

6 MOVIMOT®

6.1 Description

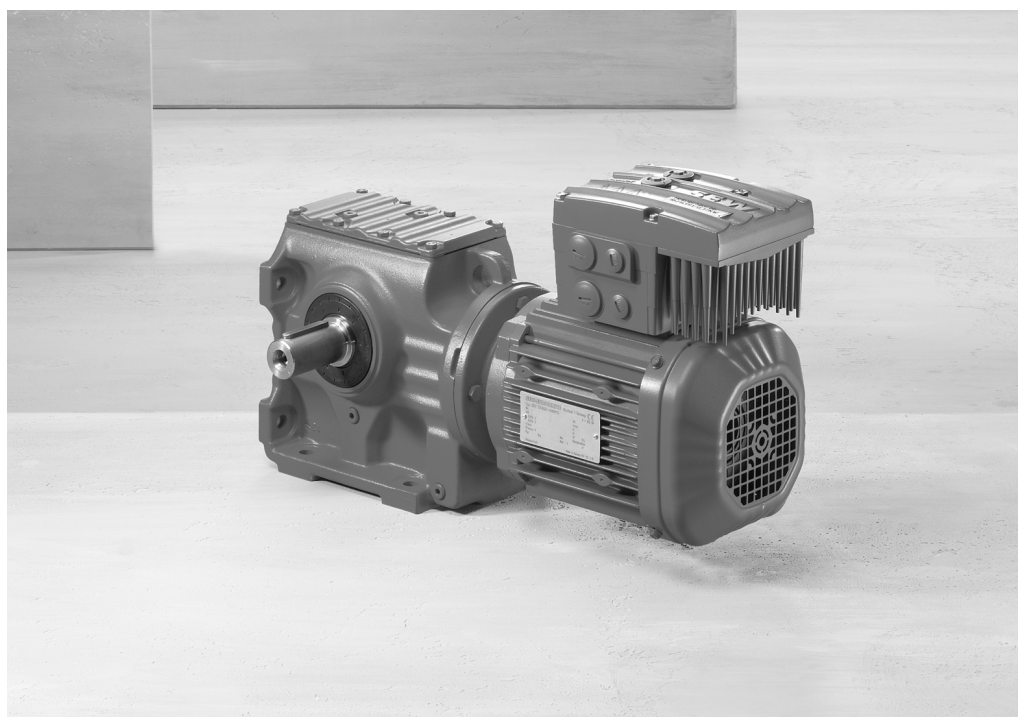
INFORMATION



This catalog provides a brief overview of MOVIMOT® drive units for a quick drive selection.

For detailed descriptions, project planning information and dimension drawings, refer to the "MOVIMOT® Gearmotors" catalog.

The following figure shows the MOVIMOT® size MM03 – MM15 as an example:



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MOVIMOT®, the combination of a DRS., DRE.. or DRN.. AC (brake) motor and a digital frequency inverter, is available in the power range 0.37 – 4.0 kW. Especially decentralized drive tasks can be solved easily and economically.

You can use the MOVIMOT® drives to equip extensive plants with a modular system or flexibly integrate them in existing plants. MOVIMOT® is also the electronic replacement for pole-changing motors or mechanical variable-speed gear units.

MOVIMOT® is available as motor, brakemotor, gearmotor or geared brakemotor in many different standard variants and mounting positions.

6.1.1 MOVIMOT® unit features

- Frequency inverter with vector-oriented motor control
- Power range: 0.37 – 4.0 kW (0.37 – 2.2 kW)
- Voltage range: 3 x 380 – 500 V (3 x 200 – 240 V)
- Application-specific parameterization is possible
- Pluggable parameter memory for data backup (drive ID module)
- Comprehensive protection and monitoring functions
- Low-noise thanks to PWM clock frequency 16 kHz.
- Status LED for fast diagnostics
- Diagnostic interface with plug connector as a standard feature
- Diagnostics and manual operation using MOVITOOLS® MotionStudio
- 4Q operation as standard
- Integrated brake management:
 - For motors with mechanical brake, the brake coil is used as braking resistor.
 - For motors without brake, MOVIMOT® is supplied with internal braking resistor as standard.
- The units are controlled either via binary signals, via the serial interface RS485, or optionally with AS-Interface or one of the common fieldbus interfaces (PROFIBUS, PROFINET IO, INTERBUS, DeviceNet™, EtherCAT®).
- MOVIMOT® can be supplied with UL approval (UL listed) on request.

MOVIMOT® options (/MO)

MOVIMOT® can be supplemented by many different "options" (→ 289).

The type designation contains /MO no matter whether one or several of the following options are used.

Designation	Description
BEM	Brake control
URM	Voltage relay
MLU13A	Internal DC 24 V voltage supply (380 – 500 V)
MNF21A	Internal line filter option (MM03 – MM15)
MLU11A	DC 24 V voltage supply (380 – 500 V)
MLU21A	DC 24 V voltage supply (200 – 240 V)
MLG11A	Setpoint adjuster with DC 24 V voltage supply (380 – 500 V)
MLG21A	Setpoint adjuster with DC 24 V voltage supply (200 – 240 V)
MFP...	PROFIBUS interface
MFE...	PROFINET-IO or EtherCAT® interface
MFI...	INTERBUS interface
MFD...	DeviceNet™ interface

AS-Interface

MOVIMOT® drives are available with integrated AS-Interface. The following designs are available:

- MLK30A option (slave on AS-Interface)
- MLK31A option (double slave on AS-Interface)
for drives with several speed setpoints and ramps.

The AS-Interface slave is located on the connection board in the connection box.

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MLK30A

Connected to the AS-Interface, the MLK30A slave works like a module with 4 inputs and 4 outputs.

The cyclic output bits control the MOVIMOT® inverter.

The input bits transmit the status of the drive and 2 additional sensor signals to the AS-Interface master.

The acyclic parameter bits are used to select speed scaling factors.

The MLK30A option is compatible with MOVIMOT® MM..C with integrated AS-Interface.

MLK31A

The MLK31A option works as a double slave on the AS-Interface according to AS-Interface specification 3.0.

The serial AS-Interface data transmission (analog profile) allows for MOVIMOT® parameters and display values to be written and read.

The MOVIMOT® inverter is controlled via the cyclic output bits. The coding of the data bits is specified in different function modes. The MOVIMOT® inverter interprets these bits as different control and status codes. With the acyclic parameter bits, you can switch between the function modes.

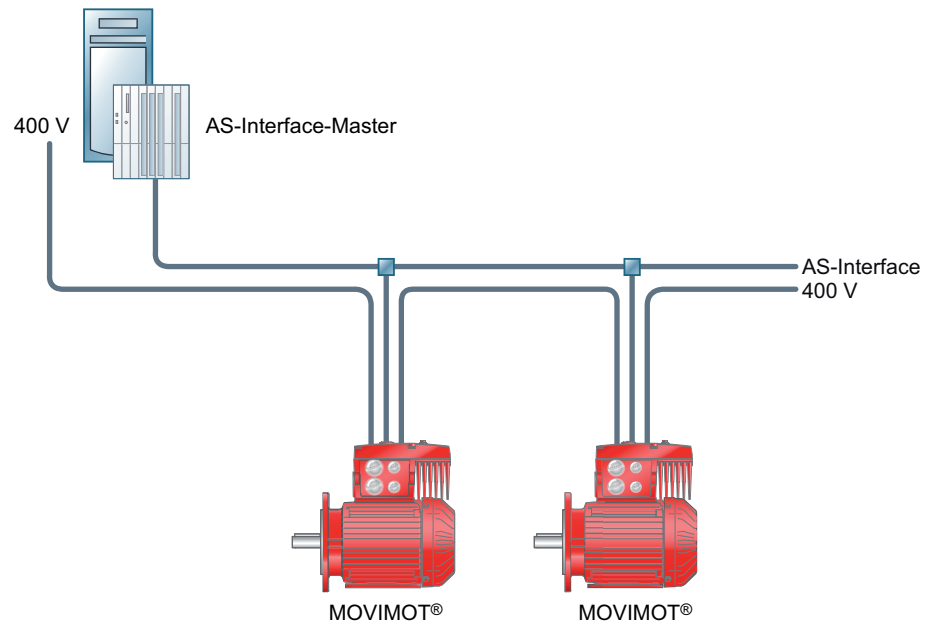
The input bits transmit the status of the drive and 2 additional sensor signals to the AS-Interface master.

