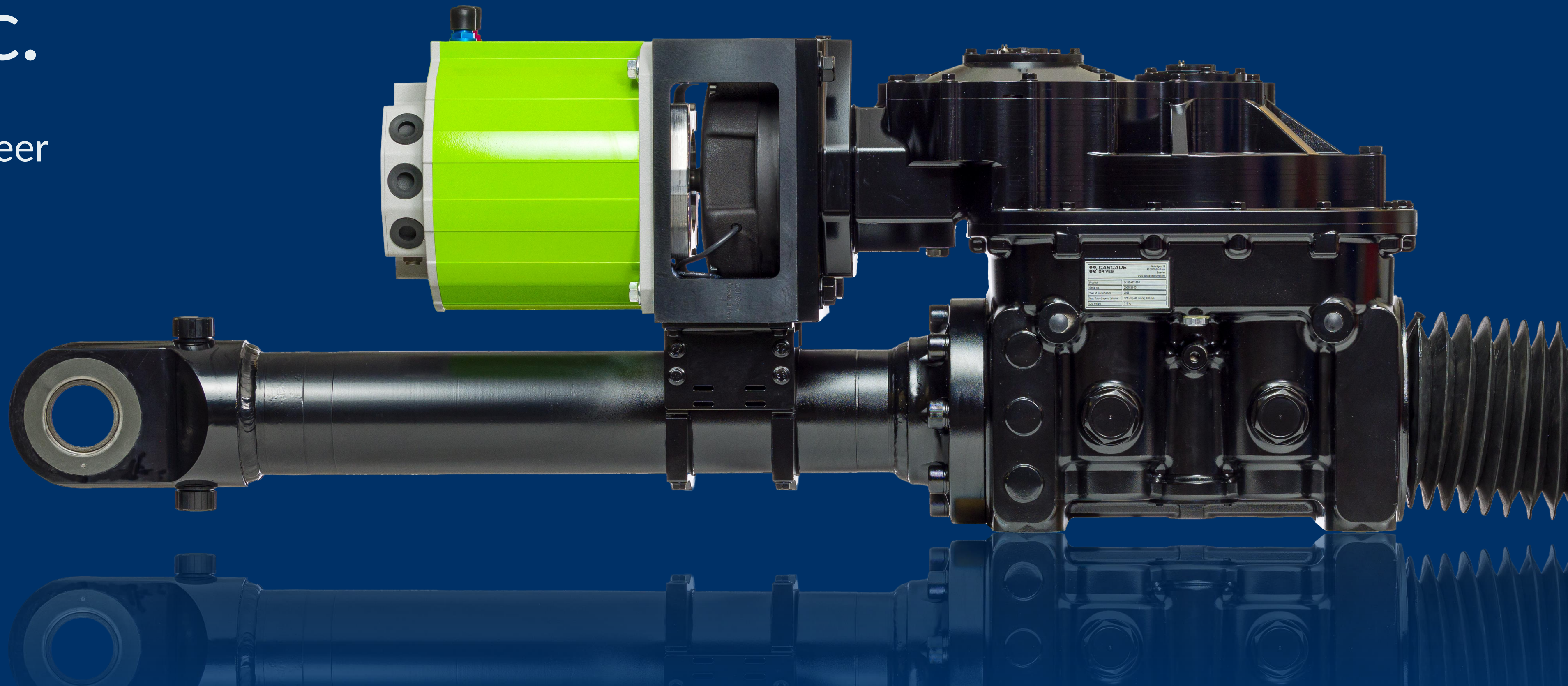




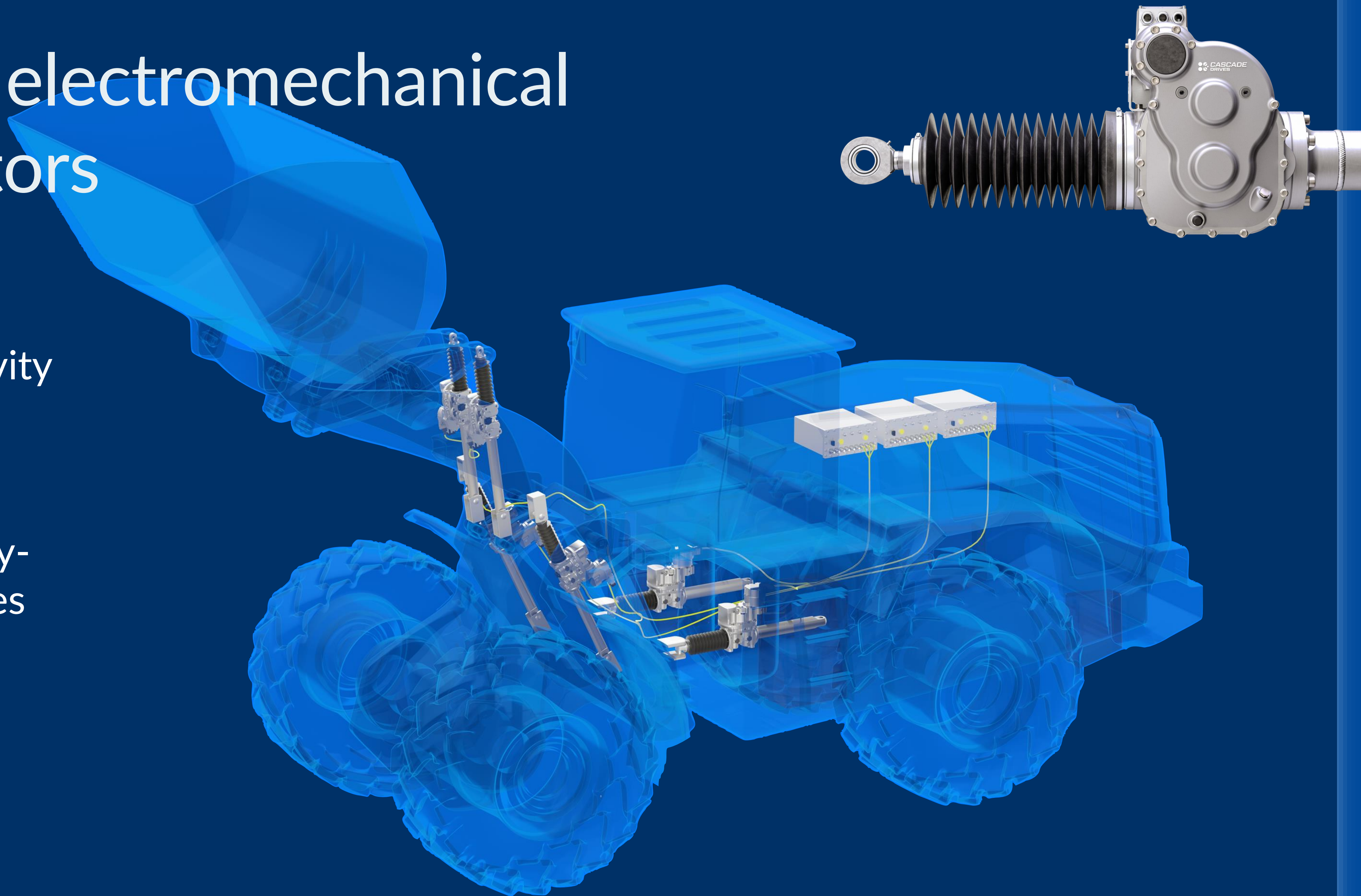
Drop hydraulics. Go electric.

