VATHAUER
ANTRIEBSTECHNIK

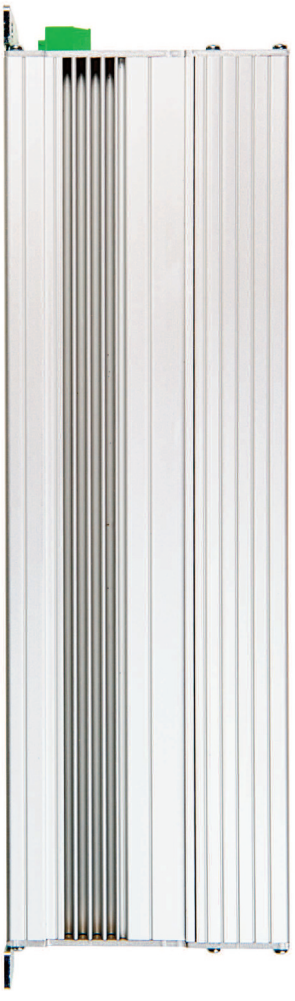
Energy-Recovery-System (ERS)

ENERGY-RECOVERY-SYSTEM

The Energy Recovery System

"Using energy, instead of burning it" is the motto these days! Why should the braking energy be transformed into heat, when it cannot be fed directly back into the system network? It is precisely this basic idea which has induced us to develop a system with which the energy can be "reused" again.

During braking of three-phase motors or servomotors regenerative energy is released. This flows into the intermediate circuit of the drive controller and must be converted into heat through the corresponding braking resistors and destroyed. In applications where potential energy from lifting, lowering and braking movements is converted into heat loss through braking resistors, the Energy-Recovery-System can utilize this potential energy. With the installation of the system, the regenerative energy of your servo or standard drive is no longer lost. The ERS acts as a centralized or decentralized energy recovery unit and feeds the energy back into the system network via the connected drive controller.

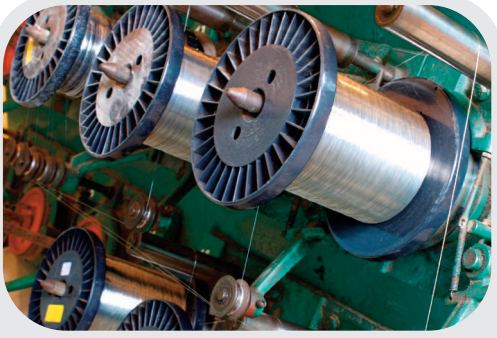


Areas of Application

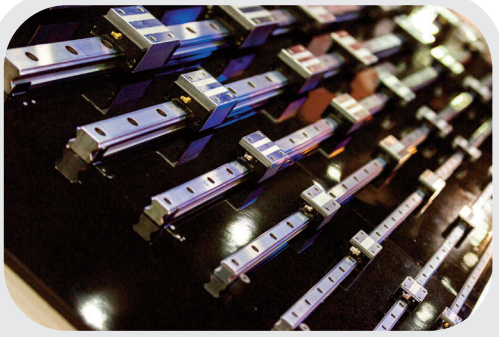
The Energy Recovery System can be used anywhere where a braking resistor is used. Energy-Recovery-System is suitable for all lifting, braking and lowering applications. This covers all areas where excess braking energy is converted into heat. Thus, the ERS has a lasting and energy saving impact on these areas. The system has been designed such that it starts saving energy from the very first regenerative cycle, providing the user with a significant benefit. Thus machine manufacturers and customers can be downgraded to a low energy level.

