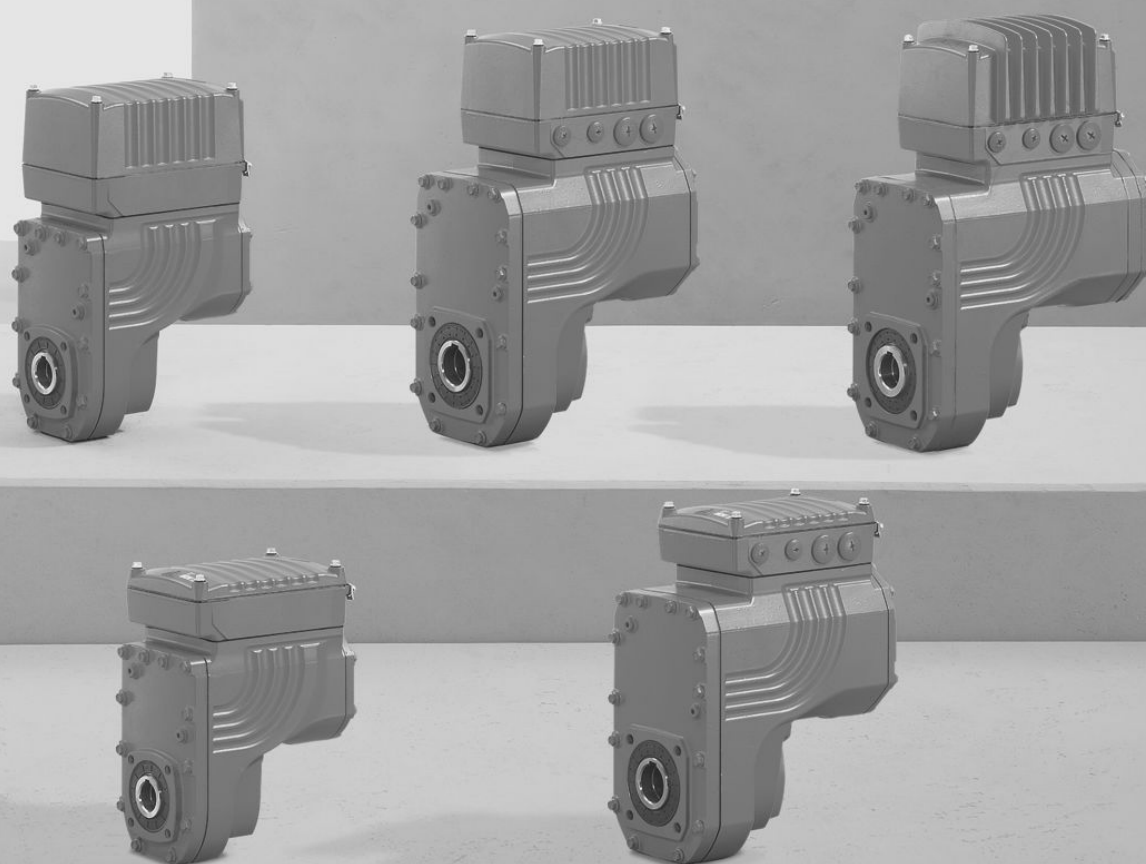




Addendum to the Operating Instructions



Mechatronic Drive Unit
MOVIGEAR® / MGF..-DSM
with Integrated Pressure Compensation (/PG Option)



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1 General information

1.1 About the documentation

This documentation is an integral part of the product. The documentation is intended for all employees who perform assembly, installation, startup, and service work on the product.

Make sure this documentation is accessible and legible. Ensure that persons responsible for the machinery and its operation as well as persons who work on the device independently have read through the documentation carefully and understood it. If you are unclear about any of the information in this documentation or require further information, please contact SEW-EURODRIVE.

1.2 Structure of the safety notes

1.2.1 Meaning of signal words

The following table shows the grading and meaning of the signal words for safety notes.

Signal word	Meaning	Consequences if disregarded
▲ DANGER	Imminent hazard	Severe or fatal injuries.
▲ WARNING	Possible dangerous situation	Severe or fatal injuries
▲ CAUTION	Possible dangerous situation	Minor injuries
NOTICE	Possible damage to property	Damage to the drive system or its environment.
INFORMATION	Useful information or tip: Simplifies handling of the drive system.	

1.2.2 Structure of section-related safety notes

Section-related safety notes do not apply to a specific action but to several actions pertaining to one subject. The hazard symbols used either indicate a general hazard or a specific hazard.

