

DE2020 ENERGY MANAGEMENT SYSTEM



HIGH PERFORMANCE DESIGN FOR
SMART POWER MANAGEMENT

WHAT MOVES YOUR WORLD

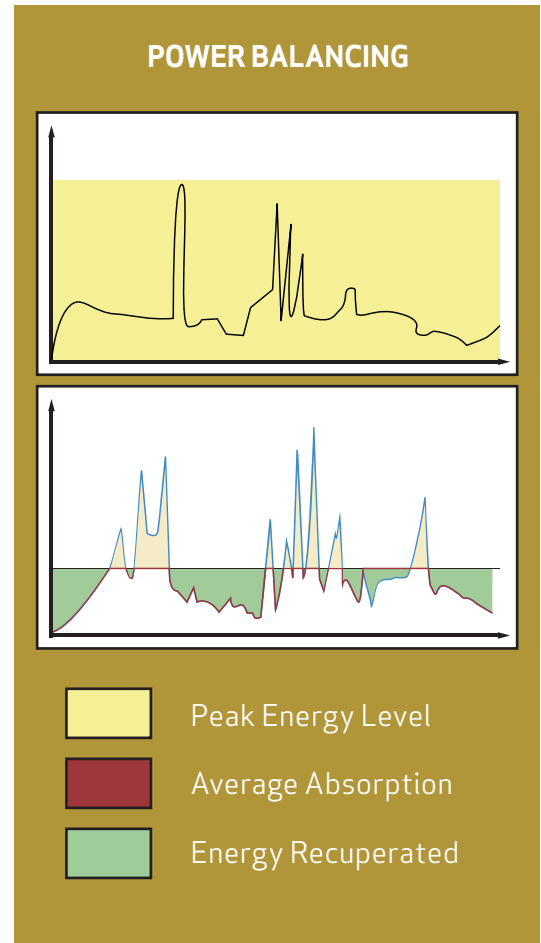
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DE2020 ENERGY MANAGEMENT

The DE2020 Energy Management module can improve the efficiency of any machine by storing the energy into external accumulators and supplying it back during high power requests.

Dynamic storage and provision of energy considerably increase the overall energy saving and allows a smarter and lighter electrical system design.

In a typical system the design is often affected by power line oversizing, due to the need of standing the requests of high energy peaks. The DE2020 allows the electrical power line to be sized more closely to the average power rather than the peak, resulting a more efficient and economical layout.



DE2020 SYSTEM OVERVIEW

Modes of Operation:

- **Power Leveling**

In a typical machine cycle, accelerations require peaks of power; the DE2020 can handle energy using energy storage accumulators in order to guarantee a performance beyond the nominal power of the electrical equipment.

- **Energy Recovery**

Usually while braking, the energy that motors give back to the system is partially wasted as it is dissipated on the power supply dynamic braking resistor. With the DE2020 module, this energy is stored in the accumulator energy banks, such as the Moog Additional Bus Capacitor (ABC module) or larger in sizes, in order to be saved and reused.

