SIMEZA SILOS

Every storage or processing plant for staple crops, such as flour mills, feed mills, oil mills, rice mills, malting plants, breweries, etc., requires different types of silos.

The correct choice is mainly conditioned by the design of the storage plant, which is the starting point and guiding line for the selection of the equipment to be integrated into it.

Depending on the type of product to be stored, the SIMEZA silo catalogue offers a range of capacities from 8 to 25,000 m3 and they are organised according to the following typologies:

01 FLAT BOTTOM SILOS **FBS**

SIMEZA flat bottom silos are designed for agricultural, industrial, commercial, and strategic applications such as farms, supply facilities, port terminals or any industrial plant in whose production the grain is used as an element, such as mills, feed mills, rice mills, oil extraction and biofuel plants.

Flat base silos are especially useful in applications where long-term storage of grain, corn, soybeans, rice, oilseeds and any other granular material with a good discharge flow. The flat base ensures uniform and stable product storage, and the cylindrical design helps to reduce the accumulation of grain in one area.

SIMEZA offers a wide range of Flat Bottom Silos, from 4.6 to 32.10 metres in diameter and a storage capacity per silo from 80 to 25,000 m3 per silo.

02 HOPPER BOTTOM SILOS **HBS/HBS-S**

SIMEZA hopper bottom silos are designed for agricultural, industrial, commercial, and strategic applications such as farms, agricultural cooperatives, drying plants, supply facilities, seed grading centres, malting plants, or any industrial plant in whose production grain appears as a raw material to be processed.

The conical shape of the silo helps to ensure complete discharge of the product and prevents material from remaining in the base of the silo. They are particularly useful in applications where rapid discharge of product is required, such as food processing plants, feed mills, mills, biofuel plants and anywhere efficient storage and discharge of bulk materials is needed.

They are designed with two types of hoppers (45º or 60º inclination) and support structure, depending on their use and the product to be stored.

CONICAL BOTTOM silos are used for short term storage of cereals, corn, soybeans, rice, and are also ideal for products that tends to segregate or separate, such as oilseeds or powdered materials, such as flours.

SIMEZA CONICAL BOTTOM silos cover a wide range of models from 3.1 to 12.2 metres in diameter and from 14 to 2,500 m3 individual capacity.

SIMEZA

TORNUM®

SIMEZA is one of the pioneering companies in Europe in the design, production, and installation of corrugated steel sheet silos for industrial, agricultural and livestock uses.

SIMEZA silos have a modular design, which facilitates their assembly. In addition, the high-quality standards of the materials used in their construction make them highly resistant to all types of environments, guaranteeing the long-lasting conservation of all types of grains.

***SIMEZA silos have a storage capacity of 8 to 25,000 m3**

360 DEGREE SOLUTIONS
FOR YOUR STORAGE

#EVERYWHEREINTHEWORLD

SILOS METÁLICOS ZARAGOZA S.L.U.

Autovía de Logroño, Km. 14,3
C/ Francia s/n
50180 Utebo (Saragossa)
Spain

T. +34 976 126 060
simeza@simeza.com

SCAN AND DISCOVER SIMEZA

www.simeza.com

PRODUCT CATALOGUE

SIMEZA
PART OF TORNUM GROUP

SILOS

360 DEGREE SOLUTIONS FOR YOUR STORAGE

#EVERYWHEREINTHEWORLD

ABOUT SIMEZA

SIMEZA has been manufacturing storage silos for cereals, flour, and other industrial products for more than 45 years. It is one of the pioneering companies in Europe with proven experience in the design, production, and installation of corrugated steel sheet silos for industrial, agricultural and livestock uses.

The storage of grain in cylindrical silos made of corrugated steel sheet guarantees perfect conservation and, together with the specific accessories in our catalogue, also excellent ventilation, and management of the stored material, greatly reducing the factors that degrade or reduce the quality of the grain. SIMEZA silos are designed in a modular way, which means that they can be assembled quickly and easily; in addition, the high-quality standards present in the materials used in their construction make them highly resistant in all types of environments, guaranteeing the long-lasting preservation of all types of grain.

THE 360º SOLUTION FOR YOUR STORAGE is the great value proposal that we have been implementing since 1975. The extensive experience and in-depth knowledge of our team, combined with the quality of raw materials and a desire for constant improvement, make up the DNA of our company, and providing global solutions to our customers is our daily inspiration.

The market is the investor's benchmark, and the steel silo market is always moving towards higher technical specification, larger dimensions, more reliable performance, shorter delivery time and extreme product flexibility regarding customer requirements.