Section-related safety notes are structured as follows:



SIGNAL WORD

Type and source of hazard.

Possible consequence(s) if disregarded.

- Measure(s) to prevent the hazard.

Meaning of the hazard symbols

The hazard symbols in the safety notes have the following meaning:

Hazard symbol	Meaning
	General hazard
	Warning of dangerous electrical voltage
	Warning of hot surfaces
	Warning of risk of crushing
	Warning of suspended load
	Warning of automatic restart

1.2.3 Structure of embedded safety notes

Embedded safety notes are directly integrated into the instructions just before the description of the dangerous action.

Embedded safety notes are structured as follows:

- **▲ SIGNAL WORD** Type and source of hazard.
Possible consequence(s) if disregarded.
– Measure(s) to prevent the hazard.

1.3 Rights to claim under limited warranty

A requirement of fault-free operation and fulfillment of any rights to claim under limited warranty is that you adhere to the information in the documentation. Read the documentation before you start working with the product.

1.4 Exclusion of liability

You must comply with the information contained in this documentation to ensure safe operation and to achieve the specified product characteristics and performance features. SEW-EURODRIVE assumes no liability for injury to persons or damage to equipment or property resulting from non-observance of these operating instructions. In such cases, any liability for defects is excluded.

1.5 Applicable documents

This additional information does not replace the detailed operating instructions.

Also observe the following publications:

- "MOVIGEAR® B" catalog
- "MOVIGEAR® DBC-B" operating instructions
- "MOVIGEAR® DAC-B" operating instructions
- "MOVIGEAR® DSC-B" operating instructions
- "MOVIGEAR® SNI-B" operating instructions
- "MGF...-DSM Drive Unit" operating instructions

1.6 Product names and trademarks

All product names included in this documentation are trademarks or registered trademarks of the respective titleholders.

1.7 Copyright notice

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2 Unit structure

2.1 Integrated pressure compensation (/PG option)

2.1.1 Description

When the gear unit oil heats up, the pressure rises within the gear unit due to the expansion. Until now, the pressure was reduced by means of a breather valve. Since this valve cannot be installed in mounting position M3, until now, this mounting position could only be used with restrictions concerning the output power.

The option /PG is a fully integrated pressure compensation mechanism that replaces the pressure compensating valve and therefore makes it possible to use mounting position M3 without restrictions concerning the output power.

2.1.2 Advantages

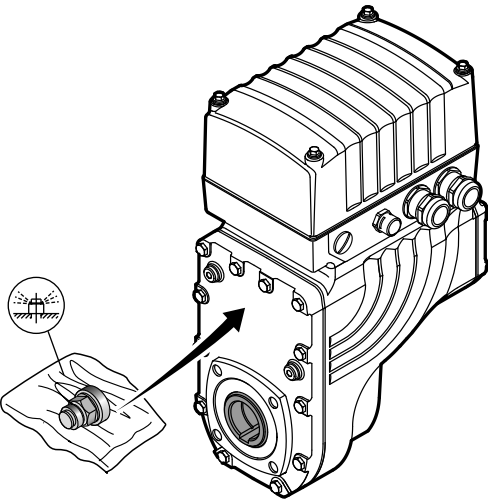
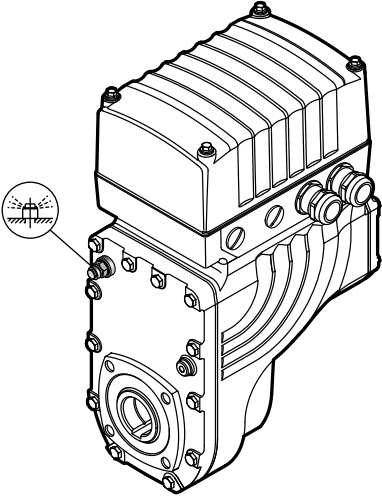
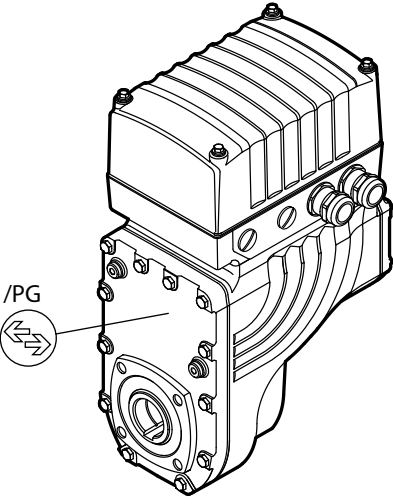
- Universal mounting position without restrictions concerning the output power.
- Fully integrated pressure compensation mechanism without external valve.
- Oil mist caused by the pressure compensating valve is avoided.
- Product damage due to inactive breather valve is avoided.
- The position of the breather valve no longer needs to be changed when changing the mounting position.
- Reduced risk of oil leakages due to incorrectly installed breather valve.

