



SEW
EURODRIVE

Revision



MOVIDRIVE® MDR60A Regenerative Power Supply





1 Important Information



INFORMATION

This revision to the MOVIDRIVE® MDR60A system manual, publication number 11369612, edition 02/2006 contains the following information:

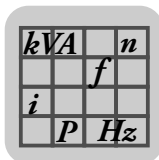
- The **specifications regarding the MDR60A1320-503-00 regenerative power supply** (size 6) in section "Technical data and dimension sheets have been revised. The MOVIDRIVE® MDR60A1320-503-00 regenerative power supply (part number 08279527) has been redesigned.

The order data, such as the part number (08279527), **and the catalog and type designation** (MDR60A1320-503-00) **remain unchanged. The devices can be differentiated via the serial number.**

- **Information regarding the new MDR60A0150-503-01 regenerative power supply** (size 3) has been added in sections "Technical data and dimension sheets" and "Project planning".

The information in sections "Installation (MDR0370/0750)" and "Startup MDR60A0370/0750" in the MOVIDRIVE® MDR60A system manual also apply to the new MDR60A0150-503-01 regenerative power supply.

- Section "Project planning" / "Supply system prerequisites"
 - has been revised and includes information regarding the relative short-circuit voltage u_K at the supply system connection for the new MDR60A0150-503-01 regenerative power supply unit.
 - has been revised and includes updated information on the **power of the MOVIDRIVE® MDR60A required** when dimensioning the supply system power.
- **Only electrical specialists are allowed to perform installation and startup observing the applicable accident prevention regulations and the MOVIDRIVE® MDR60A system manual.**




2 Technical Data and Dimension Sheets


2.1 MDR60A1320-503-00 conversion from DCV 185 DCV 200

2.1.1 Nameplate

Refer to the information on the nameplate. You find the series number of the unit in field [1] of the nameplate.



SEW EURODRIVE D-76646 Bruchsal Netzrückspeisung MOVIDRIVE Made in Germany	Typ	MDR60A1320-503-00	[1] Serien Nr. DCV200 0111	
	Sach.Nr	08279527		
	Eingang / Input			
	U=	3*380V...500V +/-10%		
	F=	50/60Hz		
	I=	289A AC (400V)	U=	560...780VDC
	T=	0...40°C	I=	350A DC
			P=	200kW



2.1.2 Additional control terminal for blocking the regenerative power supply

With the new control terminal A1/A2 (at the bottom of the device), the power inverter of the regenerative power supply unit can be stopped with a DC 24 V signal at terminal A1 (A2 GND). This function can minimize power supply disturbances with non-generative load cycles.

The inverter is activated when terminals A1/A2 are not connected. Terminal A1 does not have to be connected to GND.

A1 = High / (DC +24 V) "Regenerative power supply blocked" supply system synchronization deactivated

A2 = GND / (DC 0 V) reference potential



INFORMATION

The motor branch, i.e. the DC link supply remains activated when the inverter is blocked due to an according signal at A1/A2.

(The function of the control terminal corresponds to binary signal "DIGIN3 / inhibit" of the MOVIDRIVE® MDR60A regenerative power supplies 15 - 75kW)

2.1.3 Extended power range

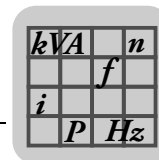
With the expansion of the MOVIDRIVE® B power range, the performance data of the MDR1320-503-00 regenerative power supply has been increased as well.

The regenerative power supply can be connected to the MOVIDRIVE® B inverter size 7 / 160 kW variant as of serial no. DCV200. The type rating of the regenerative power supply increases from 132 kW to 160 kW.

This results in the following performance data.

Serial number	Unit power
DCV185	132 kW
DCV200	160 kW

Observe the information in section "Technical data MOVIDRIVE® MDR60A size 6 (page 8).



2.1.4 Cable connections

The cable connections that used to be located inside the unit have now been moved to the outside.

Connection	DCV185	DCV200
L1	M 10	M 10
L2	M 10	M 10
L3	M 10	M 10
+U _z	M 10	M 10
-U _z	M 10	M 10
PE	M 8	M 8
Internal DC fuses	500 A	630 A

The size of the connection terminals has not changed. The cable length required for the connection of the units is a bit smaller. In case of service, the existing cable set can be used. The cables can be shortened, if desired.

2.1.5 Line fuse for unit replacement in the field

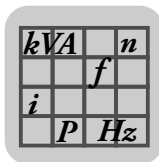
If the unit series DCV185 is replaced by the DCV200 series in the field and the load of the connected inverters and the cable cross section remain unchanged, it is not necessary to change the line fuses from 400 V to 500 V.