SIMEZA is immersed in a determined process of expansion, with the clear objective of transforming the former family business into a company focused on the international market, able to offer its product and services to customers all over the world.

Thanks to the close collaboration with world leading companies in the field of storage, processing and distribution of grains and seeds, SIMEZA is positioned as one of the companies with the greatest capacity for growth in the near future.

SIMEZA is aimed at companies involved in export and import activities and investors in large grain terminals (inland or port) in the context of international trade.

The scope and operation of these terminals, together with the experience of these inverters, are requiring silos with much more stringent specifications than those of agricultural plants, and a size and design concept that allows high performance, reliability, and easy operation of the installation.

This type of investor is one of SIMEZA's new customer profiles, which is why the company has been investing for years in new human resources, mainly of a technical and commercial profile, in order to correctly satisfy all their needs.

Today, we can find installations produced by SIMEZA in dozens of countries, throughout the five continents (Africa, the Middle East, Russia, South America, Eastern Europe, and East Asia), among many other territories.

"The experience demonstrated over the years together with a strong commitment to excellence, make SIMEZA silos synonymous with a quality product and today our team and our customers can be proud to show our work all over the world"

A silo as such is not an independent section of a plant, whether it is for agricultural or industrial use. It is a component that must be equipped with various accessories in order to become a section of the plant and therefore allow a complete and safe functionality of the installation.

The **SIMEZA** catalogue includes an extensive list of accessories (in compliance with international safety standards), which can be selected according to the size, scope, or purpose of the installation.

01 FLAT BOTTOM SILOS (FBS)

SILO COMPONENTS (I)

Roof

30° inclination to optimise the silo's storage capacity.

Sheets manufactured from high-strength steel S-450GD or higher, Z-600 (01).

Self-supporting roofs for silos up to 10 m in diameter. For larger diameters they are equipped with a separate support structure.

The roof sections are assembled with galvanised bolts and nuts to guarantee watertightness (02).

It is equipped with a variable inlet flange (03), static ventilation nozzles to evacuate the air inside the silo (04), and an inspection hatch located in the eave for the visual control of the product, the collection of samples and the maintenance of the max level indicator (05).

This access is equipped with a resting platform, which can be reached by a vertical ladder installed on the silo wall from ground level, or by a vertical connecting ladder from the upper catwalk (06).

Cylinder

The wall rings are manufactured from high-strength steel and hot-dip galvanised Z-600 according to the Sendzimir process. They can be supplied painted on request.

The plate has a wave pitch of 104 mm and a depth of 12 mm, which reduces grain friction and avoids any residues of stored material (07).

The rings of the silo body are assembled with 2, 3 or 4 rows of bolts, depending on the thickness of the sheet metal and the loads exerted on the silo (08).

The vertical reinforcements are made with sections and joints in standard Omega profile or in reinforced Omega profile with greater width (09).

The base plate is adjusted with double anchoring (mechanical or chemical), or using support shims to compensate the tolerance of the foundation (10).

Wind rings are installed (if necessary), according to the static calculation (11).

02.1 HOPPER BOTTOM SILOS HBS (HBS)

SILO COMPONENTS (II)

Hopper

Manufactured with an inclination of 45° or 60° with a standard outlet opening of 400 mm and ground clearance from 750 to 1400 mm (12).

Supporting structure

A) Metal supporting structure (for diameters from 3,1 to 12,20 metres) (13).

B) Supporting structure made of S-450GD steel and hot-dip galvanised, which allows the installation of wide machinery under the hopper. Compression ring (14) connecting cylinder and cone fully optimised in S-275JR steel and hot-dip galvanised.

C) Cylinder wall reinforced with special metal ring, at the intersection of the cylinder with the hopper and the metal structure (15).

D) Possibility to assemble anywhere in the world.

Inspection doors

The Flat Bottom Silos (FBS) are equipped with a side access door on the second ring with double hinges and built-in hot dipped galvanised steel frame. This door is designed according to a safety concept that only allows it to be opened in case the product level is below its position (16).

The doors installed on SIMEZA silos allow, among other things, easy access into the silo, the final cleaning of the silo and aeration channels and the control and maintenance of the sweep auger.

An additional side door with the same characteristics can be installed at the height of the natural slope or according to the customer's needs (17).

The Hopper Bottom Silos (HBS) are equipped with an access door in the cone which can be reached by a mobile ladder or directly from ground level (18).

02.2 HOPPER BOTTOM SILOS HBS-S (HBS-S)

SILO COMPONENTS (III)

Supporting structure (skirted solution)

A) Self-supporting inner hopper (diameters up to 5.30 metres) (19).

B) Inner hopper with supporting structure (diameters from 6,10 to 12,20 metres) (20).

