

A vertical photograph on the left side of the slide shows industrial machinery in motion, heavily blurred to convey speed. The machinery appears to be a press or a similar metal forming machine, with various components and a large vertical shaft visible. The background is a mix of yellow and blue tones, suggesting an industrial setting.

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Siemens Servo Press Energy Management

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Business Development
Metal Forming

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A photograph of three men in business attire sitting in a modern office lounge. The man on the left is in profile, gesturing with his hand. The man in the middle is looking towards the man on the right. The man on the right is smiling and gesturing. They are sitting around a small round table. The background features large windows and a modern interior design.

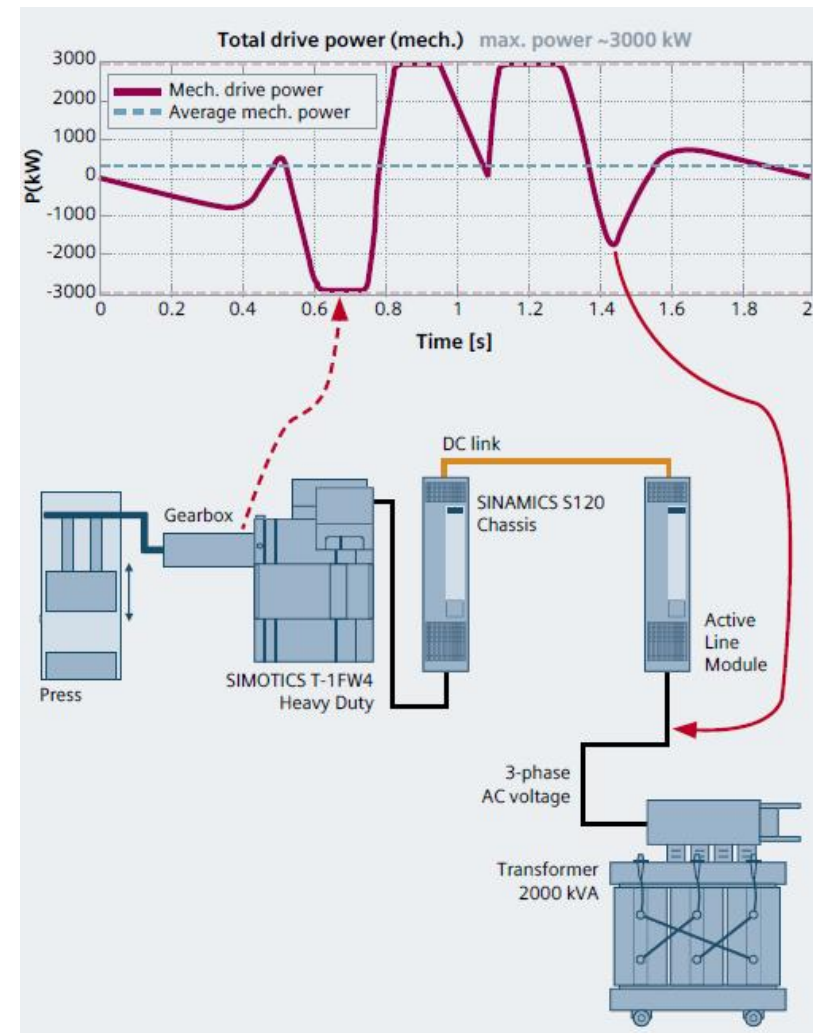
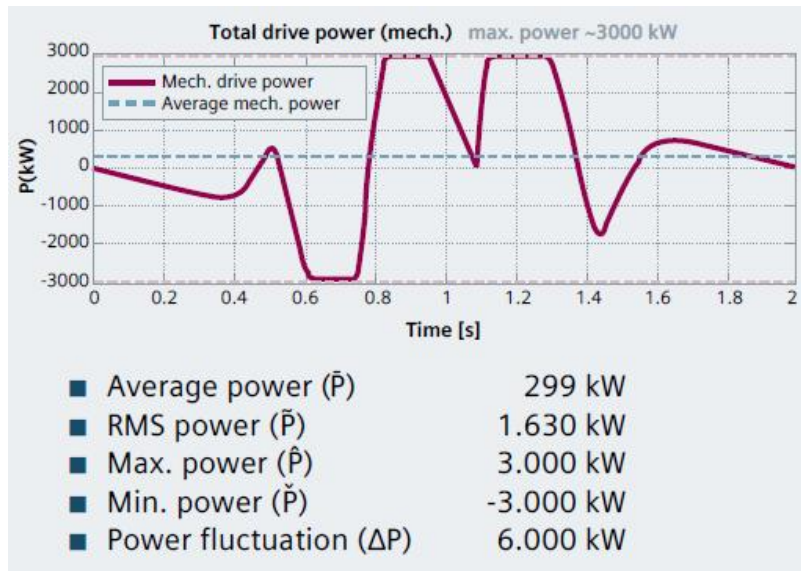
So ..You Want a

Servo Press

How Much Energy

will it use?