Max Streng | Sales Engineer



Heavy-duty electromechanical linear actuators

- » Extended operating range and productivity
- » Rack-and-pinion technology
- » Optimized for heavy-duty electric vehicles and equipment

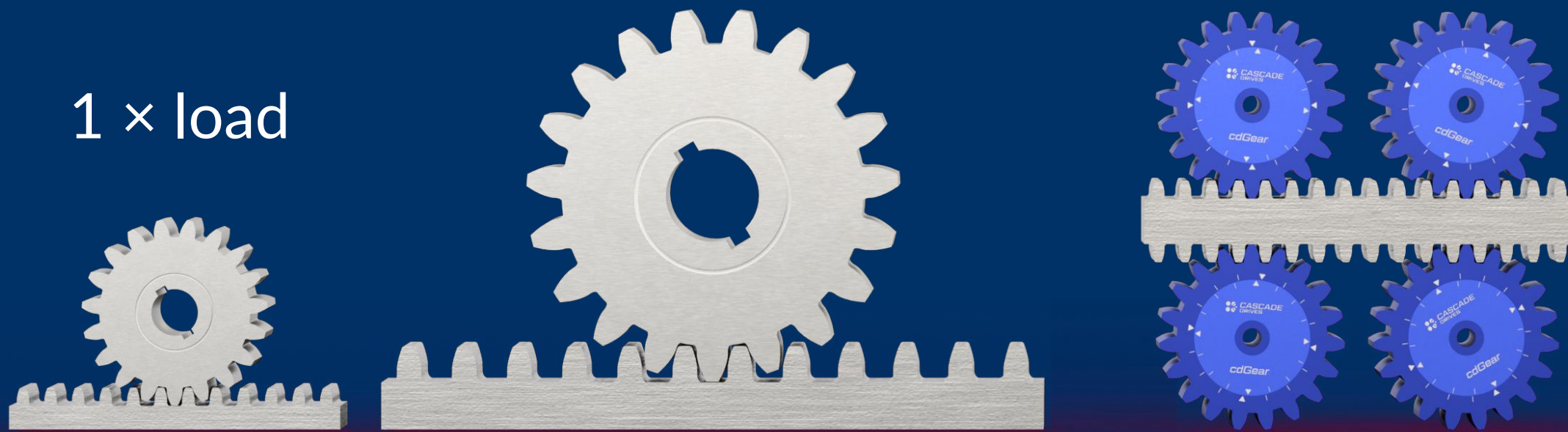


CASCADE
CdGear

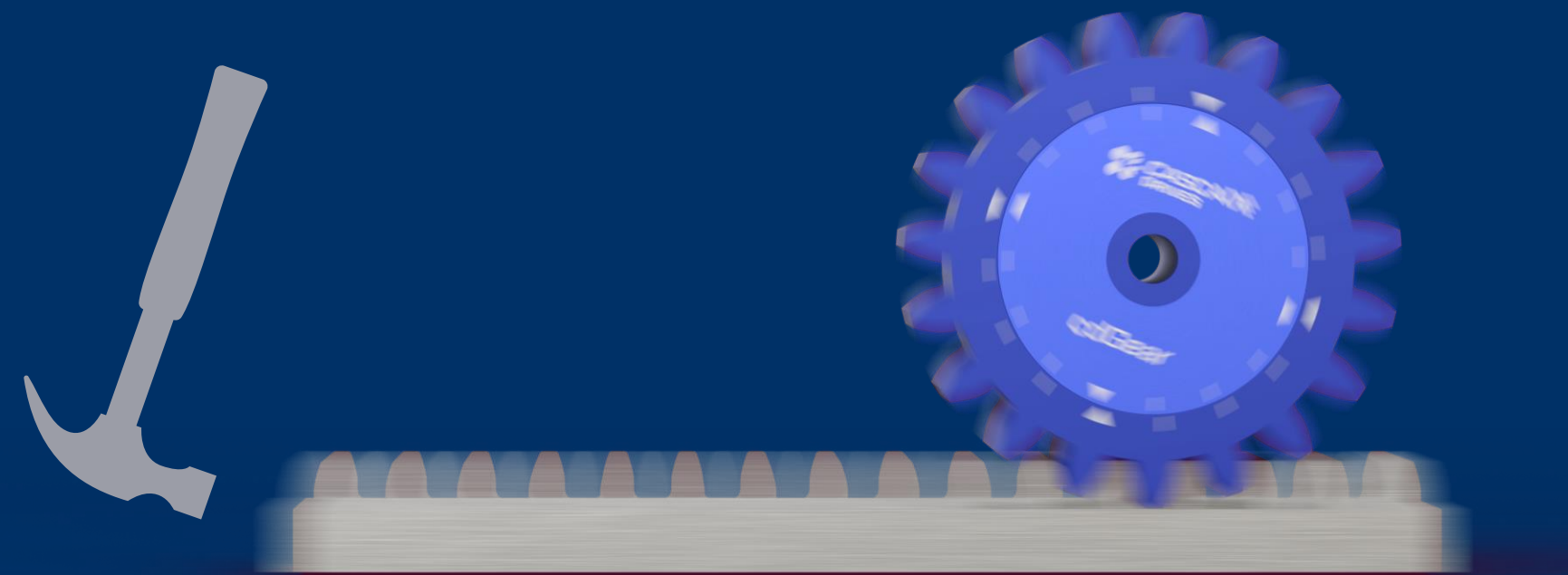
4 × load

2 × load

1 × load



Equal load distribution



Shock load resistant

Key features

- » Superior load/speed capabilities
- » Shock load resistant
- » High efficiency
- » Low internal inertia
- » High positioning accuracy

Sample applications

- » Fork-lift truck lifting actuator
- » Steer-by-wire actuator for heavy-duty vehicles
- » Servo press applications
- » Pressure booster for HIP presses
- » Excavator boom actuator

We outperform all other solutions



Hydraulic actuators

- » Have a limited capacity for combining load and speed
- » Are costly to operate due to lower energy efficiency
- » Risk of environmental damage due to leakage
- » Have difficulty achieving high-precision control



Other electro-mechanical actuators

- » Have a limited combined load/speed capacity
- » Are susceptible to shock loading damage
- » Have a limited stroke length