C) Inner hopper and support structure made of S-450GD steel, hidden by the silo wall itself (20).

D) Extended corrugated walls of the silo itself, reinforced at the bottom (21).

E) Quick assembly, without crane, the silo is lifted like a flat bottom silo, by means of jackings.

Screws

The cylinder sheets are assembled with high strength bolts 8.8 or 10.9, hot-dip galvanised bolt and nut, and with 2 or 3 rows of bolts, depending on the thickness of the sheet metal and the loads acting on the silo (22).

INNOVATIONS AND ADVANTAGES OF THE SIMEZA HBS-S

01 Simplified statics and therefore more reliable.

02 Simpler foundation, concrete plate instead of ring foundation.

03 No need of crane or formwork.

04 Assembly always from the ground.

05 Space available under the silo.

06 Electrical equipment installed in an enclosed space.

SILO ACCESORIES

Ladders and steps

The silo filling must guarantee safe access to the roof and the inspection window in order to control the stored material, therefore each installation must be equipped with ladders and stairs that allow easy and safe access to the conveyor bridge or inspection platforms.

Platforms

Made of steel, they are installed for product inspection or as resting places along the stairs/stairs to comply with safety standards.

Catwalks (for conveyors and maintenance)

They are designed to support the weight of the structure, mechanisation, product and/or additional loads due to maintenance, wind, or snow. All models are equipped with widened platforms near the motors and conveyor drive unit, allowing adequate space for maintenance of the conveyor. For capacities up to 600 t/h, the catwalks are modular with open type frames, while for high capacity and heavy-duty conveyor systems, they are modular and lattice framed.

Level indicator

The control of the upper level of the stored mass allows an efficient operation of the silo control system. The max level detector is a standard accessory for all silos, while the min level detector is standard for HOPPER BOTTOM silos.

Temperature control

To avoid deterioration of the stored product, the silos can be equipped with a temperature control system, which includes a set of probes suspended from the roof, equipped with sensors that monitor the entire mass of the stored product, as well as a software that operates and controls the entire plant, which can be installed on any computer, laptop, or tablet. This software allows the configuration of the temperature alarm for the entire system, and even for each sensor individually, the programming of the monitoring time, the configuration of an alarm for excess temperature to allow a quick reaction and prevent the possible deterioration of the grain, and/or the possibility of the automatic launch of the fans from a smart device from anywhere.

Roof aeration domes

To compensate for the volume of incoming product, the silo roofs must be fitted with aeration domes to allow air to be expelled during the filling process. The same flow, but in reverse, is also required when emptying the silo. The aeration system includes the supply of aeration domes (even additional), which allow a homogeneous exhaust of the incoming air without creating any negative pressure.

Exhaust fan

The exhaust air from the internal stored material, as a result of ventilation, is usually warm and humid, and may condense on contact with the lower and inner part of the roof, which is normally at a low temperature. The water resulting from this condensation can fall along the sloping roof and affect the upper part of the stored product on the periphery of the silo.To prevent this SIMEZA has roof exhaust fans to create an accelerated flow of air along the underside and inner part of the silo roof, inhibiting any condensation.

Floor fans

After studying the installation (air flow, pressure, type of grain, environmental conditions, volume, and dimensions), the necessary fan will be determined, which may be medium or high pressure.

Sweep Augers

Flat Bottom Silos cannot be completely emptied by gravity. For this residual product, sweep augers are installed at the base of the foundation that allow the radial dragging of the product towards the central outlet.

Gravity side discharge

The silos can be equipped with elements installed on the inside wall, which allow the lateral discharge (by gravity) of a large part of the product into trucks or conveyors.

Grain velocity reducer

In some processes, the seed cannot contain damaged/broken grain, as this would affect germination. To avoid the impact of the grain against the bottom of the silo, or against the stored grain, the silo can be equipped with a fall velocity reducer, which is installed along the inner wall, and which prevents breakage and helps the grain to reach its final destination, smoothly.

Perimeter handrail and roof ladders

Its function is to increase safety in roof maintenance tasks, and to facilitate easy access to the centre of the roof in the silo, from a platform located in the eave.

Fumigation roof

Designed to prevent any leakage of fumigant gas through the roof gore joints, and the roof-cylinder joint. In addition, they incorporate brackets for roof extractors, equipped with electronic shut-off valves.

Cylinder and/or roof insulation

SIMEZA has a silo insulation system suitable for products that easily change their chemical composition, such as processed rice or white maize, or for countries with particularly hot climates.

Pre-lacquered option

SIMEZA offers the option of customising your corporate colour on the silo roofs.