Servo Press Power Requirements 2000t - 550kJ – 30spm



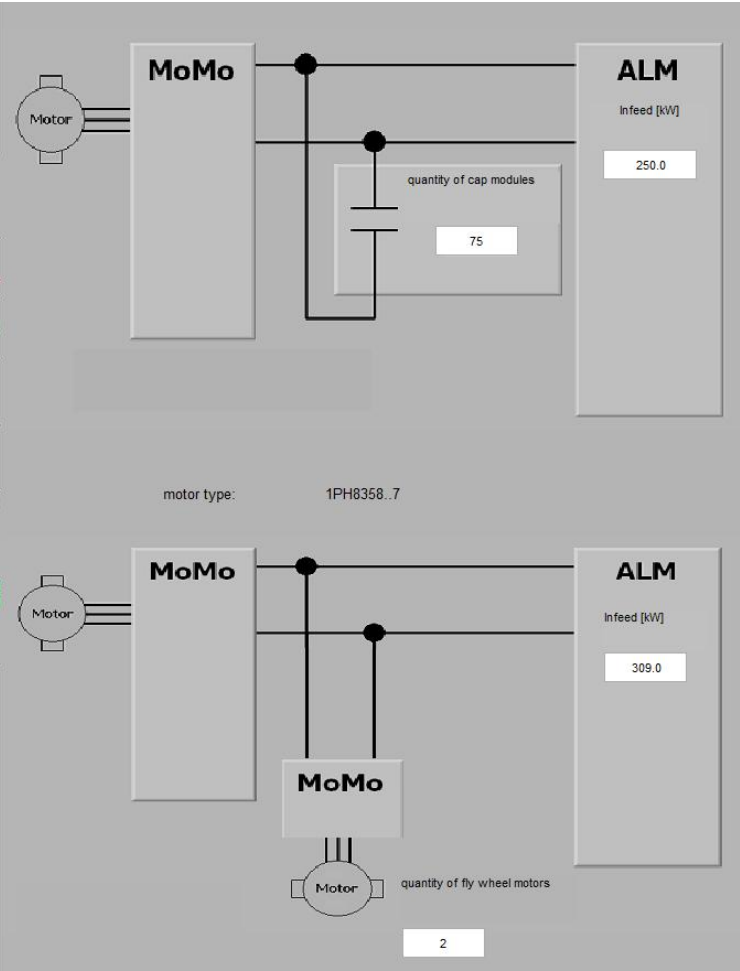
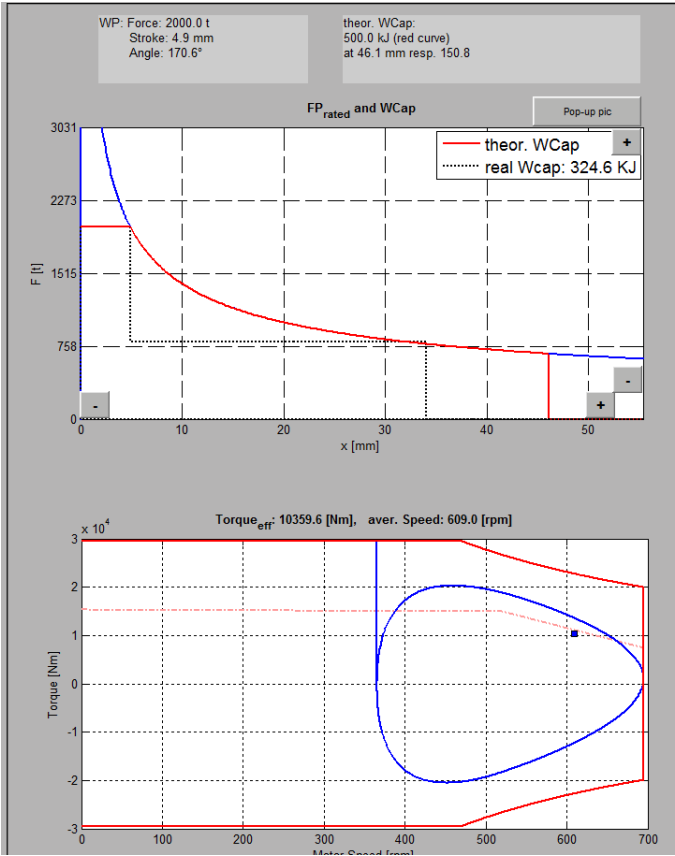
Elec Service Req'd 2400amps

