

Storage Silos



Vision

To provide cost - effective, highest quality, technically advanced & environmentally friendly solutions to our client's individual storage requirements in the fastest timescale utilizing the latest designs, materials & through the most efficient administrative & manufacturing procedures.

Company Profile

Originally established as a general engineering company in Ozzano dell' Emilia, near Bologna (Italy) **AGI FRAME** entered the corrugated silo market in the mid 1990's. The ability to fulfill clients varied needs, from the preparation of the initial offer, according to the specific requirements of the client, submission of detailed drawings, even analysis of soil tests to supervision of the erection of the silos if required, have allowed **AGI FRAME** to become one of Europe's largest & respected manufacturers of metallic silos. **AGI FRAME** is now firmly established as one of Europe's largest designers, manufacturers & suppliers of all types of corrugated steel silos for commercial & agricultural applications as well as the ancillary products such as catwalks, ladders, platforms, aeration & temperature sensing systems, towers, & in certain markets, if specifically requested, where necessary, **AGI FRAME** can supply mechanical handling, cleaning, weighing, & bagging equipment. Over the past almost 30 years, **AGI FRAME** has supplied silos throughout the world & is now a preferred supplier to many of Europe's leading manufacturers of grain processing equipment as well as some of the most respected engineering companies in Europe & their locally based agents.

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Highly Skilled & Qualified Workforce

Our Technical Department makes extensive utilization of both Auto Cad & 3D modeling in both project & component design. **AGI FRAME** has a policy of continuously seeking improvements to current designs & manufacturing processes to offer both cost savings to our clients as well as safeguarding environmental conditions wherever possible.

AGI FRAME has been awarded the ISO 9001 Quality Assurance Certification for the design, production and installation of grain storage silos, ensuring that the highest standards are maintained through all stages of the project.



