

Bulk Grain Technologies



Systems, Equipment and Services

we make processes work

Bulk Grain Technologies: Introduction

90 years of bulk materials handling expertise means Redler® are able to offer innovative and comprehensive system designs for bulk grain applications.

Whatever your requirement, wherever it is required, Redler® can help.

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

The Schenck Process Group are global market leaders for solutions in measuring and process technologies in industrial weighing, feeding, screening and automation.

Always close to customers, with an unrivalled global network of operating companies Redler® are your competent global partner for weighing, feeding, screening and automation solutions throughout the process industries.



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:

schenckprocess  redler 
schlenkprocess group

schenckAccuRate  stock 
schlenkprocess group

screenex  fairfield 
schlenkprocess group

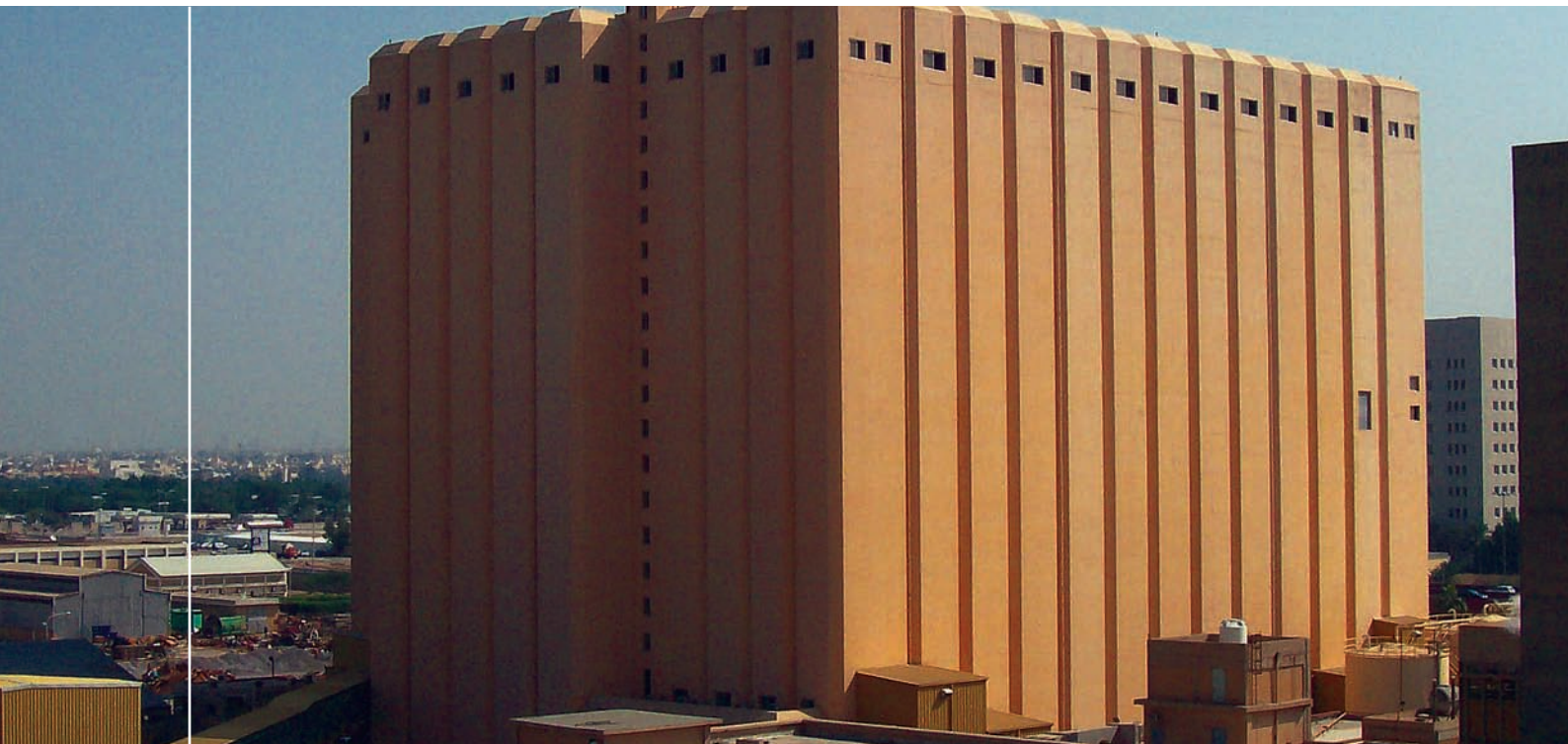
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Bulk Grain Technologies: Capabilities

