



euroroll...

EUROROLL GMBH

CREATING SUSTAINABLE VALUE: SMART GRAVITY ENGINEERING

MAY 2023



ABOUT US



Pallet Flow • Carton Flow • Rollers • Components



German manufacturer of
conveyor and storage
technology



European Market
Leader Position



Founded in 1982
More than 40 years
of experience



200 employees
in total



03

SALES OFFICES IN 12 COUNTRIES:

USA, Canada, Mexico, Malaysia, Italy, Spain, Poland, Nordic,
Benelux, France, UK, Germany



Reliable Partner in more
than 50 countries

OUR VALUE PROPOSITION

04



CREATING VALUE

- Quality focus
- R&D and Innovation (R&D + I)
 - R&D: Smart gravity engineering
 - Innovation : future market needs
- Operational Efficiency and Manufacturing Excellence
- Sustainability initiatives



LONG TERM COMMITMENT

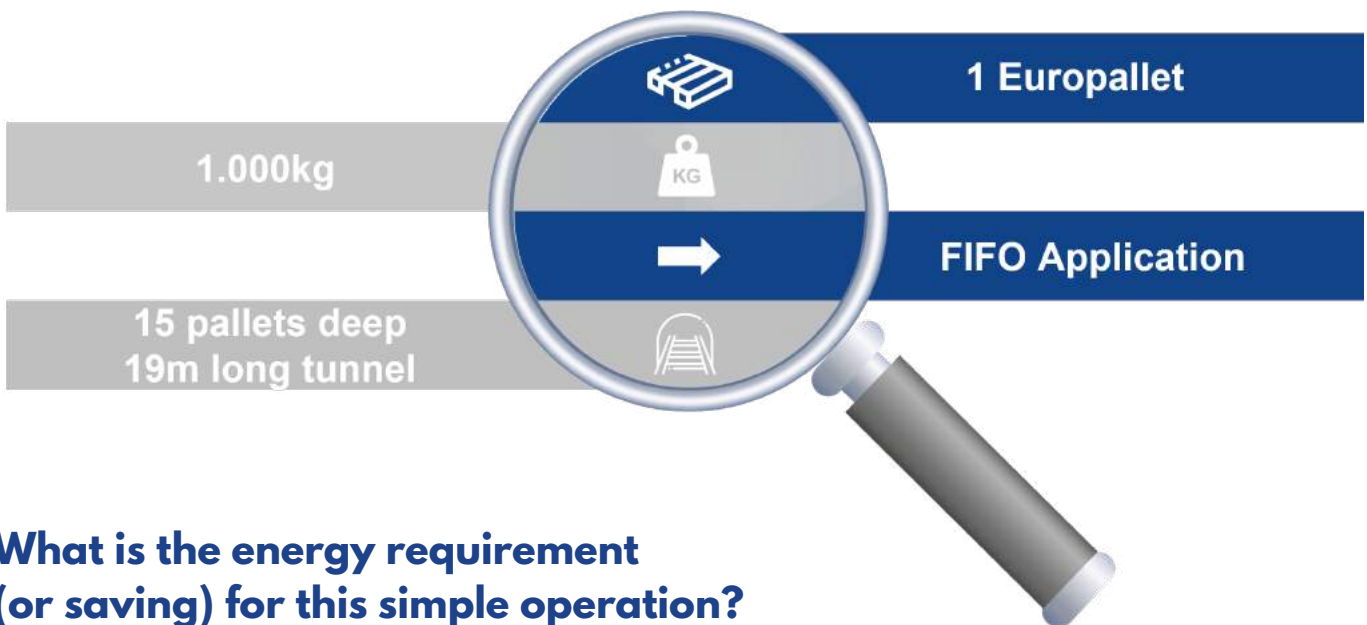


GLOBAL CONTEXT & NEW MARKET NEEDS AND OPPORTUNITIES

THE SCENARIO

05

Let's imagine a simple scenario for a standard and simple warehouse operation in a high density application:



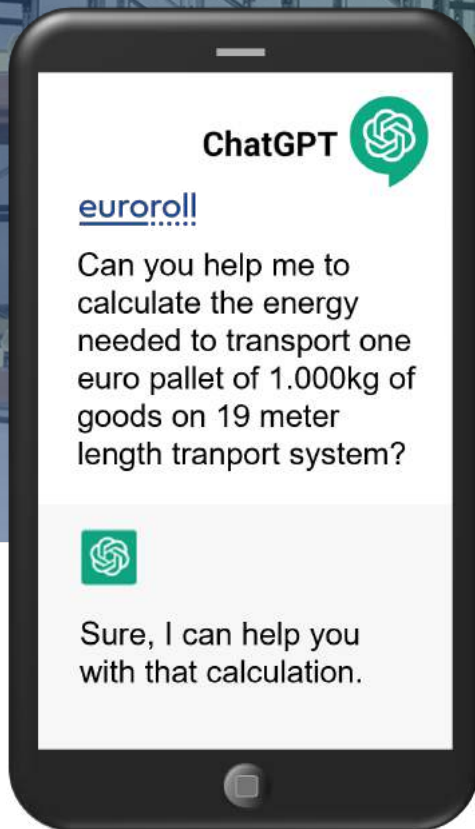
**What is the energy requirement
(or saving) for this simple operation?**

Without considering the lifting, etc.

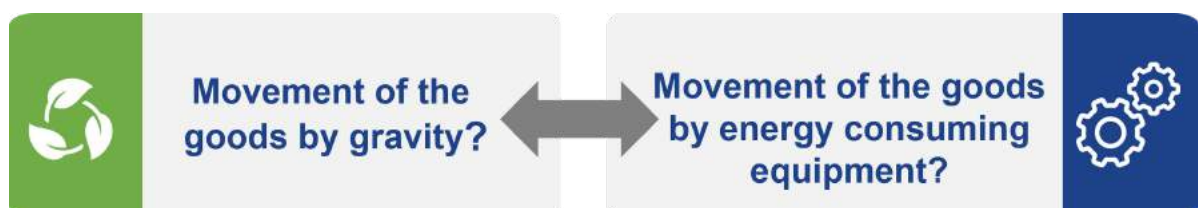


THE QUESTION

06



What is the energy needed to transport one euro pallet of 1.000kg of goods on a 19 meter length transport system?



GENERATING ...

07



Sure, I can help you with that calculation.

ChatGPT



To calculate the energy needed to transport one euro pallet of 1,000kg of goods on a 19 meter length transport system, we need to know the efficiency of the transport system, as well as the force required to move the pallet.

Assuming that the transport system is a conveyor belt, we can use the following equation to calculate the force required:

$$\text{Force} = \text{Mass} \times \text{Acceleration}$$

where Mass is the mass of the pallet (1,000 kg) and Acceleration is the acceleration due to gravity (9.81 m/s^2).

Therefore, the force required to move the pallet is:

$$\text{Force} = 1,000 \text{ kg} \times 9.81 \text{ m/s}^2 = 9,810 \text{ N}$$

Now, let's assume that the efficiency of the transport system is 80%, meaning that 80% of the energy input is used to move the pallet and the remaining 20% is lost to friction and other factors.

To calculate the energy needed to transport the pallet, we can use the following equation:

$$\text{Energy} = \text{Force} \times \text{Distance} \times \text{Efficiency}$$

where Force is the force required to move the pallet (9,810 N), Distance is the length of the transport system (19 meters), and Efficiency is the efficiency of the transport system (0.8).

Therefore, the energy needed to transport one euro pallet of 1,000kg of goods on a 19 meter length transport system is:

$$\text{Energy} = 9,810 \text{ N} \times 19 \text{ m} \times 0.8 = 148,776 \text{ J}$$

To convert this to kilowatt-hours (kWh), we need to divide by the number of joules per kWh:

$$1 \text{ kWh} = 3,600,000 \text{ J}$$

Therefore, the energy needed to transport one euro pallet of 1,000kg of goods on a 19 meter length transport system is:

$$\text{Energy} = 148,776 \text{ J} / 3,600,000 \text{ J/kWh} = 0.04133 \text{ kWh}$$