Lifts

Intralogistic systems



Winding machines



Linear drives

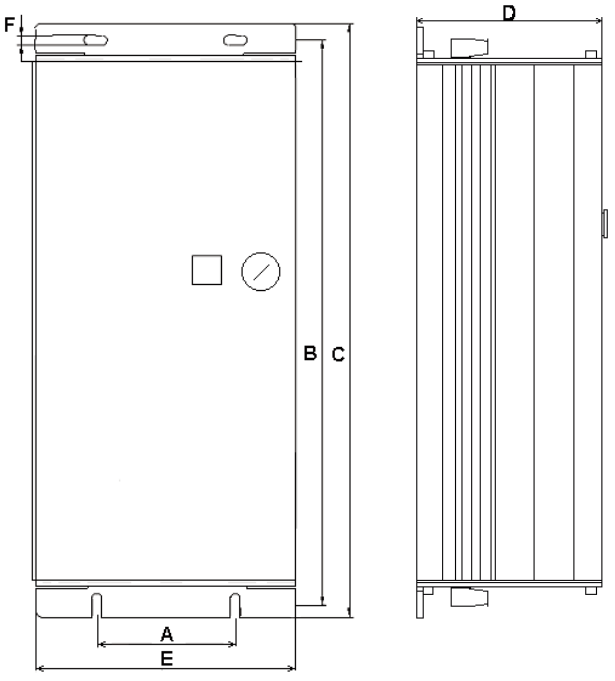
Escalators

Packaging systems

Specifications

Connection voltage	3x400Vac 50Hz, Clockwise rotating field
Capacity	Peak capacity: 5kW (2 - 9A) @ ED35% (S3 mode)
	continuous output: 2kW @ ED100% (S1 mode)
Switch-on threshold	Can be adjusted in the device
Safety braking resistor during power failure	Integrated
Status LED	Operational readiness / synchronisation / feeding mode / excess current / excess temperature
Protection class	IP20 (optional IP54)
Digital output	Operational / Collective fault signal
Monitoring functions	Intermediate circuit voltage / Device temperature
EMC measures	Integrated - no EMC measures necessary on the customer side
Connectible drives	Three-phase drive or servo drives
Ambient temperature	0°C to +40°C
Housing dimensions (LxWxH)	312 x 112 x 90mm / aluminium housing
Weight	2.1kg