3x2000 awg THHN/Phase

Transformer \$\$/Main Disc \$\$

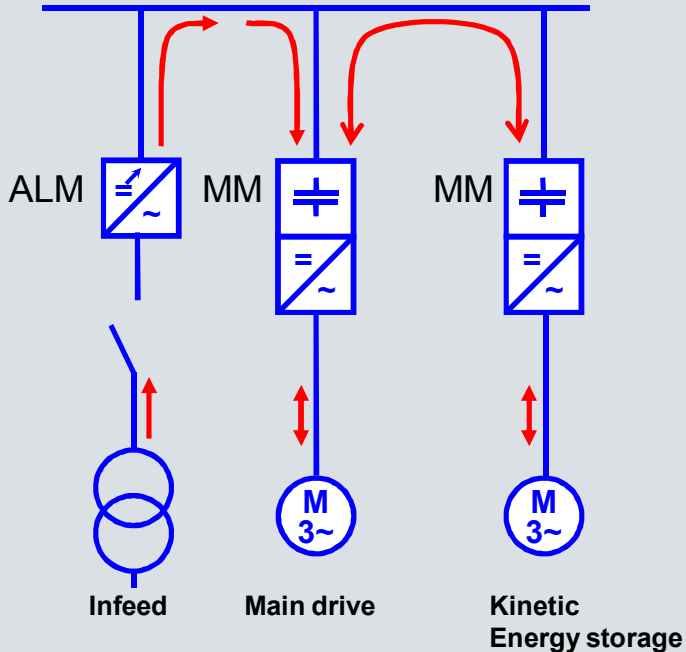
Buss Connection \$\$

Servo Press System Calculations



Optimized Energy Efficiency for Servo Presses for Manageable Energy Supply

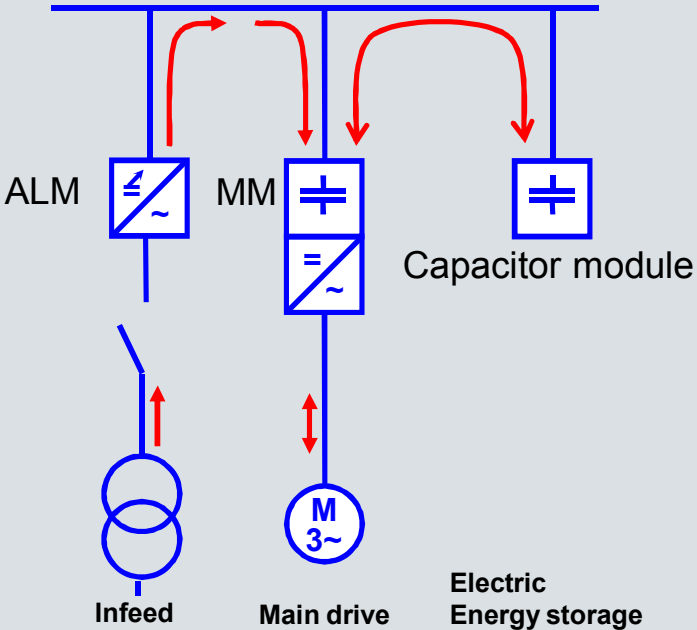
Kinetic energy storage



SINAMICS S120
ALM=Active Line Module
MM= Motor Module



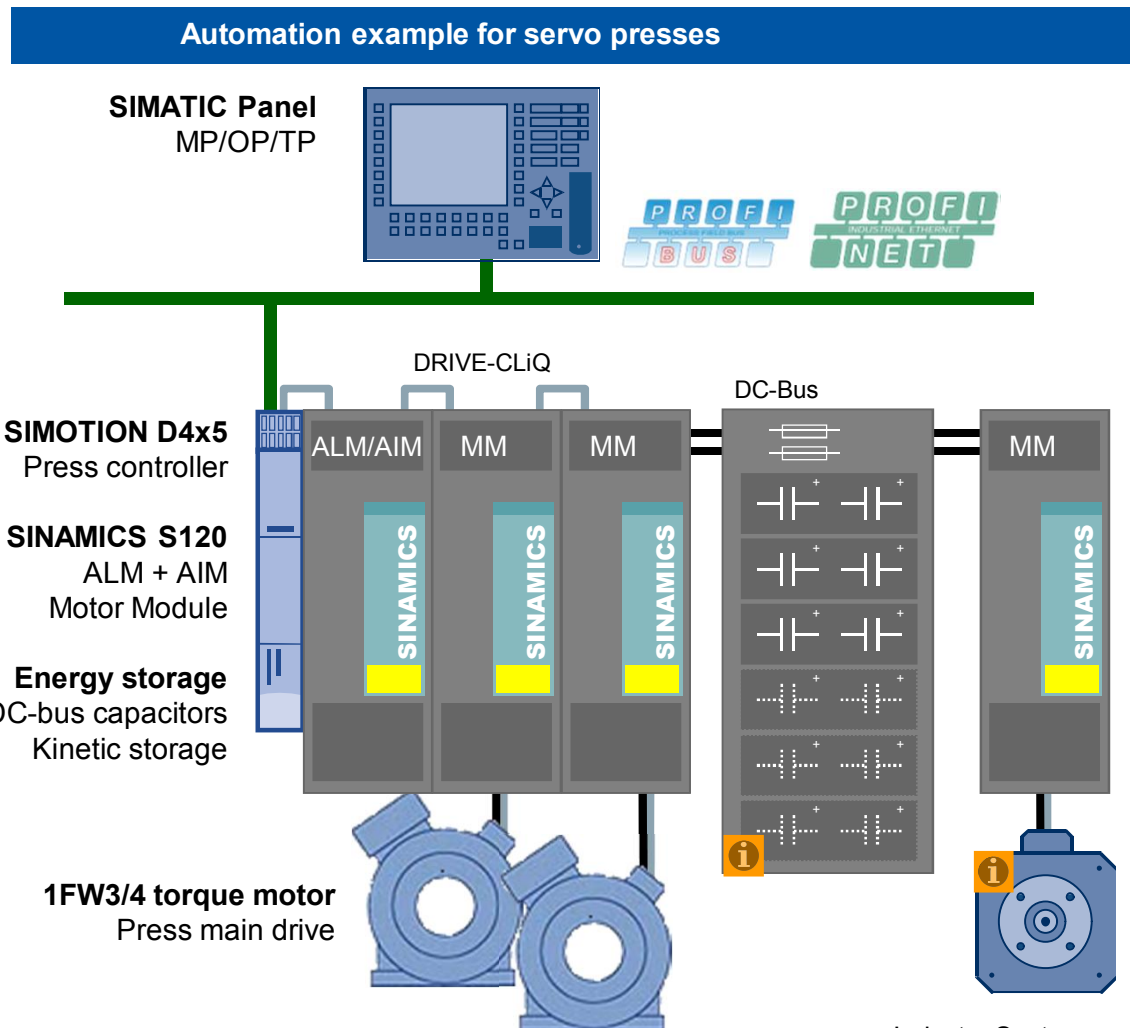
Electric energy storage



SINAMICS S120
ALM=Active Line Module
MM= Motor Module

