

Prevent the spoiling of your harvest – the ecological and effective way!

Spontaneous heating of the grain often causes great damage. Systematic hygiene regulations and the call for natural treatment of the produce grain without chemical substances are standards that must be attained. We have the solution for all these demands: GRANIFRIGOR™.

The GRANIFRIGOR™ cooling device is immediately used to cool down grain after the harvest and independent of the weather conditions. This effective method prevents the spoiling of freshly harvested grains, which spontaneously heats up because of its cellular respiration. Carbon dioxide, water and heat are released by this respiration – with extensive consequences: Loss of dry substance as well as the development of insects, microbes and mildew. Spontaneous heating depends on the grain's moisture content and temperature. The principle is also valid for oil seeds like rapeseed (canola).

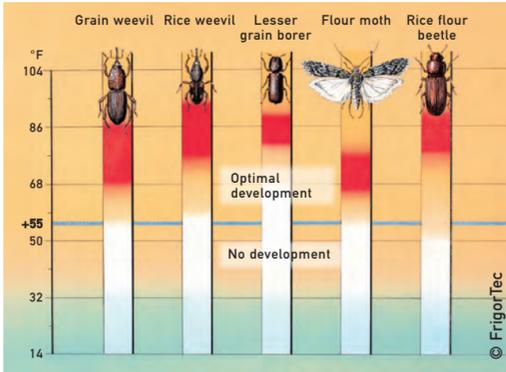
Since we know how grain “functions”, the GRANIFRIGOR™ operates according to two successful principles:

1. Prompt cooling to below +15 °C once the grain has been stored: This puts insects into diapause so they don't multiply (see illustration below). In addition the development of mildew is effectively prevented, respiration losses are minimised, and drying expenditures are also reduced by the drying effect of cooling.

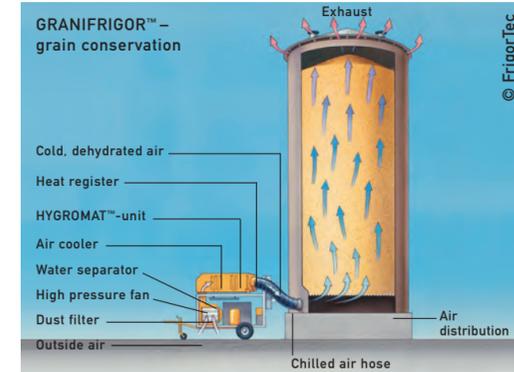
2. No ventilation with unconditioned ambient air: Grain is hygroscopic. This means that depending on the temperature an equilibrium develops between the moisture content of the grain and the relative humidity of the ambient air. Moisture is absorbed if dry grain is exposed to the humid air. The grain begins to spoil. That's why aeration with fans is completely dependent on weather conditions. Furthermore, the ambient temperature during harvest time is usually much too high.

Mode of operation:

The fan of a GRANIFRIGOR™ grain cooler sucks in ambient air (see illustration below). This air is cooled by an air conditioner (evaporator) to the desired temperature. The following HYGROMAT™ unit warms the cold air again automatically. This lowers the relative humidity and adapts to the conditions of the grain. No moistening can occur, which would be damaging. This cooled and dried air is blown into the air distribution of the warehouse or the silo system and is forced through the grain. Then the air is released outwards through the exhaust vents of the storage facility. The exhaust air carries the absorbed heat and moisture.



Insects that are dangerous to grain can develop at a temperature starting at 55 °F. GRANIFRIGOR™ cools the grain to below 55 °F and thereby ensures optimal freshness and quality of the harvest.



The GRANIFRIGOR™ process was developed by FrigorTec GmbH (formerly product division of Axima and Sulzer Escher Wyss) in co-operation with the University of Düsseldorf and the Bundesforschungsanstalt für Getreide (Federal Grain Research Institute) in Detmold and has been manufactured since 1963.

Factory



All products are developed, constructed and made by FrigorTec. Every device passes a quality inspection with test runs before delivery. FrigorTec solutions are sold in over 90 countries through the worldwide distribution network.

SERVICE (24/7)



Our service keeps the units maintained and ensures the spare parts supply - worldwide. service@frigortecamericas.com

Distributor:

Nr. 01-22 american © FrigorTec LP

Grain cooling units
GRANIFRIGOR™

Crane air conditioning
units CRANEFRIOR™

Standard cooling units
STANDARDFRIGOR

FrigorTec
SERVICES

Insect heat treatment
DEBUGGER

Hay dryer
AGRIFRIGOR™

FRIGOR TEC
Cooling to the point

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www.frigortecamericas.com



Genuine for over 50 years!