2.1.6 Control connections

The control terminal X2, which could previously only be accessed by opening the unit, has now been installed pin-compatibly on the outside (signals: relay error signal; reset)

2.1.7 External line filter

The line filter NF300-503 (part number 08274193) can continue to be used for all unit series.



2.2 UL approval

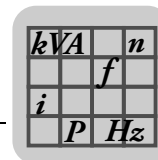


UL and cUL approval has been granted for MOVIDRIVE® MDR60A0150-503-01, MDR60A0370-503-00 and MDR60A0750-503-00 units. cUL is equivalent to CSA approval. The MOVIDRIVE® MDR60A1320-503-00 unit does not have UL or cUL approval.

2.3 General technical data

MOVIDRIVE® MDR60A	0150-503-01 (size 3) 0370-503-00 (size 3) 0750-503-00 (size 4)	1320-503-00 (size 6)
Interference immunity	Meets EN 61800-3	Meets EN 61000-6-1 and EN 61000-6-2
Interference emission with EMC-compliant installation	Meets EN 61800-3: • with NF035-503 line filter (MDR60A0150-503-01) • with NF085-503 line filter (MDR60A0370-503-00) • with NF150-503 line filter (MDR60A0750-503-00)	Meets EN 61000-6-4 with NF300503 line filter
Ambient temperature ϑ_U Ambient temperature derating	0 °C ... +40 °C I_N reduction: 3% I_N per K to max. 60 °C	0 °C ... +40 °C I_N reduction: 3% I_N per K to max. 55 °C
Climate class	EN 60721-3-3, class 3K3	
Storage temperature ¹⁾ ϑ_L	-25 °C ... +70 °C (EN 60721-3-3, class 3K3)	-25 °C ... +55 °C (EN 60721-3-3, class 3K3)
Cooling type (DIN 51751)	Forced cooling (temperature-controlled fan, response threshold 50 °C)	Forced cooling (temperature-controlled fan, response threshold 45 °C)
Degree of protection size 3 EN 60529 size 4 (NEMA1)	IP20 IP00 (power connections) IP10 (power connections) • With fitted plexiglass cover supplied as standard • With fitted shrink tubing (not included in scope of delivery)	IP20
Operating mode	Continuous duty (EN 60149-1-1 and 1-3)	
Overvoltage category	III according to IEC 60664-1 (VDE 0110-1)	
Pollution class	2 according to IEC 60664-1 (VDE 0110-1)	
Installation altitude	At $h \leq 1000$ m without restrictions. The following restrictions apply to heights ≥ 1000 : • From 1000 m to max. 4000 m: – I_N reduction by 1% per 100 m • from 2000 m (6562 ft) to max. 4000 m (13120 ft): – The safe disconnection of power and electronics connections can no longer be assured above 2000 m. This requires external measures (IEC60664-1 / EN61800-5-1) – You have to connect an overvoltage protection device in order to reduce the overvoltages from category III to category II.	$h \leq 1000$ m: No limitation From 1000 m to max. 4000 m: I_N reduction: 0.5% per 100 m

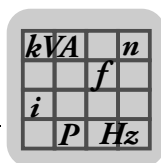
1) In case of long-term storage, connect the unit to the power supply for at least 5 minutes every two years, otherwise the unit's service life may be reduced.



2.4 Technical data for MOVIDRIVE MDR60A regenerative power supply

2.4.1 MOVIDRIVE® MDR60A size 3

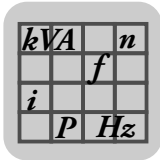
MOVIDRIVE® MDR60A	0150-503-01 (size 3)	0370-503-00 (size 3)
Part number	1825 012 2	826 658 1
INPUT		
Rated supply voltage V_{mains} (according to EN 50160)	3 × AC 380 V - 500 V	
Line frequency f_{line}	50 Hz - 60 Hz ±5 %	
Rated connected load P_N	15 kW	37 kW
Rated supply current I_{supply} (at $V_{\text{line}} = 3 \times \text{AC } 400 \text{ V}$)	AC 29 A	AC 66 A
DC LINK		
Apparent output power S_A (at $V_{\text{supply}} = 3 \times \text{AC } 380\ldots 500 \text{ V}$)	25 kVA	50 kVA
DC link V_{DC}	DC 560 V - 780 V	
Rated DC link current I_{DCL}	DC 35 A	DC 70 A
Max. DC link current $I_{\text{DCL_max}}$	DC 53 A	DC 105 A
GENERAL INFORMATION		
Power loss at $P_N P_{V\text{max}}$	500 W	950 W
Cooling air consumption	100 m ³ /h	180 m ³ /h
Connection for power terminals X1, X2 (L1, L2, L3 for size 6) Permitted tightening torque Permitted cable cross section	M6 screw with washer 3.5 Nm (31 in-lb) 25 mm ² (AWG4)	
Electronics terminals connection X3 (X2 for size 6)	Permitted cable cross-section: • One core per terminal: 0.20 – 2.5 mm ² (AWG 24 – 13) • Two cores per terminal: 0.20 – 1 mm ² (AWG 23 – 17)	
Weight	16 kg (35 lb)	16 kg (35 lb)
Dimensions W × H × D	200 mm × 465 mm × 221 mm (7.87 in × 18.3 in × 8.7 in)	
Line choke (always required)	ND045-013, $L_N = 0.1 \text{ mH}$ Part number 826 013 3	ND085-013 $L_N = 0.1 \text{ mH}$ Part number 826 014 1
Line filter (optional)	NF035-503, Part number 827 128 3	NF085-503, Part number 827 415 0
For MOVIDRIVE® MDX60B/61B...-5_3	0005 ... 0150	0005 ... 0370



