

MOVIDRIVE® MDR Regenerative Power Supply

Energy-efficient overall concept



effiDRIVE®

Energy Recycling

MOVIDRIVE® MDR regenerative power supply: Variable speed drives with high energy saving potential

SEW-EURODRIVE offers regenerative power supply units as optional expansion for MOVIDRIVE® B and MOVITRAC® B inverters to increase the energy efficiency and to make use of energy saving potential. MOVIDRIVE® MDR regenerative power supply is available for central power supply and regeneration in a power range of 15 kW to 315 kW. The 15 kW unit is expanded by a brake module function and can be used instead of a braking resistor.

The variable speed drive systems MOVIDRIVE® B and MOVITRAC® B from SEW-EURODRIVE ensure smooth plant operation in many industries. MOVIDRIVE® B and MOVITRAC® B

inverters cover a wide range of applications from simple conveyor belts to highly dynamic, synchronized applications.

Your benefits at a glance:

- 5 sizes covering a power range from 15 to 315 kW
- Energy-efficient overall systems are created in combination with MOVIDRIVE® B and MOVITRAC® B inverters
- Simple installation and wiring
- No investment in braking resistors
- Significant reduction of
 - the overall energy consumption
 - CO₂ emissions
 - energy costs
- Saves control cabinet space and expenditure for air conditioning units

Driving the world – with innovative drive solutions for all industries and applications. Products and systems from SEW-EURODRIVE are used all over the world. Be it in the automotive, building materials, food and beverage or metal-processing industry – the decision to use drive technology “made by SEW-EURODRIVE” stands for reliability for both functionality and investment.