The world's most powerful actuators

↑
Load



Stronger,
more durable
and faster

Other
actuators

Speed →

A product for every need with a modular concept

50 | 70 | 100 mm

Rack diameter

60 – 4,000 mm/s

Speed

20 – 400 kN

Force

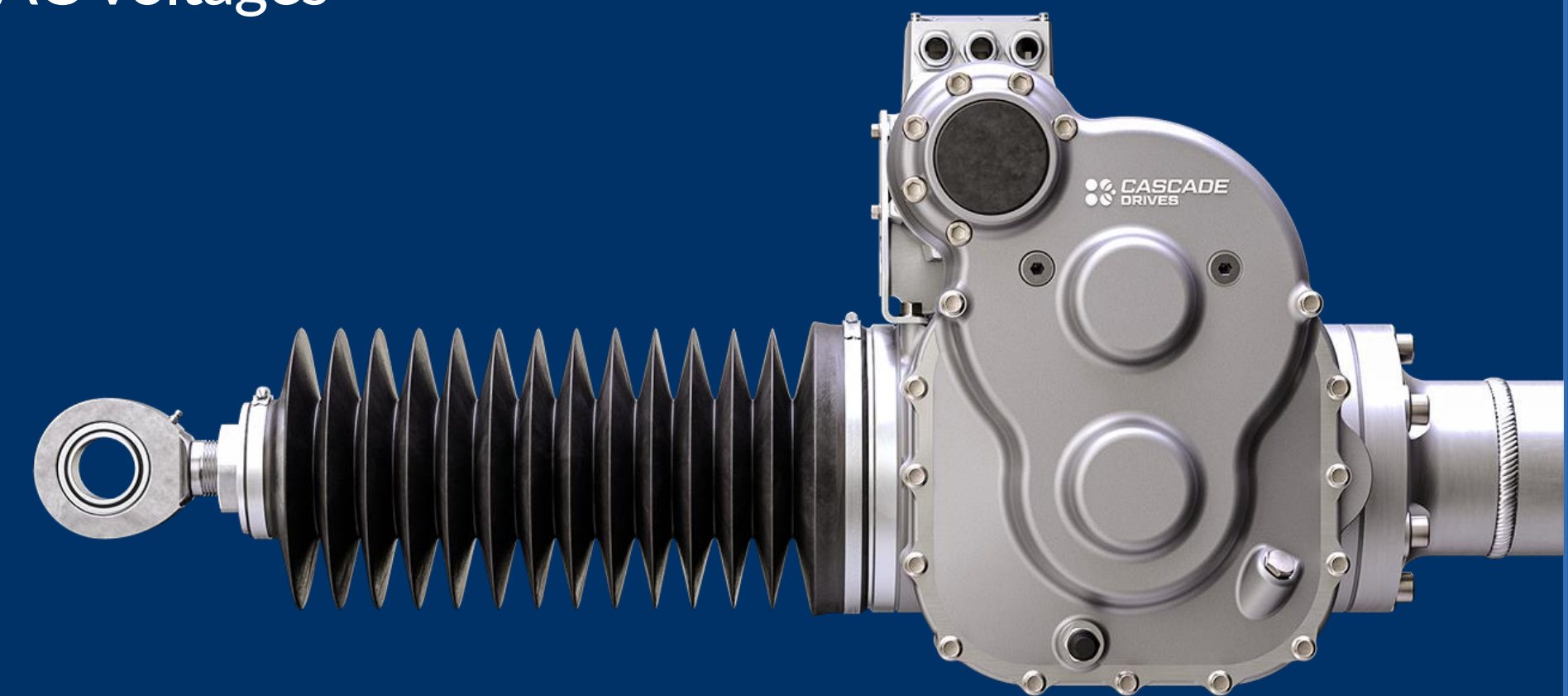
12 – 800 VDC

+ all standard VAC voltages

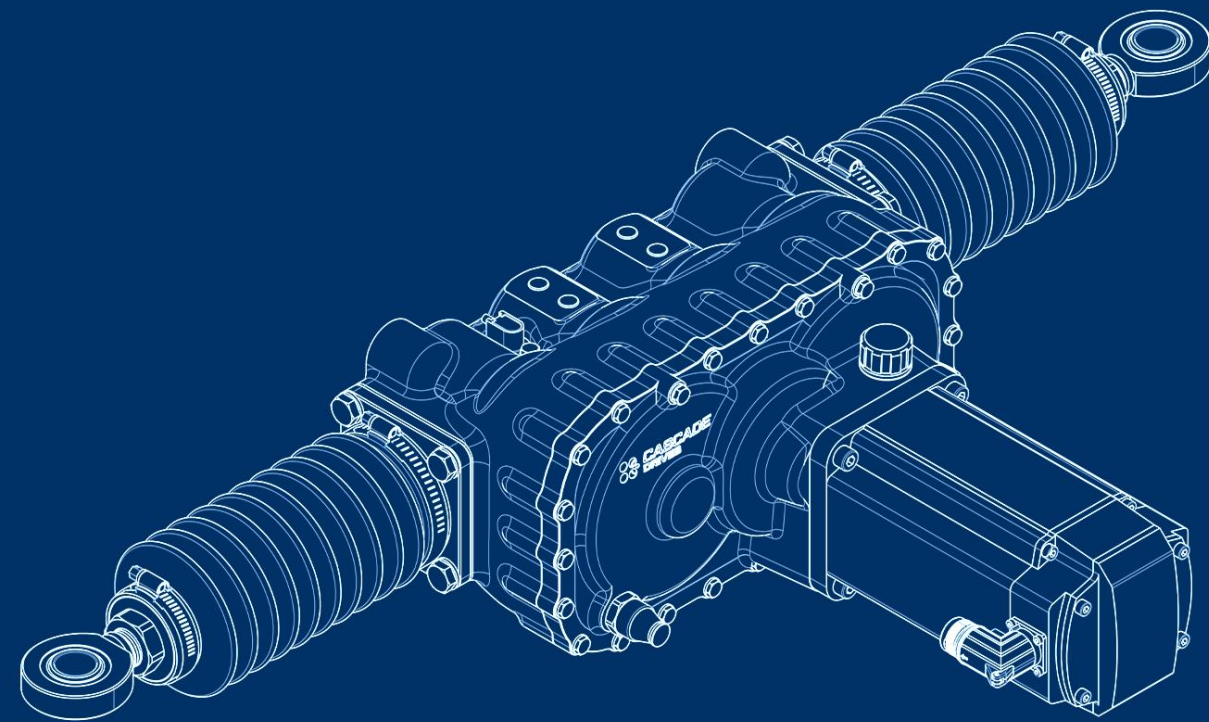
Power

10 – 10,000 mm

Stroke length