2.4.2 MOVIDRIVE® MDR60A size 6

MOVIDRIVE® MDR60A1320-503-00 Size 6	DCV185	DCV200
Part number	827 952 7	
INPUT		
Rated supply voltage V_{mains} (according to EN 50160)	3 × AC 380 V - 500 V	
Line frequency f_{line}	40 Hz - 60 Hz ±10 %	
Rated connected load P_N	132 kW	160 kW
Rated supply current I_{supply} (at $V_{\text{line}} = 3 \times \text{AC } 400 \text{ V}$)	AC 225 A	AC 260 V
DC LINK		
Apparent output power S_A (at $V_{\text{supply}} = 3 \times \text{AC } 380...500 \text{ V}$)	146 kVA	175 kVA
DC link V_{DC}	DC 560 V - 780 V	
Rated DC link current I_{DCL}	DC 270 A	DC 324 A
Max. DC link current $I_{\text{DCL_max}}$	DC 410 A	motor: • DC 486 A Regenerative: • DC 410 A
GENERAL INFORMATION		
Power loss at $P_N P_{V_{\text{max}}}$	2000 W	2400 W
Cooling air consumption	700 m³/h	880 m³/h
Connection for power terminals X1, X2 (L1, L2, L3 for size 6) Permitted tightening torque Permitted cable cross section	M10 terminal studs 150 mm² (line connection) / 30 Nm (270 in-lb) ¹⁾ 185 mm² (DC link connection) / 32 Nm (280 in-lb) ¹⁾	
Electronics terminals connection X3 (X2 for size 6)	Permitted cable cross-section: • 0.75 – 2.5 mm² (AWG18 – 14) Terminals A1 / A2: • 0.75 – 4 mm² (AWG18 – 12)	
Weight	90 kg (200 lb)	100 kg (200 lb)
Dimensions W × H × D	378 mm × 947 mm × 395 mm (14.9 in × 37.3 in × 15.6 in)	378 mm × 942 mm × 389.5 mm (14.9 in × 37.1 in × 15.3 in)
Line choke (always required)	Already installed	
Line filter (optional)	NF300-503, Part number 827 419 3	
For MOVIDRIVE® MDX60B/61B....-5_3	0005 ... 1320	0005 ... 1600
Recommended line fuse	400 A	500 A

1) Important: Do not apply tightening torque directly at terminals L1, L2, L3 and ±UG; use a second wrench.