ISO 9001
CERT. N. 6980/0

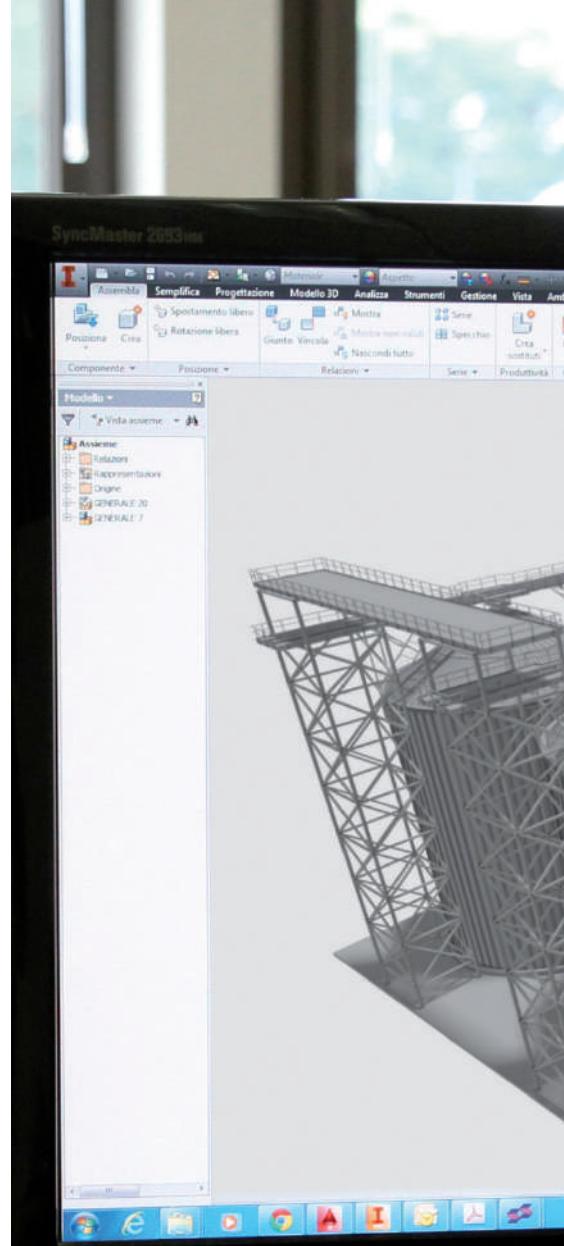


ISO 3834-2
CERT. N. 6979/0



UNI EN 1090-1
N. 0425-CPR-2724

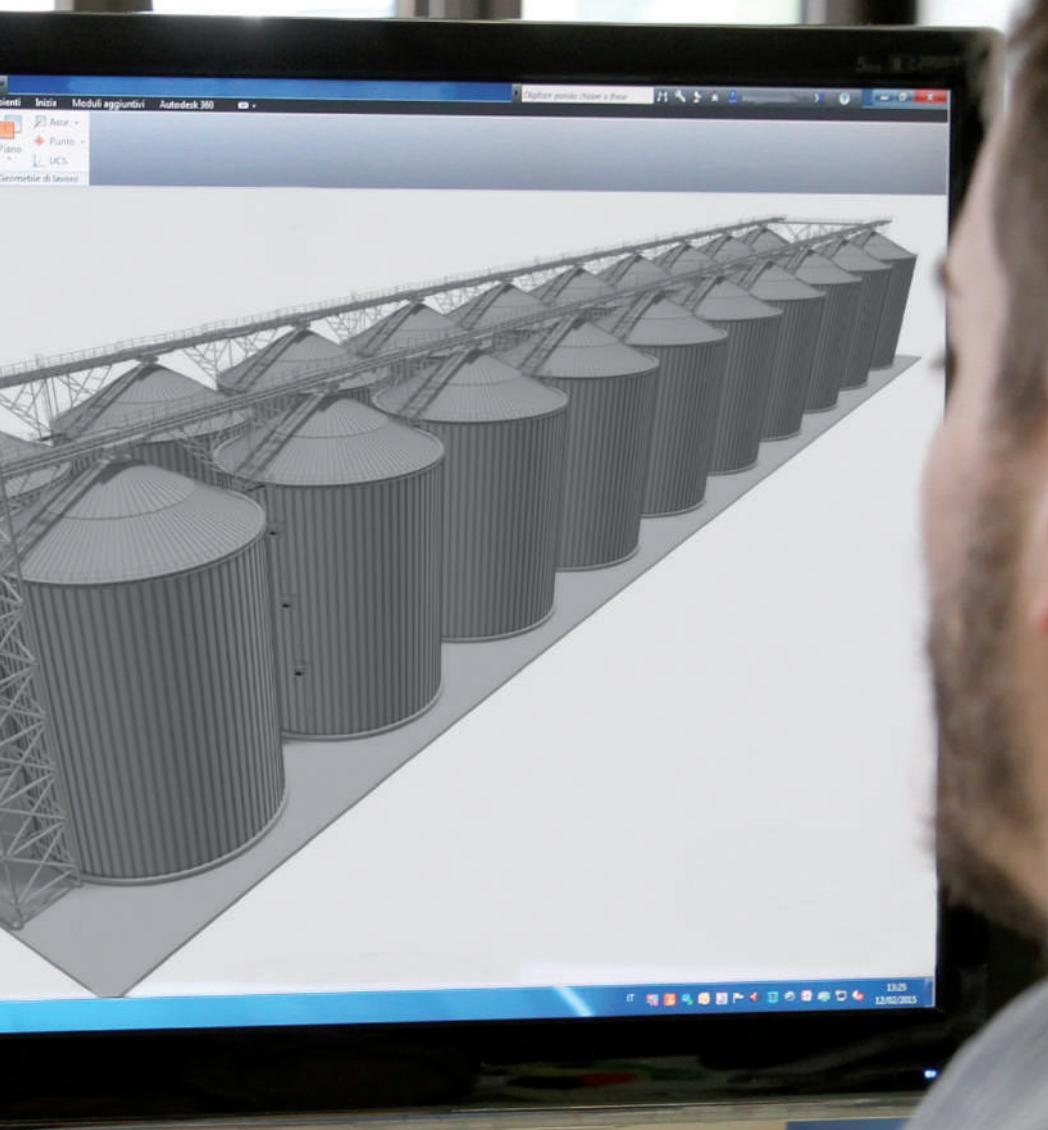
Under the latest EU requirements, any manufactured structural metal components either manufactured or imported into the EU must comply with the CE marking requirements, it is a criminal offence to supply structural steel work within the EU unless it conforms to this standard & carries the legitimate CE mark. **AGI FRAME** have been awarded the necessary certification to apply the CE mark.



The Lab

AGI FRAME have their own laboratory for analysis of both raw material & manufactured components, in addition, quality control & traceability procedures are implemented throughout the manufacturing processes.





Outstanding Features of AGI FRAME silos

The cylinder is constructed from galvanized corrugated steel sheets with profiled external galvanized vertical stiffeners. All components are manufactured using highly automated techniques, ensuring fast & accurate production.

The sidewall sheets and the stiffeners of the bin are manufactured from 0.8 mm through to 6.0 mm galvanized, (standard 600 g/m² steel with a tensile strength up to 470 N/mm² & a yield stress up to 420 N/mm²).

Where necessary laminated sheets are used for greater strength.

The profiled stiffeners carry the vertical load of the silo to the base.

The stiffeners feature strong bolted splice joint plates with a large cross sectional area, critical elements in stiffener design.