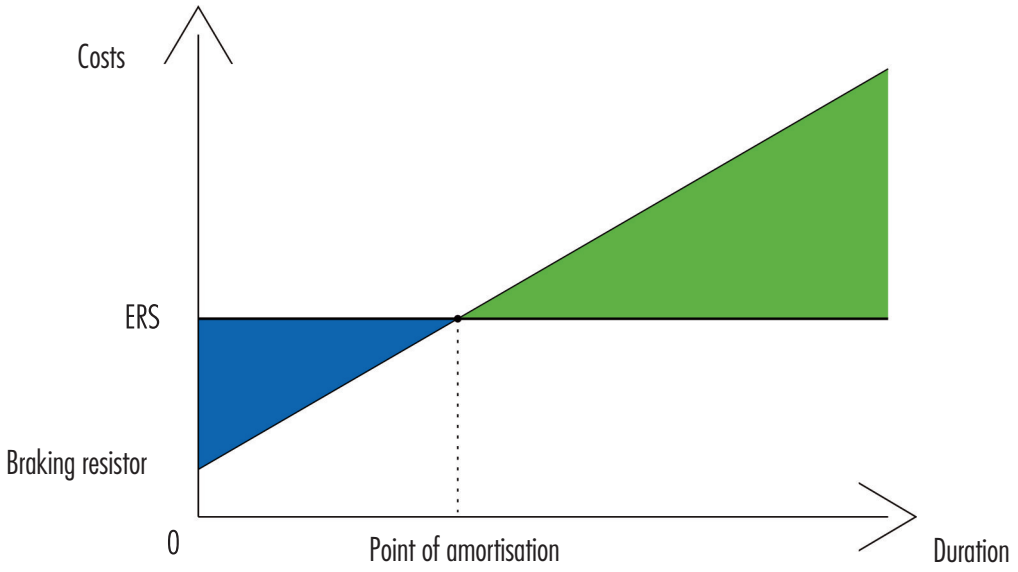
Dimensions

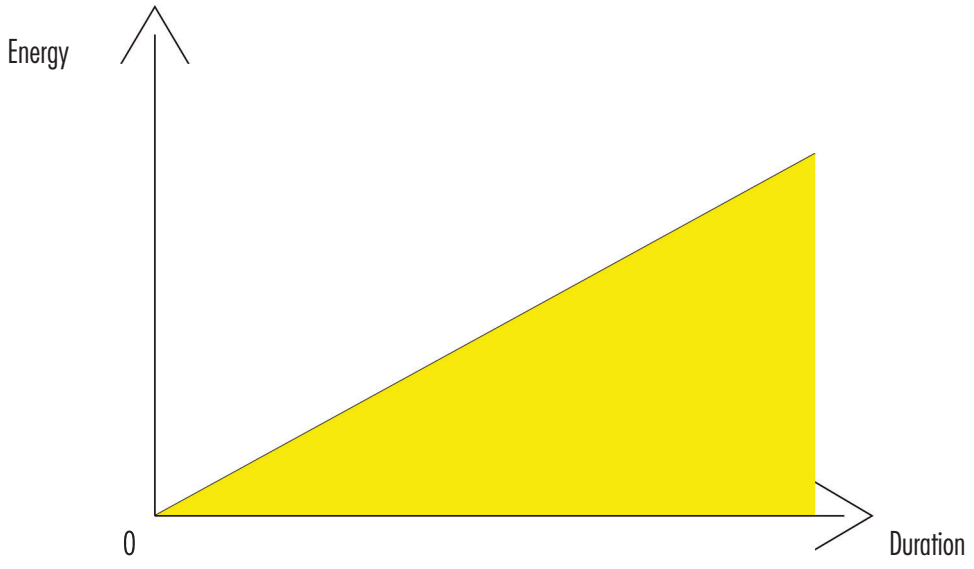


Dimension	ERS
A	65mm
B	290mm
C	312mm
D	90mm / 92mm*
E	112mm
F	5mm

* Height incl. cover for the selector switch

Costs and energy savings



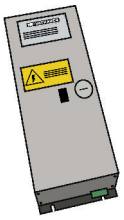


Case study: **Winding machine with 2 kW continuous energy recovery capacity**

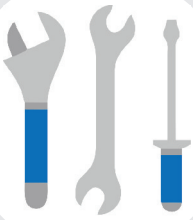
24/7 production mode

2kW x 24h x 365Days = 17.520kWh x 0,20EUR/kWh = 3.504EUR (Annual savings through recycled energy)

Benefits



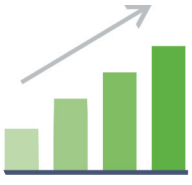
- light weight
- compact Design
- direct energy recovery without intermediate storage
- suitable for frequency inverters and servo controllers
- Plug and Play
- self-synchronizing
- without parameterisation
- without auxiliary voltage



- for upgrading of existing systems or retrofitting
- for installation in new systems
- easy and quick commissioning
- optional: can be used in parallel with a braking resistor

- does not convert excess braking energy into heat, but rather leads the energy directly into the system network
- supports the environment
- supports sustainability
- ISO 50001 appropriate

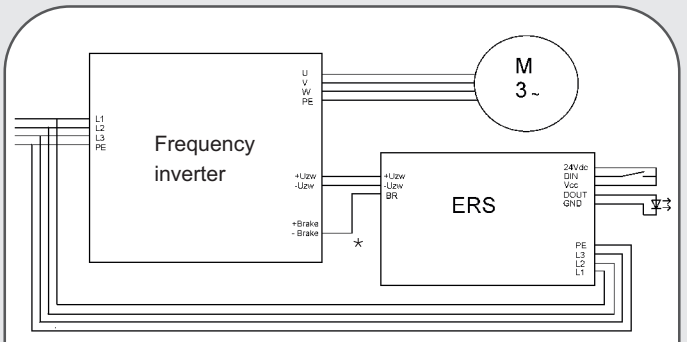
- reduces energy costs
- ROI is reached more quickly
- no additional costs, since no external filters and chokes are required



- high level of efficiency of 98%
- high duty cycle (35%)
- high number of application possibilities