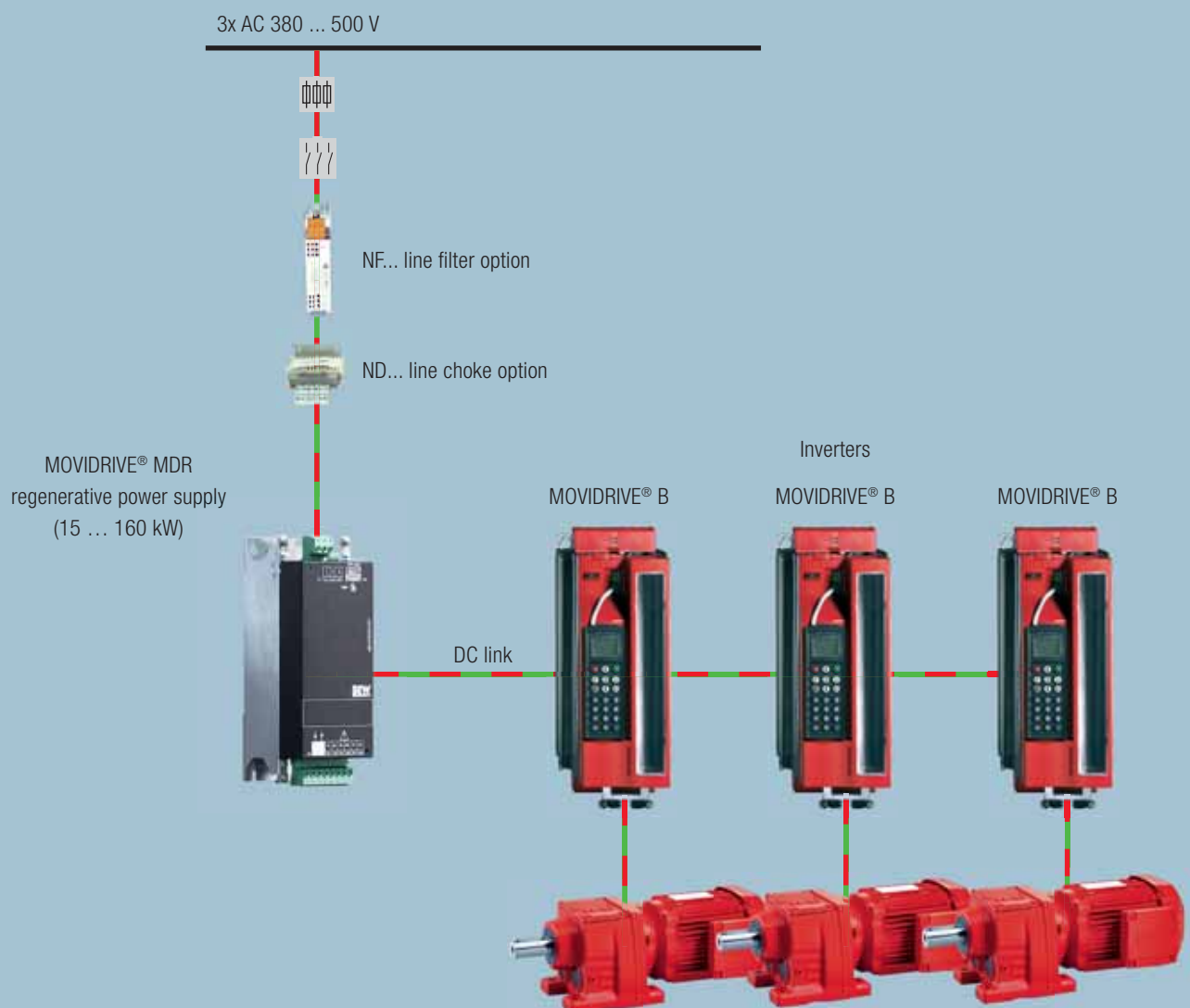


MOVIDRIVE® MDR regenerative power supply
for a power range of 160 ... 315 kW



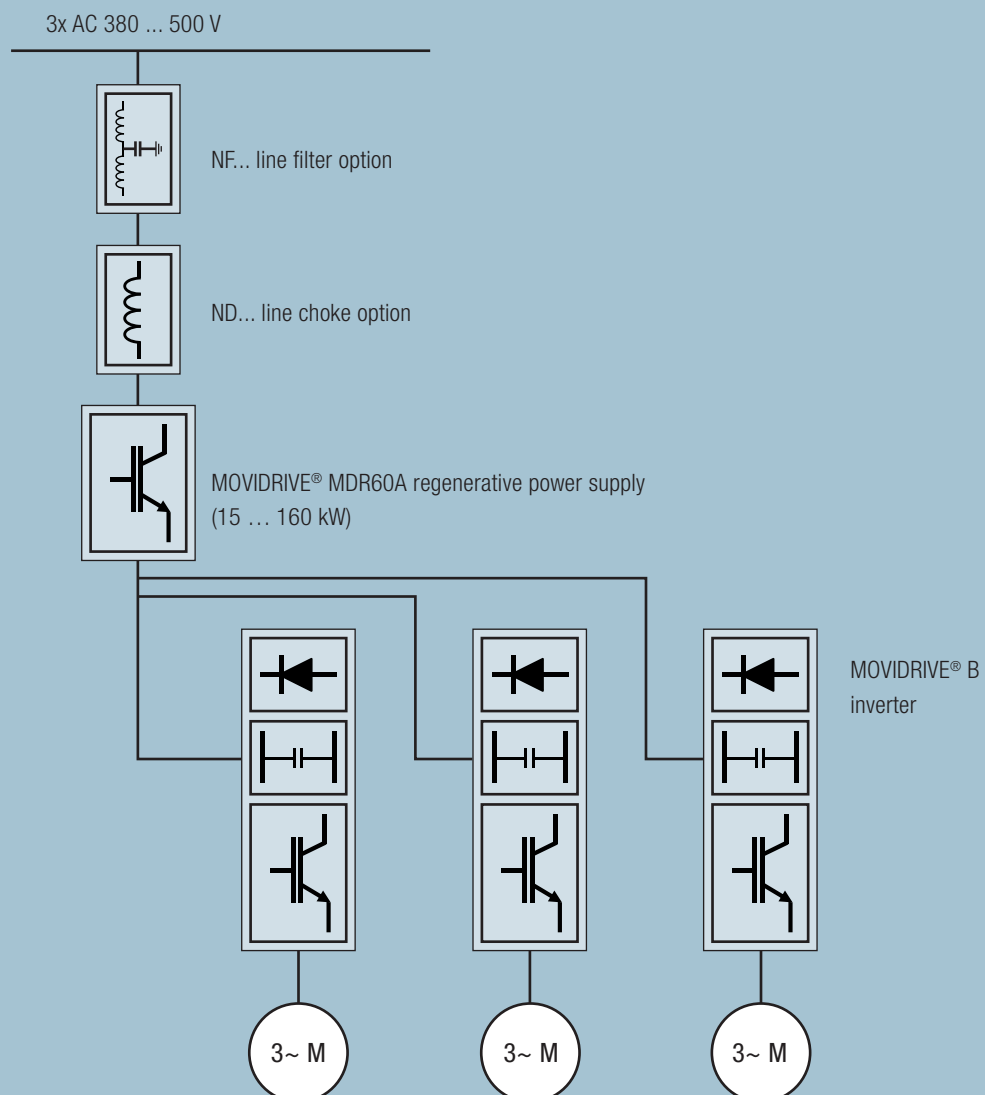
Installation as central energy supply and regeneration: Benefits and advantages