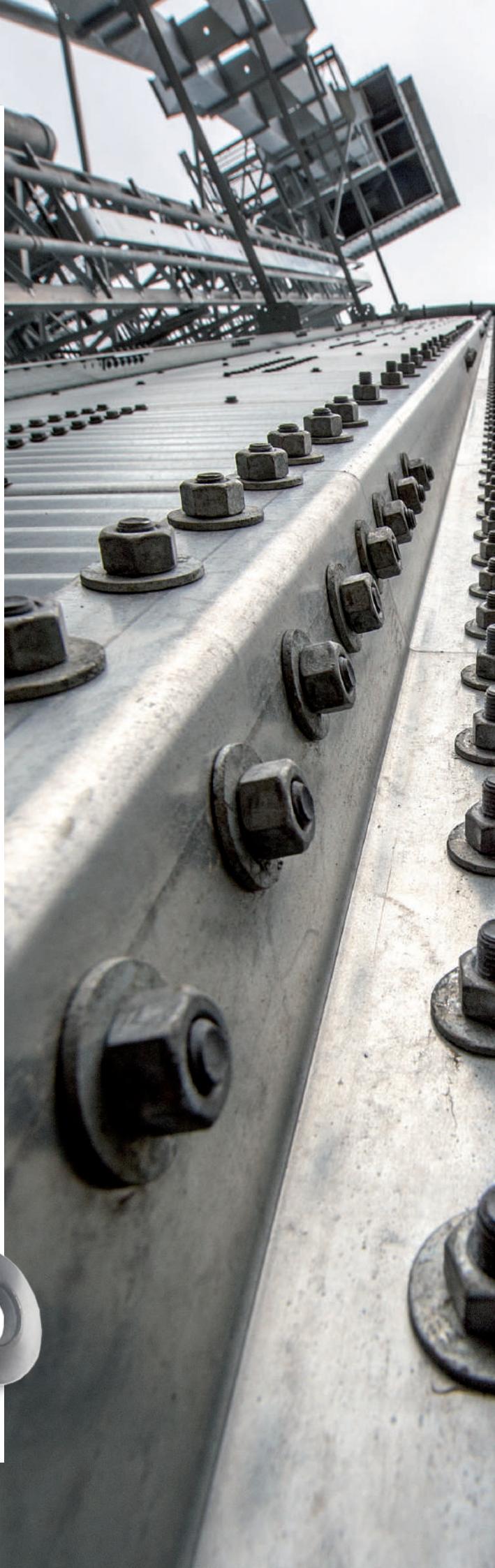
Sidewall sheets are assembled with **AGI FRAME** high strength grade 8.8 bolts, guaranteed against corrosion with a spun galvanized coating.

Rubber coated washers with 'strip' sealant for both horizontal & vertical joints ensure a perfect seal between sidewall sheets & fixings

Suitable for all free flowing cereals including wheat, maize, barley, rape seed, soya beans, rice, etc.

AGI FRAME offer both the FP & FC range of silos according to ASAE/ANSI, DIN or EUROCODE design standards, taking into account the local wind, seismic & snow load requirement to ensure a perfect fit with the specific environment condition and to achieve the longest silo & accessories lifetime.

Foundation drawings, as well as base load and plant design facilities can be provided. A very wide range of accessories for the FP & FC range of silos are offered.





FP Flat Bottom Silos

AGI FRAME can meet all customer's needs, either for Commercial or Agricultural applications, thanks to the wide range of FP Flat Bottom Silos with models from 3.64 up to 32.74 meters diameter. The volumetric storage capacities in excess of 26,192 m³, full details on request. The standard 30 degrees roof pitch ensures maximum storage capacity even with a high angles of repose. The quality of the stored product can be maintained by incorporating a well-designed aeration system with efficient fans and an accurate temperature monitoring system. Suitable for all free flowing cereals including wheat, maize, barley, rape seed, soya beans, rice as well as sunflower, canola, wood pellets. A complete range of accessories can be offered, such as:

- Aeration & temperature sensing systems
- Roof vents (available as standard on silos above FP 18)
- Curved roof vents with remotely operated louvres
- Powered roof vents
- Catwalks in a wide range of widths & specifications to suit the conveyor loading the silos
- Vertical ladders incorporating safety cages, spiral stairways, roof ladders & stairs with double handrails
- Wind rings
- Gravity sidewall discharge and necessary accessories
- Service platforms
- Grain ladders to reduce the risk of damage to the material loaded into the silo
- Snow barriers
- Sidewall 'drive through' unloading facility
- Support towers



Roof Structures

AGI FRAME Silos incorporate a strong roof design. The standard 30 degree roof pitch ensures maximum storage capacity even with high angles of repose.

