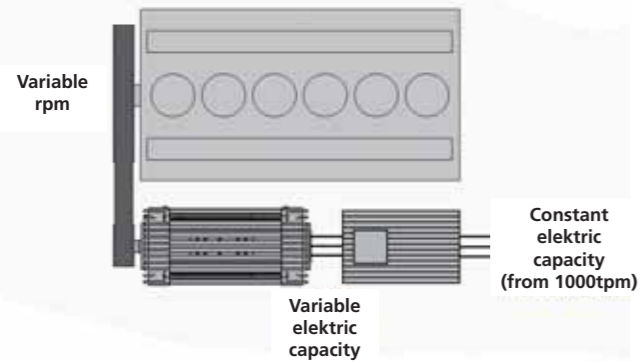


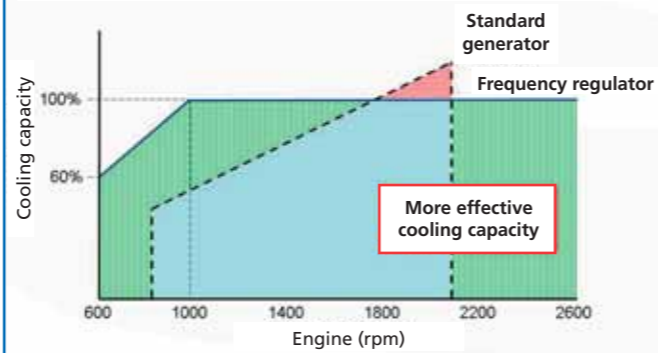
FREQUENCY REGULATOR

The frequency regulator was specially developed for national and international distribution. It ensures that 60% of the required capacity is available at stationary truck engine speed and 100% of the capacity from 1,000 rpm. The application of a soft start means no major starting torques which, in turn, means a significant reduction in the (peak) loads.

Schematic report functioning



Working areas



GENERAL

GOVET is a worldwide supplier of a wide range of systems for the conditioned transport of a variety of products. Wherever necessary, Govers e.t. b.v. creates tailor-made systems for the foodstuffs and chemical industries and for other purposes.

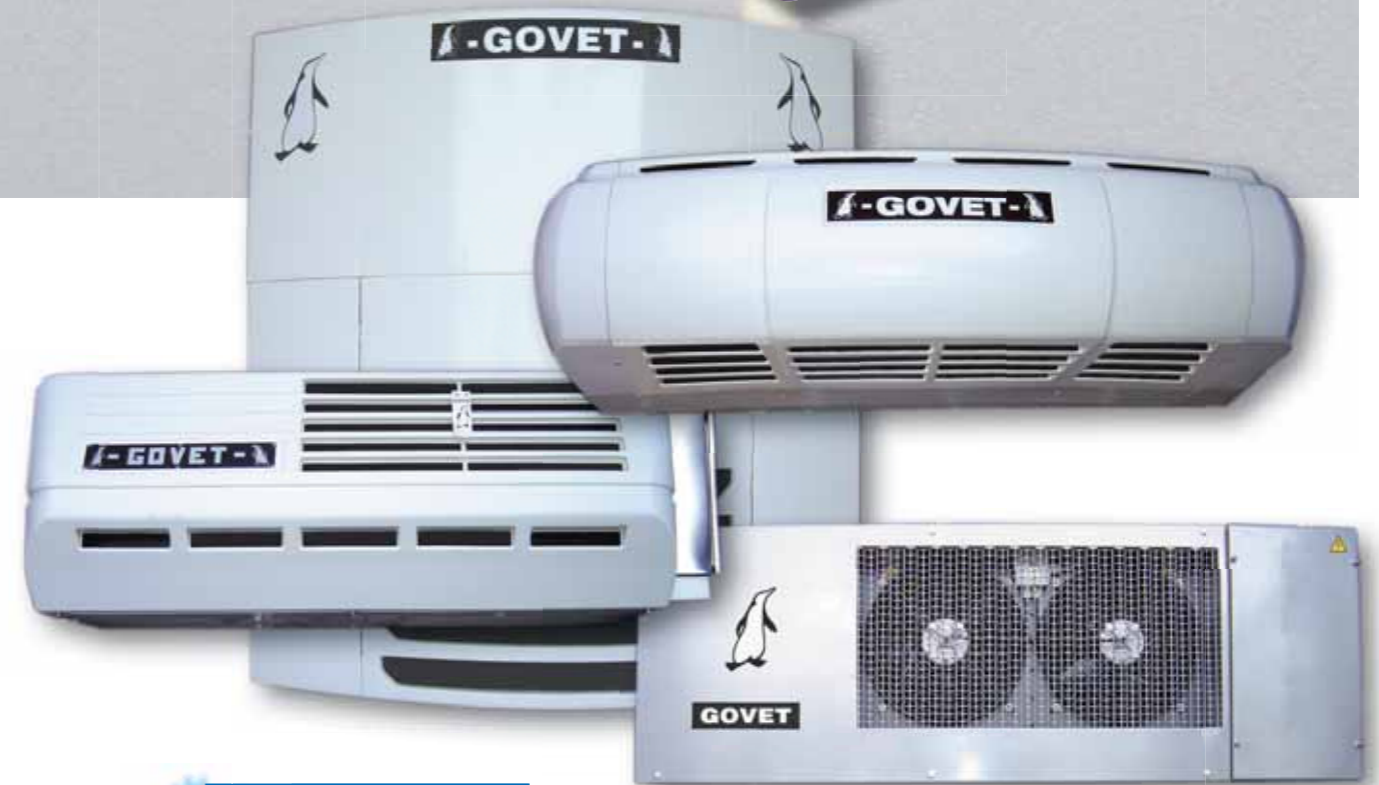
The products vary from direct-drive systems, generator-driven systems, eutectic refrigeration and freezing systems and special refrigeration systems for rail and container units. In short, we are an extremely versatile business partner!