Integrated Servo Press Automation with Energy Management Systems

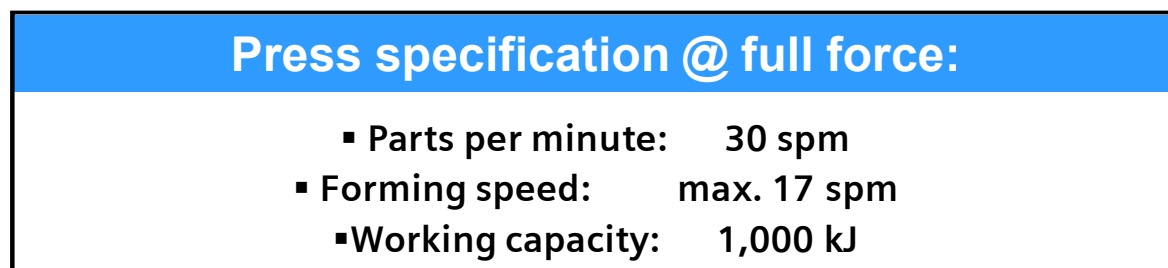
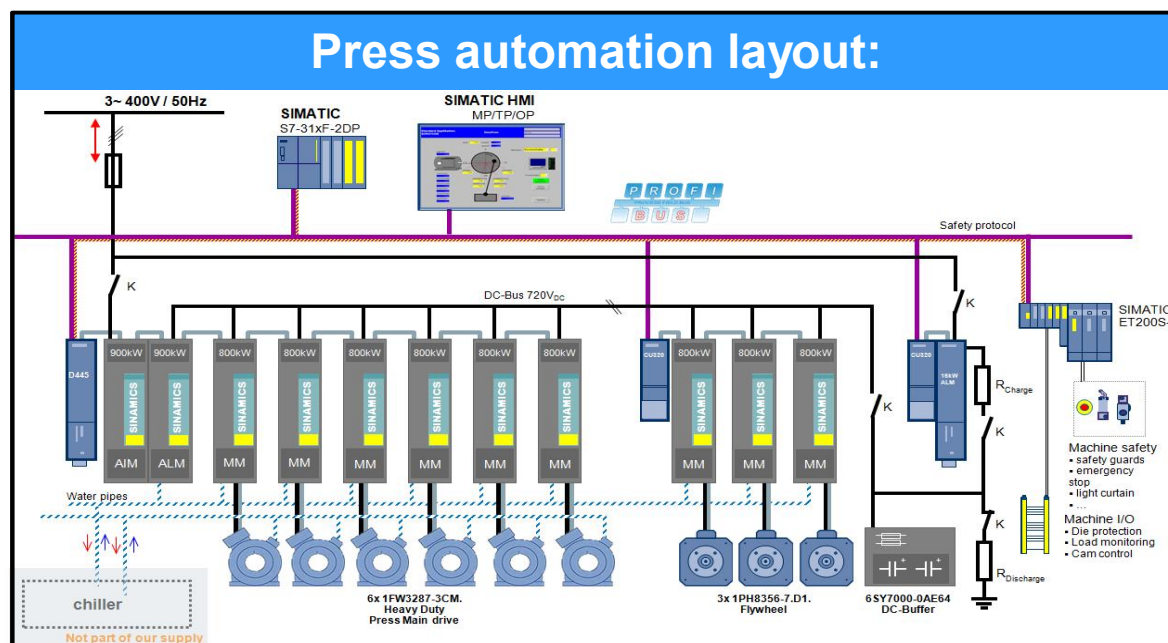
- ▶ **Maximum flexibility:** thanks to scalable products, systems and solutions.
- ▶ **Designed with standard components.**
- ▶ **Pre-engineered function blocks for faster time-to-market**
- ▶ **Reduced energy consumption compared to a conventional press.**
- ▶ **The power demand from the mains supply can be engineered.**