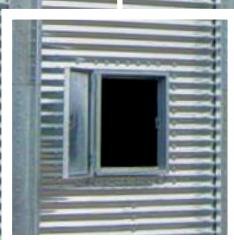
- The roof segments, manufactured from high quality tensile steel, are ribbed & form an exceptionally strong modular roof system; each segment is formed & punched on a fully automated production line
- Each roof assembly incorporates an inspection/access manhole as standard
- An internal galvanized steel structure to accept peak loads up to 15,000 kg. & multiple temperature cable suspension points is offered as a standard on silos above model FP 18, available on request on silos model FP 11 to FP 17.
- The simple design, which allows fast assembly, incorporates galvanized "Z" section beams which are connected laterally & braced in single a-frames to provide stability both during the erection & the use of the silo

The centre cap & inner ring assembly available on model FP 11 to FP 36, provides a large load bearing area to support catwalks & ancillary equipment without the requirement of on-site fabrication. **AGI FRAME** FP Silos can be supplied with a number of different roof vent designs to suit the clients requirements, low profile, curved & powered vents are all offered to fit over pre-punched apertures in the roof segment which incorporate a pre-formed lip with a special gasket to provide a weather tight seal

Easy access sidewall door

All **AGI FRAME** FP Silos incorporate a heavy duty hinged single ring sidewall door in the second ring as standard. The reinforced inner door swings out of the way easily when open, the sturdy welded **AGI FRAME** is hot dipped galvanized after manufacture. Additional sidewall doors, with necessary vertical access ladders & platforms can be supplied offered.

Bobcat door can be offered upon customer request.



Double ring Access door

Double ring sidewall doors can be offered to suit certain models of FP silos at additional cost.

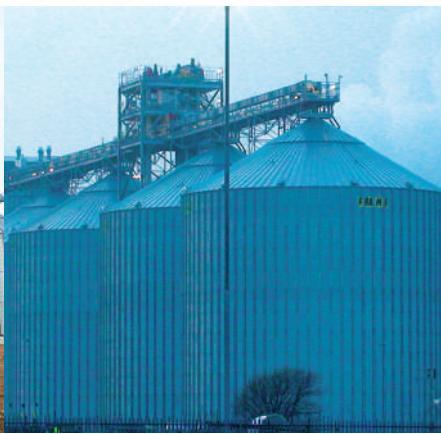




12,000 tons | Wheat | Rwanda



32,000 tons | White Maize | Venezuela



30,000 tons | Wheat | UK



120,000 tons | Wheat | Iran



62,000 tons | Wheat | Iran



30,000 tons | Wheat | Tanzania



21,000 tons | Maize | Italy



15,000 tons | Maize | Hungary



19,000 tons | Wheat | Germany



24,000 tons | Wheat | Tanzania



20,000 tons | Wheat | Italy



180,000 tons | Maize | Saudi Arabia



Catwalks & catwalk support

From small farm installations to large commercial grain operations, **AGI FRAME** can offer a wide range of catwalks & catwalk support frames.

Designed & manufactured to ensure the widest range of applications utilising standard components wherever possible, **AGI FRAME** engineers optimise every catwalk system design according to the specific application in order to provide the most cost-effective, easily assembled and correctly engineered solutions; for example, considering the varying weights, dimensions & positions of the drive stations fitted to the chain conveyors loading the silos as well as other local factors.

In addition, designs to accommodate bigger conveyors up to 1500 t/h capacity, both chain and belt conveyors can also be offered. Wherever possible, there is a minimal use of independent support towers, therefore reducing installation & civil costs. A full range of accessories such as side extensions to allow access for machine maintenance, connections to cross catwalks, supports for conveyors at varying levels & connections to existing buildings or towers are available.

FC Hopper bottom silos

AGI FRAME FC Hopper bottom storage Silos offer versatility, fast assembly and a low cost per tonne. The use of hoppers is proven to be the best solution for frequent product unloading cycles without leaving residual material in the silo, thus minimizing the use of mechanical unloading equipment.

AGI FRAME offer two hopper models: 45° & 60°, to provide the best solution even for wet products and with high friction angles.

A wide range of models, from 3.6 meters to 14.55 meters diameter.

45 degree hopper silos are available with capacities up to 5,342 m³, the 60 degree hopper silos are offered with capacities up to 1,218 m³. Full details on request.

The profiled stiffeners carry the vertical load of the silo to the compression ring. The stiffeners feature strong bolted splice joint plates with large cross sectional area, critical elements in stiffener design.

Hopper sheets, compression rings and support steel are hot dipped galvanized. Hopper sheets incorporate mushroom headed bolts on the internal surfaces to ensure maximum cleanliness inside the silo. Smooth wall hopper silos for nonfree flowing materials can be supplied as required.