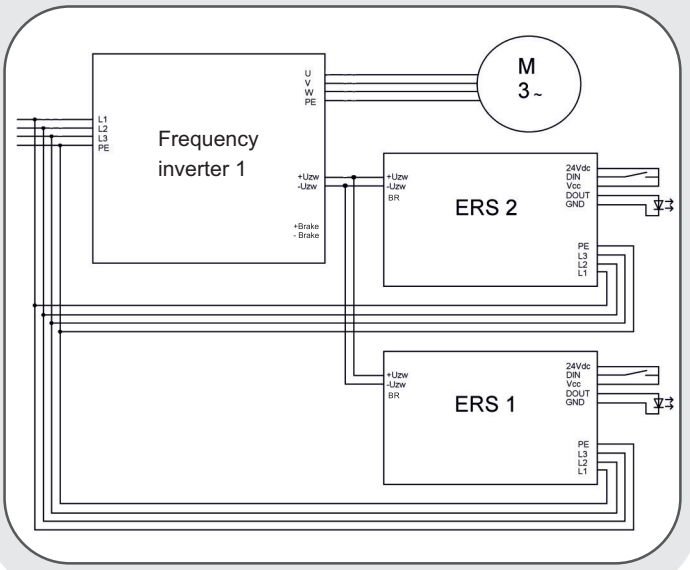
Connection

1. Connection example frequency inverter with ERS

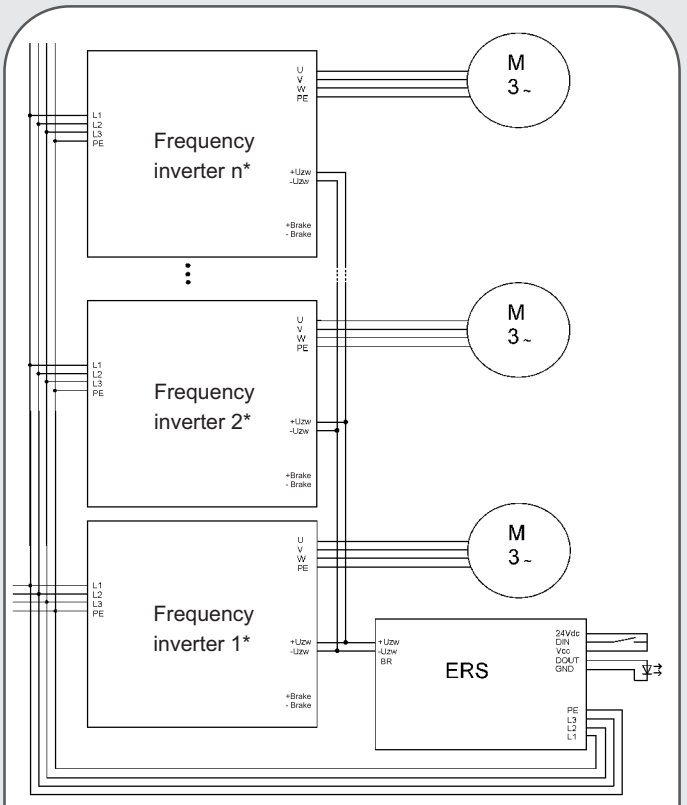


*Optional use of the integrated emergency resistor always possible

2. Connection example with several ERS

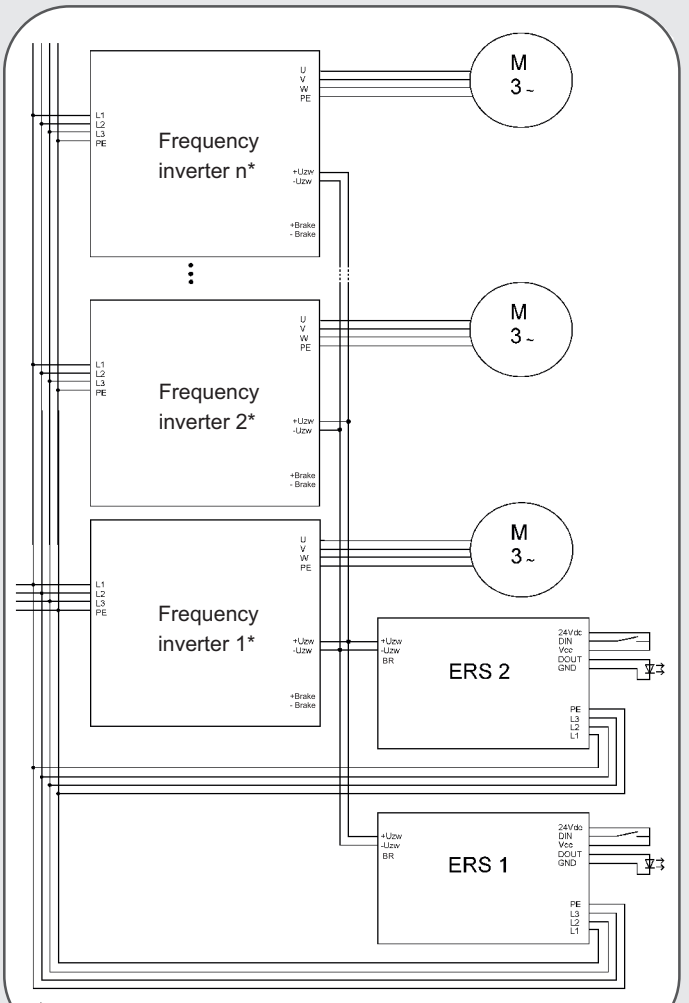


3. Connection example frequency inverter - DC link system with an ERS



* frequency inverter must be suitable for DC link system

4. Connection example frequency inverter - DC link system with several ERS



* frequency inverter must be suitable for DC link system

MSF VATHAUER
ANTRIEBSTECHNIK

MSF-Vathauer Antriebstechnik GmbH & Co KG
Am Hessentuch 6-8
32758 Detmold

Tel: +49 5231 - 63030
Fax: +49 5231 - 66856

info@msf-technik.de
www.msf-technik.de