Industry Sector

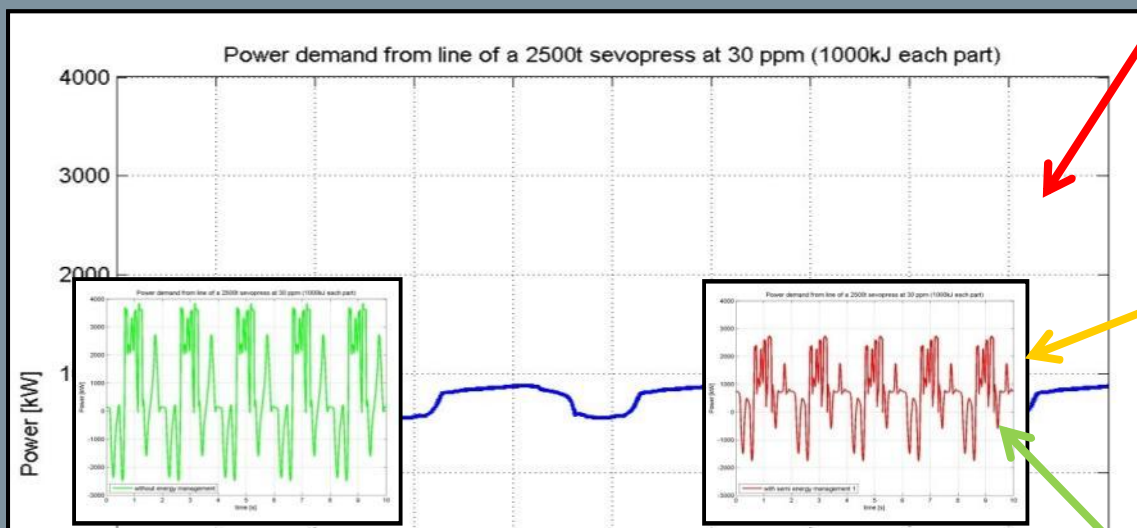
Automotive reference

25,000 kN (2,750 US tons) servo press at German prime car manufacturer



Energy management systems at a glance

Example: 2,750 US tons at 30spm with 1,000kJ load at 6"



Without energy management i

Nominal grid input power: **2.100 kW**

Performance parameters:

- Average power: 698 kW
- Max. input power: 3,855 kW
- Feedback power: -2,486 kW
- Power fluctuation: Δ6,341 kW