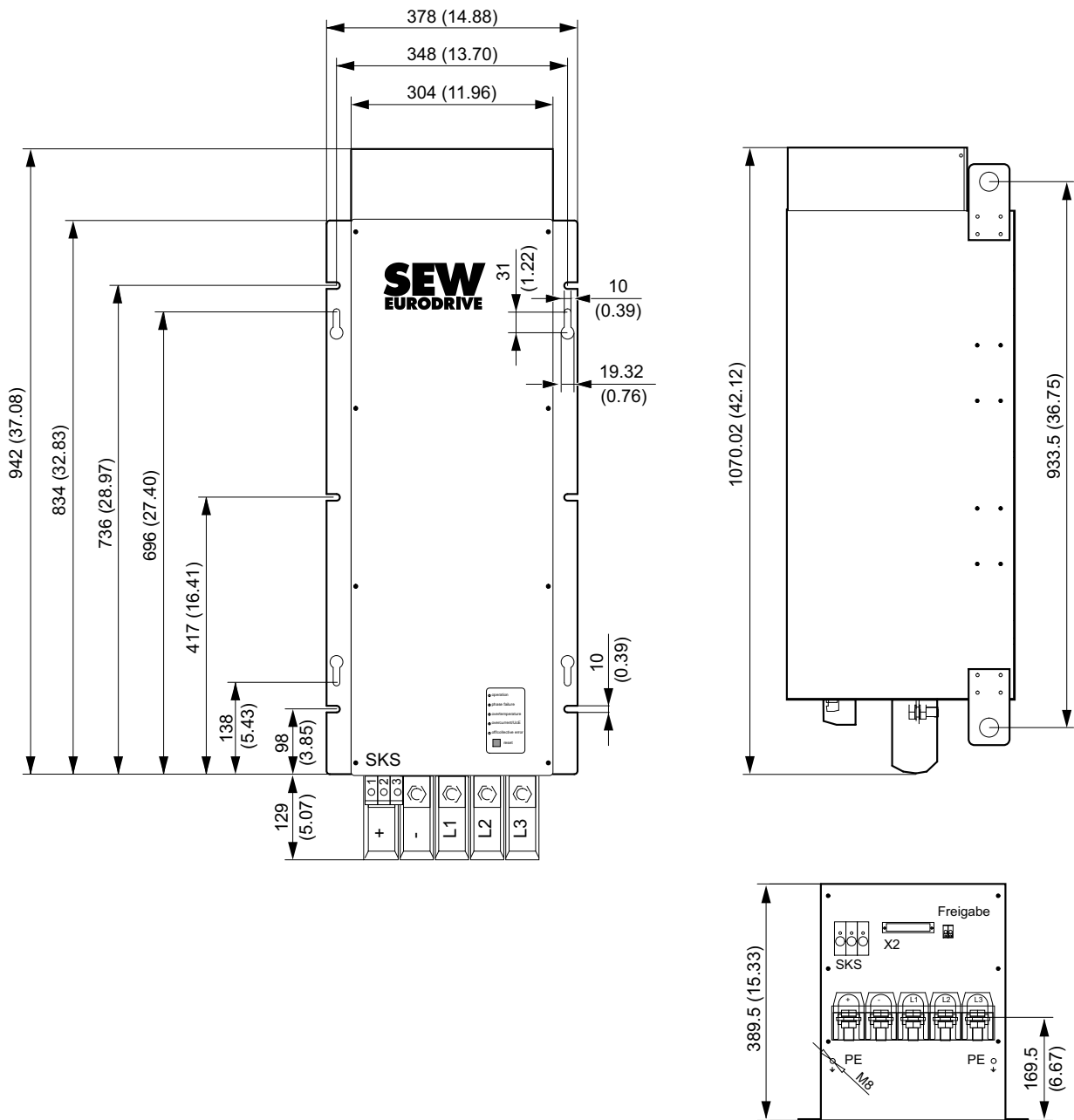
2.5 Dimension drawings

2.5.1 Size 3

	INFORMATION
The dimension sheet for the new MDR60A0150-503-01 regenerative power supply unit corresponds to the dimension sheet for MDR60A0370-503-00 (see section "MOVIDRIVE® MDR60A0370-503-00" in the "MOVIDRIVE® MDR60A Regenerative Power Supply Unit" system manual)	

