

MaxiStore® Bridge Distribution System



Utilisation of Space that Maximises Profit

Introduction

Schenck Process Group, are leading providers of feeding, automation and bulk solids handling solutions.

With a global network of sites and competent partners, the name Schenck Process is synonymous throughout the world with process expertise and well-engineered measuring technology for industrial weighing, feeding, conveying, screening, automation and air filtration technology.



Our philosophy is based on...

- ❖ Continuous product development
- ❖ Best practice approach to applications
- ❖ Raising industry standards



Capabilities

- ❖ Single machine
- ❖ Multiple machines
- ❖ System solutions
- ❖ Installation & commissioning
- ❖ Plant layout & integration
- ❖ Engineering & contract management
- ❖ Professional customer service approach

Industries

- ❖ Power, Coal, Steel, Cement, Mineral, Chemical, Grain Processing, Brewing/Malting, Flour/Feed, Food, Particle Board, Recycling, Waste Water Treatment

The Schenck Process Group develops, manufactures and markets a full range of solutions, products and turnkey systems on the basis of combining process engineering expertise, reliable components and field-proven technology.

Members of the Schenck Process Group are:

clydeprocess
schcnkprocess group



schcnkprocess



redler
schcnkprocess group



macprocess
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schcnkAccuRate



stock
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pentec
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screenex
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fairfield
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Flat Store or Silo?

The use of a flat store is virtually self selecting when considered against a number of criteria.

- ❖ High throughput volume.
- ❖ Throughput of different types and qualities of product.
- ❖ The need to keep them segregated.
- ❖ Storage characteristics of the material which make it difficult and or expensive to reclaim material from silos.
- ❖ The photograph shows how the material 'stands up' and creates almost vertical walls illustrates this point.



- ❖ Cost, where floor space is not a problem then the flat store provides an economic solution as opposed to the alternative silo arrangement.
- ❖ The overall operational philosophy of such a plant and its equipment is well established and very practical which simplifies control methods. Plant maintenance is simplified and personnel readily assimilate the operational requirements.

MaxiStore®

Economic Filling of Bulk Flat Stores



Flat Store Building Design

Design 'A'

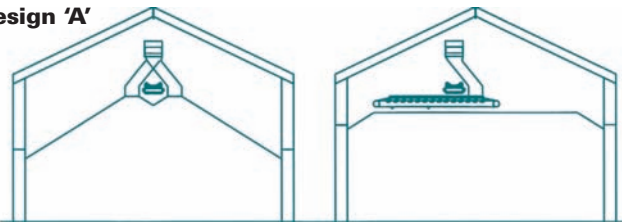
- ❖ Traditional buildings used for bulk storage consist of a portal or 'A' frame type building see design A - with high apex roof having a tendency to restrict its width. The high apex roof is required to accommodate the overhead belt conveyor systems, comprising a conveyor fitted into the apex of the roof with a tripper type discharge or a reversible shuttle type.
- ❖ A major disadvantage is the dust nuisance as the product drops from the roof level, which may demand the fitting of an expensive discharge chute with dust suppression features.
- ❖ This design of building tends to be significantly more expensive due to all machinery loads being taken from the roof structure.
- ❖ Alternatively with buildings having a high apex roof its possible to use a central conveyor in the apex of the roof, in turn feeding a shuttle situated across the building.

Design 'B'

- ❖ The MaxiStore® however is suited to a portal frame building having a low pitch roof, resulting in a greater width, maximising storage capacity.
- ❖ Design 'B' illustrates the typical arrangement.
- ❖ An additional feature of the system is its ability to be economically fitted into an existing low profile building as a retrofit arrangement.
- ❖ Due to the machinery loads going down the wall structure of the building and not the roof Design 'B' gives a significant building cost reduction in comparison to Design 'A'.

Flat Store Building Design

Design 'A'



Design 'B'



Feeding the MaxiStore®

Material feed to the bridge conveyor is by means of conventional forms of belt conveyor with two different arrangements available:

- 1) The unit incorporates a belt conveyor mounted at low level on the sidewall along the whole length of the store and is fed from the outside of the building at the tail end of the belt conveyor. The belt conveyor is fitted with a travelling belt tripper that is attached to and moves with the bridge structure. Thus the bridge can be fed at any point along the length of the store. This option is normally used for systems within existing buildings.
 - 2) This system utilises a travelling and reversible shuttle conveyor mounted along the sidewall of the store. However this time it is fed from outside the building at the mid point in the store. The length of the shuttle is approximately half the length of the store and feeds directly onto the bridge from either end. The MaxiStore® is automatically attached to the selected end of the shuttle and then moves with the shuttle to fill one half of the store. To fill the other half of the store the bridge is un-coupled and then re-coupled to the opposite end of the shuttle.
- ❖ All functions on both systems are carried out automatically from the central control room.