Redler® is much more than a bulk materials handling equipment supplier. Their experience and expertise provides a full range of services including -

- ❖ Single Machines & Machine Systems
- ❖ Turnkey Plants
- ❖ Plant Upgrades & Refurbishment
- ❖ Consultancy & Feasibility Studies
- ❖ Mechanical & Electrical Design
- ❖ Contract Management & Installation Services



Bulk Grain Technologies: Intake

Land

Intake from road and rail are a vital part of any grain processing facility.

Understanding and controlling the potential risks associated with the intake of material with an unknown condition is critical to protecting the operation of the whole plant.

Rugged and robust designs are essential and Redler® systems meet this challenge.



Road & Rail

Redler® supply intake systems to suit different sizes and designs of road vehicles, a range of transfer capacities and methods of operation.

The high capacity unloading systems are supplied based on proven equipment designs to ensure high process availability.

Below ground or surface mounted (Redler IntraBulk®) options can be offered for truck unloading, each conforming to the highest standard of safety and environmental protection.

The design of transfer equipment and systems to remove foreign matter ensures reliability in operation.

Additionally, Schenck Process weighing technology can be incorporated in the intake area to provide additional functionality.

Grab Crane Hoppers

Some Portside and inland sites use grab cranes to intake grain and derivatives.

Redler® supply custom designed PortBulk® mobile hoppers, to facilitate high capacity unloading complete with integral weighing where required, while ensuring low dust emissions.

Redler® designs are tailored to suit the crane to be used and the onward transfer - either into trucks or directly to belt or chain conveyors.

Bulk Grain Technologies: Intake

Sea

Bulk sea freight offers the best method of receiving large volumes of grain, but shipping costs necessitates high capacity, high reliability unloading systems.

Working with specialist European Alliance Partners Redler® can offer a variety of unloader / loader designs each with advantages in particular applications.



Mechanical

For the highest capacities, the mechanical ship unloader offers low operating costs with high reliability and efficient unloading of the largest vessels.

The unloading leg is based on a high capacity en-masse elevator of the type originated by Redler®.

Pneumatic

Ideal for medium duty capacities and final “clean out” of holds, pneumatic unloaders have lower capital costs and can be installed in a smaller footprint making them appropriate for more congested Port areas and smaller vessels.

Screw

An alternative design of unloader uses a vertical auger to lift grain from the hold and is suitable for high capacity unloading of grain and derivatives

This type of machine can offer high transfer capacities in a relatively low weight unit, reducing the need for jetty modifications.

Bulk Grain Technologies: Storage

Silo Storage

For most grains, vertical silos offer an effective way of storing material until it is required in a downstream process or is due to be transferred elsewhere. Careful consideration of the overall design of a silo complex will ensure that operations are safe, reliable and allow for simple maintenance.

The correct selection of the silo construction material will reflect the site climate and the intended operation of the facility.



Concrete Silos

For longer term storage of grain in more aggressive climatic conditions, concrete silos are preferable as their inherent temperature stability reduces the risk of grain overheating without expensive ventilation.

The design of concrete silos requires specialist civil engineering knowledge and Redler® cooperates with partner companies who have an extensive understanding of the necessary designs.



Steel Silos

Silos constructed from steel offer a relatively quick erection time and lower capital cost for a given storage capacity and can be supplied with either hopper or more commonly, flat bottom design.

If flat bottomed silos are selected, it is important to use a sweep discharger that has been correctly sized for the duty and a suitably sized aeration system to ensure reliable discharge.

Redler® operate closely with a number of European Steel Silo manufacturers to design fully integrated silo storage systems complete with the necessary elevators and conveyors for loading, recirculation and reclaim.

Bulk Grain Technologies: Storage

Flat Storage

A flat warehouse is often the best solution when considering storage to suit -

- ❖ High volumetric throughputs
- ❖ Different types and qualities of material that require segregation
- ❖ Materials with poor or variable handling characteristics that make reclaim from a silo difficult (for example meals)



Flat Storage

In such cases a flat store served by a Redler MaxiStore® system offers a particularly economic method of storing materials as the system allows high efficiency with fully automated loading using significantly more of the building volume than typically achieved with traditional systems.