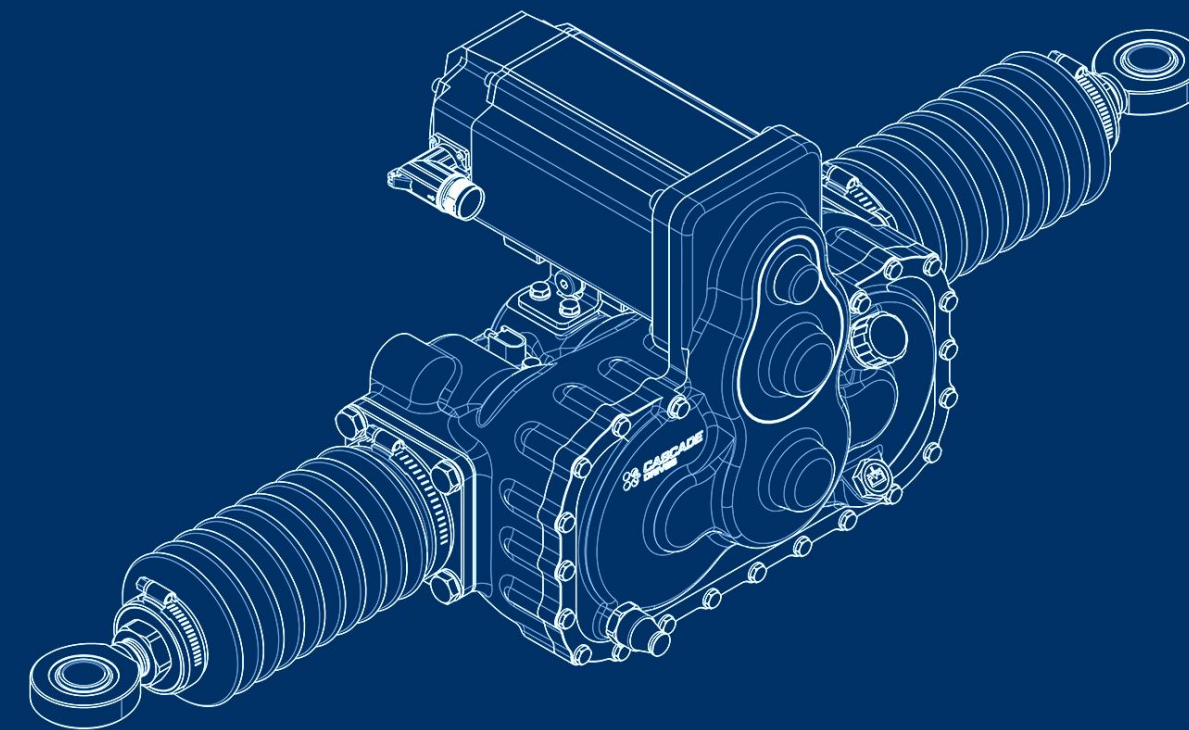


Configurations



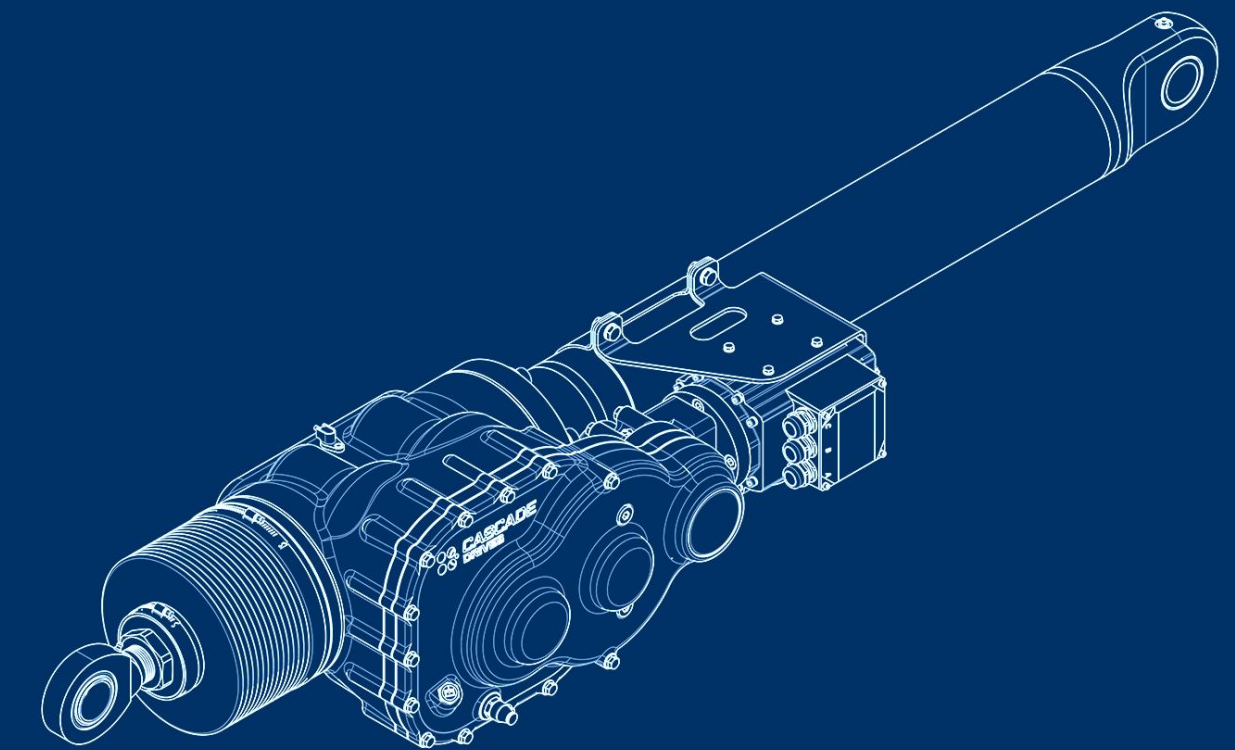
A
configuration

Housing-mounted, double-ended, motor mounted opposite axis to reduce actuator profile.



B
configuration

Housing-mounted, double-ended, motor mounted over axis to increase clearance to surrounding components.



C
configuration

End-mounted, single-ended, motor mounted in parallel to the axis to reduce overall actuator profile.