MOVIDRIVE® MDR regenerative power supply units can be used in a power range from 15 kW to 315 kW for central power supply and regeneration. In this case, the MOVIDRIVE® MDR regenerative power supply units act both as central power supply unit and as energy regeneration unit. Depending on the load, the energy flow through the unit supplies the connected inverters or is regenerative.



MOVIDRIVE® MDR60A regenerative power supply (15 ... 160 kW):

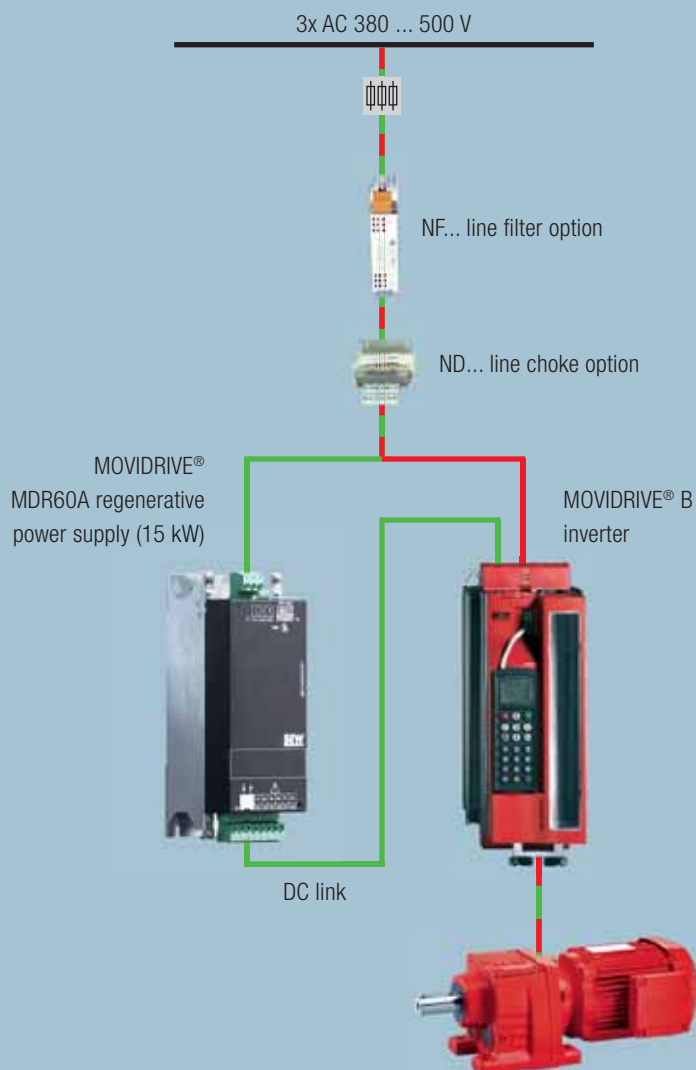
- Installation of a central line choke
- Installation of a central line filter (for compliance with EN 61800-3)
- DC link connection provides the power for the variable speed drives