6.1.2 Advantages of MOVIMOT®

- Small total volume
- Interference-free connection between inverter and motor
- Closed design with integrated protection functions
- Inverter cooling independent of the motor speed
- No space required in the control cabinet
- Optimally preset parameters for the expected applications
- Easy installation, startup and maintenance
- Easy to service for retrofitting and replacement

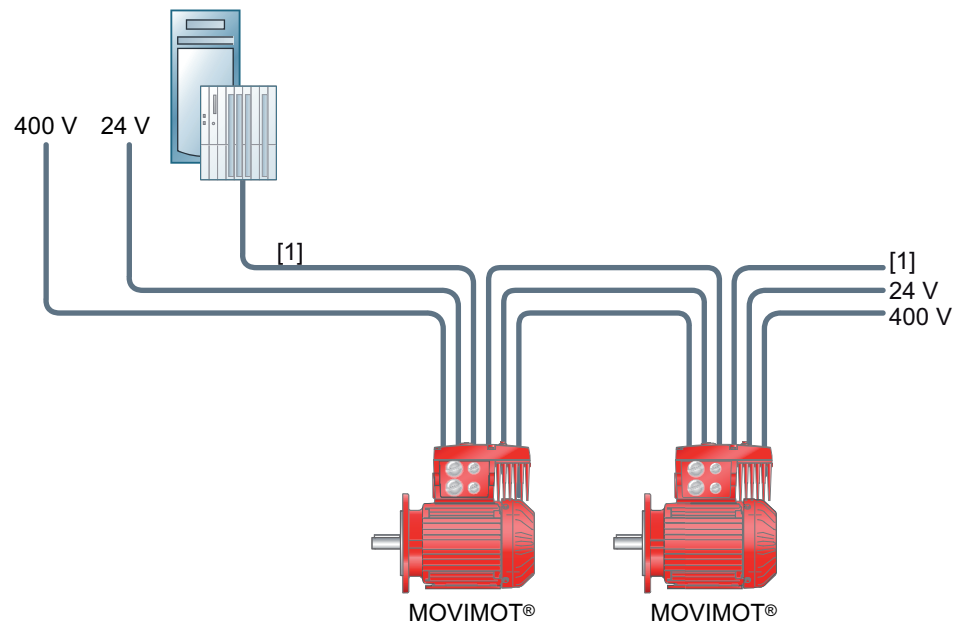
6.2 MOVIMOT® installation topology

The following figure shows the basic installation topology of the MOVIMOT® drive with AS-Interface (DC 24 V supply via AS-Interface):



5255090315

The following figure shows the basic installation topology of the MOVIMOT® drive:



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[1] Control: Binary (+ RS485)

6.3 Available MOVIMOT® motor combinations

6.3.1 Motor identification for MOVIMOT® (/MI)

Each MOVIMOT® contains a drive ID module for easy and fast startup. The drive ID module is included in the delivery of the MOVIMOT® motor or MOVIMOT® gearmotor.

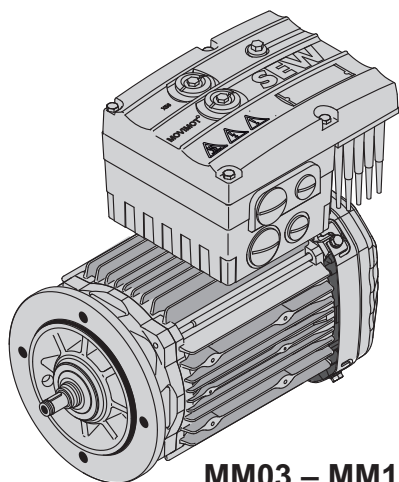
When a DR.. motor/brakemotor is ordered without MOVIMOT® inverter, a drive ID module suitable for the energy efficiency class can be included in the delivery. The drive ID module is attached in the standard terminal box of the DR. motor or DR...BE brakemotor. On the type designation of the DR.. motor/brakemotor, the drive ID module is indicated by /MI.

Assignment of the drive ID module

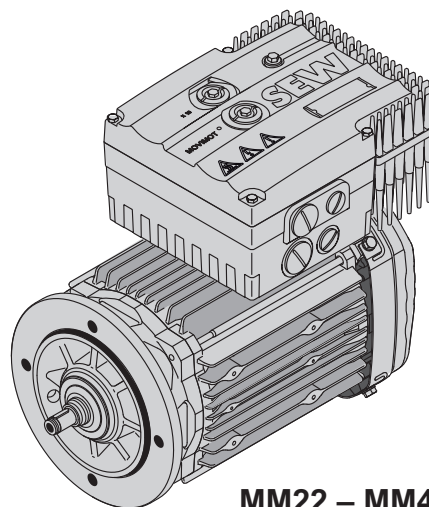
Type	Motor		Drive ID module		
	Line voltage [V]	Line frequency [Hz]	Designation	ID color	Part number
DRS	230/400	50	DRS/400/50	White	18214371
DRE	230/400	50	DRE/400/50	Orange	18214398
DRS	266/460	60	DRS/460/60 ¹⁾	Yellow	18214401
DRE	266/460	60	DRE/460/60 ¹⁾	Green	18214428
DRS/DRE	220/380	60	DRS/DRE/380/60 ¹⁾	Red	18234933
DRS/DRE	220 – 240/380 – 415 254 – 277/440 – 480	50	DRS/DRE/50/60	Purple	18214444
		60			
DRE...J	230/400	50	DRE...J/400/50	Orange	28203816
DRU...J	230/400	50	DRU...J/400/50	Gray	28203194
DRN	230/400	50	DRN/400/50	Light blue	28222040
DRN	266/460	60	DRN/460/60	Blue green	28222059
DRS/DRN	220 – 230/380 – 400 266/460	50	DRS/DRN/50/60	Pastel green	28222067
		60			

1) This drive ID module can also be combined with MOVIMOT® MM..D-233.