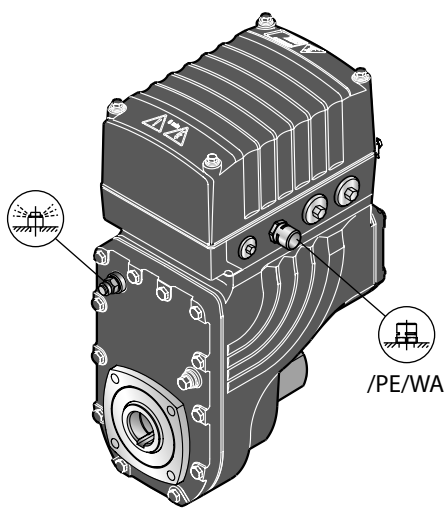
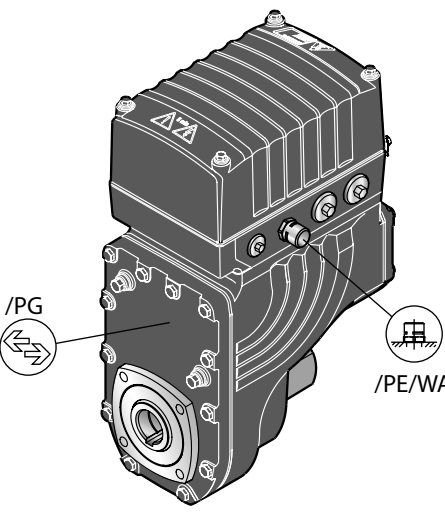
2.1.3 Restrictions

For integrated pressure compensation (/PG option) and drive units with pressure compensation fitting in the electronics cover (option /PE or design for use in wet areas / WA), observe the notes regarding mounting positions (see chapter "Mechanical installation").

2.1.4 Available combinations

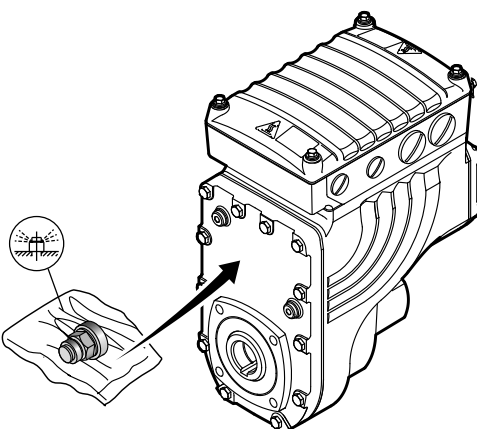
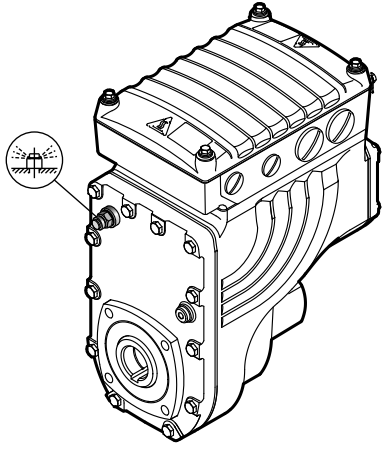
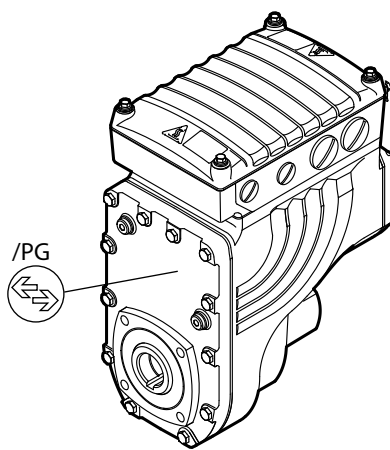
MOVIGEAR®