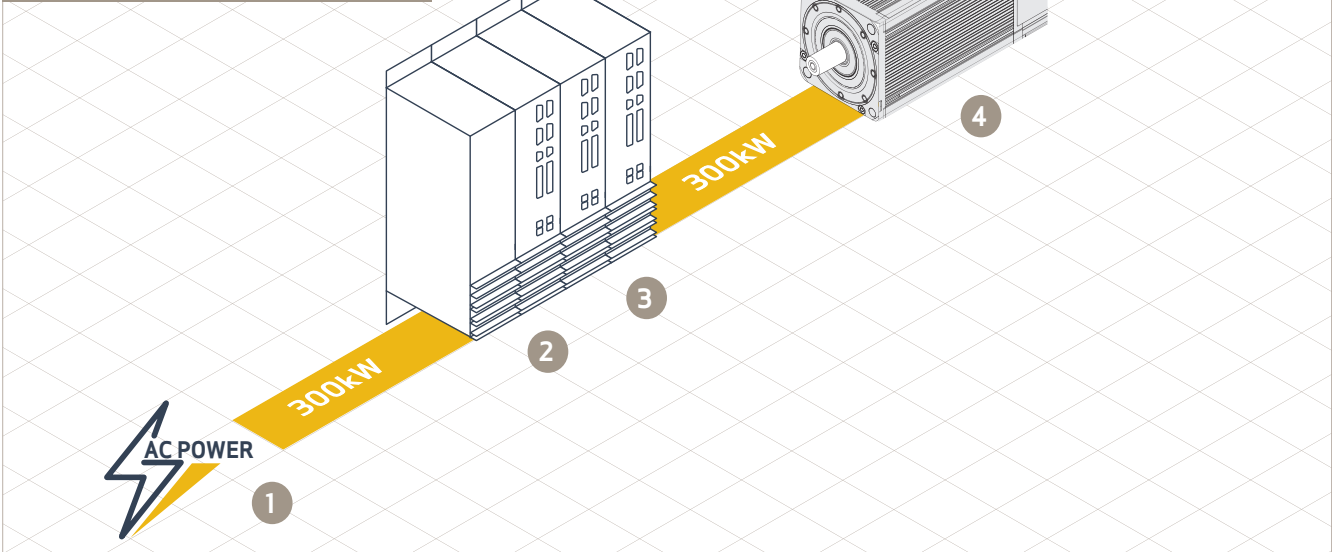
- **Energy Backup**

The DE2020 can use the energy stored in the accumulator energy banks when the grid is down to ensure safe home movements of the machine and/or to keep safely controlling critical axes during grid failures. This feature makes the system more reliable and protected against issues related to sudden losses of power from the grid.