6.3.2 MOVIMOT® drives with DRN.. motors



MM03 – MM15



MM22 – MM40

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280 – 1400 min⁻¹ ∩ 3 x 380 – 500 V (400 V, 50 Hz)

IEC or UL

Type	P _n [kW]	M _n [Nm]	M _a /M _n f > 5 Hz	n _n [min ⁻¹]	I _{n1} [A]	cosφ	J _{mot} [10 ⁻⁴ kgm ²]		M _{Bmax} [Nm]	m ¹⁾ [kg]	m ²⁾ [kg]
							Without brake	With brake			
DRN80M4/.../MM07	0.75	5.1	1.5	1400	1.9	0.99	24.7	26.2	10	15.6	19.6
DRN90S4/.../MM11	1.1	7.5	1.5	1400	2.4	0.99	54.0	58.7	20	21.6	25.6
DRN90L4/.../MM15	1.5	10.2	1.5	1400	3.5	0.99	67.2	71.9	20	24.6	28.6
DRN100LS4/.../MM22	2.2	15.0	1.5	1400	5.0	0.99	81.4	87.4	28	29.3	35.3
DRN100L4/.../MM30	3.0	20.5	1.5	1400	6.7	0.99	112	118	40	36.3	42.3
DRN112M4/.../MM40	4.0	27.3	1.5	1400	7.3	0.99	178	183	55	48.2	55.2

290 – 2900 min⁻¹ △ 3 x 380 – 500 V (400 V, 50 Hz)

IEC or UL

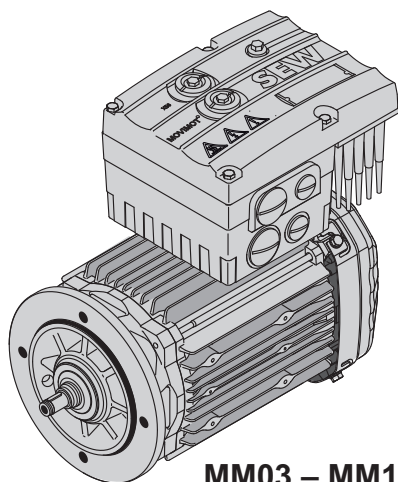
Type	P _n [kW]	M _n [Nm]	M _a /M _n f > 5 Hz	n _n [min ⁻¹]	I _{n1} [A]	cosφ	J _{mot} [10 ⁻⁴ kgm ²]		M _{Bmax} [Nm]	m ¹⁾ [kg]	m ²⁾ [kg]
							Without brake	With brake			
DRN80M4/.../MM11	1.1	3.62	1.5	2900	2.4	0.99	24.7	26.2	10	15.6	19.6
DRN90S4/.../MM15	1.5	4.95	1.5	2900	3.5	0.99	54.0	58.7	20	21.6	25.6
DRN90L4/.../MM22	2.2	7.25	1.5	2900	5.0	0.99	67.2	71.9	20	25.3	29.3
DRN100LS4/.../MM30	3.0	9.9	1.5	2900	6.7	0.99	81.4	87.4	28	29.3	35.3
DRN100L4/.../MM40	4.0	13.2	1.5	2900	7.3	0.99	112	118	40	37.2	43.2

1) Mass of motor without brake

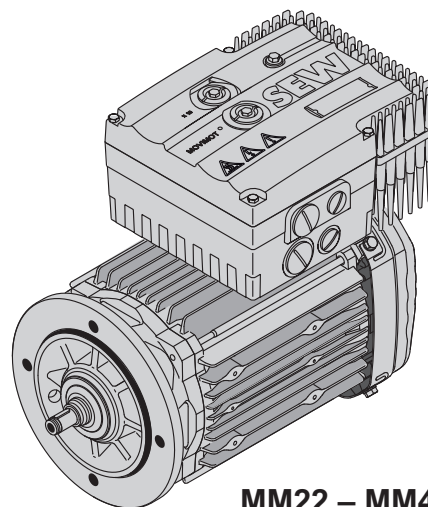
2) Mass of motor with brake

Thermal class F as standard

6.3.3 MOVIMOT® drives with DRN.. motors and increased short-term torque



MM03 – MM15



MM22 – MM40

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280 – 1400 min⁻¹ 3 x 380 – 500 V (400 V, 50 Hz)

IEC or UL

Type	P _n [kW]	M _n [Nm]	M _a /M _n f > 5 Hz	n _n [min ⁻¹]	I _{n1} [A]	cosφ	J _{mot} [10 ⁻⁴ kgm ²]		M _{Bmax} [Nm]	m ¹⁾ [kg]	m ²⁾ [kg]
							Without brake	With brake			
DRN80M4/.../MM11	1.1	5.1	2.1	1400	1.9	0.99	24.7	26.2	10	15.6	19.6
DRN90S4/.../MM15	1.5	7.5	2.1	1400	2.4	0.99	54.0	58.7	20	21.6	25.6
DRN90L4/.../MM22	2.2	10.2	2.1	1400	3.5	0.99	67.2	71.9	20	25.3	29.3
DRN100LS4/.../MM30	3.0	15.0	2.1	1400	5.0	0.99	81.4	87.4	28	29.3	35.3
DRN100L4/.../MM40	4.0	20.5	2.1	1400	6.7	0.99	112	118	40	37.2	42.3

290 – 2900 min⁻¹ 3 x 380 – 500 V (400 V, 50 Hz)

IEC or UL

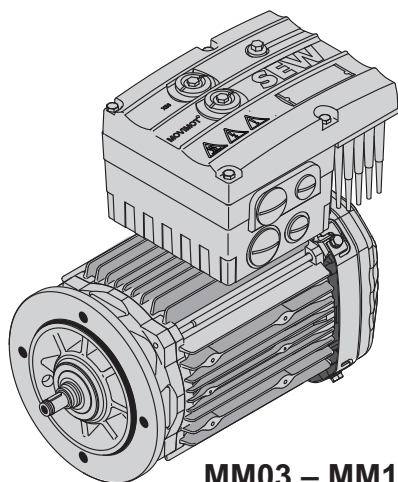
Type	P _n [kW]	M _n [Nm]	M _a /M _n f > 5 Hz	n _n [min ⁻¹]	I _{n1} [A]	cosφ	J _{mot} [10 ⁻⁴ kgm ²]		M _{Bmax} [Nm]	m ¹⁾ [kg]	m ²⁾ [kg]
							Without brake	With brake			
DRN80M4/.../MM15	1.1	3.62	2.1	2900	2.4	0.99	24.7	26.2	10	15.6	19.6
DRN90S4/.../MM22	1.5	4.95	2.1	2900	3.5	0.99	54.0	58.7	20	22.3	26.3
DRN90L4/.../MM30	2.2	7.25	2.1	2900	5.0	0.99	67.2	71.9	20	25.3	29.3
DRN100LS4/.../MM40	3.0	9.9	2.1	2900	6.7	0.99	81.4	87.4	28	30.2	36.2

1) Mass of motor without brake

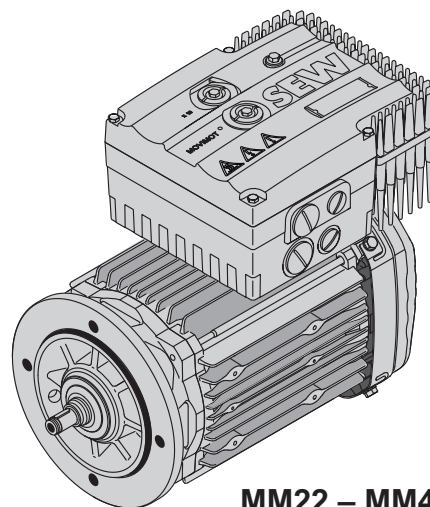
2) Mass of motor with brake

Thermal class F as standard

6.3.4 MOVIMOT® drives with DRE.. motors



MM03 – MM15



MM22 – MM40

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280 – 1400 min⁻¹ Δ 3 x 380 – 500 V (400 V)