2.5.2 Size 6

Dimension drawing of DCV200 series

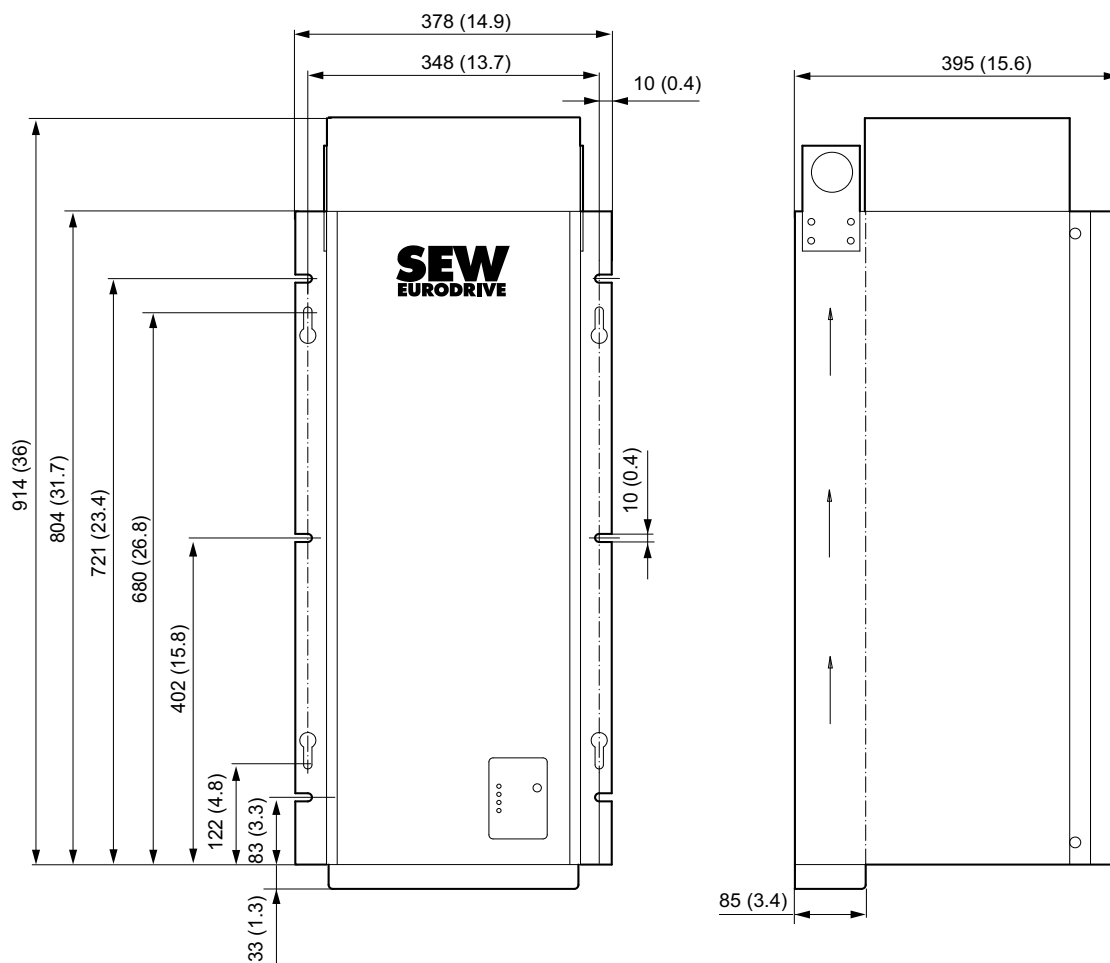


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All dimensions in mm (in)



Dimension drawing of DCV185 series

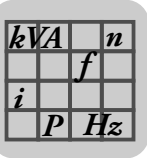


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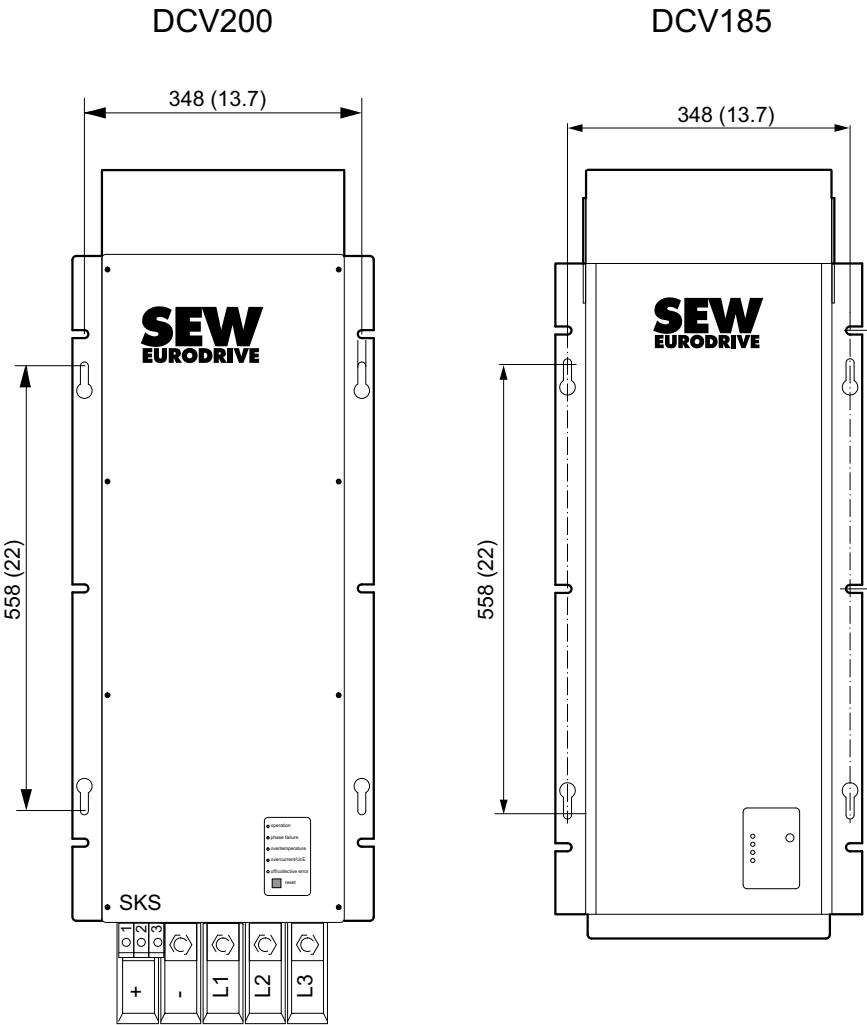
All dimensions in mm (in)