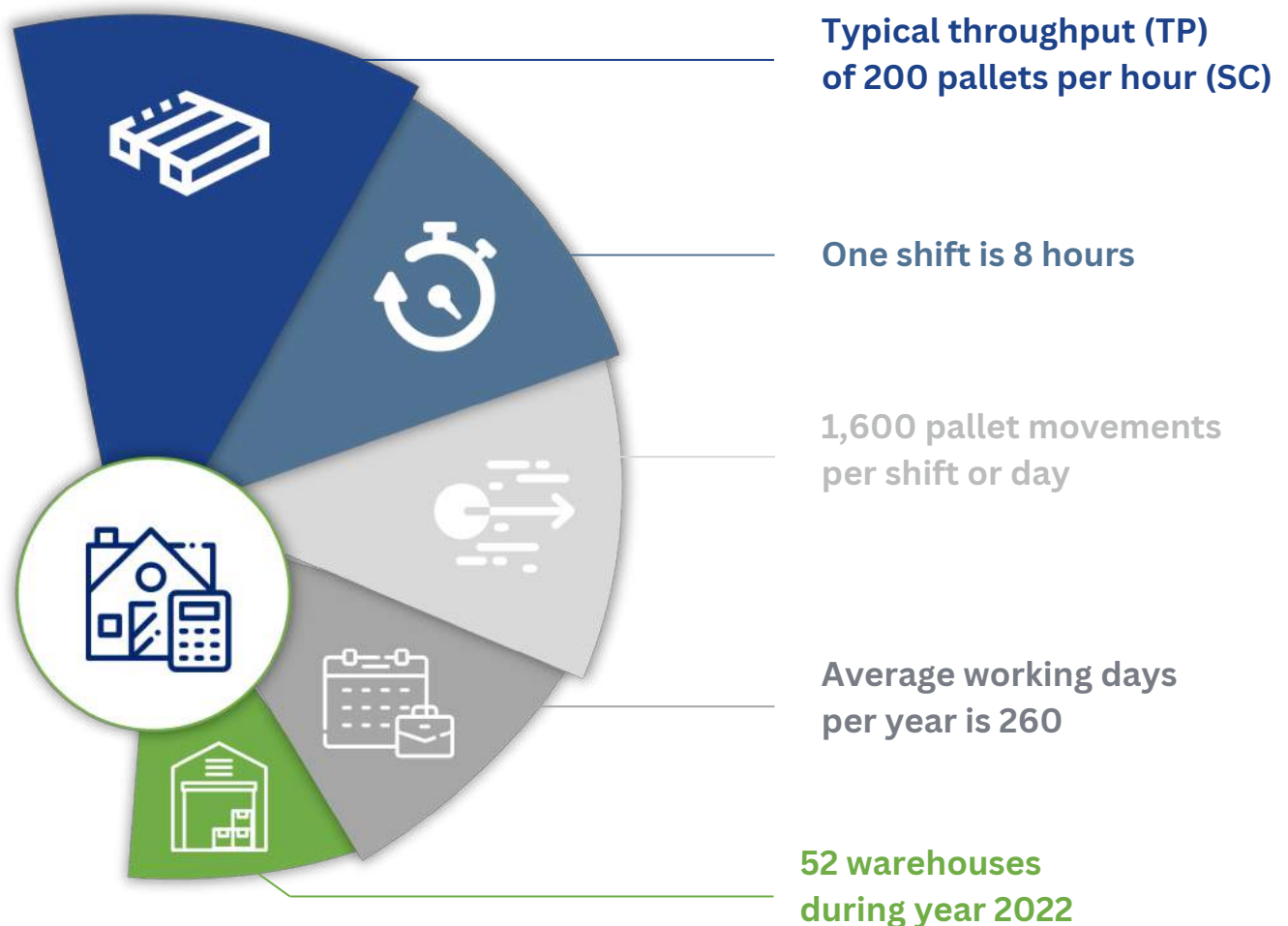
So the energy needed to transport one euro pallet of 1,000kg of goods on a 19 meter length transport system is approximately 0.04133 kWh.



ASSUMPTION & CALCULATION

08

Every pallet movement requires **0.04133 kWh** of energy:



— Total of 21.6 Mio pallet movements
— **Total energy requirement for 2022: 894,000 kWh**

SUSTAINABILITY - ENVIRONMENT & ENERGY

Looking at this from the perspective of Sustainability - Environment and Energy (CO₂ reduction).