Govers e.t. b.v. can provide service to its clients 24 hours a day, 7 days a week. As a result, our highly trained service staff can solve any urgent problems or malfunctions quickly and adequately. In addition, Govers e.t. b.v. is continuing to expand its sales and service network throughout Europe and beyond.

Govers e.t. b.v. is a modern people-oriented organisation with expert and service-oriented staff.

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GOVERS E.T. B.V

For more than 30 years, Govers e.t. b.v. has been a specialist in the development and production of high-quality GOVET refrigeration, freezing and heating units and the related drive systems. Care for the environment has always been a priority as, for example, the development of electrically-driven refrigeration units shows. The required electrical energy is supplied by GOVET generators driven by the vehicle's engine, meaning there is no need for an additional uneconomical and polluting diesel engine.

Quiet, Clean, Economical and Smart

PRACTICAL FIGURES & EVIDENCE

During a period of 3 weeks, 2 identical lorries travelled around Germany. Attached were 2 identical trailers, one of which was equipped with a GOVET LEGEND refrigeration system and the other with a diesel-driven refrigeration system. The measurements were taken and analysed by both Govers e.t. b.v. and by MAN Truck & Bus. The outcomes are shown below.

QUIET

All GOVET refrigeration units comply with Piek standards. Piek is an independent body which measured values of between 55 and 57 dBA for our various refrigeration units.



The comparative study involving a diesel-driven refrigeration system revealed the following values:

	GOVET Legend 754F	Diesel-driven transport refrigeration system
Connected to the electricity mains	57 dB(A)	64 dB(A) *
Driven by truck engine	70 dB(A)	-
Driven by diesel generator	-	72 dB(A) *
In the case of a stationary running truck	70 dB(A)	74 dB(A) *

The results revealed a doubling of the noise level per 3 dB(A)

(*) The noise emission of both transport refrigeration systems was not measured at the top (the diesel engine exhaust side) and it could not, therefore, be included in this analysis. One can assume that this further increases the noise production of the diesel-driven transport refrigeration system

ECONOMICAL

A truck engine has a much greater capacity than a stationary diesel engine. The fact that this says nothing about consumption is proven by the following data. The efficiency of the truck engine, in combination with the low-level power required for the generator drive systems, ensures a massive fuel saving. The excess consumption of the truck engine of between 3 and 4% (which is equivalent to around an extra litre per 100 kilometres), easily outweighs the consumption of an extra stationary diesel engine.