Photo below illustrates the MaxiStore® distribution conveyor connected to the reversing shuttle belt ready to fill the storage area.



Bulk Grain Technologies: Transfer and Handling

Transfer & Handling

The correct equipment selection both in terms of type and design is vital to the successful operation of a bulk grain facility.



Chain Conveyors

Redler® are the originators of the en-masse conveying and elevating system and have unrivalled experience in handling all types of grains and meals in this type of compact, relatively low power, gentle conveyor.

The slow running speed and fully enclosed design offers reduction in material degradation, whilst also offering safety and environmental advantages over other conveyor types.

Redler® have machines operating in thousands of sites around the world at capacities up to 2000 tonnes per hour.

Belt Conveyors

For high capacity, long distance, single outlet conveying, correctly configured belt conveyors offer an economic solution.

Redler® supply belt conveyors to suit capacities up to 2000 tonnes per hour and supply these with the necessary safety and dust control features to ensure safe, hygienic and reliable operation.

Bucket Elevators

Redler® supply belt & bucket and chain & bucket elevators in a wide range of capacities in heights in excess of 75m.

The machines are fitted with safety monitoring and dust explosion protection features to ensure reliable and safe operation

En-masse Elevators

As an alternative to belt & bucket elevators, Redler® are able to supply Elevators based on the same en-masse principle used in their chain conveyors.

These allow grain to be moved gently either vertically or both horizontally and vertically in a single machine which significantly reduces the space required for the transfer equipment.

Bulk Grain Technologies: Process Systems

Process Systems

Most bulk grain handling will require some form of “pre-processing” before it is transferred to a downstream process or off site.



Bulk Outloading

If grain is held in a silo, it will either be transferred directly to a process on the same site, or will need to be outloaded to allow transfer to another site. Redler® design and supply tailor made systems for loading of ships, barges, road and rail vehicles at high capacities.

Weighing

Weighing of grain on intake or outload from a grain silo is important for material stock management and a number of techniques are possible.

The most commonly employed method for intake is the continuous bulk scale system which gives reliable accuracy at high throughputs.

Redler® work with reputable European equipment manufacturers to ensure the essential reliability of this element of the system.

Cleaning

The condition of grain entering a silo or mill complex is often not known and precautions must be taken to remove all types of foreign matter prior to storage, onward transfer to process or outloading.

Redler® design and supply various configurations of magnetic metal removal and grain screening systems to suit the different physical and operational requirements of the site.

Dust Control

It is essential to control the dust present or generated at all stages of a grain handling and processing system. This includes reduction of dust emissions at intake points such as road tipping and aspiration of dust on handling and processing equipment to reduce environmental and safety risks.

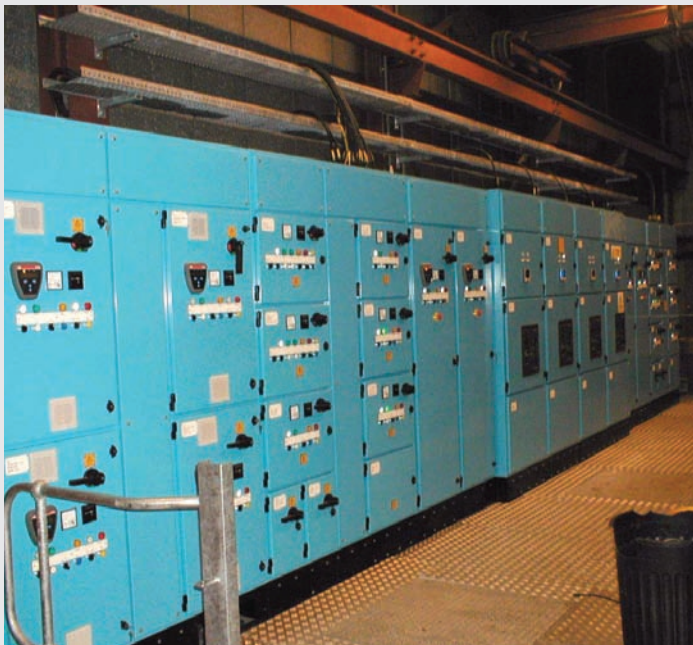
Redler® have extensive experience in correctly designing and supplying dust extraction, filtration and disposal schemes.