Design	Description	Depiction
MGF.../	- Breather valve included with the delivery - Universal use in M1 / M2 / M4 / M5 / M6	 12847325963
MGF.../	- Breather valve installed according to mounting position - Use in the ordered mounting position M1 or M2 or M4 or M5 or M6	 12847328395
MGF.../PG	- Integrated pressure compensation /PG - Universal mounting position MU	 12847352715

Design	Description	Depiction
MGF.../PE/WA	- Breather valve and pressure compensation fitting /PE installed according to mounting position - Design for use in wet areas /WA - Use in the ordered mounting position M1 or M2 or M4 or M5 or M6	 12847347851
MGF.../PE/PG/WA	- Integrated pressure compensation /PG - Pressure compensation fitting /PE installed according to mounting position - Design for use in wet areas /WA - Use in the ordered mounting position M1 or M2 or M3 or M4 or M5 or M6	 12847342987

	/WA	In this publication, all illustrations depicting the version for use in wet areas are displayed with a shading (= HP200 surface protection).
	–	Breather valve
	/PG	Integrated pressure compensation
	/PE	Pressure compensation fitting electronics

MGF...-DSM drive unit

Design	Description	Depiction
MGF...-DSM	- Breather valve enclosed in delivery - Universal use in M1 / M2 / M4 / M5 / M6	 12847333259
MGF...-DSM	- Breather valve mounted according to mounting position - Use in the ordered mounting position M1 or M2 or M4 or M5 or M6	 12847330827
MGF...-DSM/PG	- Integrated pressure compensation /PG - Universal mounting position MU	 12847340555

Design	Description	Depiction
MGF...DSM/PE/WA	- Breather valve and pressure compensation fitting /PE installed according to mounting position - Design for use in wet areas /WA - Use in the ordered mounting position M1 or M2 or M4 or M5 or M6	12847338123
MGF...DSM//PE/PG/WA	- Integrated pressure compensation /PG - Pressure compensation fitting /PE installed according to mounting position - Design for use in wet areas /WA - Use in the ordered mounting position M1 or M2 or M3 or M4 or M5 or M6	12847335691

	/WA	In this publication, all illustrations depicting the version for use in wet areas are displayed with a shading (= HP200 surface protection).
	–	Breather valve
	/PG	Integrated pressure compensation
	/PE	Pressure compensation fitting electronics