We outperform all other solutions



Hydraulic actuators

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- » Risk of environmental damage due to leakage
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Other
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Speed →

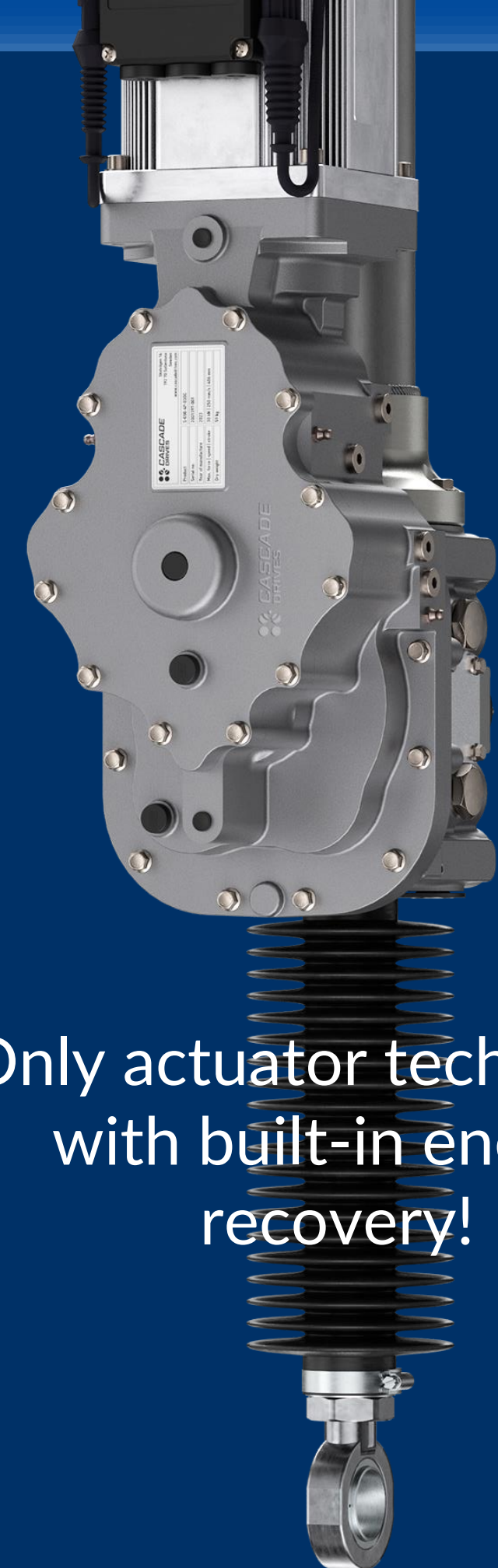
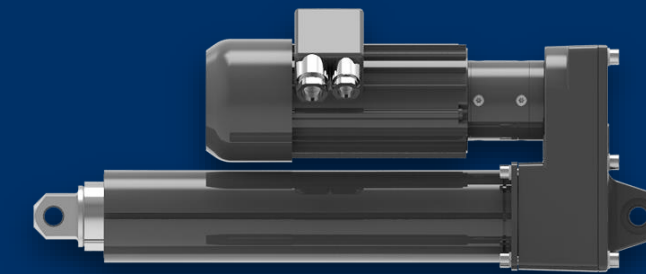
Technology comparison