MaxiStore® En-Masse Bridge Conveyor Distribution System



Filling The Store

The most significant component of the MaxiStore® is the En-Masse Conveyor that sits within the bridge structure. This form of conveyor offers two unique features:

- ❖ It is fitted with multiple outlets, at close pitch along its full length. This allows material that is discharging from the first outlet to build up to the extent that it blocks the outlet. The material in the conveyor then flows across the top of the material already in the first outlet to the next outlet and discharges.
- ❖ Thereafter as the material builds up in the second outlet the function is repeated. This action is automatic and does not cause any material compaction and continues until all the outlets along the length of the conveyor are filled - See design C.
- ❖ The discharge from the final outlet continues to be monitored by level switches. When the high level switch is operated the bridge is automatically and incrementally moved forward to a new position where the material then discharges again from the first outlet point.
- ❖ The process of discharge then repeats itself with material building up to and blocking the first outlet, then the second outlet and so on.
- ❖ The depth of material that is readily carried within the En-Masse conveyor is approximately (6) six times the depth of the chain that moves the material, the material moves as a column within the casing - See design D

Store Reclaim

- ❖ Material reclaim normally by front end loader
- ❖ Discharge to road vehicles
- ❖ Vehicle weigh in/out principal
- ❖ Option for front end loader to have an onboard weigh load indicator

Control System

- ❖ Fully automatic system
- ❖ Fully integrated design
- ❖ System design integrated into main facility control and operation

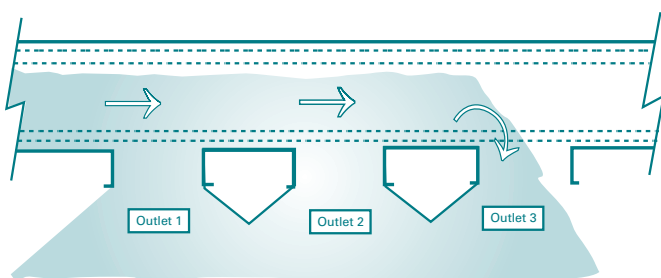
Environmental

- ❖ Totally enclosed chain conveyor design
- ❖ Dust suppression on shuttle interface points
- ❖ Minimal dust generation and material degradation

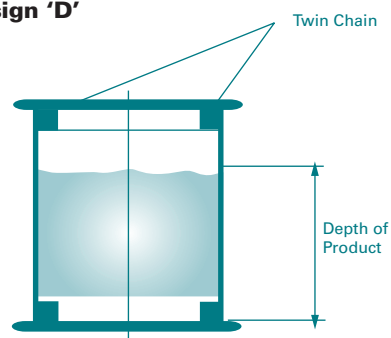
Application Features

- ❖ This method is well suited to the use of flat stores for the handling and storage of animal feeds with their inherent characteristics of creating near vertical faces to the piles
- ❖ The system would also suit the handling of materials with similar handling characteristics such as minerals and coal
- ❖ Rates in excess of 1000tph could be achieved dependant on the overall application requirements

Design 'C'



Design 'D'



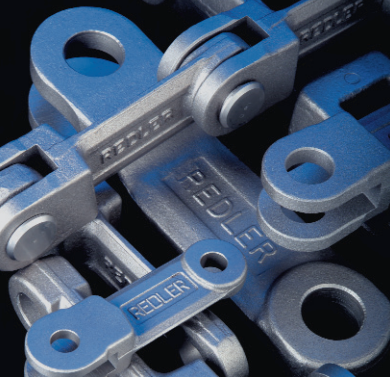


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Benefits of the MaxiStore®

- ❖ Maximises storage space within flat store buildings.
- ❖ Cost effective compared with other storage methods.
- ❖ Fitted within traditional and common forms of structural buildings.
- ❖ Employs only well proven forms of equipment.
- ❖ Installation is quick and easy.
- ❖ High environmental status and features.
- ❖ Fully automated.
- ❖ Low level of operational and maintenance staff required.
- ❖ Single or multiple material storage readily achieved.
- ❖ Simple form of reclaim direct to road vehicles.





FloMaster®

Circular Bin Discharger

- ❖ Fitted beneath circular silos or bins
- ❖ Positive discharge of difficult materials
- ❖ No bridging or blockage at the silo outlet
- ❖ Compact construction
- ❖ Versatile in material control
- ❖ Single, Two or Three Stage units
- ❖ Totally enclosed
- ❖ Safe/good access for maintenance

Other Schenck Process Technologies



IntraBulk®

Bulk Reception Unit

- ❖ Above ground intake
- ❖ Feed from road vehicle or loader
- ❖ Fast vehicle turn around time
- ❖ Can act as a buffer store
- ❖ Controlled discharge into process
- ❖ Modular heavy duty construction
- ❖ Quick installation & commissioning



FulFiller®

Container Loader System

- ❖ Modular portable unit
- ❖ High speed filling of containers
- ❖ Maximises available storage capacity
- ❖ Meets logistics industry criteria
- ❖ Safe/good access for maintenance



MoveMaster®

Conveyors & Elevators

Where industrial processes require materials to be transported horizontally, vertically or up inclines, Schenck Process select the appropriate equipment based on a careful analysis of each specific set of conditions within the process.