Comparison of dimensions

	DCV200	DCV185
Width	378 mm (14.9 in)	378 mm (14.9 in)
Height	942 mm (37.1 in) + 128 mm (5.0 in) terminals below + 100 mm (3.9 in) clearance above = 1170 mm (46.1 in)	947 mm (37.3 in) + 100 mm (3.9 in) clearance above + 100 mm (3.9 in) clearance below = 1147 mm (45.2 in)
Depth	389.5 mm (15.3 in)	395 mm (15.6 in)



Unit mounting comparison



3059021707

All dimensions in mm (in)

	DCV200	DCV185
Mounting distance – horizontal	348 mm (13.7 in)	348 mm (13.7 in)
Mounting distance – vertical	558 mm (22.0 in)	558 mm (22.0 in)



3 Project Planning

Observe the project planning guidelines and notes in the system manual for MOVIDRIVE® MDR60A regenerative power supplies.

3.1 DC link connection with regenerative power supply unit

3.1.1 Project planning information

According to a points system, only a certain number of points may be connected to one regenerative power supply unit as follows:

- Maximum 6 points to a MOVIDRIVE® MDR60A0150
- Maximum 54 points to a MOVIDRIVE® MDR60A1320

3.1.2 Power supply system prerequisites

The regenerative power unit must be equipped with a line choke.

- For MDR60A0150 the line choke ND045-013
- The MDR60A1320 comes equipped with line choke.

To ensure fault-free operation of MOVIDRIVE® MDR60A0150/0370/0750, the relative short-circuit voltage u_K at the unit mains connection must not exceed the following values:

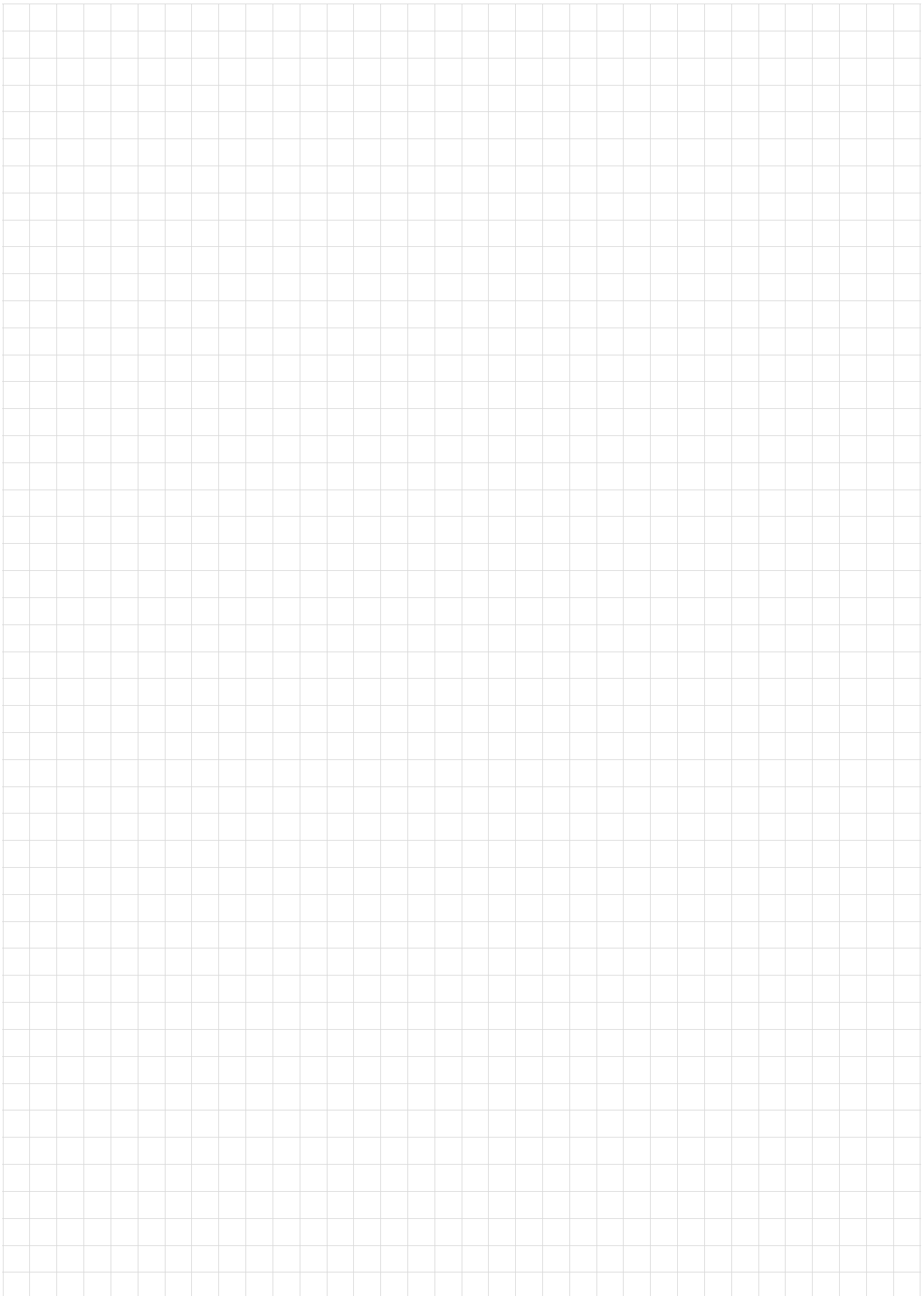
Rated supply voltage V_{mains}	MDR60A0150	MDR60A0370/0750
	Permitted relative short-circuit voltage u_K	
AC 400 V	< 9.5 %	< 6.0 %
AC 460 V	< 10.6 %	< 5.2 %
AC 500 V	< 10.5 %	< 4.8 %