Bulk Grain Technologies: Automation

Automation

The successful and reliable operation of a bulk grain facility requires not only good overall design and high quality equipment, but also reliable & flexible system control automation.

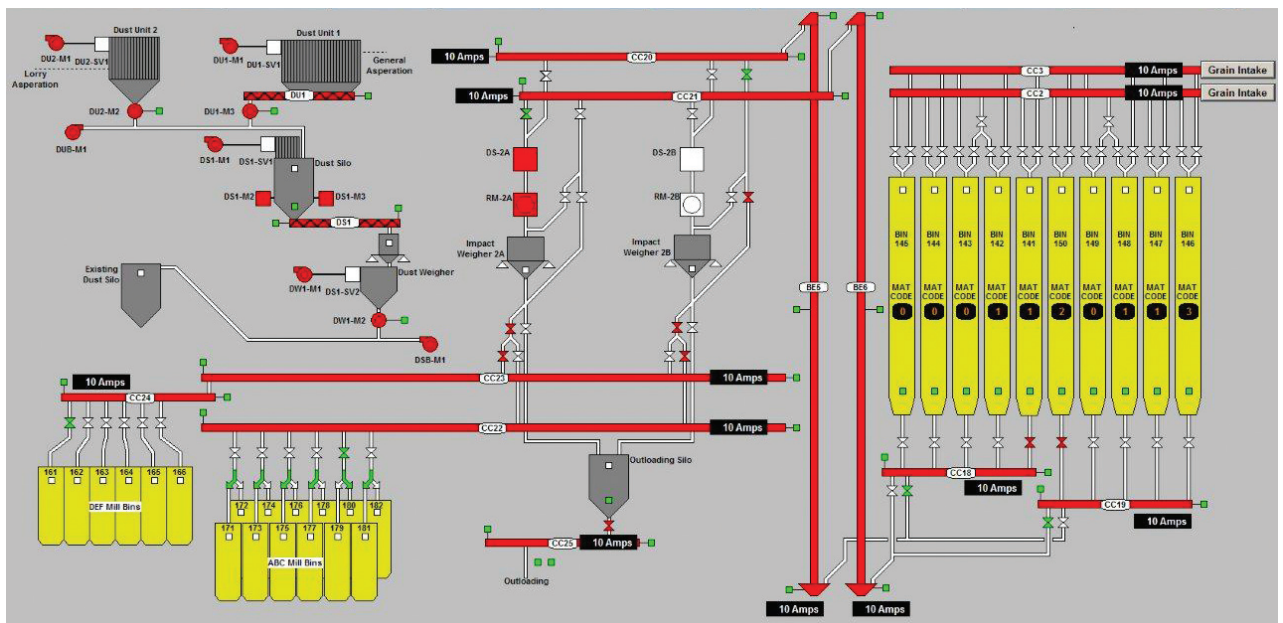


System Controls

Redler® supplies control systems using the latest designs of PLC and SCADA controls, inventory management systems and external system communications.

The Redler® in-house electrical engineering team are also able to upgrade control systems on existing plants to bring them into line with latest designs and link them into new systems where required.

Redler® are experienced providers of all types of monitoring & control equipment involved in grain silo system management, dust explosion protection / grain storage condition and can effectively design to meet or exceed the relevant regulations required on any project.



Bulk Grain Technologies: Design & Contract Management

Design & Contract Management

No project will be successful without a professional approach to the detailed work inherent in every phase and an ongoing commitment to working closely with the other contractors involved. Many Redler® employees are long serving, bulk materials handling experts who bring that level of professional pride to every job they do.



Project Management Services

Redler® are competent project managers for all levels of bulk materials handling projects from the installation of single machines to complete storage silo and processing plants.

Redler® contract managers have both bulk materials handling knowledge and the relevant understanding of the latest project management techniques to ensure smooth progress of any job.



Design & Procurement

Redler® engineering and procurement departments are specifically organised to ensure 'right first time' support for any grain system project with many years of design experience and the worldwide buying power to guarantee the correct equipment is delivered on time, every time.