IEC or UL

Type	P _n [kW]	M _n [Nm]	M _a /M _n f > 5 Hz	n _n [min ⁻¹]	I _{n1} [A]	cosφ	J _{mot} [10 ⁻⁴ kgm ²]		M _{Bmax} [Nm]	m ¹⁾ [kg]	m ²⁾ [kg]
							Without brake	With brake			
DRE80S4 /../MM03	0.37	2.52	1.5	1400	1.3	0.99	14.9	16.4	5	12.7	15.7
DRE80M4 /../MM05	0.55	3.75	1.5	1400	1.6	0.99	21.5	23	10	15.5	18.5
DRE80M4 /../MM07	0.75	5.1	1.5	1400	1.9	0.99	21.5	23	10	15.5	18.5
DRE90M4 /../MM11	1.1	7.5	1.5	1400	2.4	0.99	35.5	40	20	19.6	24.2
DRE90L4 /../MM15	1.5	10.2	1.5	1400	3.5	0.99	43.5	48.5	20	22.6	27.2
DRE100M4 /../MM22	2.2	15	1.5	1400	5.0	0.99	56	62	28	28.3	34.2
DRE100LC4 /../MM30	3.0	20.5	1.5	1400	6.7	0.99	90	96	40	33.5	39.4
DRE132S4 /../MM40	4.0	27.3	1.5	1400	7.3	0.99	190	195	55	49.2	56.4

290 – 2900 min⁻¹ Δ 3 x 380 – 500 V (400 V)

IEC or UL

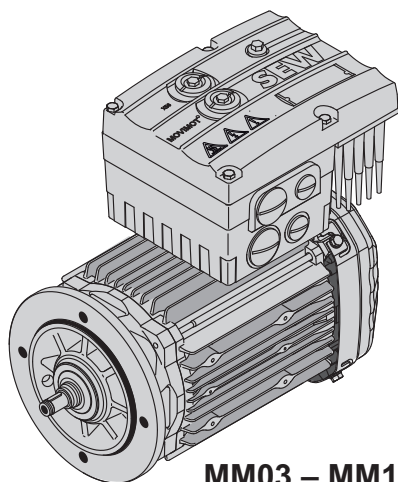
Type	P _n [kW]	M _n [Nm]	M _a /M _n f > 5 Hz	n _n [min ⁻¹]	I _{n1} [A]	cosφ	J _{mot} [10 ⁻⁴ kgm ²]		M _{Bmax} [Nm]	m ¹⁾ [kg]	m ²⁾ [kg]
							Without brake	With brake			
DRE80S4 /../MM03	0.37	1.22	1.5	2900	1.3	0.99	14.9	16.4	5	12.7	15.7
DRE80S4 /../MM05	0.55	1.81	1.5	2900	1.6	0.99	14.9	16.4	5	12.7	15.7
DRE80M4 /../MM07	0.75	2.47	1.5	2900	1.9	0.99	21.5	23	10	15.5	18.5
DRE80M4 /../MM11	1.1	3.62	1.5	2900	2.4	0.99	21.5	23	10	15.5	18.5
DRE90M4 /../MM15	1.5	4.95	1.6	2900	3.5	0.99	35.5	40	20	19.6	24.2
DRE90L4 /../MM22	2.2	7.25	1.6	2900	5.0	0.99	43.5	48.5	20	23.7	28.2
DRE100M4 /../MM30	3.0	9.9	1.6	2900	6.7	0.99	56	62	28	28.3	34.2
DRE100LC4 /../MM40	4.0	13.2	1.6	2900	7.3	0.99	90	96	40	34.1	40.0

1) Mass of motor without brake

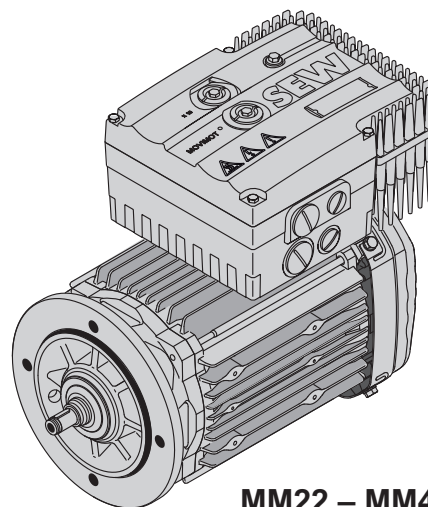
2) Mass of motor with brake

Thermal class F as standard

6.3.5 MOVIMOT® drives with DRE.. motors and increased short-term torque



MM03 – MM15



MM22 – MM40

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280 – 1400 min⁻¹ ∩ 3 x 380 – 500 V (400 V)

IEC or UL

Type	P _n [kW]	M _n [Nm]	M _a /M _n f > 5 Hz	n _n [min ⁻¹]	I _{n1} [A]	cosφ	J _{mot} [10 ⁻⁴ kgm ²]		M _{Bmax} [Nm]	m ¹⁾ [kg]	m ²⁾ [kg]
							Without brake	With brake			
DRE80S4 /.../MM05	0.37	2.52	2.1	1400	1.3	0.99	14.9	16.4	5	12.7	15.7
DRE80M4 /.../MM07	0.55	3.75	2.1	1400	1.6	0.99	21.5	23	10	15.5	18.5
DRE80M4 /.../MM11	0.75	5.1	2.1	1400	1.9	0.99	21.5	23	10	15.5	18.5
DRE90M4 /.../MM15	1.1	7.5	2.1	1400	2.4	0.99	35.5	40	20	19.6	24.2
DRE90L4 /.../MM22	1.5	10.2	2.1	1400	3.5	0.99	43.5	48.5	20	23.7	28.3
DRE100M4 /.../MM30	2.2	15.0	2.1	1400	5.0	0.99	56	62	28	28.3	34.2
DRE100LC4 /.../MM40	3.0	20.5	2.1	1400	6.7	0.99	90	96	40	34.1	40.0

290 – 2900 min⁻¹ △ 3 x 380 – 500 V (400 V)

IEC or UL

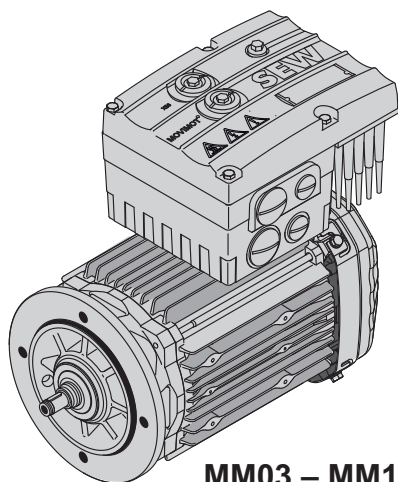
Type	P _n [kW]	M _n [Nm]	M _a /M _n f > 5 Hz	n _n [min ⁻¹]	I _{n1} [A]	cosφ	J _{mot} [10 ⁻⁴ kgm ²]		M _{Bmax} [Nm]	m ¹⁾ [kg]	m ²⁾ [kg]
							Without brake	With brake			
DRE80S4 /.../MM05	0.37	1.22	2.2	2900	1.3	0.99	14.9	16.4	5	12.7	15.7
DRE80S4 /.../MM07	0.55	1.81	2.2	2900	1.6	0.99	14.9	16.4	5	12.7	15.7
DRE80M4 /.../MM11	0.75	2.47	2.2	2900	1.9	0.99	21.5	23	10	15.5	18.5
DRE80M4 /.../MM15	1.1	3.62	2.2	2900	2.4	0.99	21.5	23	10	15.5	18.5
DRE90M4 /.../MM22	1.5	4.95	2.2	2900	3.5	0.99	35.5	40	20	20.7	25.3
DRE90L4 /.../MM30	2.2	7.25	2.2	2900	5.0	0.99	43.5	48.5	20	23.7	28.3
DRE100M4 /.../MM40	3.0	9.9	2.2	2900	6.7	0.99	56	62	28	28.9	34.8