Installation as brake module: Benefits and advantages

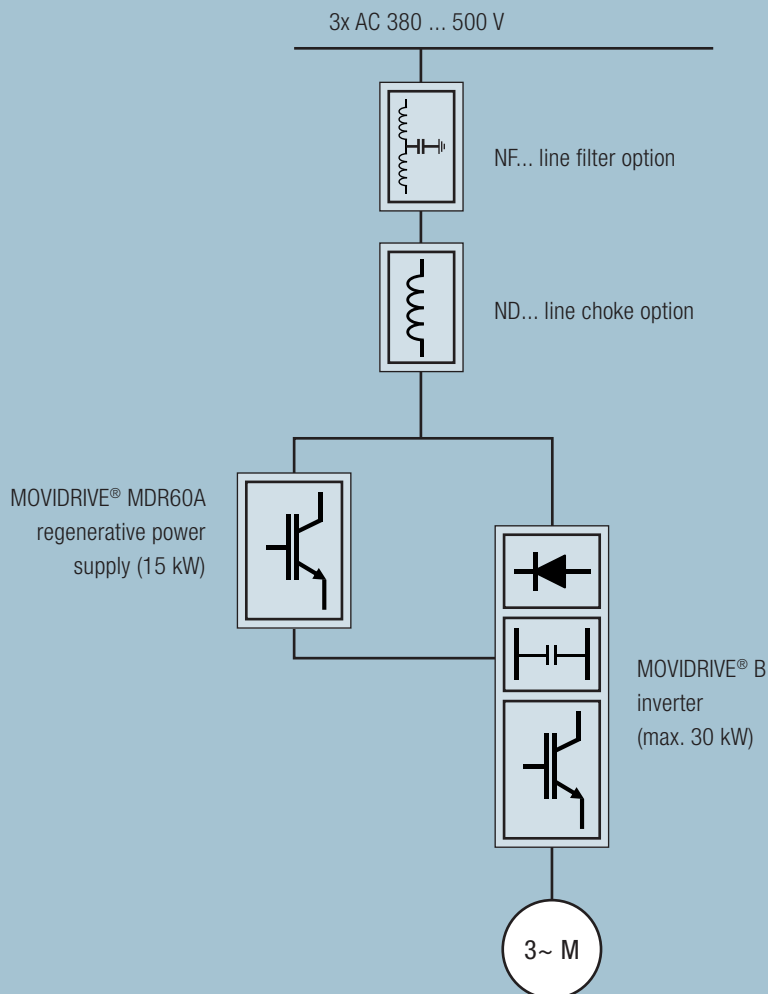
Using the 15 kW MOVIDRIVE® MDR60A regenerative power supply unit as brake module has the following advantages:

- Can be combined with MOVIDRIVE® B or MOVITRAC® B inverters up to a maximum of 30 kW
- A maximum of 2 variable speed drives can be connected when used as a brake module
- Energy savings by
 - exchange of energy between the variable speed drives through the shared DC link
 - feeding back excess energy into the power grid
- Minimized installation effort through
 - DC link connection of the variable speed drives
 - central line choke
 - central line filter



MOVIDRIVE® MDR60A regenerative power supply (15 kW)

- Installation of a central line choke
- Installation of a central line filter (for compliance with EN 61800-3)
- The variable speed drives are supplied with power by integrated input rectifiers