Semi sized energy management

Nominal grid input power: **1.800 kW**

Performance parameters:

- Average power: 716 kW
- Max. input power: 2,751 kW
- Feedback power: -1,755 kW
- Power fluctuation: Δ4,506 kW

No oscillation and peak loads

Full sized energy management

Nominal grid input power: **900 kW**

Performance parameters:

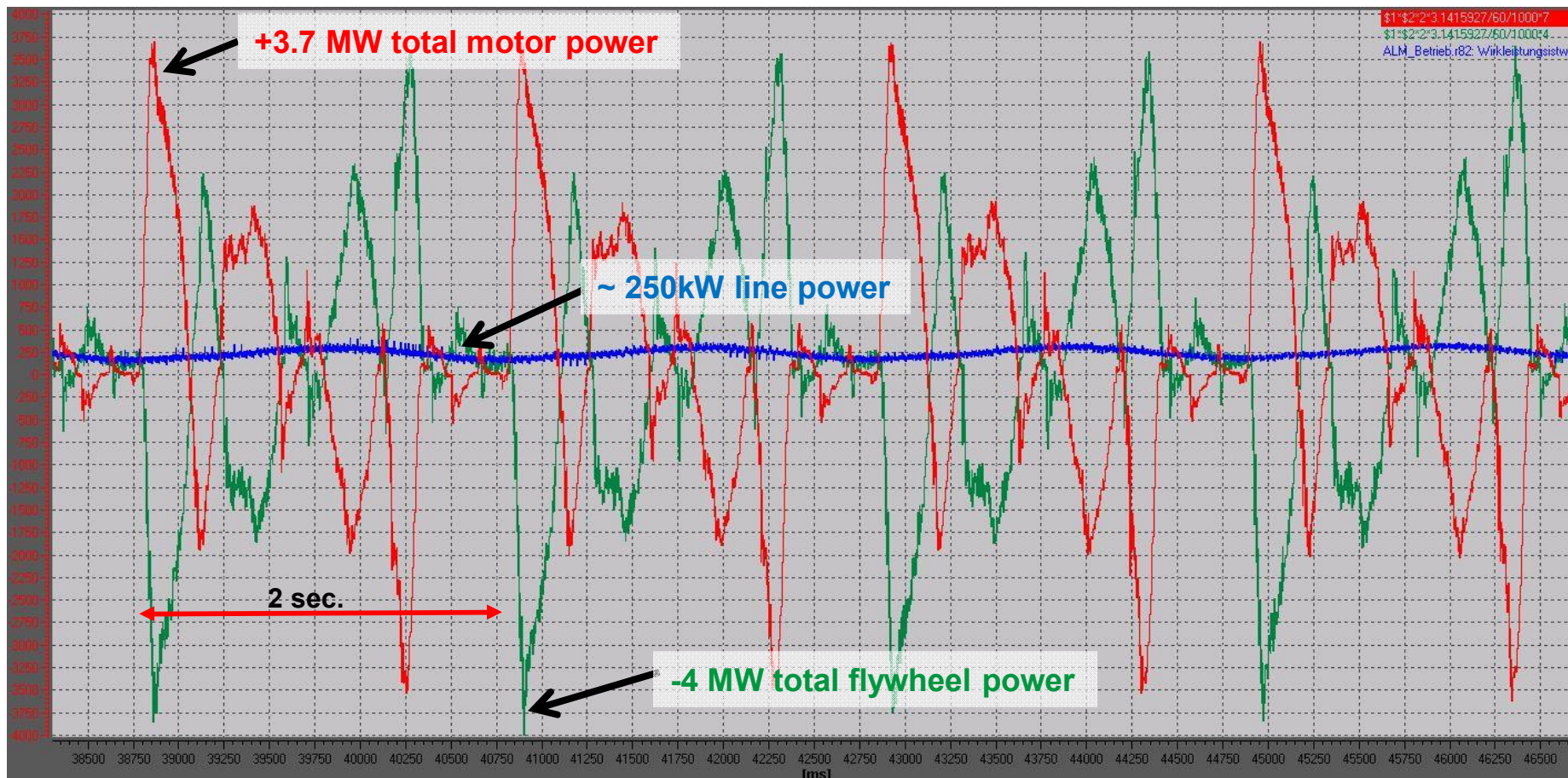
- Average power: 754 kW
- Max. input power: 877 kW
- Min. input power: 558 kW
- Power fluctuation: Δ319 kW

