Quality wins through.

The best climate for your product

GAUGELE

AIR CONDITIONING TECHNOLOGY

“Since 1950 our priority has been to provide your stored products with the best possible storage climate. We shall be pleased to advise you on your choice of the most suitable storage concept for your needs. For this, we consider your wishes as well as local conditions, and we work with you to devise the optimum solution”.

HERMANN GAUGELE
Proprietor

A ONE-STOP SHOP

Yesterday and today
From fans for hay ventilation to modern storage systems: an increasing number of agronomists entrust the storage of their field products to Gaugele technology.

As a company that has been family-owned for several generations, we are a specialist in climate control technology for agricultural and warehouse storage. We started out in our home region of Upper Bavaria and have now been operating globally for many years, on the strength of our proven track record with innovative solutions for all aspects of storage and pre-processing. We can assure a supply of fresh potatoes, onions, carrots and fruit right through the year. With our subsidiaries, we are able to meet your needs swiftly and professionally.

We offer sophisticated concepts for any type of warehouse. Made-to-measure ventilation, cooling and control systems, appropriate sorting and conveying technology for all types of storage, from crates (loose bulk products) to storage in boxes. Regardless of whether you require a new turnkey building, a modification or a modernisation of your store.

Efficient ventilation

Potatoes and onions require ventilation when in storage. Our efficient ventilation and cooling system helps to keep energy costs low.

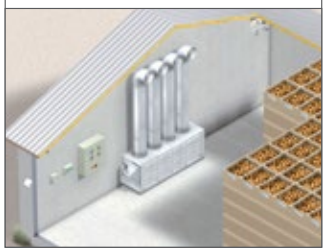
Without suitable ventilation with outside air, potatoes or onions cannot be kept fresh while in storage. With ingenious metrology and control technology, reliable flap systems, powerful fans and the right mixture of room air and outside air it is possible to achieve an ideal storage climate, day and night throughout the entire storage season. Our particular strength is the exact knowledge of the demands of the goods being stored and the implementation of suitable technology. Gaugele fans are optimally designed for any type of storage and any type of product, to allow quick drying of the goods after harvesting, followed by cooling.

Practical tip
Wet potatoes must always be ventilated, this is the key to safe storage for long periods.

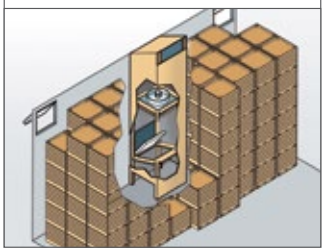
PERFECT PLANNING

No matter what storage system you require, we will offer you the optimal solution. At the planning stage, we take full account not only of your own parameters, such as the cultivation conditions of the stored crops (climate, soil conditions, batch size, experience over the last few years), but also of your logistical requirements and your future development trend. We model the technology used in your warehouse around your precise needs.

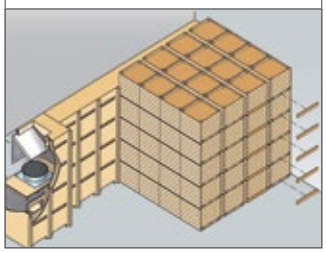
Compact cooling system



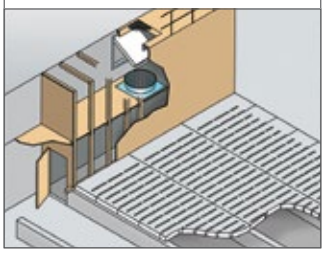
Room ventilation for storage in boxes



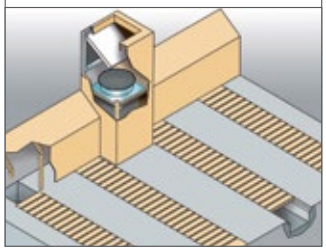
Forced ventilation for storage in boxes



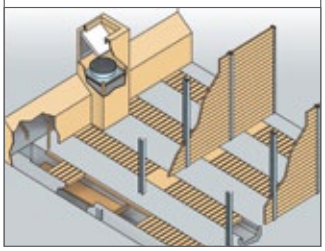
Fully slatted floor



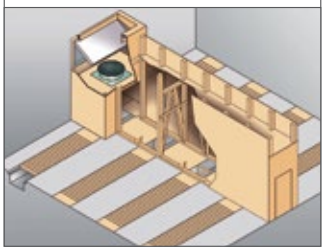
Underfloor ventilation with individual ducts