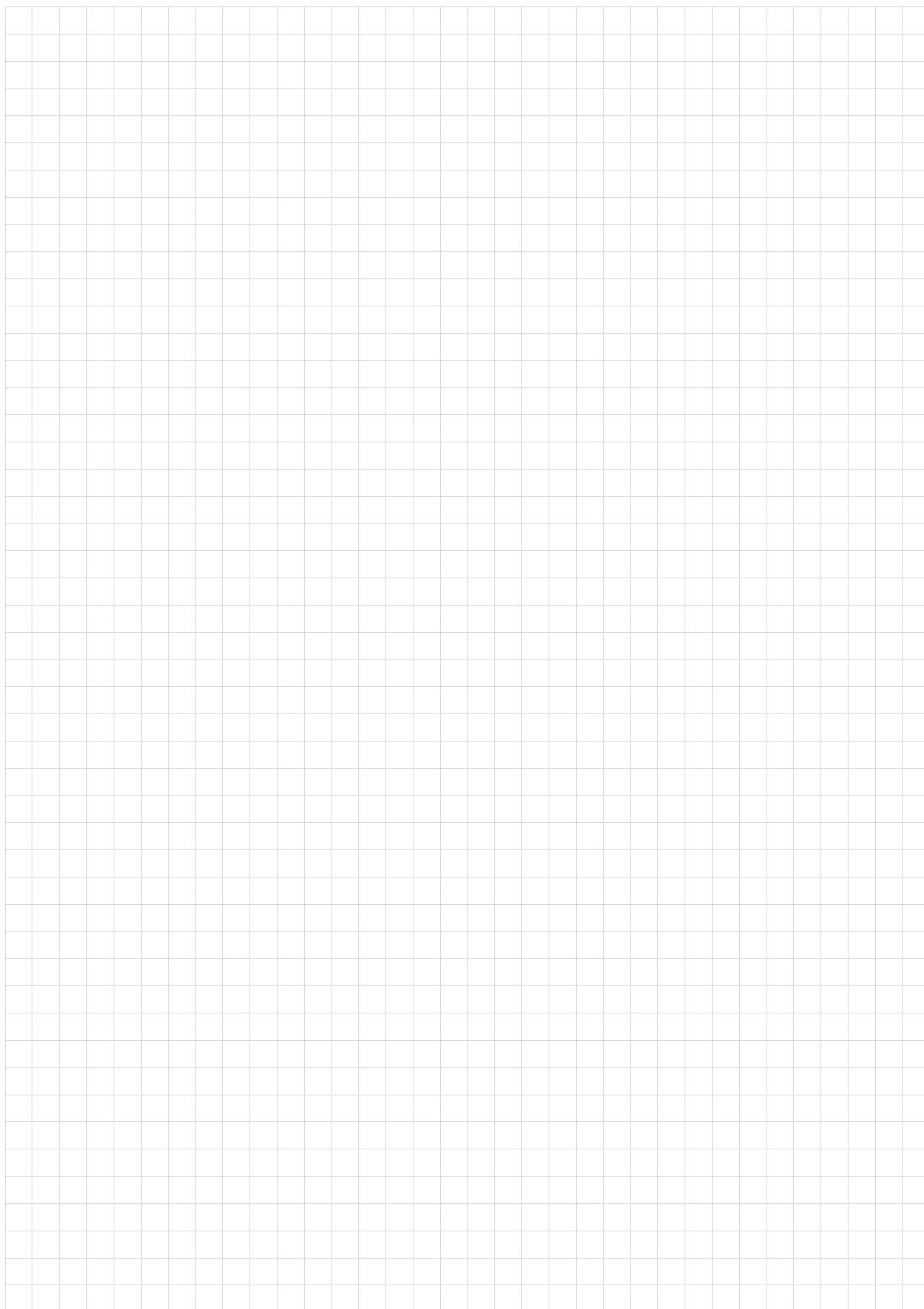
MOVIDRIVE® MDR60A must not be operated unless the u_K values specified in the table are observed.

