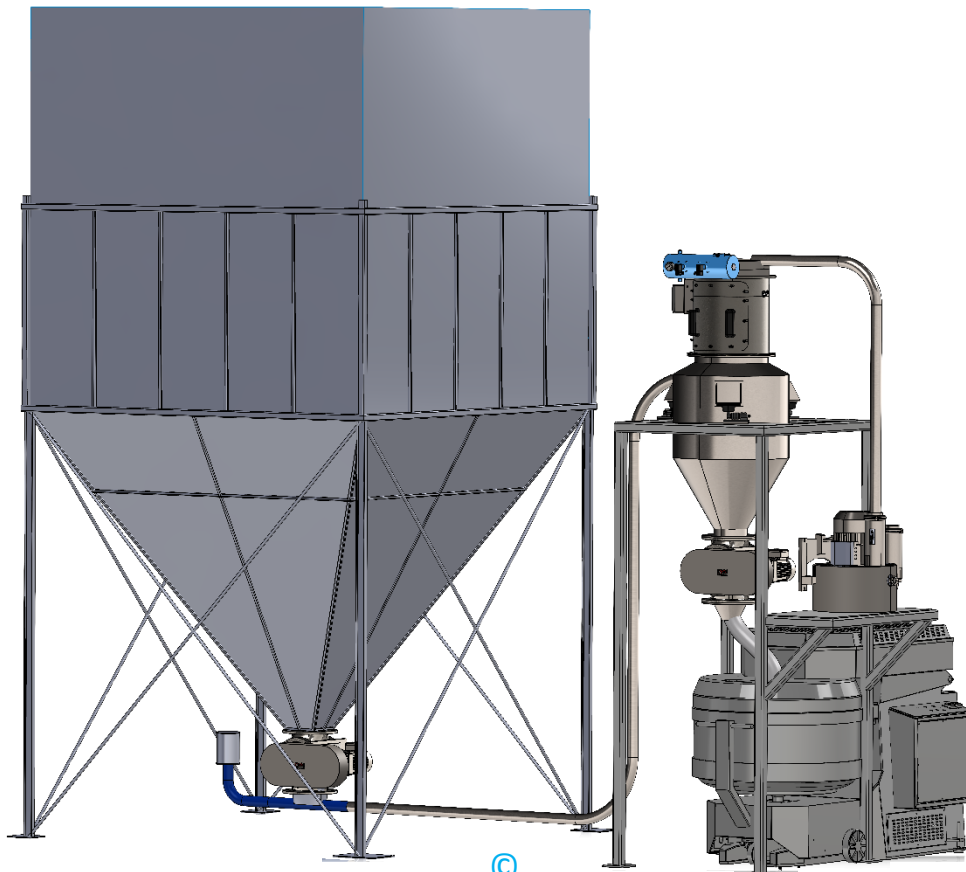
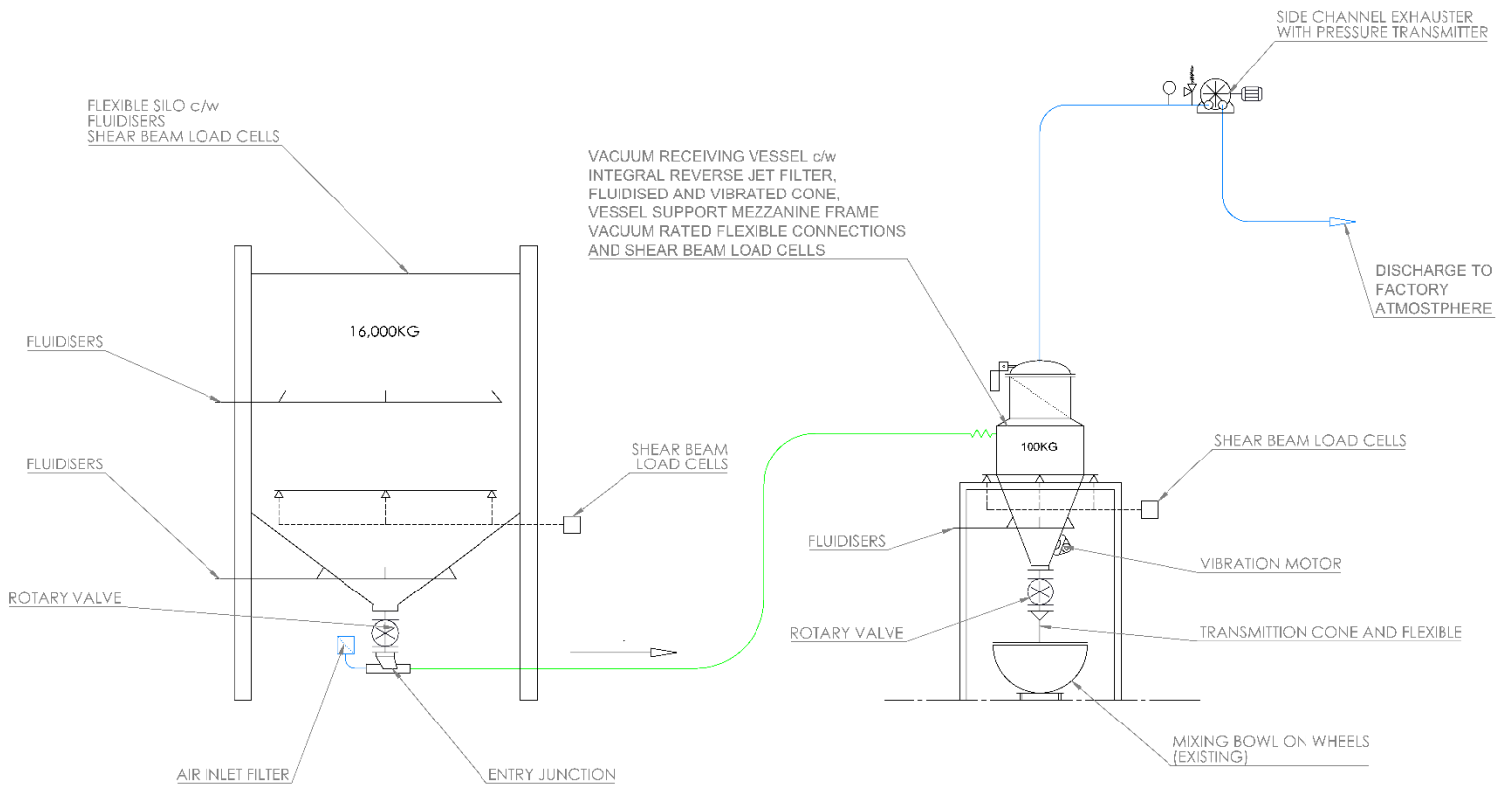