A support structure for truck loading can be offered.

A complete range of accessories can be offered, such as:

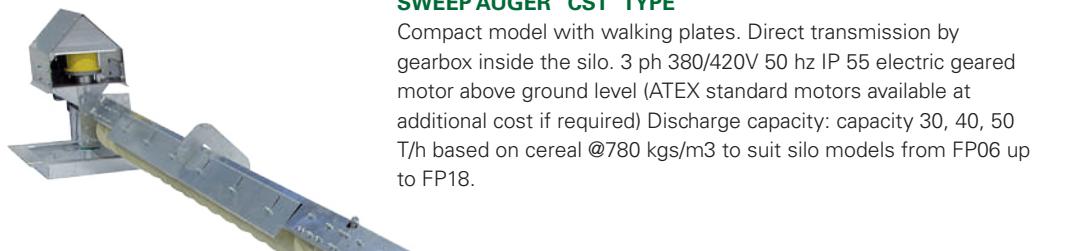
- Aeration & temperature sensing systems
- Roof vents
- Curved roof vents with remotely operated louvres
- Powered roof vents
- Catwalks in a wide range of widths & specifications to suit the conveyor loading the silos
- Vertical ladders incorporating safety cages, roof ladders & stairs with double handrails
- Snow barriers
- Sidewall doors
- Service platforms





ACCESSORIES

Sweep Augers

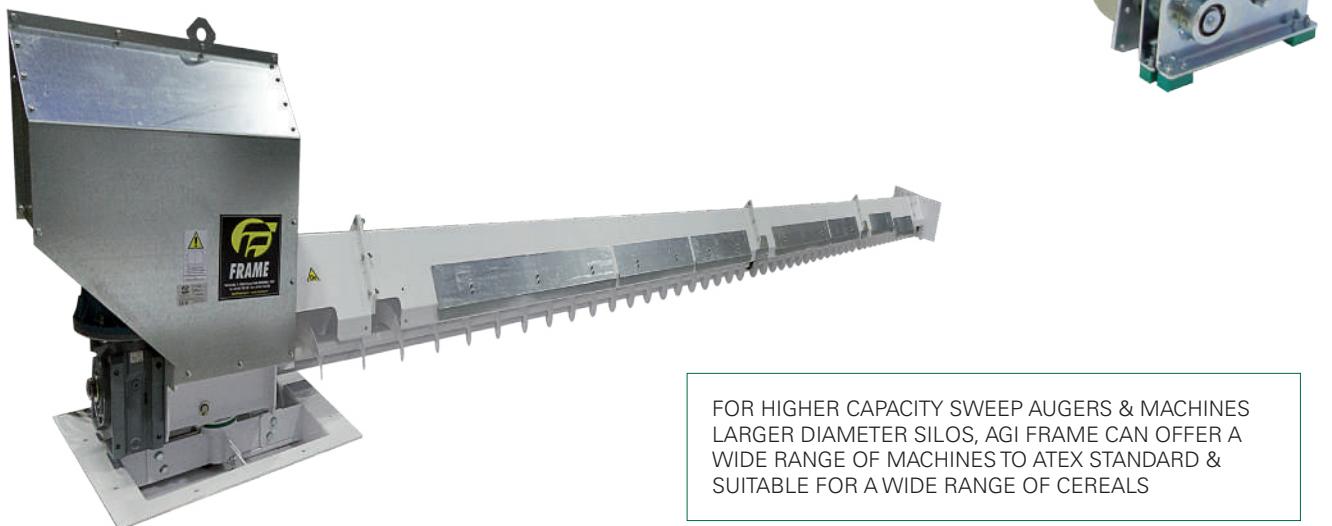


SWEEP AUGER "CST" TYPE

Compact model with walking plates. Direct transmission by gearbox inside the silo. 3 ph 380/420V 50 hz IP 55 electric geared motor above ground level (ATEX standard motors available at additional cost if required) Discharge capacity: capacity 30, 40, 50 T/h based on cereal @780 kgs/m³ to suit silo models from FP06 up to FP18.

SWEEP AUGER "CSTF" TYPE

Compact model with walking plates. Direct transmission by gearbox inside the silo. 3 ph 380/420V 50 hz IP 55 electric geared motor above ground level (ATEX standard motors available at additional cost if required) Discharge capacity: 30, 40, 50 T/h based on cereal @780 kgs/m³ to suit silo models from FP18 up to FP26.