1) Mass of motor without brake

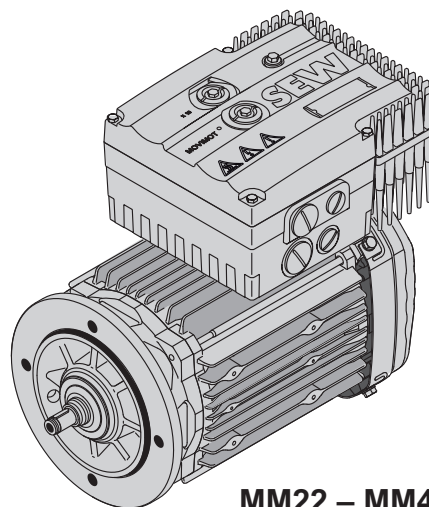
2) Mass of motor with brake

Thermal class F as standard

6.3.6 MOVIMOT® drives with DRS.. motors



MM03 – MM15



MM22 – MM40

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280 – 1400 min⁻¹ Δ 3 x 380 – 500 V (400 V)

IEC or UL

Type	P _n [kW]	M _n [Nm]	M _a /M _n f > 5 Hz	n _n [min ⁻¹]	I _{n1} [A]	cosφ	J _{mot} [10 ⁻⁴ kgm ²]		M _{Bmax} [Nm]	m ¹⁾ [kg]	m ²⁾ [kg]
							Without brake	With brake			
DRS71S4 /../MM03	0.37	2.52	1.5	1400	1.3	0.99	4.9	6.2	5	9.0	11.4
DRS71M4 /../MM05	0.55	3.75	1.5	1400	1.6	0.99	7.1	8.4	10	10.3	12.9
DRS80S4 /../MM07	0.75	5.1	1.5	1400	1.9	0.99	14.9	16.4	10	12.7	15.7
DRS80M4 /../MM11	1.1	7.5	1.5	1400	2.4	0.99	21.5	26	14	15.5	19.2
DRS90M4 /../MM15	1.5	10.2	1.5	1400	3.5	0.99	35.5	40	20	19.6	24.2
DRS90L4 /../MM22	2.2	15.0	1.5	1400	5.0	0.99	43.5	49.5	40	23.7	29.6
DRS100M4 /../MM30	3.0	20.5	1.5	1400	6.7	0.99	56	62	40	28.3	34.2
DRS100LC4 /../MM40	4.0	27.3	1.5	1400	7.3	0.99	90	96	50	34.1	40.0

290 – 2900 min⁻¹ Δ 3 x 380 – 500 V (400 V)

IEC or UL

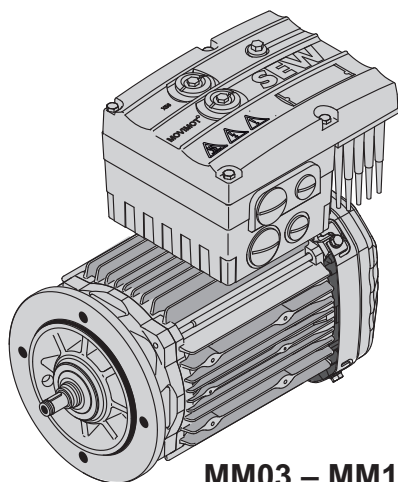
Type	P _n [kW]	M _n [Nm]	M _a /M _n f > 5 Hz	n _n [min ⁻¹]	I _{n1} [A]	cosφ	J _{mot} [10 ⁻⁴ kgm ²]		M _{Bmax} [Nm]	m ¹⁾ [kg]	m ²⁾ [kg]
							Without brake	With brake			
DRS71S4 /../MM05	0.55	1.81	2.0	2900	1.6	0.99	4.9	6.2	5	9.0	11.4
DRS71M4 /../MM07	0.75	2.47	2.0	2900	1.9	0.99	7.1	8.4	10	10.3	12.9
DRS80S4 /../MM11	1.1	3.62	2.0	2900	2.4	0.99	14.9	16.4	10	12.7	15.7
DRS80M4 /../MM15	1.5	4.95	1.6	2900	3.5	0.99	21.5	26	14	15.5	19.2
DRS90M4 /../MM22	2.2	7.25	1.6	2900	5.0	0.99	35.5	40	20	20.7	25.3
DRS90L4 /../MM30	3.0	9.9	1.6	2900	6.7	0.99	43.5	49.5	40	23.7	29.6
DRS100M4 /../MM40	4.0	13.2	1.6	2900	7.3	0.99	56	62	40	28.9	34.8

1) Mass of motor without brake

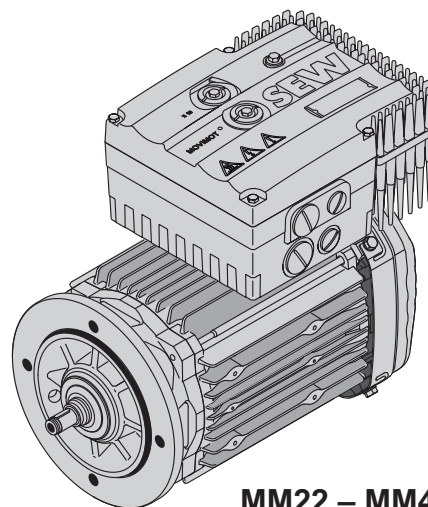
2) Mass of motor with brake

Thermal class F as standard

6.3.7 MOVIMOT® drives with DRS.. motors and increased short-term torque



MM03 – MM15



MM22 – MM40

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280 – 1400 min⁻¹ ∩ 3 x 380 – 500 V (400 V)

IEC or UL

Type	P _n [kW]	M _n [Nm]	M _a /M _n f > 5 Hz	n _n [min ⁻¹]	I _{n1} [A]	cosφ	J _{mot} [10 ⁻⁴ kgm ²]		M _{Bmax} [Nm]	m ²⁾ [kg]	m ³⁾ [kg]
							Without brake	With brake			
DRS71S4 /../MM05	0.37	2.52	2.1	1400	1.3	0.99	4.9	6.2	5	9.0	11.4
DRS71M4 /../MM07	0.55	3.75	2.1	1400	1.6	0.99	7.1	8.4	10	10.3	12.9
DRS80S4 /../MM11	0.75	5.1	2.1	1400	1.9	0.99	14.9	16.4	10	12.7	15.7
DRS80M4 /../MM15	1.1	7.5	2.1	1400	2.4	0.99	21.5	26	14	15.5	19.2
DRS90M4 /../MM22	1.5	10.2	2.1	1400	3.5	0.99	35.5	40	20	20.7	25.3
DRS90L4 /../MM30	2.2	15.0	2.1	1400	5.0	0.99	43.5	49.5	40	23.7	29.6
DRS100M4 /../MM40	3.0	20.5	2.0	1400	6.7	0.99	56	62	40	28.9	34.8

290 – 2900 min⁻¹ △ 3 x 380 – 500 V (400 V)

IEC or UL

Type	P _n [kW]	M _n [Nm]	M _a /M _n ¹⁾ f > 5 Hz	n _n [min ⁻¹]	I _{n1} [A]	cosφ	J _{mot} [10 ⁻⁴ kgm ²]		M _{Bmax} [Nm]	m ²⁾ [kg]	m ³⁾ [kg]
							Without brake	With brake			
DRS71S4 /../MM07	0.55	1.81	2.4	2900	1.6	0.99	4.9	6.2	5	9.0	11.4
DRS71M4 /../MM11	0.75	2.47	2.4	2900	1.9	0.99	7.1	8.4	10	10.3	12.9
DRS80S4 /../MM15	1.1	3.62	2.4	2900	2.4	0.99	14.9	16.4	10	12.7	15.7
DRS80M4 /../MM22	1.5	4.95	2.2	2900	3.5	0.99	21.5	26	14	16.6	20.3
DRS90M4 /../MM30	2.2	7.25	2.2	2900	5.0	0.99	35.5	40	20	20.7	25.3
DRS90L4 /../MM40	3.0	9.9	2.0	2900	6.7	0.99	43.5	49.5	40	24.3	30.2

1) Increased short-term torque in S3 operation, 25 % cdf

2) Mass of motor without brake

3) Mass of motor with brake

Thermal class F as standard

6.4 Functional safety

6.4.1 Order information

INFORMATION



- The SafetyDrive design must be ordered explicitly. (Order note: "– SafetyDrive").
- In safety applications, only components may be used that were supplied by SEW-EURODRIVE in this design and that are marked with the FS logo for functional safety.