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# BULK BAG DISCHARGER ENTRY ARRANGEMENT - B



# FLEXIBLE SILO ENTRY ARRANGEMENT - C



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## 2. Material Specifications

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**(Example)**

<b>Product</b>	<b>WHITE WHEAT FLOUR</b>
Bulk Density	560Kg/m <sup>3</sup>
Moisture	TBA
Particle Size	Fine Powder
Temperature	Ambient
Hazard	<b>DUST EXPLOSION</b> ST.1 CLASSIFICATION – Kst (Client to advise) Minimum Ignition Temperature – MIT (Client to advise) Minimum Ignition Energy – MIE (Client to advise)

### 3. ATEX Directive

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For this installation it will be mandatory to meet the requirements of the EU ATEX Directive. We therefore make the following statement:

It is incumbent upon the client to define the probability of the existence of an explosive dust atmosphere in each area of the proposed plant, re: zone 20, 21 & 22. (Continuously or for very long periods; Present in normal operation: or, Unlikely, but if present, then only for a short period)

For the purposes of this quotation, we have assumed the following criteria:

The client will maintain hygiene procedures such that the plant will be assessed as Zone 22, where explosive atmospheres are likely to occur infrequently and be for short duration.

For Zone 22 areas, category 3 electrical equipment is suitable, dust protected to IP65. EC examinations by a notified body are not required for this category of equipment.

If the Zone identification assumed above is not correct, the client must confirm the Zone identification that applies for the purposes of this quotation.

Any ingredient information not available from the raw material suppliers to enable a DSEAR assessment to be completed may require some materials to be tested for Kst, MIE, MIT, etc, this will be at the ingredient supplier or client cost.