FOR HIGHER CAPACITY SWEEP AUGERS & MACHINES
LARGER DIAMETER SILOS, AGI FRAME CAN OFFER A
WIDE RANGE OF MACHINES TO ATEX STANDARD &
SUITABLE FOR A WIDE RANGE OF CEREALS



SWEEP AUGER "FSA" TYPE - RUBBER TYRE

Direct transmission by gearbox inside the silo. 3 ph 380/420 v 50 hz IP 55 electric gear motor above ground level (ATEX standard motors available at additional cost if required) Discharge capacity: 50, 80, 100 T/h based on cereal @780 kgs/m³ to suit silo models from FP20 up to FP36. For very abrasive products (i.e. paddy rice) the FSA model is available upon customer request.

ACCESSORIES

Roof Vents

AGI FRAME FP Silos can be supplied with a number of different roof vent designs to suit the clients requirements, low profile, curved & powered vents are all offered to fit over pre-punched apertures in the roof segment which incorporate a pre-formed lip with a special gasket to provide a weather tight seal.



TORXEF504X2

Powered fan 0,75 kW, Volume:
8,000 m³/h @ 5mm swg – ATEX 22



TORX0075G

Powered fan 1.5 kW – Volume 7,600
m³/h @ 10 mm swg – ATEX 22



AERAP-XM

Curved roof vent, with powered fan 0.18 kW,
Volume: 2,000 m³/h @ 5mm swg – ATEX 22.
Curved roof vent, included as standard on
all silos above FP 18. As an option, remotely
operated louvres are available for roof vents
when fumigating the silo

Aeration Systems

AGI FRAME can offer a level floor aeration system to suit the complete range of model FP silos. The galvanized modular grids can be offered to suit various cereals, the grids are self-supporting with no additional support steel required, & are easily removable for cleaning. Optional pre-formed steel troughs to cast into the silo base are available at additional cost. 'Full-floor' aeration aeration as well as ventilated cones are also offered to suit a wide range of FP silos.



Fixed & Mobile Electric Fans

FIXED VERSION: electric centrifugal fan, medium pressure type, for ambient air aeration. Complete with Steel balanced fan, 3 ph 380/420 v 50 hz IP 55 electric motor, PVC flexible sleeve, diam. 400 mm, L = 2 m, clamping band, outlet transition.

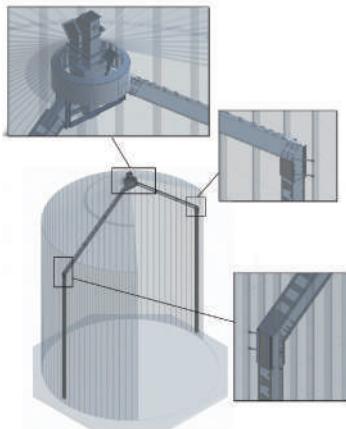
MOBILE VERSION: electric centrifugal fan, medium pressure type, for ambient air aeration; mounted on tyres and equipped with handgrips for easy handling. Complete with: steel balanced impeller, 3ph 380/420v 50hz IP 55 electric motor IE2, electric cable L = 10 m with plug and control panel, PVC flexible sleeve, dia. 400 mm, L = 2 m, clamping band, Outlet transition.



ACCESSORIES

Grain Ladders

To reduce the risk of breakage to soya beans & other similar cereals when loading the silo, AGI FRAME can offer sidewall mounted Grain ladders as shown.



Gravity Sidewall Discharge

Chain operated gravity side wall discharge outlets together with access platforms & ladders can be supplied to suit most models of FP silo at additional cost.



Temperature Sensing

TEMPERATURE MONITORING SYSTEM AGROLOG TMS 2500

A compact portable hand terminal with built-in memory for documented temperature monitoring which also includes a PC Software to give you a quick overview.

Benefits:

- Reliable and user friendly
- Easy to install
- Durable construction for all climates
- 2 wire cable for easy connection
- Digital sensor no calibration needed
- Flexible design for future extension
- Sensor Lines tailored to any application for ATEX zone 20/21/22
- Backlight display to help read in low light conditions
- PC program to store and recall data with time and date
- Temperature trend curves and tables

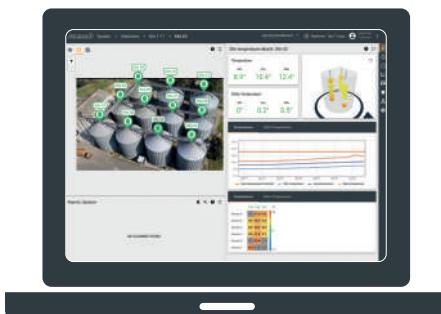


TEMPERATURE MONITORING SYSTEM AGROLOG TMS 6000

Take full advantage of the benefits of the new technology and let our Agrolog grain and crop quality management system give you the strong tools you need to always be in control of your grain and crops.