- ❖ Capacities 1-2000 tonnes per hr
- ❖ Worldwide references



PortBulk®

Mobile Reception Hopper

- ❖ Portside applications
- ❖ Grab entry into hopper
- ❖ Integral dust suppression
- ❖ Heavy duty construction
- ❖ Outloading to vehicles
- ❖ Outloading to transfer system

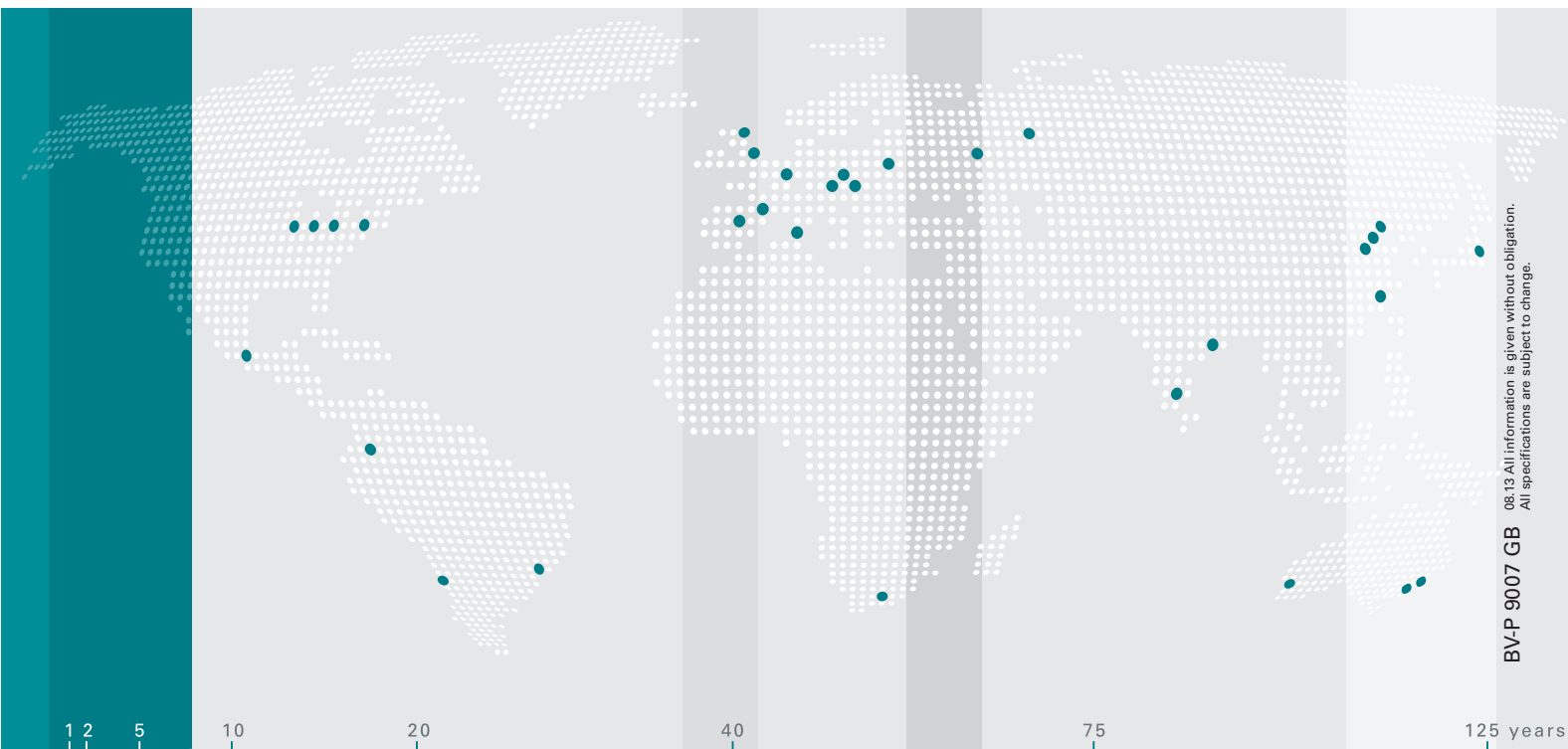
weighing

feeding

conveying

filtration

automation



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