## 4. Equipment Specifications

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### Sacktip Sieve (Option A)

**Sacktip Sieving Station** – Ø 965mm or Ø 565mm screen

Main body – Ultrasonic & Direct earth connection ready

316SS contact parts internal unidirectional polish <0.8RA (external on funnel). External satin finish <0.95RA

**Non-contact parts** 304SS satin finish, welds as laid externally

Direct Mesh Earthing Mesh ring c/w female earth point, removable earthing rod.

Earth lead to main body, nickel plate Q/R sprung loaded connector

**Mesh Detail** - 316SS hollow section ring

Bonded mesh ring assembly @ TBCµm in 304SS/316SS/430CS mesh

c/w EC1935/2004 & FDA compliant white adhesive

Mesh gasket - Silicone blue metal detectable gasket – EC1935/2004 & FDA compliant

Inlet detail - 530mm diameter beaded end c/w with diaphragm seal

**Outlet detail** - 150-350mm diameter plain/Jacob/BFM

Motor type - Vibratory motor 240/400v 3ph 50hz. 0.9kW

Non-painted aluminium food safe casing coating – 304ss end caps

### **ATEX Zone 21 internal and external (sieve only)**

Dusthood with sackrest table and fixed J-hex safety grid

Knife holster with blue metal detectable safety knife

**304SS bead blast finish** with welds as laid and dressed at infeed spigots joins

Powerlift hinged hood via 2 x 304SS gas struts to each side. Locked in placed when docked with side swingbolts and handwheels

**304SS open section support frame** with adjustable floor mounting pads

Designed for operator tip height of 900mm as standard

Outlet height from floor approx. 300mm



## Bulk Bag Discharger (Option B)

**An FIBC Discharger Hopper With Mounted Deck Sieve.** Manufactured from stainless steel gr.304 and isolation mounts for bolting to the support steel gantry. The hopper will include a motor mounting plate suitable for an electrical vibrator motor, the bottom of the hopper has a 400mm diameter opening for the bag outlet spout to pass through. A 300W Vibrator Motor is mounted to the side wall of the discharger hopper to aid material discharge and is supplied with an increased safety specification suitable for operating in an Atex Zone 21 area. (Voltage 400v AC).

**A Discharger Downspout manufactured from stainless steel gr.304** and approx. 350mm long terminating in a 250mm dia. spigot complete with flexible sleeve and bag clamping device to seal the outlet of the big bag spout

**A Support Gantry,** manufactured in 150mm sq. mild steel hollow sections and powder coated, supporting a galvanised mild steel 'I' beam with a single cantilever, complete with one fixed and one removable end stop. The gantry will incorporate hollow section legs and lower support frame members and will be rated at 1.5 Tonne S.W.L. The gantry will include supports for the discharger set at 45° to the gantry legs to give good operator access to the discharger hopper.

**A 1.5 Tonne Electric Hoist,** with powered lift and traverse. The unit has 4m/min lift speed and 5m/min traverse driven by 1.5kw and 0.07kw motors sealed to IP55.

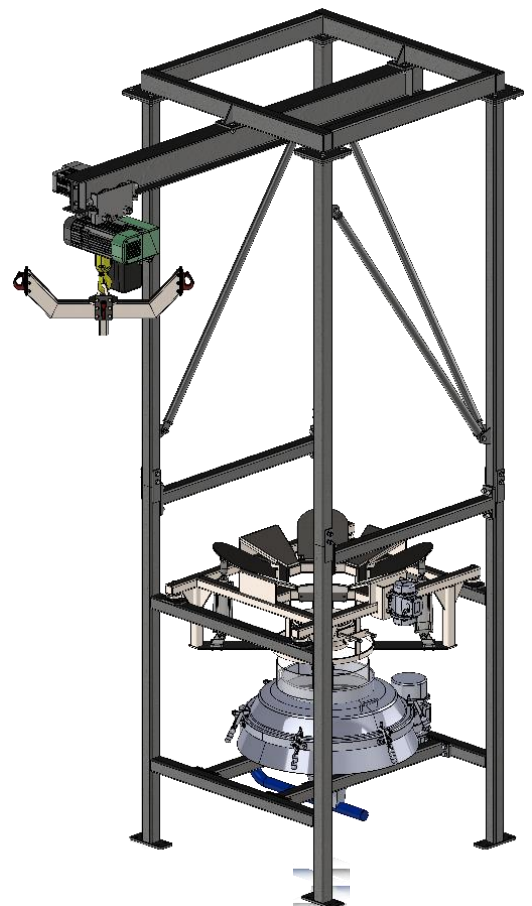
An upper limit switch is fitted to the hoist to prevent the hoist block striking the underside of the hoist body.