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GRANIFRIGOR™ – ecological grain conservation

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GRANIFRIGOR™	GC 40 Europe	GC 60 / 80 Europe Tropic	GC 140 Europe	GC 180 Europe	GC 220 / 240 Europe Subtropic Tropic	GC 310 / 320 Europe Subtropic Tropic	GC 450 Desert	GC 460 / 500 Europe Subtropic Tropic	GC 560 Tropic	GC 650 / 700 Europe Tropic Desert	GC 1000 Tropic Desert
Cooling performance in 24 hours ^{1) 2)} [MT/day]	30 – 60	55 – 120	140 – 220	170 – 280	220 – 370	310 – 520	340 – 560	460 – 750	560 – 900	600 – 1,100	900 – 1,500
Chilled air fan Volume flow [cfm] ³⁾ Pressure [inWC] maximum ⁵⁾	1,400 13	1,700 14	4,500 19	6,400 24 / 32 ⁸⁾	7,400 24 / 32 ⁸⁾	11,000 24 / 32 ⁸⁾	15,000 24	15,000 24	15,000 24	15,500 24	31,000 16
Refrigerating capacity compressor [kW/Ton] ^{6) 7)}	10 / 3	20 / 6 25 / 7	32 / 9	43 / 12	63 / 18 82 / 23 105 / 30	82 / 23 105 / 30 160 / 46	165 / 47	133 / 38 175 / 50 225 / 64	270 / 77	175 / 50 320 / 90 320 / 90	470 / 134
Electrical data ⁹⁾ Output (average) [kW] Max. current consumption [A] Electrical connection ⁴⁾ [A]	4,2 18 32	9 32 23 32	16 56 63	20 63 63	28 30 35 96 100 92 100	34 37 53 120 125 118 125	75 215 250	65 69 78 203 210 186 250	85 214 250	71 95 105 285 300 300 330	140 400 400
Connections Ø Connection cold air hose [in] Condensation water runoff average [gal/h] Ø Condensation water runoff hose [in]	12 1.5 3/4	12 4 3/4	12 5 3/4	16 8 3/4	16 9 - 10 3/4	24 24 16 12 - 17 3/4	24 26 3/4	24 24 24 17 - 26 3/4	24 32 3/4	24 40 3/4	32 66 3/4
Dimensions [L x W x H [in]] / weight [lb] chassis with tyres with swivelling casters	136 x 53.2 x 68.9 / 1,323 80.7 x 37.4 x 61.8 / 1,213	141 x 52.0 x 74.0 / 1,543 87.8 x 39.0 x 66.7 / 1,433	143 x 53.4 x 89.2 / 2,094 99.2 x 44.5 x 82.1 / 1,896	150 x 65.0 x 90.0 / 2,535 106 x 52.0 x 84.6 / 2,337	130 x 61.0 x 96.5 / 3,638 116 x 61.0 x 88.6 / 3,307	146 x 71.3 x 100 / 4,409 133 x 71.3 x 94.9 / 4,189	156 x 83.9 x 114 / 6,114 147 x 83.9 x 106 / 6,063	156 x 83.9 x 114 / 6,114 147 x 83.9 x 106 / 6,063	156 x 83.9 x 114 / 7,055 147 x 83.9 x 106 / 6,504	173 x 83.9 x 114 / 8,708 165 x 83.9 x 106 / 7,936	228 x 83.9 x 114 / 11,464 201 x 83.9 x 114 / 10,802

All specifications are valid for 460 V-3 Ph-60 Hz

- 1) Grain cooling to 50 °F
- 2) At an average ambient temperature (day's median) of 68 °F, an average relative humidity (ambient air) of 52 %, an average grain moisture of 16 % up to maximum capacity under favourable conditions and at 10.2 inWC counterpressure
- 3) At 10.2 inWC counter pressure
- 4) acc. CEE
- 5) Higher pressures are available upon request
- 6) Europe versions at an evaporation temperature of 32 °F and a condensation temperature of 86 °F
- 7) Subtropic/Tropic/Desert versions at an evaporation temperature of 50 °F and a condensation temperature of 104 °F
- 8) HP version (high pressure)
- 9) HYGROMAT™ is included as a standard feature
Wheat = 36.74 Bu/t Barley = 45.93 Bu/t
Corn = 39.37 Bu/t Rice = 49 Bu/t

Subject to change.

GRANIVENT™:
The GRANIVENT™ is ideal for immediate aeration when the harvest is stored. The subsequent cooling by a GRANIFRIGOR™ ensures that the grain is protected from insects and moulds.

- Suitable for tower silos and flat storage
- Hygrostat and thermostat for safe aeration
- Robust and sound-proof



GRANIFRIGOR™ – advantages:

- Low power consumption
- Fully automatic control Siemens S7 (DDC)
- State-of-the-art refrigeration technology
- Guaranteed dry, cool air
- Easy operation
- Silent
- 24/7/365 service
- Many additional options available
- Suitable for high outside temperatures
- Remote control with a smartphone or tablet via an app for Android or iOS [App](#)
- Remote control with a PC or notebook (Windows) [App](#)
- Large filters
- Robust industrial construction
- Quality inspection with test run at factory

FrigorTec is certified according to DIN EN ISO 9001 : 2015.

FrigorTec is member of:

- Grain Elevator and Processing Society (GEAPS)
- University of Arkansas Rice Processing Program
- Society for the Support of the German Milling School Braunschweig e.V., München / Germany
- Rationalisation Curatorship for Agriculture, Rendsburg / Germany
- School of vocational education in Agribusiness Burg Warberg e.V., Warberg / Germany
- Corn exchange, Luzern / Swiss
- ALB, Stuttgart / Germany
- BVA, Berlin / Germany

TÜV acceptance testing in at factory.
An additional test at the installation site is usually not required for the operation of the GRANIFRIGOR™