Ball screw actuator



Hydraulics



Only actuator technology with built-in energy recovery!

Speed vs force	GREAT	POOR	OK
Shock load resistance	GREAT	POOR	OK
Efficiency	GREAT	OK	POOR
Precision	GREAT	OK	POOR
Eco-friendly	GREAT	GREAT	POOR

The world is going electric

Heavy-duty vehicles are joining the electric revolution, but hydraulics systems are often unsuitable.

We replace critical subsystems with true electromechanical solutions:

- » Electric power steering
- » Lifting, tilting, tipping
- » High-pressure pumps

Our systems save up to

- » 40 % in energy use
- » 50 % in total life-cycle cost (TLC)



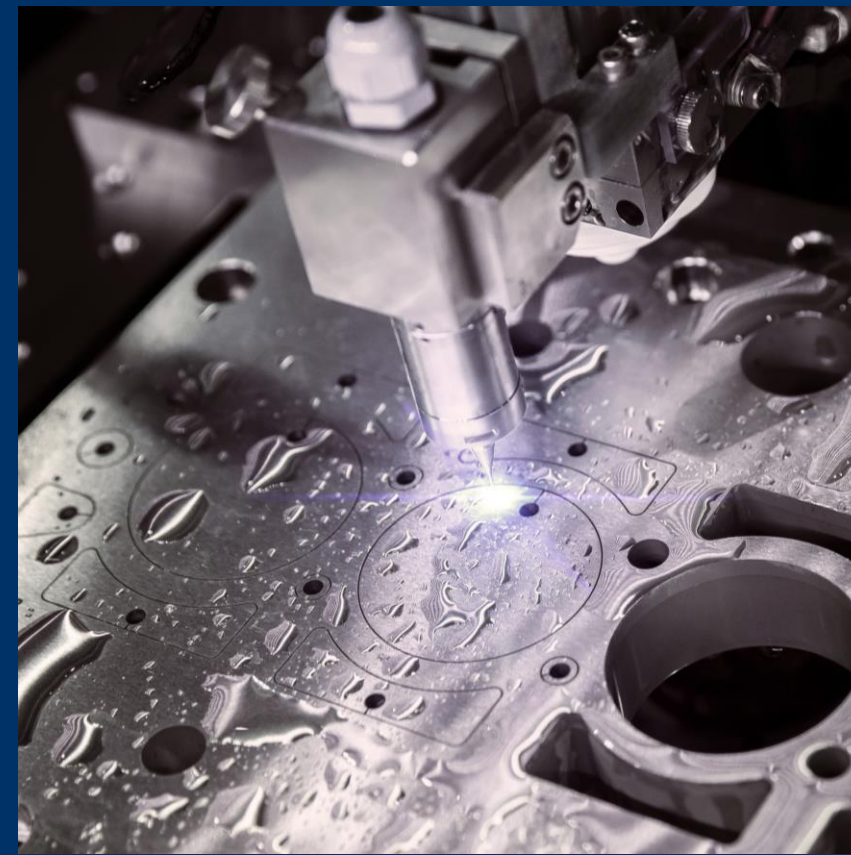
Electric 793 mining truck.
Photo: Caterpillar