**Also included is a control pendant sealed to IP65,** complete with Raise/Lower, Left/Right and Emergency Stop button.

FIBC Lifting Frame, manufactured in 304 stainless steel hollow section, complete with loop retaining latches, and S.W.L. tested to 1.5T.

The frame will be fitted with anti-rotation plates to prevent the FIBC from rotating, ensuring square location in the discharger hopper.

**Pneumatically operated bottom bag massagers** to aid product discharge, Massagers supplied fully pneumatically piped and connected to solenoid valve to be automatically operated from a push button on the main control panel.



## Flexible Silo (Option C)

**The fabric silos, also known as flexible silos,** are manufactured from an anti-static, high tenacity, woven polyester material. The silos are manufactured using a multiple fold calculation for strength meaning they are suitable for bulk storage up to 50 tonnes capacity.

**With over 30 different fabric types available,** we cover most bulk products. Industries served at present are the plastic, food, agriculture, chemical and biomass sectors.

The fabric silos as standard are breathable which is a big advantage for some materials and also means that any air generated in filling the silo, by road tanker for example, will then be dissipated through the side walls and roof. The silos are however, dust tight, they are just gas permeable. This means a cost saving in not having to use a reverse jet filter.

**For hygroscopic materials** or if the silo is to be used in a heavy industry, we can supply the silos as coated fabrics, including food approved FDA, ATEX approved conductive, non stick etc.

**The silos, in design, can be treated the same as steel silos** in that you can add a variety of things to them. For example, you can fit level probe flanges, access doors, sight glasses, explosion relief panels and many more.

**Filling the silo** can be by road tanker, blowing system, vacuum conveying, screw conveyor, bucket elevator, other mechanical conveying and even by hand.

**With sizes ranging from 1te to 50te,** all sizes being bespoke, we have the right solution for your bulk storage requirements. The silos can be both square and rectangular in design.

Many of our silos are used as daybins so they are filled just once per shift to enable production to be done without interruption that occurs when using sacks, big bags or octabins.

**One huge advantage** to the flexible silo is that they are built on site with a simple steel frame, meaning you can erect them in situ, no need for big cranes or removal of doors, walls or even the roof.

**Discharging or emptying** from the silo is very easy. The fabric silos change shape when the product is being emptied so you get a very flexible cone mean no hang up points on rigid walls.



## 1 Off – Flour Receiving Vessel – Installed Over Mixing Bowl

Vacuum receiving filter hoppers of fabricated construction, fully welded in stainless steel gr.304, complete with:

- 100kg Useful product capacity (this can be smaller or larger to suit the clients application)
- Reverse jet filter head assembly with stainless steel gr.304 contact parts
- Reverse jet cleaning cartridge filter of pleated polyester T108 anti-static media
- Filtration velocity: 1.38m/min
- Reverse jet sequence controller c/w fittings for pneumatically piping to control valves
- Mild steel air plenum assembly with jet tubes and compressed air header bottle
- EVN Explosion quench valve
- 1 Off Tangential material inlet to suit vacuum conveying line
- 3 Off Support feet
- 3 x Shear Beam Load Cells and Junction Box
- Flanged and Bolted Access door
- 60deg' outlet cone
- Fluidised cone
- Vibrated cone
- Hopper - Internal finish: 2B welds ground flush
- Hopper - External finish: 2B welds left as laid, crack and crevice free



The reverse jet filter assembly is a continuously rated filter utilising a reverse jet pulse system for cleaning of the filters while in service. These units have an integrally wired electronic controller for automatic reverse jet pulsing of the filter elements on a continuous cyclic basis. The controller is fully adjustable, allowing for variation of the pulse length and interval time to suit the type of dust and dust load incurred in each application.