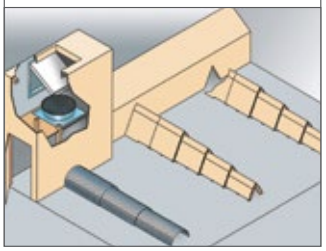
Under-floor ventilation with single ducts + double floors



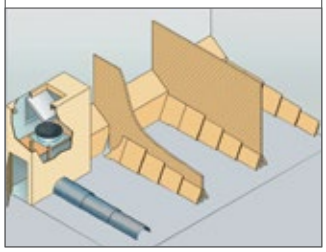
Central ventilation



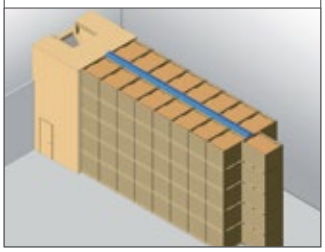
Above-floor ventilation with wooden or metal ducts



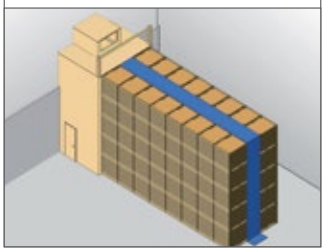
Above-floor ventilation with partition walls



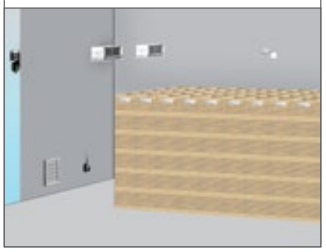
Pressure ventilation for storage in boxes



Suction ventilation for storage in boxes



Room ventilation



HIGH-PERFORMANCE FANS

Type M fan
Specifically for high pressure (up to 600 Pa) stable and durable; with flow-optimising diffuser

The single-stage, two-stage or infinitely variable Gaugele fans are powerful, require no maintenance and operate in low-noise. The air flow rates are optimally designed for your particular application and thus for your product. The motor output ranges from 0.75 to 15 kilowatts. The entire housing is made of flame-galvanised steel plate (with the options of V2A or powder-coated). As well as the robust, square integrated panel, all fans also have energy-saving diffusers. The impeller is manufactured from a corrosion-resistant light alloy casting. In collaboration with well-known research institutions, we were able to further improve our energy-efficient high-performance fans.

GV fans
For use with flange motors, universal, tried-and-tested and safe. Like all Gaugele fans, with efficiency-boosting diffuser

EC TECHNOLOGY

An intelligent control system delivers the right amount of electrical power to the fan as a function of rotor speed and prevailing torque at any rotational speed. This can give an energy-saving of up to 20% compared with conventional technology, while providing the same amount of power. In addition, the speed is infinitely variable. We award this product the 'efficient green' seal, the Gaugele designation for efficient, climate-friendly technology.

20% energy saving

Ventilation

MIXED AIR UNIT

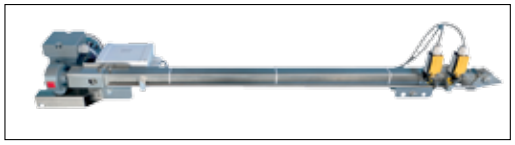
The centrepiece of the controlled ventilation is the mixed air unit, which allows infinitely variable control of the ratio of fresh air and room air as mixed air in the ventilation air. In its initial condition, the insulated air intake flap closes the fresh air opening in the outside wall of the storage facility. This means, while in recirculating mode, that only internal air is directed through the stored product. Using an industrial spindle motor with self-locking worm gear, the Gaugele controller regulates the flap setting, ensuring the correct mixing ratio of internal and external air.