Benefits:

- Intuitive, modern graphical interface allows quick and easy interpretation of data
- Real-time data – telemetry, monitoring and control 24/7
- Real-time 3D visualizations quickly illustrate where the problems occur in the silo
- REST Interface for integration with third party systems and an open system that gives developers access to advanced computations
- Be alerted by e-mail to the slightest change in your crops, even when not currently using the software
- Full historical chart for deeper insights into trends



ACCESSORIES

Sidewall Ladders & Platforms



AGI FRAME offer all sidewall ladders & platforms with safety cages & handrails to European standards. Manufactured from galvanized steel, ladders & platforms a specially designed non-slip deck/walking area. Platforms can be supplied to provide access to the roof access/inspection manhole with vertical ladders to the catwalk as required.

Snow Barriers



Manufactured from galvanised, profiled & perforated steel sections, snow barriers can be offered to be fitted to the roof eaves.

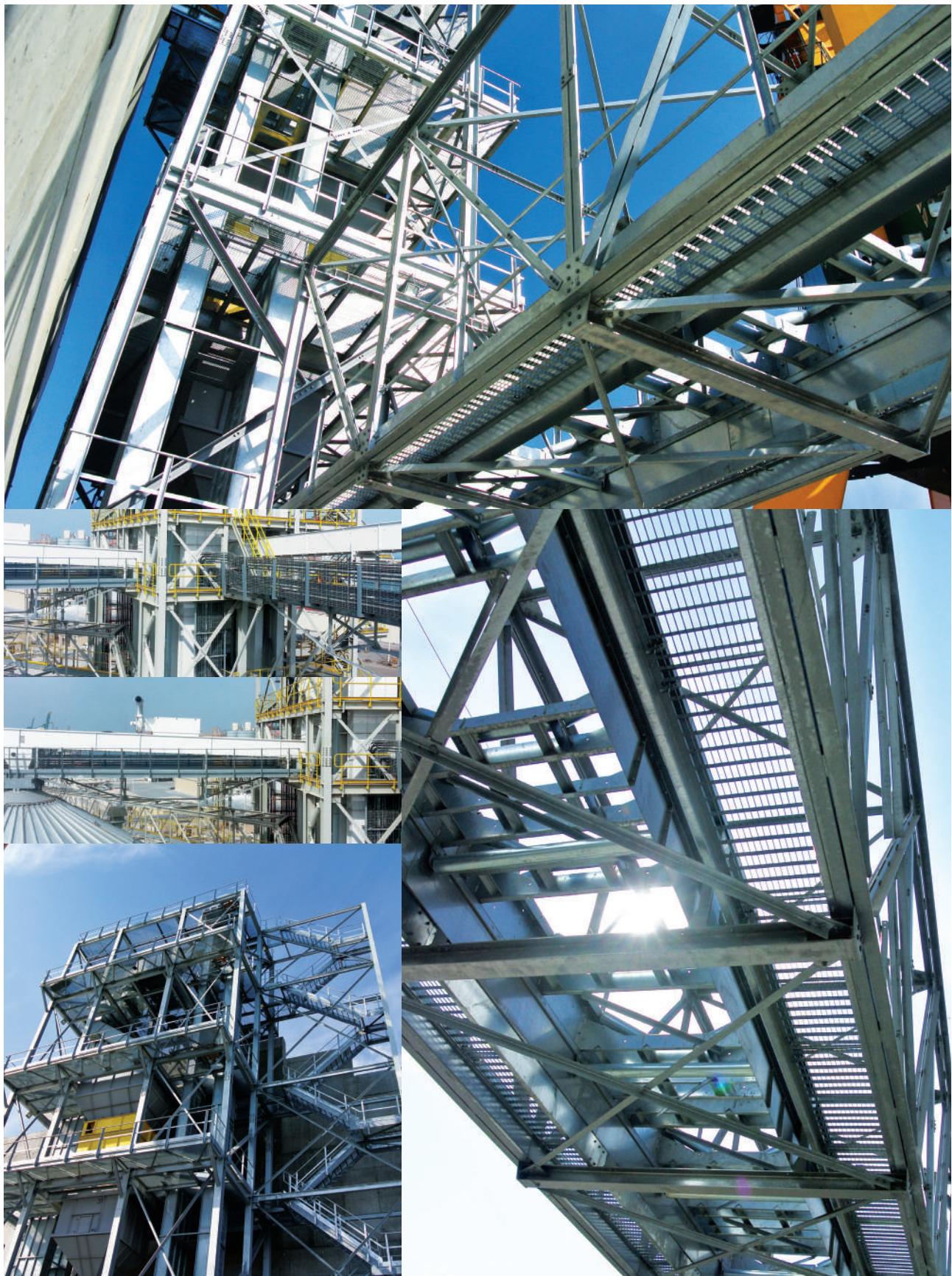