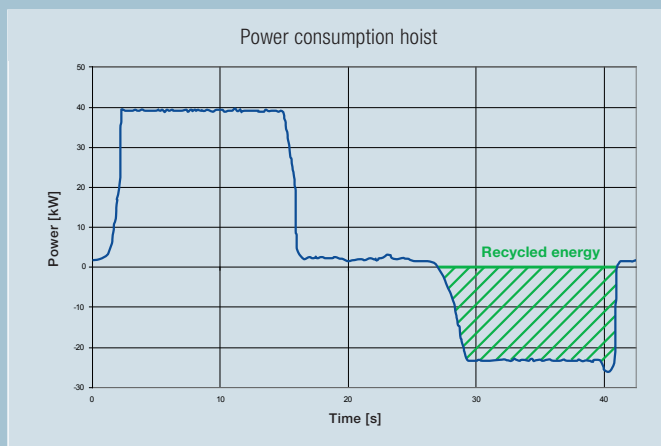
MOVIDRIVE® MDR power supply units with a power rating of 15 kW can be used as brake modules. In this function, the unit is only operated as an energy regeneration unit, which means the power supply is ensured by the integrated input rectifiers of the connected frequency inverters.

Energy regeneration makes it possible to feed the braking energy released by the load back into the power grid. This braking energy or braking power is the basis for selecting the rated power of the device when using the regenerative power supply unit as a brake module. The variable speed drive is selected according to the required motor power.

Energy recycling in practice

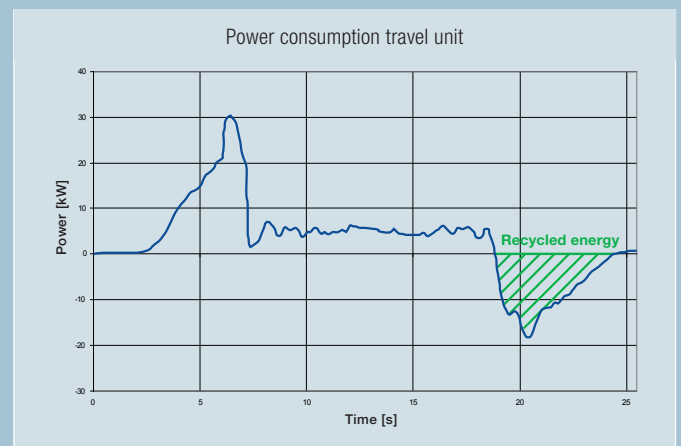
Energy recycling is particularly interesting for applications with a high energy potential found in lowering and decelerating movements in the load cycle, such as gantry cranes or storage/retrieval systems (SRS). In high-bay warehouses, storage and retrieval systems are used to

deposit and retrieve all kinds of loads quickly and safely. The SRS stores potential energy by depositing the transported goods in the storage rack. It is basically a huge energy storage system.



Hoist axis of storage/retrieval systems

The power measurement of an SRS shows the recycled, regenerative energy taking the hoist axis as an example.



Travel axis of storage/retrieval systems

The power measurement of an SRS shows the recycled, regenerative energy taking the travel axis as an example.

It is technically possible to re-use the released, regenerative energy in an efficient manner by taking appropriate measures and, in this way, recycle it. Power measurements of the recycled, regenerative energy of a storage/retrieval

system show significant potential for saving energy. By way of regenerative power supply, the braking energy of the load cycle is no longer converted into dissipated heat but is fed back into the power grid.



Technical Data

Power range 15 kW



Type designation	MDR60A0150-503-00 (size 2)
Features	<ul style="list-style-type: none"> – For central power supply and regeneration – For use as a brake module
Supply voltage	3x AC 380 V ... 500 V
Nominal power [kW]	15
Line current I_{line} [A]	29
Maximum continuous power	125%
Overload capacity as central energy supply and recovery	150% for 60 s
Overload capacity as a brake module	240% for 50 s

Power range 37 kW



Type designation	MDR60A0370-503-00 (size 3)
Features	For central power supply and regeneration
Supply voltage	3x AC 380 V ... 500 V
Nominal power [kW]	37
Line current I_{line} [A]	66
Overload capacity	150% for 60 s