VENTILATION FLAP

Our ventilation flaps are not affected by variable temperatures and moisture. These flaps, made of GRP, close safely and reliably. The fibre/plastic composite technology makes them free of distortion and tension, resistant to vermin as well as shock- and impact-resistant. The enduring insulating foam made of fire-protection-optimised polyisocyanurate rigid foam (PIR) reliably protects the sensitive crops even when there are large differences between storage and outdoor temperatures (120 cm thick, U value: 0.2 W/(m^2*K)).

SPINDLE FLAP DRIVE

The smooth-running industrial electric motor (230 volts) is fitted with limit switches. Motor protection is ensured by bimetal sensors. The maintenance-free gear drives the self-locking worm. The thrust tubes, motor bracket and gear linkage made of stainless steel V2A always work reliably even in moist warehouse climates. With the Gaugele single-flap drive, you can achieve high levels of operational reliability and you can control the storage climate in a much more differentiated way than with a multi-flap drive.

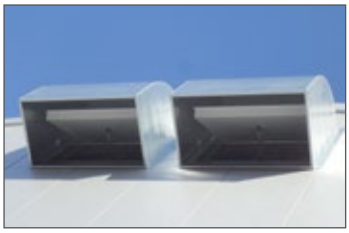


MULTI-FLAP DRIVE

For opening several flaps. Complete with limit switch and chain coupling to provide connection between motor and drive shafts via gear wheel and gear rack.

WEATHER PROTECTION HOOD

Effective protection of intake and exhaust air from the effect of adverse weather conditions; also available in an acoustically insulated version



ROOF-MOUNTED UNIT

Kit for easy assembly,suitable for fresh air and exhaust air

STORAGE BOX

For the storage of onions, potatoes and other types of vegetable. Various sizes available to suit customer wishes

WEATHERPROOF BLIND

Made of aluminium, galvanised steel plate or V2A

VENTILATION DUCTS

Semi-circular sheet metal ducts made of flame-galvanised steel plate for the ventilation of different products

Cooling economically

By using a refrigeration system in a storage facility potatoes, carrots, onions or fruit can remain available on the market until the next crop is harvested. A refrigeration system can optimise cooling and drying independently of the weather conditions and provide a constant storage temperature even when outdoor temperatures are increasing. Careful planning is required for the installation of a refrigeration system because every type of fruit reacts differently when in storage. For example, respiration and heat dissipation vary widely depending on the type of fruit.

Gaugele has many years of experience in the construction of refrigeration facilities and understands the needs of the different products. We will calculate the customised cooling design for each product and type of storage.

Practical tip
Temperature scarcely above 0°C at maximum humidity – keep fresh longer with Gaugele coolers

COMPACT COOLERS

LKS COMPACT COOLER
Cooling and ventilating with one device, with a compact design and requiring minimal cost for installation and maintenance

LKH COMPACT COOLERS
Ideal for retro-fitting in existing storage facilities. Variants available with recirculating air and external air cooling

As LKS freestanding device or as wall-mounted unit LKH. For storage in boxes with room ventilation and capacities of 30 to 1500 tons per device, our turnkey refrigeration systems with fan and combined external / recirculating air flap can be used: Cooling and ventilating with just one device and with minimum installation and maintenance overhead.

These latest-generation coolers have expansion valves and EC fans that can be controlled electronically. The Gaugele 'efficient green' seal points to the advantage of this technology: Great energy efficiency, i.e. optimum refrigeration and air power at the same level of energy consumption. In addition, the cooling power can be controlled much more precisely (speed- controlled compressors) which means that the cooler temperature of the ventilation air can be adapted to suit the product in storage. The air flows controlled by Gaugele processors are matched to the actual volume of air required, in an energy-saving manner.

Both types of device can be supplied for cold water and/or sole cooling. The sealed design of the LKS compact cooler means that it can be implemented easily. The LKH compact cooler can also be used for boxed storage (loose bulk products). This applies to both designs: this compact and ingenious design is also very attractively priced.