Cascade Drives system saves up to

40% 50%

in energy cost

in total life-cycle cost

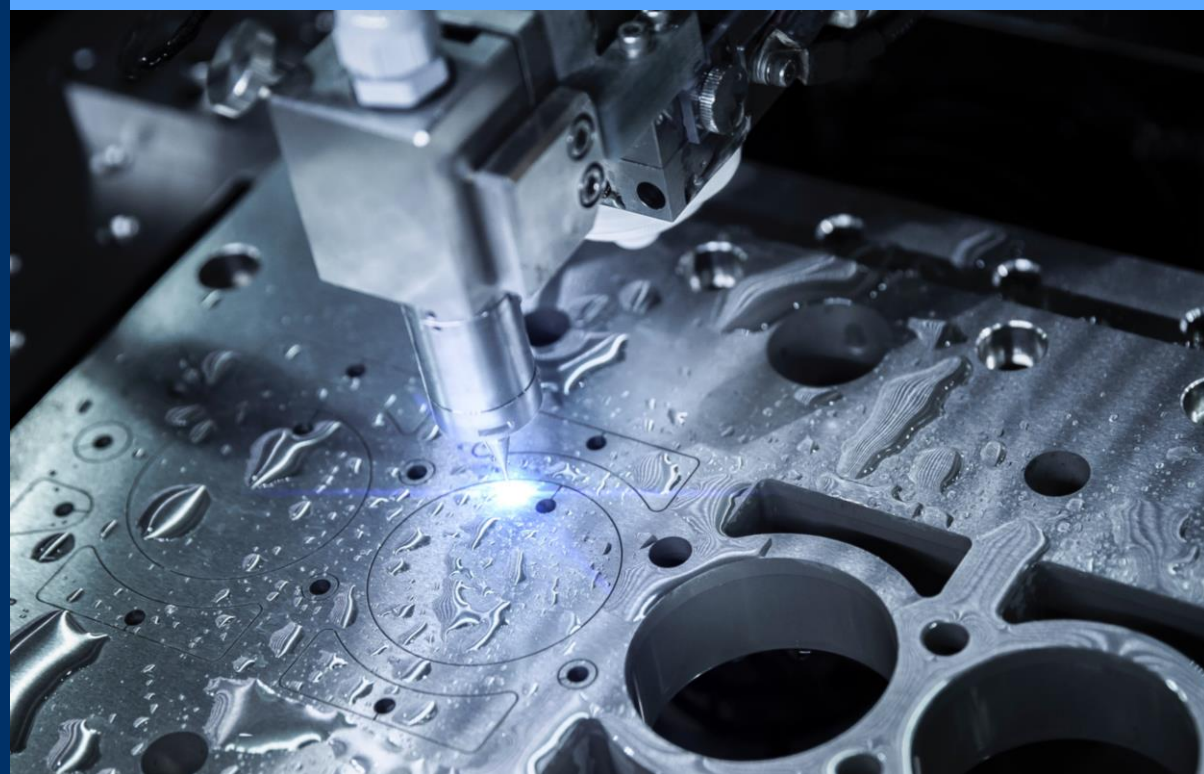


Market segments

INDUSTRIAL

Linear actuators for high-pressure pumps

- » Water-jet cutting
- » High-pressure processing for food and beverages
- » Hydrogen compression pumps



CASCADE 
TruEPS™

Actuators for energy-efficient steer-by-wire solutions

- » Heavy-duty vehicles
- » Autonomous vehicles
- » Trucks, buses



MATERIAL HANDLING

Powerful actuators for heavy work

- » Container handling trucks
- » Garbage trucks
- » Construction equipment
- » Marine loading arms



Industrial

Efficient high-pressure pumps

» Energy savings

Superior mechanical efficiency and controllability mean that significantly less energy is required.

» Compact

A smaller footprint allows for a more optimized use of available industrial floor space.

[\(16\) Lab Test: Extreme positioning accuracy - YouTube](#)

» No risk of contamination

By eliminating the risk of high-pressure oil leakages, we are also eliminating the risk of fire and contamination.

» Improved productivity

Stabilized pressure at all times results in higher productivity.

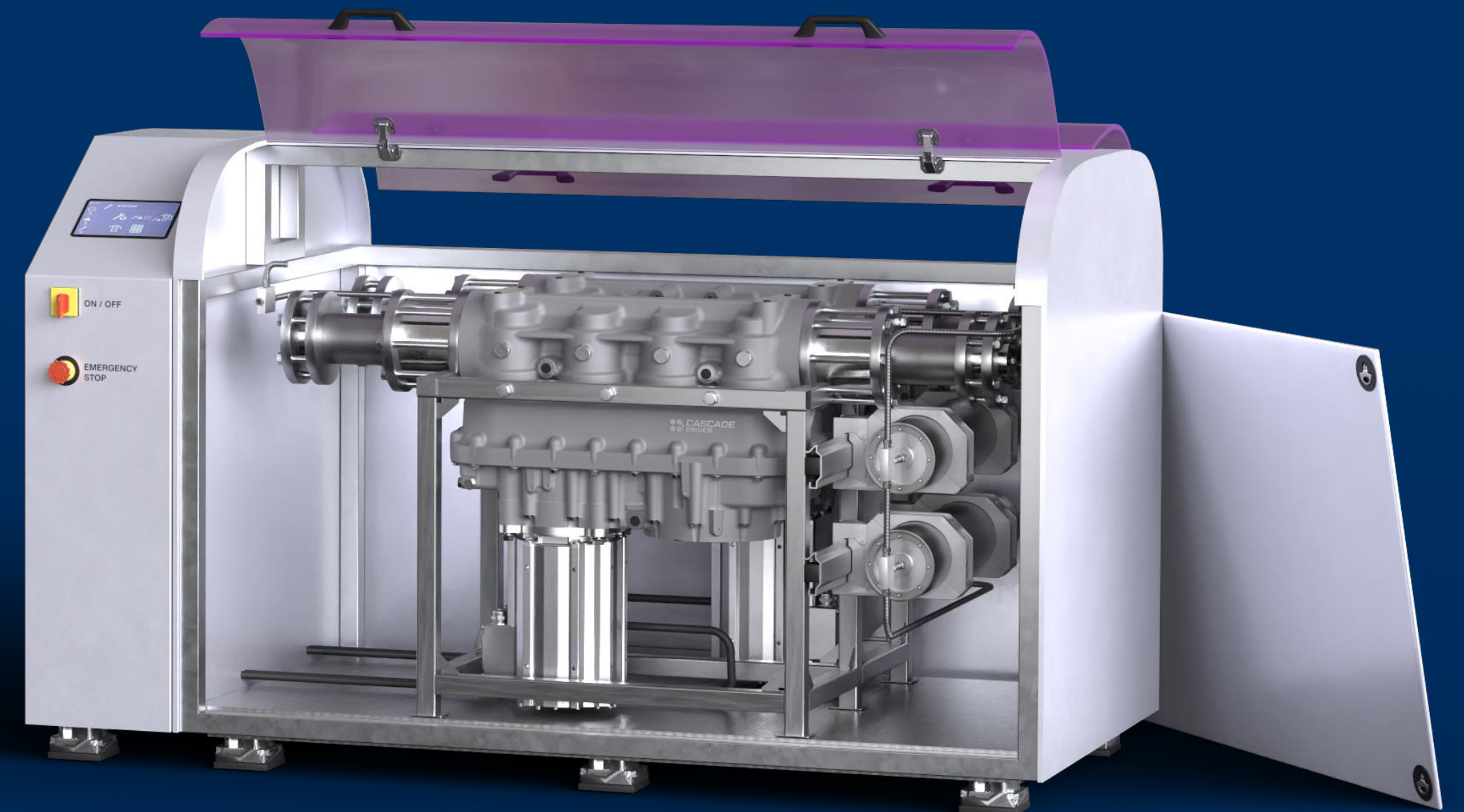
EXAMPLE BUSINESS CASE

80 kW high-pressure pump

4,000 running hours compared to a hydraulic system

Energy saved **25%** (value: €8,000)

Return on investment **<18 months**



Electrical Power Steering

Next-gen steering for buses and heavy vehicles

[\(16\) TruEPS Presentation – YouTube](#)

[\(16\) TruEPS - Electromechanical steering system - YouTube](#)

The new innovative commercial vehicle steering system

» Single unit design

No more hoses, pipes, pumps, and reservoirs. And no oil leaks.