Static

	GOVET Legend 754F	Diesel-driven transport refrigeration system
Fuel consumption in the event of stationary use, in combination with Coolstart	3.25 litres per hour	3.75 litres per hour

For this analysis, the fuel consumption of the truck engine was measured on the basis of stationary engine speed and a switched-on GOVET Legend 754F (Coolstart) and then compared with the fuel consumption of the diesel generator of the diesel-driven transport refrigeration system in the same conditions.

Dynamic

	GOVET Legend 754F	Diesel-driven transport refrigeration system
Fuel consumption (generator-driven)	1,200 litres	0 litres
Fuel consumption (diesel-driven transport refrigeration systems)	0 litre	3,750 litres

A SAVING OF MORE THAN 2,500 LITRES OF FUEL!

The figures are based on 120,000 km and 1,000 transport refrigeration system operating hours per year.

CLEAN

A variety of factors mean that drive systems based on generator technology are many times cleaner than drive systems with an additional diesel unit.

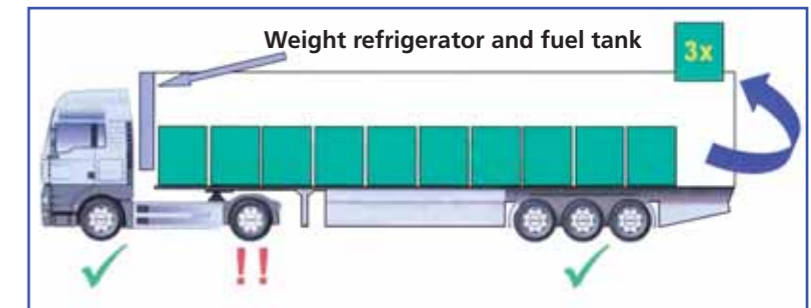
- The truck engine uses less fuel than a stationary diesel engine
- The hybrid operation of the generator means cruising towards traffic lights and downhill produces free energy
- While driving, the generator causes an increase in consumption of between just 3 to 4%
- A truck engine is (much) less harmful to the environment than a stationary engine

	MAN TGA + GOVET Legend 754F	Diesel-driven transport refrigeration system
Emission of CO ₂	2.866 kg (-/-74%)	10.935 kg
Emission of NO _x	14,8 kg (-/-89%)	129,6 kg
Emission of PM (soot particles)	0,085 kg (-/-99%)	9,7 kg

The above relates to an analysis of the total emissions based on 120,000 km and 1,000 transport refrigeration system operating hours per year. Of these, 900 hours are dynamic and 100 hours static.

SMART

The fact that there is no need for an extra diesel engine and accompanying fuel tank generates a saving of around 500 kilogrammes. This reduces the load on the coupling attachment and the trailer shaft, as well as increasing the loading capacity and lowering fuel consumption.



In the past, the lack of an autonomous drive system (such as a stationary diesel engine) was a disadvantage. The Coolstart system was developed in collaboration with a number of truck manufacturers, including MAN Truck & Bus.

HOW THE COOLSTART SYSTEM WORKS

A truck and trailer combination is parked with the engine switched off and the cabin closed. The temperature in the trailer slowly rises until the point at which the refrigeration system needs to start working. At that moment, the GOVET refrigeration unit sends a start signal to the onboard computer. For safety reasons, the onboard computer first carries out a number of checks and then starts. The truck engine starts running at a slightly higher number of revolutions, at approximately 750 rpm. The refrigeration unit lowers the temperature in the trailer to the desired level and sends the end of the cooling cycle signal to the onboard computer. The computer causes the truck engine to stop and returns to the standby position, ready for the next Coolstart.



EXCISE DUTY REFUND

The Dutch tax authorities have granted a refund entitlement for the difference between low and high duty diesel based on the fact that a generator is driven by the truck engine (which uses high duty diesel) for the generation of electricity on behalf of the drive systems of a refrigeration unit (which can operate using low duty diesel). The benefit can be as much as around € 0.32 per litre! A detailed clarification, drawn up by Ernst & Young, is available.