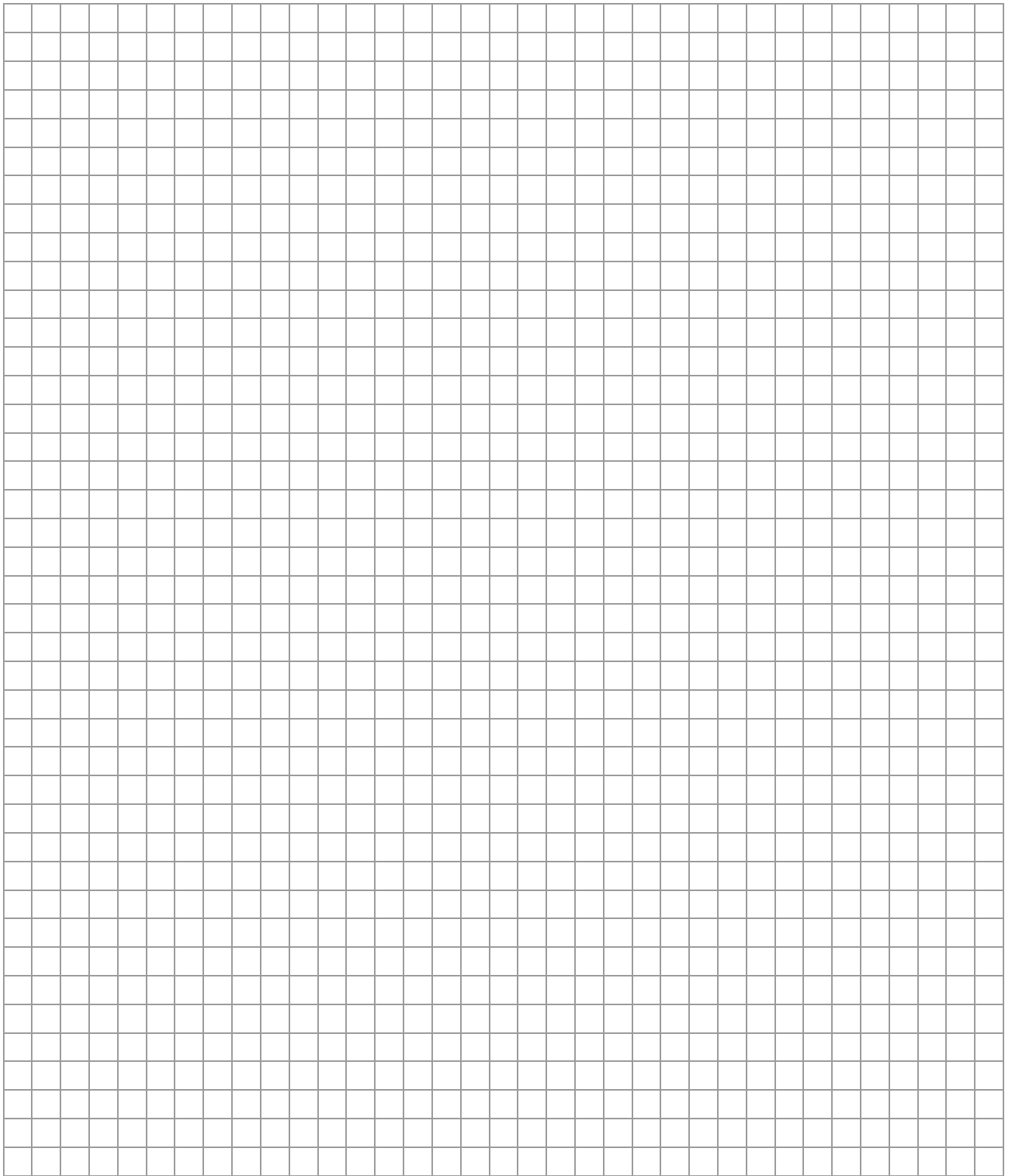
When dimensioning the supply power of the incoming power supply system, take into account the power required by the MOVIDRIVE® MDR60A regenerative power supply unit listed in the following table.

MOVIDRIVE®	Required power
MDR60A0150	50 kVA
MDR60A0370	90 kVA
MDR60A0750	180 kVA
MDR60A1320 (when used as 132-kW unit)	320 kVA
MDR60A1320 (when used as 160-kW unit)	400 kVA

If you operate four MOVIDRIVE® MDR60A0370 units at the same time, the power required will be 360 kVA.









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