» ADAS integration

Communicates with existing vehicle safety and comfort systems.

» Superior response time

Torque response time below 25ms.

» Market-leading accuracy

0.1 mm linear accuracy.

» Advanced steering control

Adjust for any axel distance. Use independent axel control for crabbing and other functions.

» Energy efficient

Extends vehicle range with smart energy management.

» Shock-proof

High shock load resistance eliminates downtime and high service costs.

» Low maintenance

Designed to match a vehicle's lifetime.



CASCADE 
TruEPS™ SelfDrive



CASCADE 
TruEPS™ Assist

Material handling

Large energy savings result in higher productivity



Replacing hydraulic systems in material handling equipment comes with several benefits:

- » Large energy savings results in extended operating range
- » Increased number of movements with higher lifting speed
- » Less energy consumption means a smaller CO₂ footprint
- » Reduced risk of oil leakage and a healthier work environment



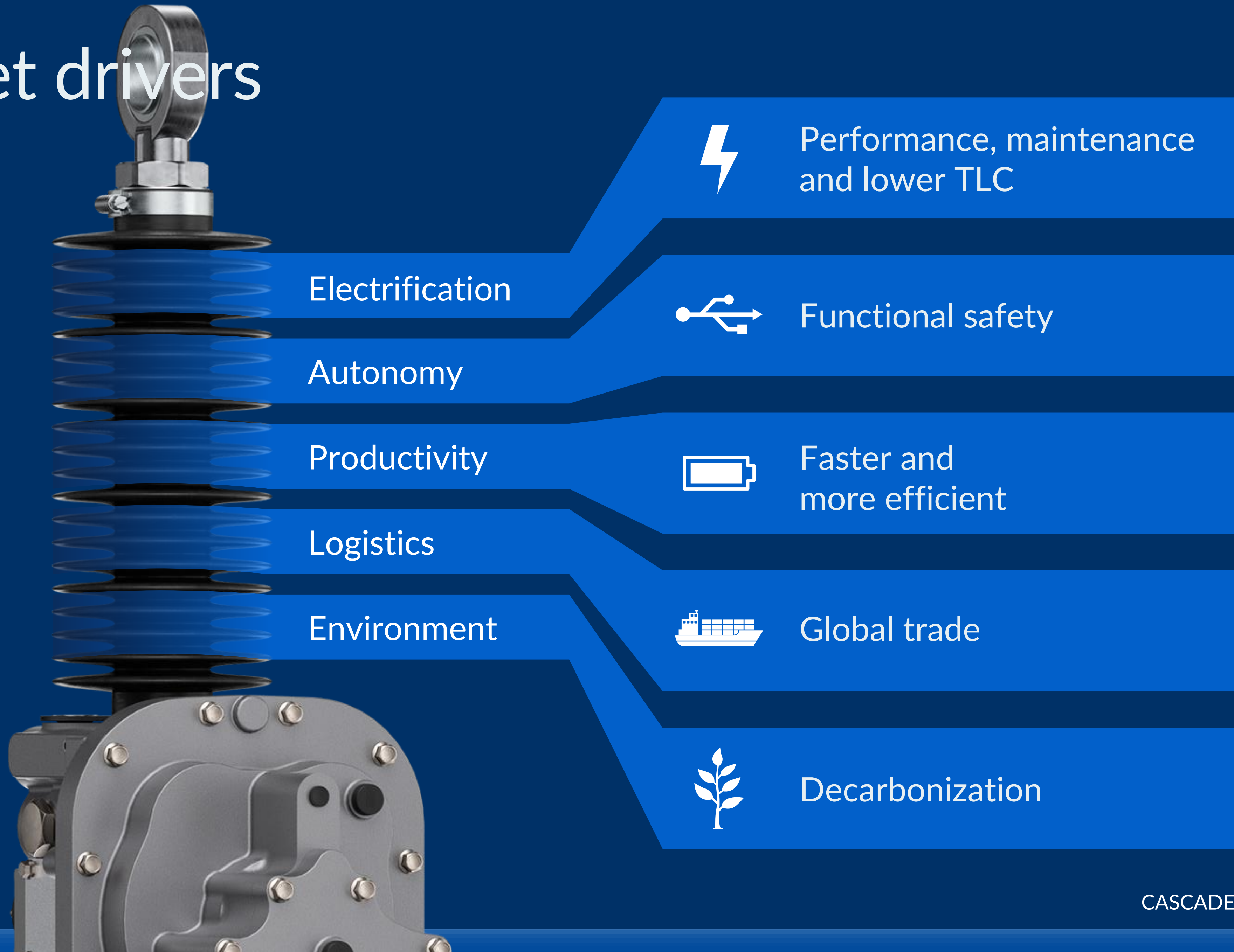
EXAMPLE BUSINESS CASE

Empty container handler

100,000 electric lift cycles compared to a hydraulic system

Energy saved	59 %	13 700,00 €
Time saved	42 %	20 160,00 €
		33 860,00 €

Market drivers





Drop hydraulics.
Go electric.

max.streng@cascadedrives.com
+46 76-130 89 45