Power range 75 kW



Type designation	MDR60A0750-503-00 (size 4)
Features	For central power supply and regeneration
Supply voltage	3x AC 380 V ... 500 V
Nominal power [kW]	75
Line current I_{line} [A]	117
Overload capacity	150% for 60 s

Power range 132 ... 160 kW



Type designation	MDR60A1320-503-00 (size 6)
Features	For central power supply and regeneration
Supply voltage	3x AC 380 V ... 500 V
Nominal power [kW]	132 ... 160
Line current I_{line} [A]	260 A at 160 kW
Maximum continuous power	125%
Overload capacity	150% for 60 s

Energy-efficient overall concept: Regenerative power supply and motor inverters 160 to 315 kW

Applications with potential energy, such as hoists, cranes and gantries, or trolleys with high kinetic energy produced through electrical braking are particularly suited for operation with regenerative-capable frequency inverters. This means that braking energy is no longer converted into heat losses by braking resistors but is fed back into the power grid.

For such applications, SEW-EURODRIVE has developed an energy-efficient and optimized overall concept for the power range from 160 to 315 kW:

- MOVIDRIVE® MDR61B regenerative power supply 160 ... 315 kW
- MOVIDRIVE® MDR62B motor inverters 160 ... 315 kW

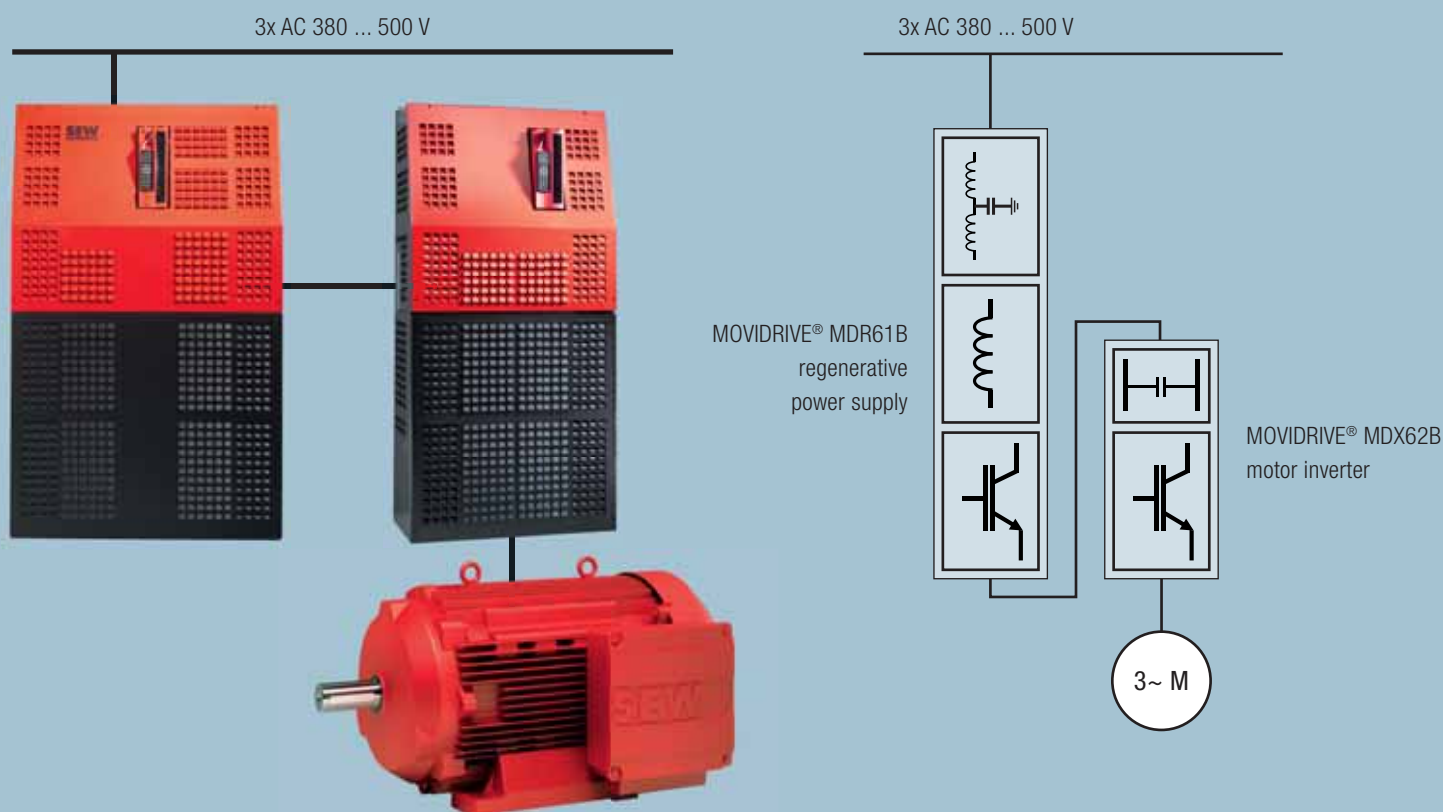
Reducing costs, protecting the environment