Site Services

Redler® site engineers are fully experienced in a wide range of bulk materials handling equipment and systems. They are familiar with working at sites across the world, whether they are installing or commissioning new facilities or servicing existing installations.

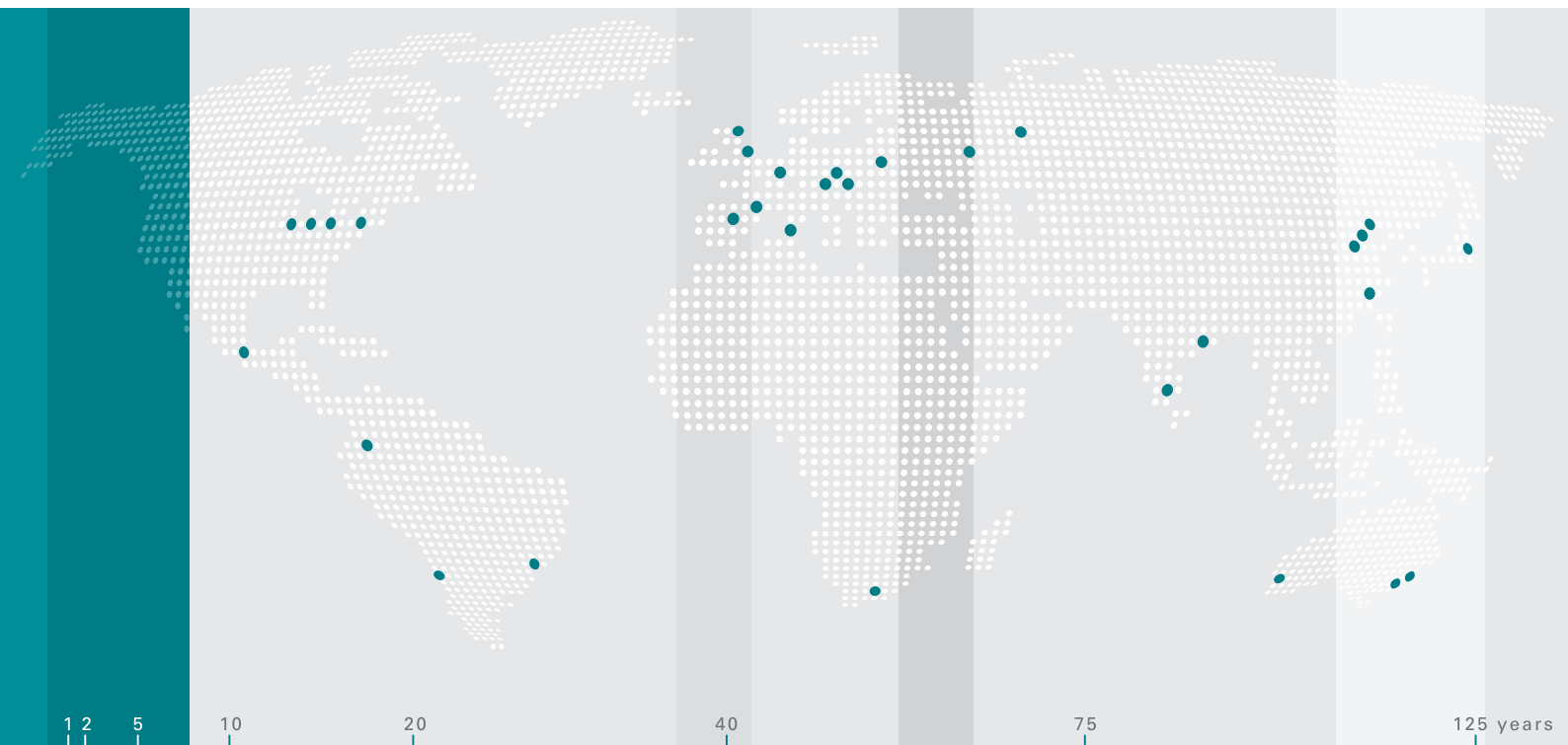
They are backed up by the Redler® Customer Service Team who are able to offer comprehensive technical support and source spare parts for any previously supplied Redler® machine together with many other suppliers equipment.

weighing

feeding

conveying

automation



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