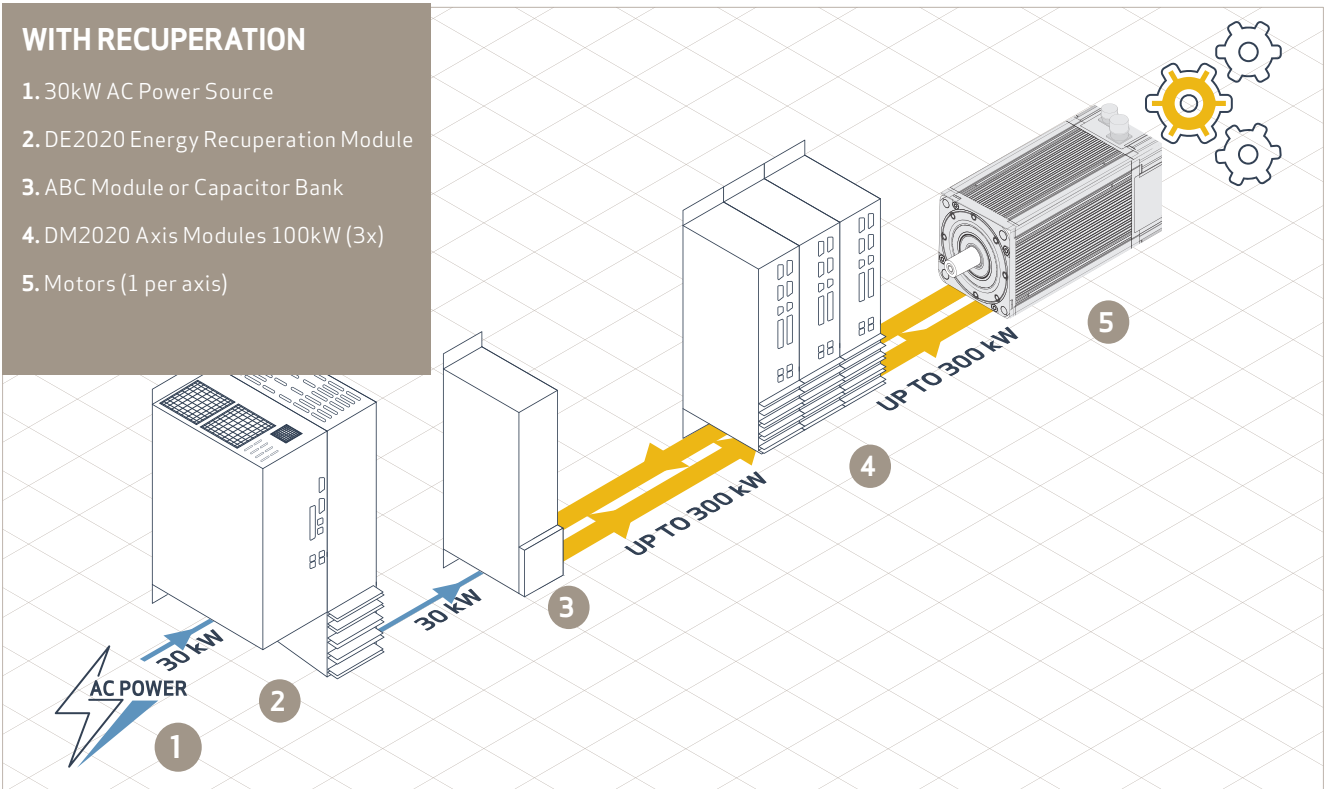
WITHOUT RECUPERATION

1. 300kW AC Power Source
2. DM2020 Power Supply Module
3. DM2020 Axis Modules 100kW (3x)
4. Motors (1 per axis)



WITH RECUPERATION

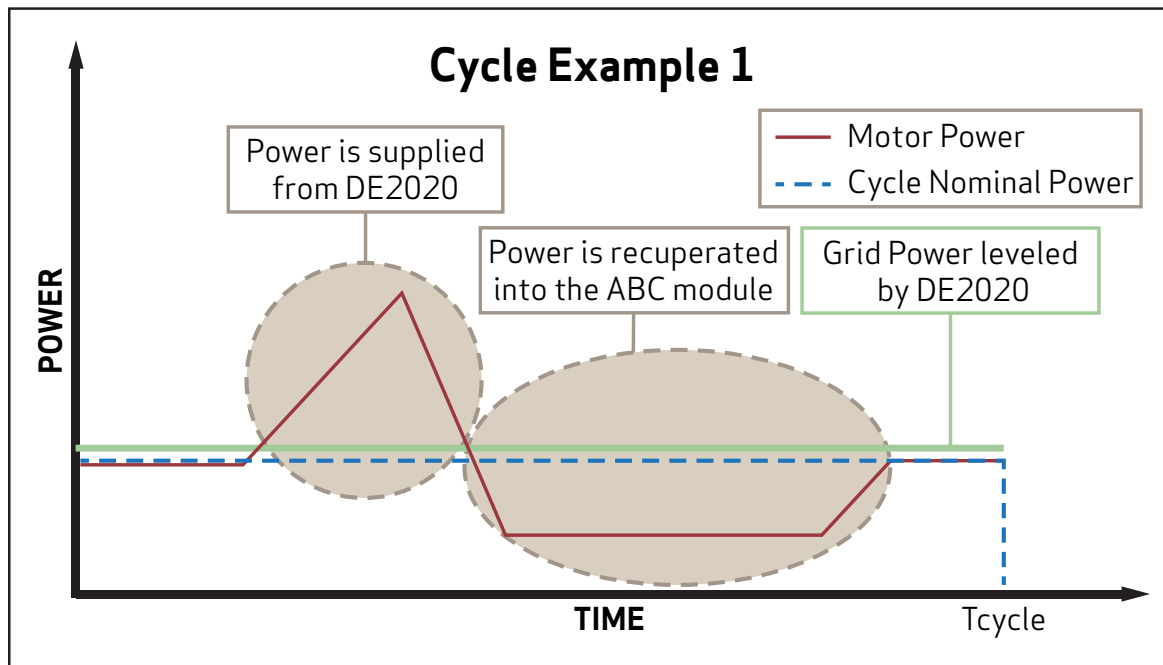
1. 30kW AC Power Source
2. DE2020 Energy Recuperation Module
3. ABC Module or Capacitor Bank
4. DM2020 Axis Modules 100kW (3x)
5. Motors (1 per axis)



TYPICAL WORK CYCLE

During normal machine activity, the DE2020 module will:

- Manage the input power profile, shaping the electrical power coming from the input, leveling the peaks, and flatten the load peak on the DC grid.
- Charge the accumulator energy banks and accurately control the voltage across them.
- Provide additional energy during acceleration phases.
- Handle the kinetic energy obtained from running masses during their braking phases.
- Provide the system with previously stored energy during acceleration phases.
- Temporarily withstand DC grid failures or unexpected disconnections of the DC power supply providing the system with the necessary energy to bring the machine to a safe state.



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