- + Simple to engineer
- + Reduced investment costs

- Very high oscillating load
- Oversized transformer
- Higher investment for infrastructure
- High line peaks and feedback to line
- Increased energy costs

Energy management systems at a glance

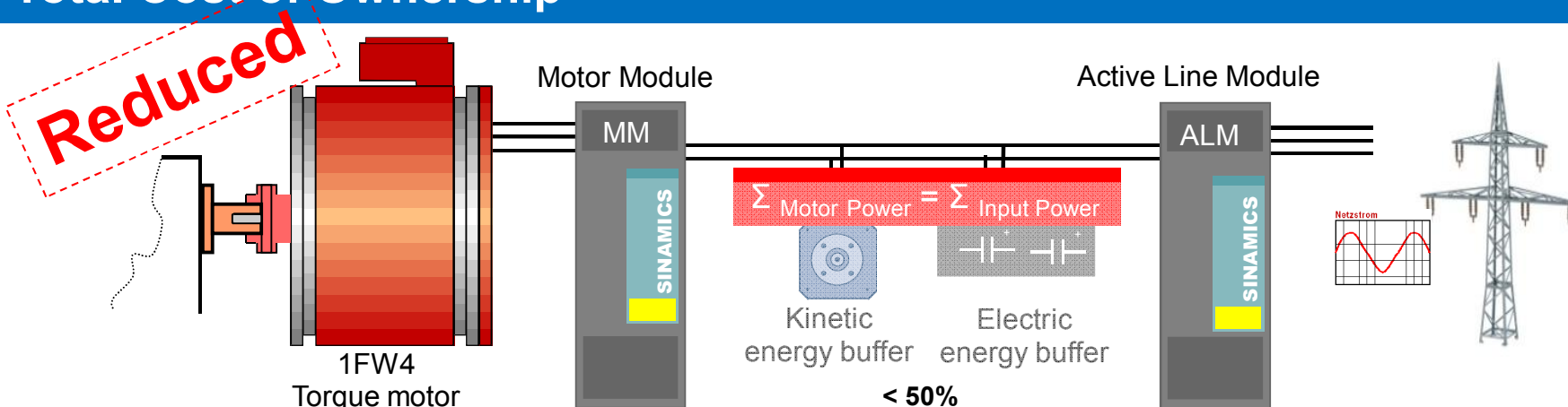
Example: 2,750 US tons at 30spm



How energy is transformed from cost factor to success factor

Example: 2,750 US tons at 30spm with 1,000kJ load at 6”

Total Cost of Ownership



System:	Energy costs:
Without Energy Management :	747,980 US\$/y
Semi Energy Management :	605,650 US\$/y
Full Energy Management :	515,450 US\$/y

- Basis of calculation**
- Operation: 3 shifts with 6.392 h/y
 - Active energy costs: 0.09 US\$/kWh
 - Peak power (15min average): 9.00 US\$/kW
 - Direct connection to power grid.

► Increasing energy efficiency quickly results in companies being able to slash their energy costs by 15 percent and more – with payback times that are often less than two years.

A vertical photograph on the left side of the slide shows industrial machinery in motion, heavily blurred to convey a sense of speed and activity. The machinery appears to be part of a metal forming process, with various components and structures visible in shades of blue, grey, and yellow.

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Thank you for your attention!

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