Total kWh saved in the last 10 years by supplying gravity solutions to the global market for palletized applications is circa 38.4 Mio. kWh.

This is equivalent to:

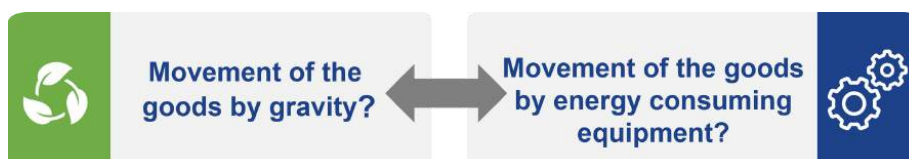
27,245 Metric Tons of Carbon Dioxide (CO₂) equivalent

This is equivalent to greenhouse gas emissions from:

6,063 gasoline-powered passenger vehicles driven for one year



69,843,150 miles driven by an average gasoline-powered passenger vehicle



Source:

Greenhouse Gases Equivalencies Calculator - Calculations and References | US EPA
Greenhouse Gas Equivalencies Calculator | NOAA Climate.gov

DELIVERING SUSTAINABLE VALUE

Gravity Solutions enable our customers to reach their sustainability goals.



27,200 TONS OF CO₂ EMISSIONS FOR THE LAST 10 YEARS



27,245 Metric Tons of Carbon Dioxide (CO₂) equivalent

This is equivalent to greenhouse gas emissions from:

6,063 gasoline-powered passenger vehicles driven for one year ?



69,843,150 miles driven by an average gasoline-powered passenger vehicle ?



Movement of the goods by gravity?



Movement of the goods by energy consuming equipment?

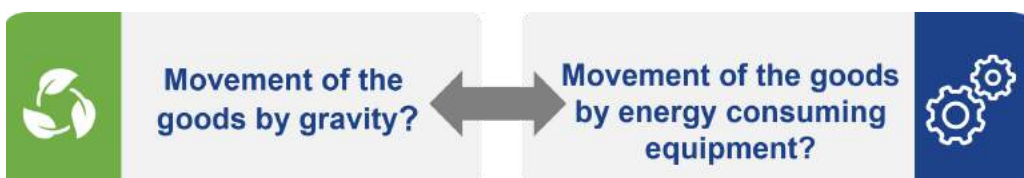
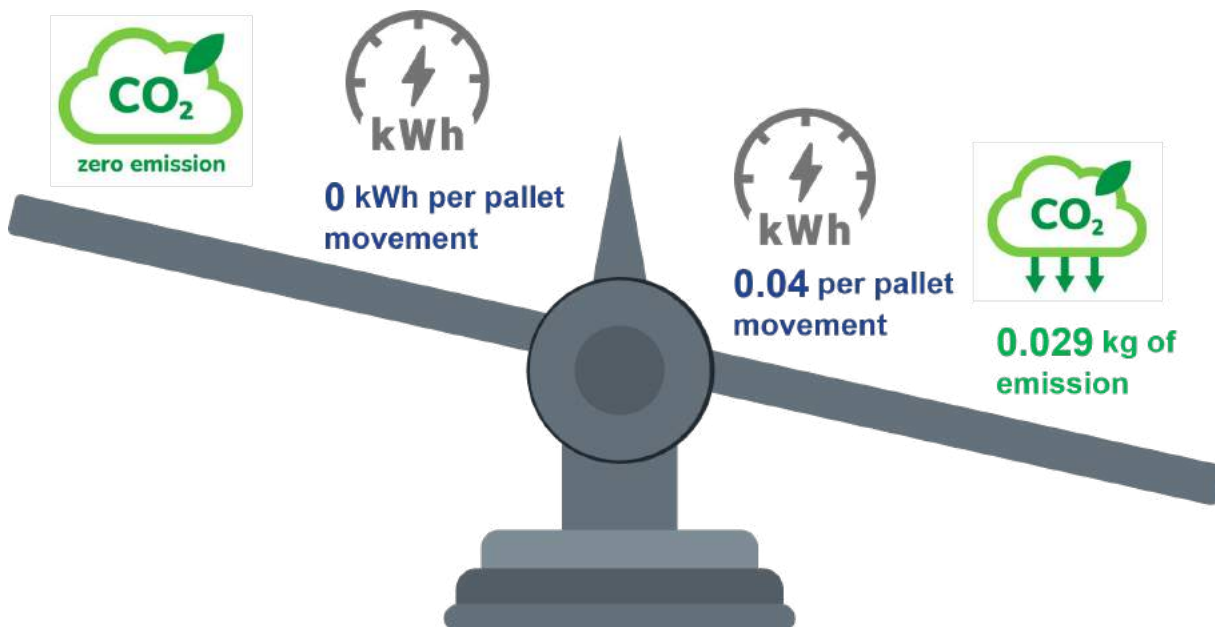