6.4.2 Permitted SafetyDrive designs

Only the following unit combinations with MOVIMOT® MM..D are permitted in applications with safe disconnection of the drive (STO) up to performance level d according to EN ISO 13849-1 and SIL 2 according to IEC 61800-5-2:

Permitted designs	MOVIMOT® type
MOVIMOT® with binary control (control via terminals)	D../MM.. – SafetyDrive MM..D-503-00 – SafetyDrive
MOVIMOT® with MBG11A option	
MOVIMOT® with MWA 21A option	
MOVIMOT® with MOVIFIT® MC	
MOVIMOT® with Z.6, Z.7 or Z.8 field distributor"" (→ 268)	

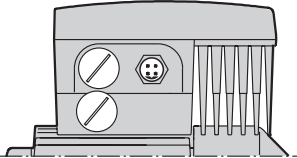
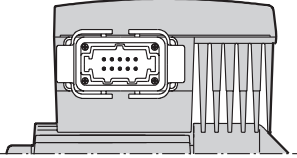
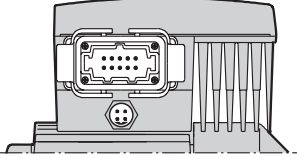
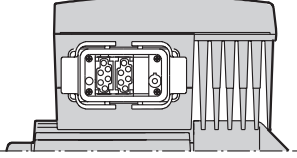
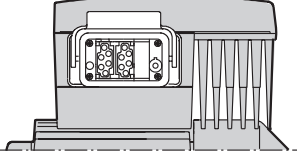
For additional information on the safety function and the safety-related requirements, refer to the "MOVIMOT® MM..DD – Functional Safety" manual.

6.5 Connection technology

6.5.1 Overview of MOVIMOT® standard design connection technology

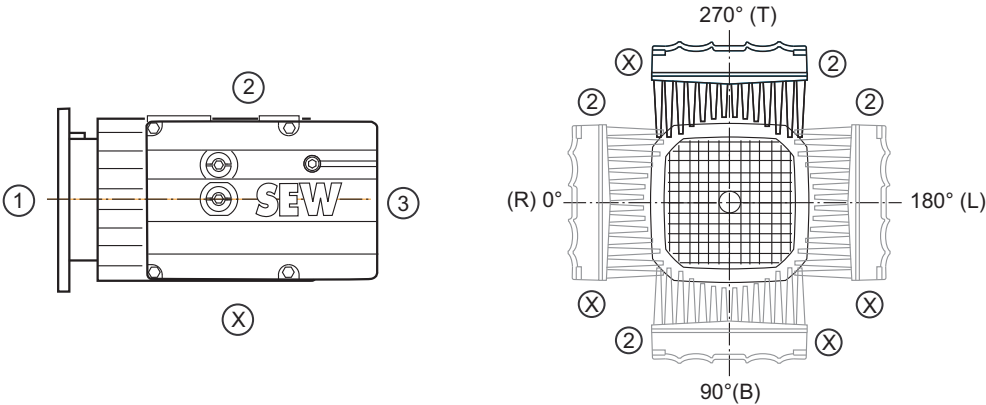
MOVIMOT® MM..D is supplied without plug connector if not specified otherwise in the order.

The following table shows the available plug connector variants:

Order designation	Function	Manufacturer's designation
MM../AVT1 	RS485	Round plug connector M12 x 1
MM../ASA3 	Power rating	Harting Han® 10 ES pin insert (built-on housing with 2 clips)
MM../ASA3/AVT1 	- Power rating - RS485	Harting Han® 10 ES pin insert (built-on housing with 2 clips) + Round plug connector M12 x 1
MM../AMA6 	Power/RS485	Harting HAN Modular® pin insert (built-on housing with 2 clips)
MM../AMD6 	Power/RS485	Harting HAN® Modular pin insert (built-on housing with 1 clip)

Possible plug connector positions (MOVIMOT® standard design)

The following positions are possible for plug connectors:



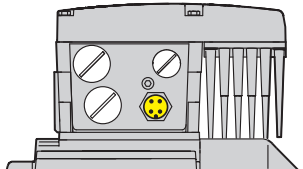
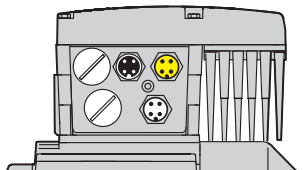
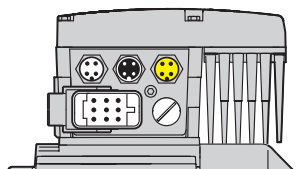
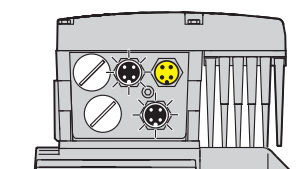
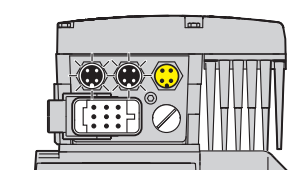
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Plug connector	Possible positions
AVT1	X (standard)
	2
ASA3	X (standard)
	2
ASA3/AVT1	ASA3 = X (standard) + AVT1 = X (standard)
	ASA3 = 2 + AVT1 = 2
AMA6	X (standard)
AMD6	2

6.5.2 Overview of connection technology – MOVIMOT® with integrated AS-Interface

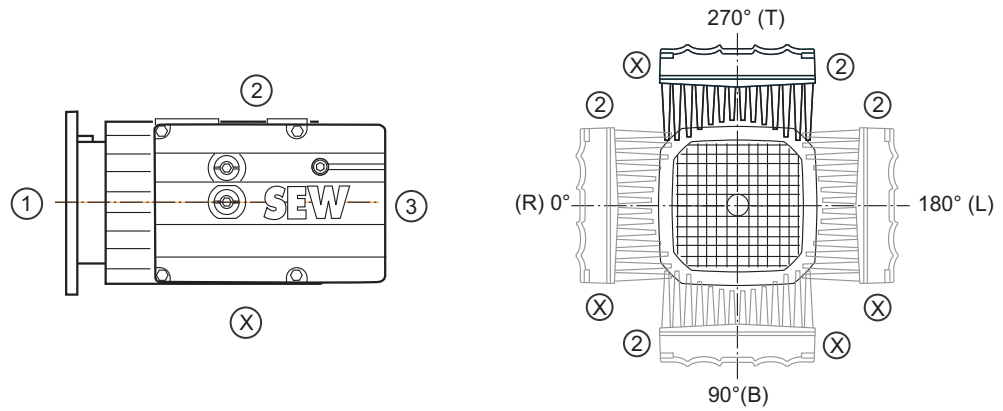
MOVIMOT® MM..D with integrated AS-Interface is supplied with AVSK plug connector (for AS-Interface) if not specified otherwise in the order.