## **1 Off – Rotary Valve – Vessel Outlet**

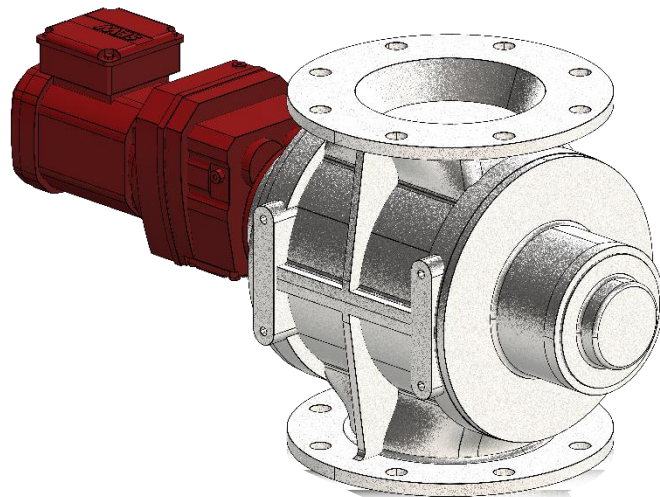
MALD200 DMN Westinghouse Rotary Valve

### **Unit Construction:**

- Body: Precision Machined Cast Iron EN-GJL-250.
- End Covers: Precision Machined Cast Iron EN-GJL-250.
- Rotor: Fabricated Mild Steel, 8 vane adjustable.
- Rotor Blades: Mild Steel replaceable.
- Shaft Sealing: Gland with NBR lipseals.
- Bearings: Inboard, Grease Packed Sealed for Life.
- Drive (Direct): SEW RF47 0.37kw 400v-3ph-50Hz.
- Drive output speed: 14rpm
- Motor Protection: IP65, II3GD. PTC's for inverter control (by others).

### **Additional Benefits:**

- Flanges (Round) drilled PN10.



### **1 Off – Structure to Support Receiving Vessel**

To erect onto assumed concrete floor prepared by others a fabricated steel support frame, manufactured from mild steel and powder coated.

#### **Steel Framework.**

We have currently allowed for the entire framework to be fabricated exclusively from Hollow Section members. Within the above we make the following allowances for steelwork:

- Approximate Dimensions: 1.2m x 1.2m x 3m high
- Full Structural Engineer Design.
- Resin Anchor floor fixings.
- All Connection bolts and fittings.

### **1 Off – Transmission Piece from Rotary Valve to Mixing Bowl (or other equipment existing)**

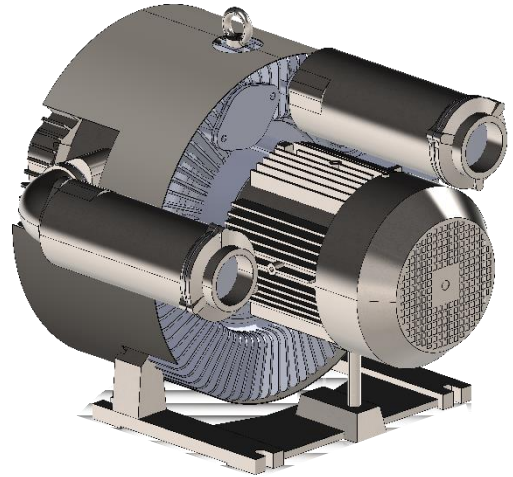
To be bolted to the outlet of the Rotary Valve under the Receiving Vessel, the transition piece will allow for product to be discharged into the mixing bowl or other existing equipment. Made from stainless steel gr.304, it will have a dust extraction point that can be connected to the customers local extraction if necessary.

- Approximate Dimensions: 200mm Diameter x 500mm high with 800mm Diameter plate to suit mixing bowl.
- All Connection bolts and fittings.

### **1 Off - Side Channel Exhauster**

Direct Driven Side Channel Exhauster, manufactured of cast aluminium construction, complete with:

- Inlet filter
- Inlet silencer
- Outlet silencer
- Vacuum relief valve
- Pressure transmitter
- Direct mounted motor 5.0kW, (415v,3ph,50hz)



### **1 Off – Set of Conveying Line – from the Silo to the Receiving Vessels**

Stainless steel gr.304, 50.8mm o/dia' x 1.6mm wall, welded tube with smooth, crack and crevice free internal finish and standard mill finish, comprising:

- 6 Metre random straight lengths as required to suit stated conveying route
- Long radius bends – 8 x diameter radius
- 3 Bolt, Galvanised steel, Morris pipe coupling joints c/w white food grade seal and stainless steel continuity strip
- Galvanised Unistrut pipe supports as required
- M5 hydrophobic pleated air inlet filter