Wind Rings

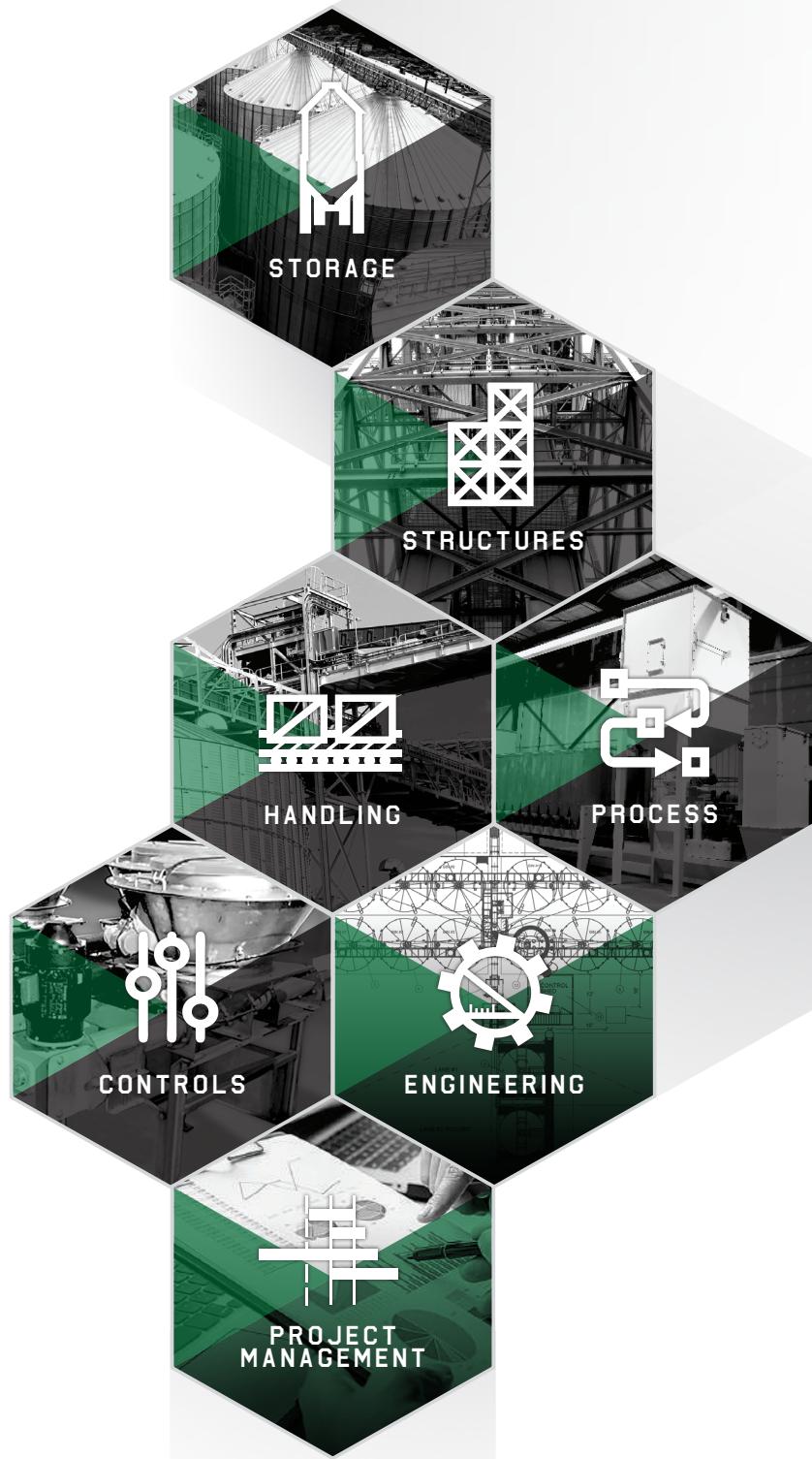


Curved, galvanised tubular wind rings, with flanged joints & which are connected to the sidewall stiffeners to provide continuous circular reinforcement around the silo, can be supplied for high wind speed or other special load conditions.

Steel Structures

AGI FRAME can also provide full integrated solutions for steel structures to suit heavy duty catwalks, supporting towers and steel buildings in general.





AGI FRAME is an AGI brand.

AGI is a leading manufacturer of grain, seed, feed, food and fertilizer handling, blending, storage and conditioning equipment. Our brands are amongst the most recognized in the industry. The AGI product catalog includes portable handling equipment (augers, belt conveyors, grain vacs), permanent handling systems (bucket elevators, enclosed belt conveyors, chain conveyors, structural) and storage systems (aeration, drying, bins/silos, monitoring) that service various sectors for on-farm and commercial operations.



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