The following table shows the available plug connector variants:

Order designation	Function	Manufacturer's designation
MM../AVSK 	AS-Interface	1 x round plug connector M12 x 1
MM../AZSK 	- AS-Interface - AUX PWR - Sensor connection	3 x round plug connector M12 x 1
MM../AND3/AZSK 	- Power rating - AS-Interface - AUX PWR - Sensor connection	Harting Han® Q8/0 pin insert (built-on housing with 1 clip) + 3 x round plug connector M12 x 1
MM../AZZK 	- AS-Interface/AUX-PWR - Sensor connection - Sensor connection	3 x round plug connector M12 x 1
MM../AND3/AZZK 	- Power rating - AS-Interface/AUX-PWR - Sensor connection - Sensor connection	Harting Han® Q8/0 pin insert (built-on housing with 1 clip) + 3 x round plug connector M12 x 1

Possible plug connector positions (MOVIMOT® with integrated AS-Interface)

Positions "X" or "2" are possible for plug connectors. The plug connectors are always located on one connection side. Combined plug connector positions are not possible.



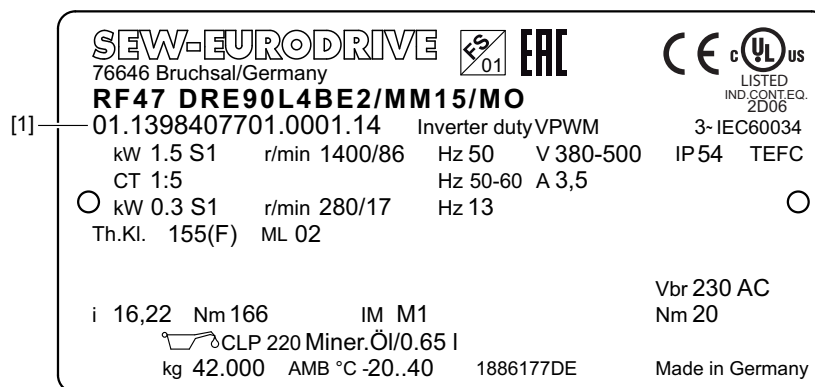
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6.6 Sample type designation

6.6.1 Standard design

Nameplate

The following figure gives an example of a MOVIMOT® drive nameplate. The nameplate is attached to the motor.



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[1] Part number

Type designation

The following table shows an example of the type designation of the MOVIMOT® drive **RF47 DRE90L4BE2/MM15/MO**:

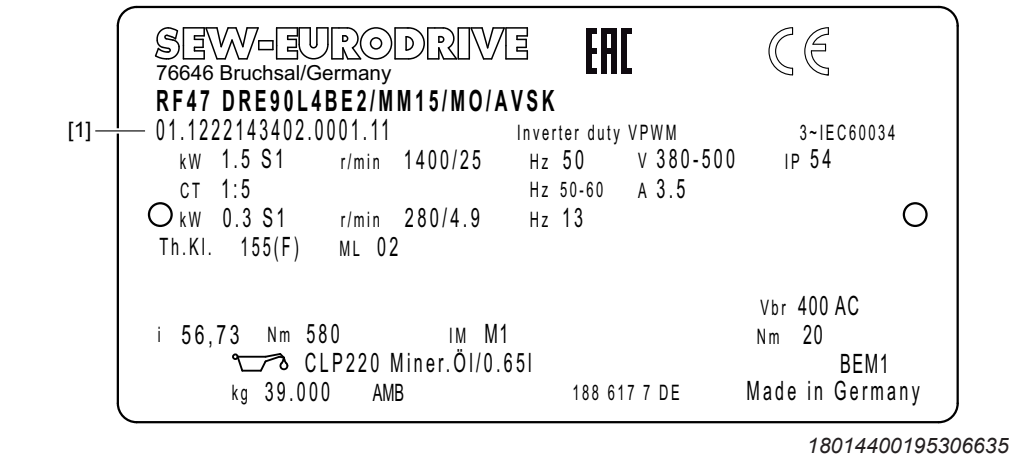
RF	Gear unit series
47	Gear unit size
DRE	Motor series (DRS., DRE., DRN..)
90L	Motor size
J	Rotor C = copper rotor J = LSPM rotor
4	Number of motor poles
BE2	Additional feature motor (brake)
/	
MM15	MOVIMOT® inverter
/	
MO	Additional feature: inverter ¹⁾

1) The nameplate only displays options installed at the factory.

6.6.2 MOVIMOT® with integrated AS-interface

Nameplate

The following figure gives an example of a MOVIMOT® drive nameplate. The nameplate is on the motor.



[1] Part number

Type designation

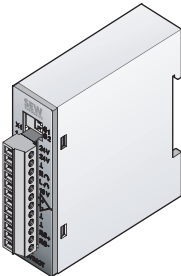
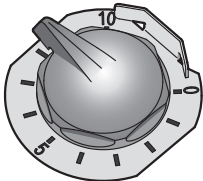
The following table shows an example of the type designation of the MOVIMOT® drive **RF47 DRE90L4BE2 /MM15/MO/AVSK**:

RF	Gear unit series
47	Gear unit size
DRE	Motor series (DRS., DRE., DRN..)
90L	Motor size
J	Rotor C = copper rotor J = LSPM rotor
4	Number of motor poles
BE2	Additional feature motor (brake)
/	
MM15	MOVIMOT® inverter
/	
MO	Additional feature: inverter ¹⁾ (e.g. MLK30A)
/	
AVSK	Plug connector for AS-Interface

1) The nameplate only displays options installed at the factory.

6.7 Options

The following tables show the options for MOVIMOT® MM..D.

Option	Figure	Description
DC 24 V supply MLU11A (input voltage AC 380 – 500 V) part number: 08233837 MLU21A (input voltage AC 200 – 240 V) part number: 0823387X		The MLU.1A option is mounted with a MOVIMOT® cable gland. The option provides the DC 24 V voltage supply for the MOVIMOT® inverter, including one option with a maximum power consumption of 70 mA (MBG11A, MWA21A). An external 24 V auxiliary voltage is not required.
Setpoint adjuster with DC 24 V supply MLG11A (input voltage AC 380 – 500 V) part number: 08233845 MLG21A (input voltage AC 200 – 240 V) part number: 08233888		The MLG.1A option is mounted with a MOVIMOT® cable gland. The option allows to set the input speed in the range of -100 % – +100 % f_{max} (potentiometer f1). An external 24 V auxiliary voltage is not required.
Setpoint adjuster MBG11A part number: 08225478		The MBG11A setpoint adjuster has 2 keys and a display. The keys allow for remote speed control in the range of -100 % – +100 % f_{max} (potentiometer f1). Up to 31 MOVIMOT® drives can be controlled simultaneously (broadcasting).
Setpoint converter MWA21A part number: 08230064		The MWA21A setpoint converter converts an analog setpoint and control signals into an RS485 protocol. This allows to control of the MOVIMOT® drive from the control cabinet remotely. Up to 31 MOVIMOT® drives can be controlled simultaneously (broadcasting).
Rotary button MBK11A (for MOVIMOT® MMD03 – MMD15..) Part number: 28230035 MBK12A (for MOVIMOT® MMD22 – MMD40..) part number: 28230043		The drive speed can be set in the range of 0 – 100 % using the adjusting knob. The MBK.. adjusting knob is mounted onto the setpoint potentiometer f1 of the MOVIMOT® inverter instead of the screw plug. NOTICE The MOVIMOT® inverter with adjusting knob has the degree of protection IP 54.