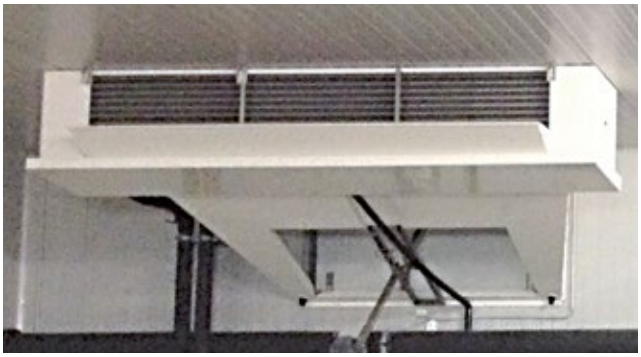
ALSO AVAILABLE AS GLYCOL COOLER

The new compact coolers are also available in a version as chilled water unit. They can be used for saving some of the amount of primary coolant.

DIRECT EVAPORATION COOLING

We offer high-performance refrigeration systems ready-to-connect with direct evaporation, covering all performance levels. As every technology sourced from Gaugele, these systems comply with all requirements stipulated in European standards and directives. Their compact design and small number of components allow the low-cost entry to refrigeration even when retro-fitting in existing buildings. The suction-gas-cooled compressors mounted on rubber vibration dampers have a proven track record. This pump technology is designed for a long service life, and is characterised by consistent displacement volumes, high levels of control precision and low levels of operating noise. The storage climate can be maintained precisely by a Gaugele control processor.

The motors of these quiet-running axial fans operate using EC technology: Intelligent control delivers the right amount of electrical power as a function of rotor speed and the prevailing torque at any given rotational speed. This accomplishes an energy-saving of up to 20% compared with conventional technology, while providing the same amount of power. In addition, the rotational speed is infinitely variable.



CEILING AIR FAN WITH INTEGRATED MIXED AIR UNIT

The air is cooled mechanically in the right place, saving space, and at the same time the outdoor air is mixed with the room air controlled by a processor.

CEILING EVAPORATOR

An optimal lamella division avoids power-consuming contamination and quality-reducing drying of the product. Special executions of the ceiling evaporator are also available for low and free spaces above the storage stack. All designs have been optimised for retaining the quality of your product.

CONDENSER

The condenser (recooler) evacuates heat from the cooling medium to the surrounding area.

COMPOSITE SYSTEM

For large storage units, we recommend using an integrated system in which several compressors and cooling points are arranged in a refrigeration cycle.

INDIVIDUAL CONDENSER KITS

Pre-installed refrigeration system *Bespoke production, with the cost option of roofing.*

INDIRECT BRINE COOLING

750 kW cold brine unit *with srew-type compressor and heat recuperation*

Large-scale facilities are nowadays operated using indirect 'brine cooling' (a mixture of glycol and water) or are cooled with cold water. In these storages, a heat exchanger transfers the cold generated to the liquid medium. This is pumped to the air coolers in the storage area through a recirculating pump.

The advantages of this are the small quantity of refrigerant needed, and the scope for running very low temperature differences using 3-way valves. Here, too, the heat can be recovered via heat exchangers.

For your project, we offer an individual ready-to-connect unit.

Intelligent controlling

Processor-controlled control technology also uses short-term temperature fluctuations caused by local weather conditions to manage the storage climate. The targets set for the entire storage season, such as daily product cooling, are reliably achieved in compliance with the product. If the storage is additionally equipped with a refrigeration system, the drying process can be accelerated independently of prevailing weather conditions and the storage period can be extended at a constant product temperature, until the start of the next harvest.

The Gaugele ventilation processors are continuously setting new benchmarks in terms of their ventilation results and technical capabilities. In designing this centrepiece of a ventilation unit, Gaugele's many years of experience with goods to be stored combine today's with tomorrow's technology. Energy efficiency, for example by monitoring peak currents or power management to include self-generated electrical power is a matter of course.