MOVIDRIVE® B MDR61B contributes to the significant reduction of the overall energy consumption as well as energy costs, and results in lower CO₂ emissions. In addition to a better energy balance of the drive system, users have technical and economic advantages because

braking resistors are no longer necessary. This means that neither investment nor installation effort is required for external braking resistors. Another advantage is that the environment is not heated up by the heat dissipation of braking resistors.

MOVIDRIVE® MDR61B (160 ... 315 kW):

Installation as central power supply and regeneration:



MOVIDRIVE® MDR61B operates as central power supply and regeneration unit for the connected drives. The basic unit of the regenerative power supply already comprises PWM filter, choke, line contactor, and automatic precharging of the DC link.

This means no additional components are required on the line side. As a result, the effort for assembly and installation is reduced significantly in particular for the cross sections required in the power range from 160 to 315 kW.

The class C3 EMC limit (EN 61800-3) is achieved without external line filter. On the motor side, shielded motor cables or an output choke must be provided. The unit has a sine-shaped line current due to controlled regeneration. The THDi value (Total Harmonic Distortion of Current) is below 5%.

Technical data

Type designation	MDR61B1600-503-00/L	MDR61B2500-503-00/L
Supply voltage	3x AC 380 V ... 500 V	
Nominal power [kW]	160	250
Line current or nominal motor current I_{line} [A]	250	400
Max. continuous power [kW]	200	315
Overload capacity	150% for 60 s	

MOVIDRIVE® MDX62B motor inverter

The MOVIDRIVE® MDX62B motor inverter is a cost-optimized standard inverter of the MOVIDRIVE® B product series without input stage. Also this product convinces by its many advantages, such as simple installation. The MDX62B motor inverter can be combined with all MOVIDRIVE® B option cards for connection to fieldbus systems, and for evaluating motor encoders or external encoders.

Mounting base, air duct, connection kit, touch guard (IP20 set) as well as DC link adapter and DC link coupling are available for both units as external accessories for user-friendly installation into the control cabinet. The temperature in the

control cabinet is managed by the guided air flow through the basic unit. The heat dissipation is led out of the enclosure by an air duct, which is available as accessory. No additional cooling fans are required for the control cabinet.

Technical data

Type designation	MDX62B1600-503-4-0T/L	MDX62B2000-503-4-0T/L	MDX62B2500-503-2-0T/L
Supply voltage	Connection to MOVIDRIVE® MDR61B regenerative power supply		
Nominal power [kW]	160	200	250
Line current or nominal motor current I_{line} [A]	300	380	470
Max. continuous power [kW]	200	250	315
Overload capacity	150% for 60 s		



MOVIDRIVE® MDX62B motor inverter (160 ... 315 kW)



The overall concept of regenerative power supply and motor inverter of the MOVIDRIVE® B product series offers many advantages. It is an energy-efficient and cost-optimized concept in the power range of 160 to 315 kW for low-effort control cabinet installation.

How we're driving the world


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