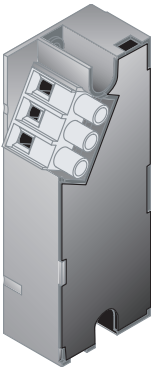
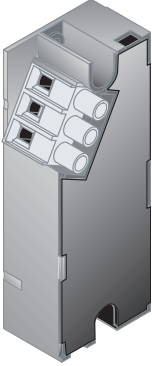
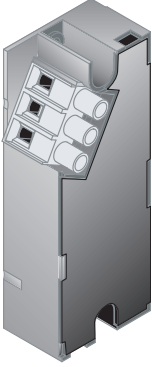
6.7.1 Options integrated in connection box

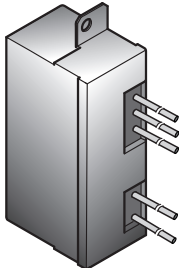
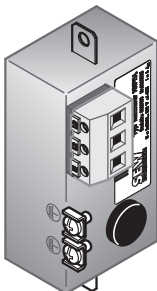
INFORMATION



The following table shows the options for MOVIMOT® MM..D that are installed in the connection box:

- The options BEM, BES, URM, MLU13A and MNF21A are integrated in the MOVIMOT® connection box.
- The MLU13A and MNF21A options can only be ordered in combination with the modular connection box.
- The modular connection box is assigned depending on the ordered option and the MOVIMOT® size.

Option	Figure	Description
BEM brake control Part number: 08296111		The BEM brake rectifier serves to control the brake of the MOVIMOT® drive. The brake is controlled by means of parameter setting or activating additional function 7 or 9. The BEM brake control implements fast release and application of the mechanical brake. NOTICE: The brake coil must correspond to the connection voltage.
BES brake control Part number: 08298475		The BES brake rectifier serves to control the DC 24 V brake (not standard) of the MOVIMOT® drive. The brake is controlled by means of parameter setting or activating additional function 7 or 9. The BES brake control implements normal release and fast application of the mechanical brake. NOTICE: The brake coil must be designed as DC 24 V coil.
URM voltage relay Part number: 08276013		The URM voltage relay implements rapid application of the mechanical brake. NOTICE: The brake coil must correspond to the MOVIMOT® standard (AC 120 V or AC 230 V).

Option	Figure	Description
Internal DC 24 V voltage supply MLU13A Part number: 18205968		The MLU13A option is installed in the modular connection box of the MOVIMOT® drive as standard. The option provides the DC 24 V voltage supply for the MOVIMOT® inverter, including one option with a maximum power consumption of 70 mA (MBG11A, MWA21A). An external 24 V auxiliary voltage is not required. Note that the height of the terminal box is higher for MOVIMOT® MM03 to MM15 by 18 mm.
MNF21A internal line filter Part number: 08042659		The MNF21A option is mounted in the connection box of the MOVIMOT® (MM03 – MM15). The option allows for implementing a drive system that complies with category C1 according to EN 61800-3 with respect to interference emission. The option requires the modular connection box with increased dimensions. Note that the height of the terminal box is higher for MOVIMOT® MM03 to MM15 by 18 mm.

6.7.2 Factory-installed external options

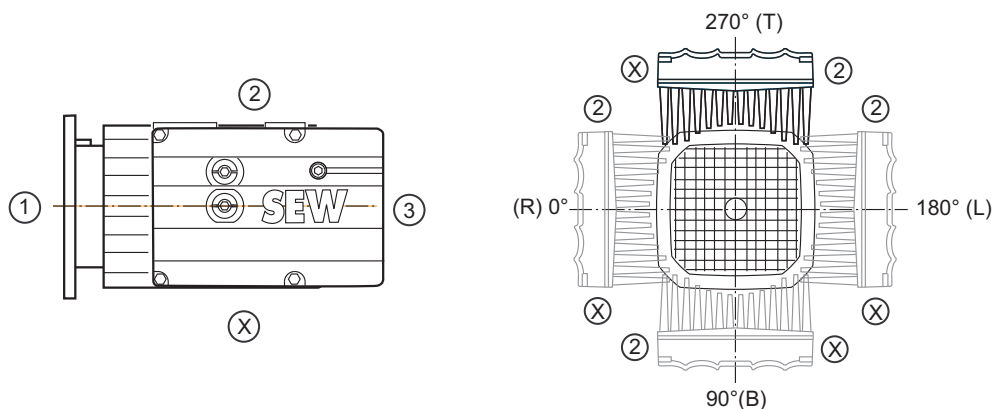
On request, the following options can be installed at the connection box at the factory (mounted, wired, and ready for operation):

- Local DC 24 V supply (MLU.1A)
- Local setpoint adjuster with DC 24 V supply (MLG.1A)
- PROFIBUS fieldbus interface (MFP../MQP..)
- PROFINET IO fieldbus interface (MFE52..)
- EtherCAT® fieldbus interface (MFE72..)
- INTERBUS fieldbus interface (MFI..)
- DeviceNet™ fieldbus interface (MFD../MQD..)
- Hybrid cable for connection between MF../Z.3. or MF../.6. field distributor and MOVIMOT® (KPF6, 1 – 5 m)

Important order information

The external options can be installed in the following positions as standard:

- Position "2"
- Position "X" (normal)



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6.8 Braking resistors

6.8.1 Assignment of internal braking resistors

The following table shows the assignments of internal braking resistors to MOVIMOT®. For the regenerative current-carrying capacity of the braking resistors, refer to chapter "4Q operation with integrated BW.. braking resistor" (→ 358).

MOVIMOT® type	Braking resistor	Part number
MM03D-503-00 – MM15D-503-00 MM03D-233-00 – MM07D-233-00	BW1	08228973 ¹⁾
MM22D-503-00 – MM40D-503-00 MM11D-233-00 – MM22D-233-00	BW2	08231362 ¹⁾

1) 2 screws M4 x 8 included in the delivery.

6.8.2 Assignment of external braking resistors

The following table shows the assignments of external braking resistors to MOVIMOT®. For the regenerative current-carrying capacity of the braking resistors, refer to chapter "4Q operation with brake and external braking resistor" (→ 360).

MOVIMOT® type	Braking resistor	Part number	Protective grid
MM03D-503-00 – MM15D-503-00 MM03D-233-00 – MM07D-233-00	BW200-003/K-1.5	08282919	0813152X
	BW200-005/K-1.5	08282838	–
	BW150-006/T	17969565	–
MM22D-503-00 – MM40D-503-00 MM11D-233-00 – MM22D-233-00	BW100-003/K-1.5	08282935	0813152X
	BW100-005/K-1.5	08282862	–
	BW068-006/T	17970008	–
	BW068-012/T	17970016	–

6.9 Brake coil assignment

The following table shows the assignments of the brake coil to the respective motor. For the regenerative current-carrying capacity of the brake coils, refer to chapter "4Q operation with motors with mechanical brake" (→ 359).

Motor	Brake coil assignment	
	Standard brake	Optional brake
DR63L4	BR03	–
DRS71S4 DRE80S4	BE05	BE1
DRS71M4 DRS80S4 DRE80M4 DRN80M4	BE1	BE05
DRS80M4 DRE90M4 DRN90S4	BE2	BE1
DRS90M4 DRE90L4 DRN90L4	BE2	BE1
DRS90L4 DRE100M4 DRE100L4 DRN100LS4	BE5	BE2
DRS100M4 DRS100L4 DRS100LC4 DRE100LC4 DRN100L4	BE5	BE2
DRE132S4 DRN112M4	BE5	BE11