Practical tip
Safe drying with air-heating in conjunction with cooling – boost efficiency with Gaugele feedback controllers

OPTIMUM STORAGE CLIMATE

TMC.10 CONTROLLER

The intelligent Gaugele control algorithm analyses the development of ambient temperature and humidity to enable the storage facility to be operated as energy-efficiently as possible while also preserving product freshness to an optimum level. Depending on the stored product and the storage phase, up to 50 different programmes are available. An intuitive touch-control interface enables to adjust conditions in each storage location quickly and effectively to suit the needs of your product. The 10-inch screen displays all of the important storage parameters at a glance and allows exact, continuous monitoring of your stored goods. High-resolution graphics and spreadsheets enable you to detect trends and to intervene in good time to take preventive action.

The TMC.10 operates with real-time monitoring to deliver precise energy management. The built-in network connection is an option that allows you to check the condition of your goods worldwide at any time by means of an encrypted connection. Furthermore, innovations or customer specifications can be easily loaded on the TMC.10 using an USB drive, which can also be be used to export data or settings. With a special system structure it is also possible to connect several TMC.10 units to a storage complex and to control each storage location from every device.

A strong team
The integrated TMC.10, together with the award-winning Gaugele online app: you have firm control of your storage management at all times

GAUGELE ONLINE APP

All functions for the TMC.10 on your mobile phone (Android or iOS). At any time and from any location you can keep an eye on your stored products and their ventilation parameters. As on the TMC.10 or the desktop application, the Gaugele online app can be used to monitor and alter the storage climate settings.

Energy management
Depending on the storage requirements of your products, fan power and operating characteristics can be adapted automatically to reflect the prevailing cost of energy.

ULO TECHNO-LOGY

Especially when storing high-value goods such as pumpkin, garlic or pomaceous fruit, we offer complete storage concepts with entirely gas-tight storage rooms with CA (controlled atmosphere) technology, as well as ULO (ultra low oxygen) storage, in all sizes. In combination with our cooling systems, we can maintain all storage parameters precisely and in a way best suited to each product: for example, a temperature close to 0°C, high humidity, a low proportion of oxygen and a higher proportion of carbon dioxide. This enables crops to keep the freshness until the next harvest. The sensitive TMC.10 controllers assure the right storage climate to protect each product.

CONDENSING DRYER PROCESS

Onions or garlic need dry air to retain their freshness until the next crop is harvested. We can provide condensing dryers to achieve the fastest drying results. These first extract water from the air in the storage by cooling it below the dew point, before they warm the dried air so that it can absorb more water frome the air in the storage. Ambient humidity, volume of air and air temperature are controlled by the Gaugele TMC.10 processor to suit each product. With the Gaugele online app on your smartphone, you have quality under control at all times.

COMPLETE SOLUTION

Perfection in every size
In a future-proof, economical and intelligent manner, we consider the advantages of your location into our planning and implementation

Constructing a new warehouse starts with selecting the right storage concept. We will customise the size and location of the storage units, the storage installations and the transport routes to suit the product requirements and minimize the management costs. We are your professional contact for your storage facility for potatoes, vegetables or fruit – whether for a turnkey new-build, a renovation or a modernisation of your storage.

Our in-house planning department will draw building and storage plans from the draft stage to the project ready for input. For hall constructions we work with accredited specialists, or can also of course work with the construction company of your choice.

Storage technology
Through the right kind of planning, functionally reliable and durable to safeguard freshness until crops can be marketed to maximum effect

We help right down the line

Our experts take charge of commissioning of facilities and deliver induction training to the facility personnel on site. We also deliver regular training courses for the personnel operating Gaugele systems, if you wish the trainings will be held in our head office location in Iffeldorf, or on location at your own premises. Technological further developments and profitable new experience in operation is passed on by professional practitioners.

Our Gaugele online app offers more: via your mobile device, whether your smartphone or your tablet, you have the control over your storage anytime and anywhere. You inspect your goods in storage, you can select an appropriate ventilation program or you can adjust the ventilation parameters. We can also inform you about possible updates to the software.

We place emphasis on quality management in accordance with EU directives. Our agricultural and climate technology systems bear the CE mark. During planning and execution all requirements are taken into consideration.

www.gaugele.com

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