Source:

Greenhouse Gases Equivalencies Calculator - Calculations and References | US EPA
Greenhouse Gas Equivalencies Calculator | NOAA Climate.gov

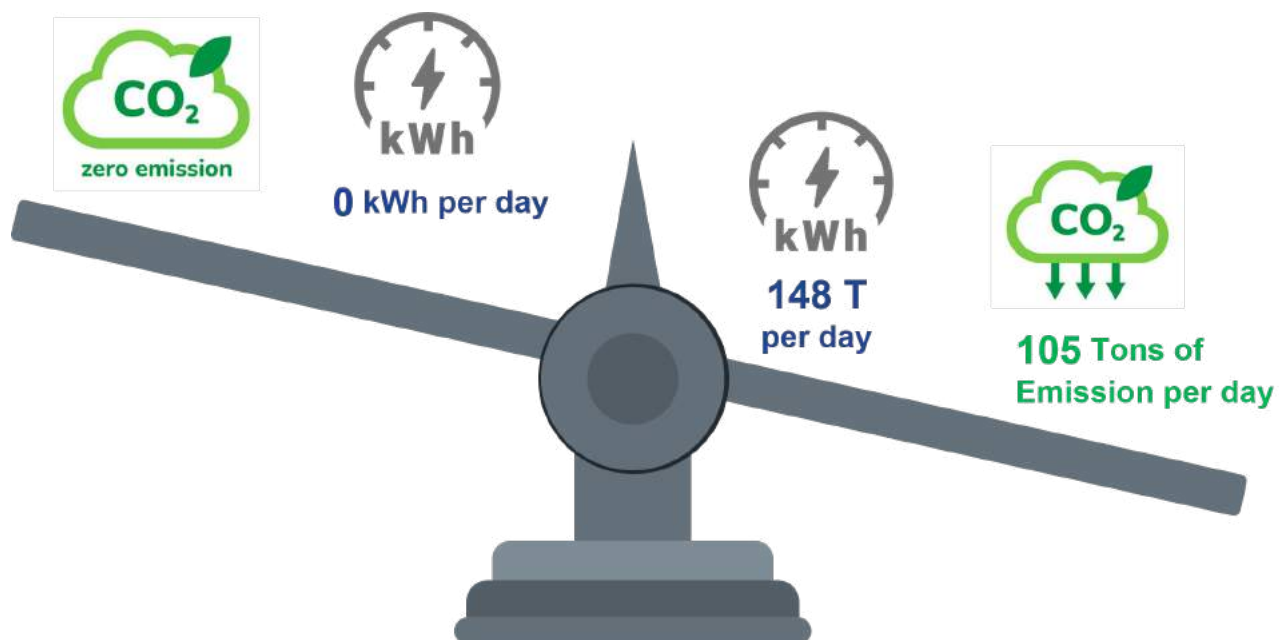


ENERGY SAVINGS PER PALLET MOVEMENT





ENERGY SAVINGS PER DAY



KEY TAKE AWAYS

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SMART GRAVITY ENGINEERING

Creating Long Term Value for the market with robust gravity solutions that also enable our customers to get closer to their sustainability goals.

VALUE PROPOSITION

Develop Sustainable & Innovative Gravity Solutions for Long Term Operational Efficiency.

GLOBAL CONTEXT

New market opportunities and priorities (new realities).





THANK YOU



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