2.2 MOVIGEAR® optional design for wet areas (/WA option)

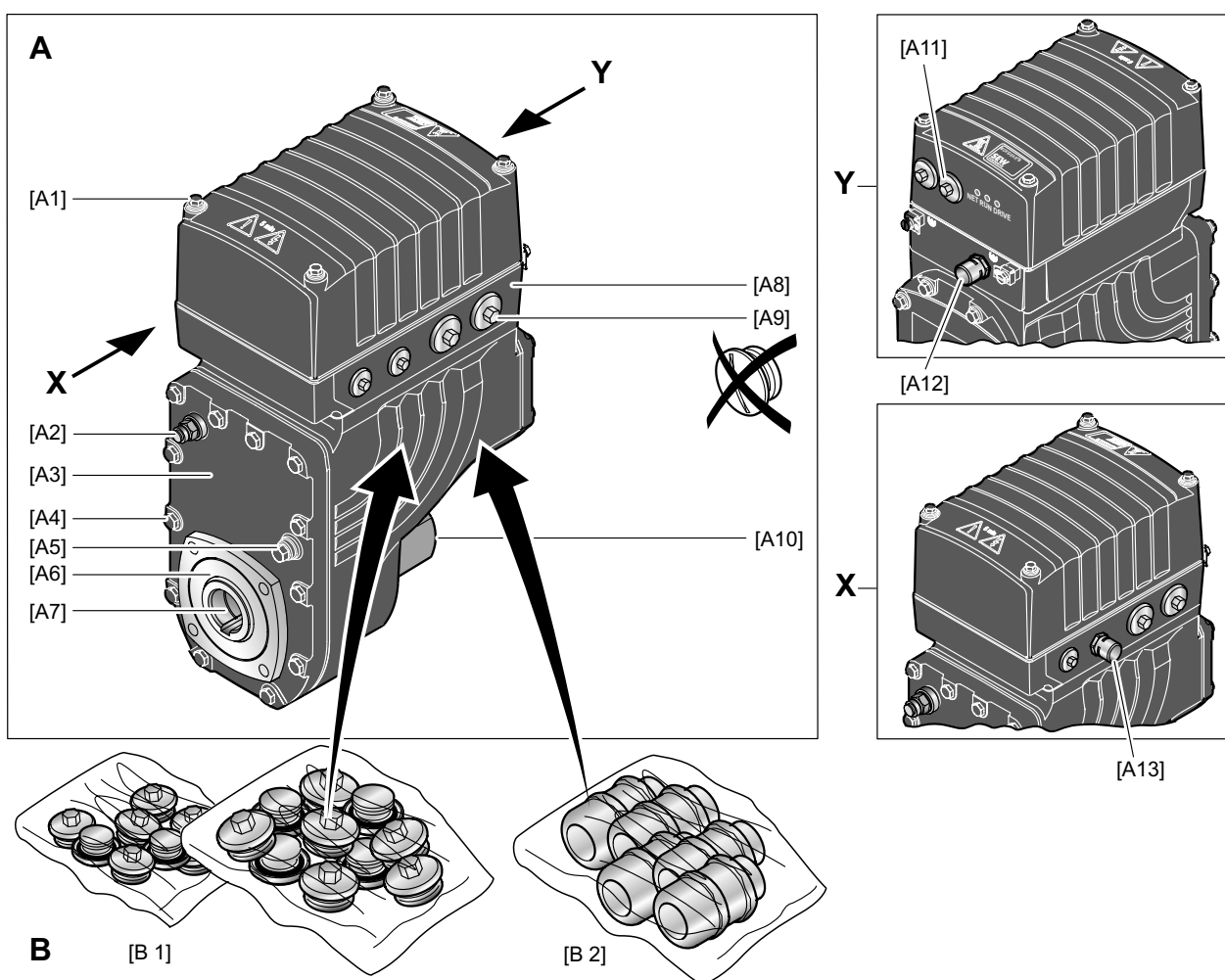
INFORMATION



Slight color differences are possible in the HP200 surface finish due to the treatment process (individual treatment of the components).

The following figure shows the additional features of MOVIGEAR® drive units with the optional design for applications in wet areas (/WA option):

- The variant for use in wet areas is delivered as standard with screw plugs made of stainless steel
- Plastic screw plugs can be chosen instead. To achieve degree of protection IP66 and compatibility with cleaning agents, you have to replace the plastic screw plugs by suitable screw fittings made of stainless steel.



27021600133059211



/WA

In this publication, all illustrations depicting the version for use in wet areas are displayed with a shading (= HP200 surface protection).

2.2.1 Key**A Scope of delivery**

[A1] Mounting screws for cover made of stainless steel

[A2] **Standard:**

Optional:

Breather valve made of non-corrosive steel installed and activated according to mounting position

Integrated pressure compensation /PG

[A3] HP200 surface protection, see chapter "Technical data and dimension sheets"

[A4] Mounting screws for gear unit housing made of stainless steel

[A5] Oil screw plug made of stainless steel (hexagon)

[A6] FKM oil seal (fluorocarbon rubber)

[A7] Output shaft made of stainless steel

[A8] Connection ring only possible with cable outlet "at the bottom" or "on the side":

- In connection with mounting positions M1, M2, M3: 2 + 3, 2 + X, X + 3, 2 + X + 3
- In connection with mounting position M4: 2 + X
- In connection with mounting position M5: X + 3
- In connection with mounting position M6: 2 + 3

[A9] **Standard:**

Optional:

Screw plugs made of stainless steel

Plastic screw plugs. To achieve degree of protection IP66 and compatibility with cleaning agents, you have to replace the plastic screw plugs by suitable screw fittings made of stainless steel.

[A10] Additional cover opposite the output side

[A11] Screw plugs made of stainless steel in the electronics cover (only in connection with MOVIGEAR® DBC-B/DAC-B)

[A12] Factory-installed pressure compensation fitting electronics /PE (M16) with mounting positions M5, M6

[A13] Factory-installed pressure compensation fitting electronics /PE (M16) with mounting position M1, M2, M3, M4

Optional plug connectors (see chapter "Electrical installation") are available in connection with the design for wet areas.

B Required screw fittings

[B1] Screw plugs made of stainless steel ¹⁾

[B2] Cable glands made of stainless steel ¹⁾

The required screw fittings can be ordered from SEW-EURODRIVE. For an overview, refer to chapter "Optional metal screw fittings".

1) Make sure to select plug seals that are compatible with the cleaning agents used

2.3 MGF...DSM with optional design for wet areas (/WA option)

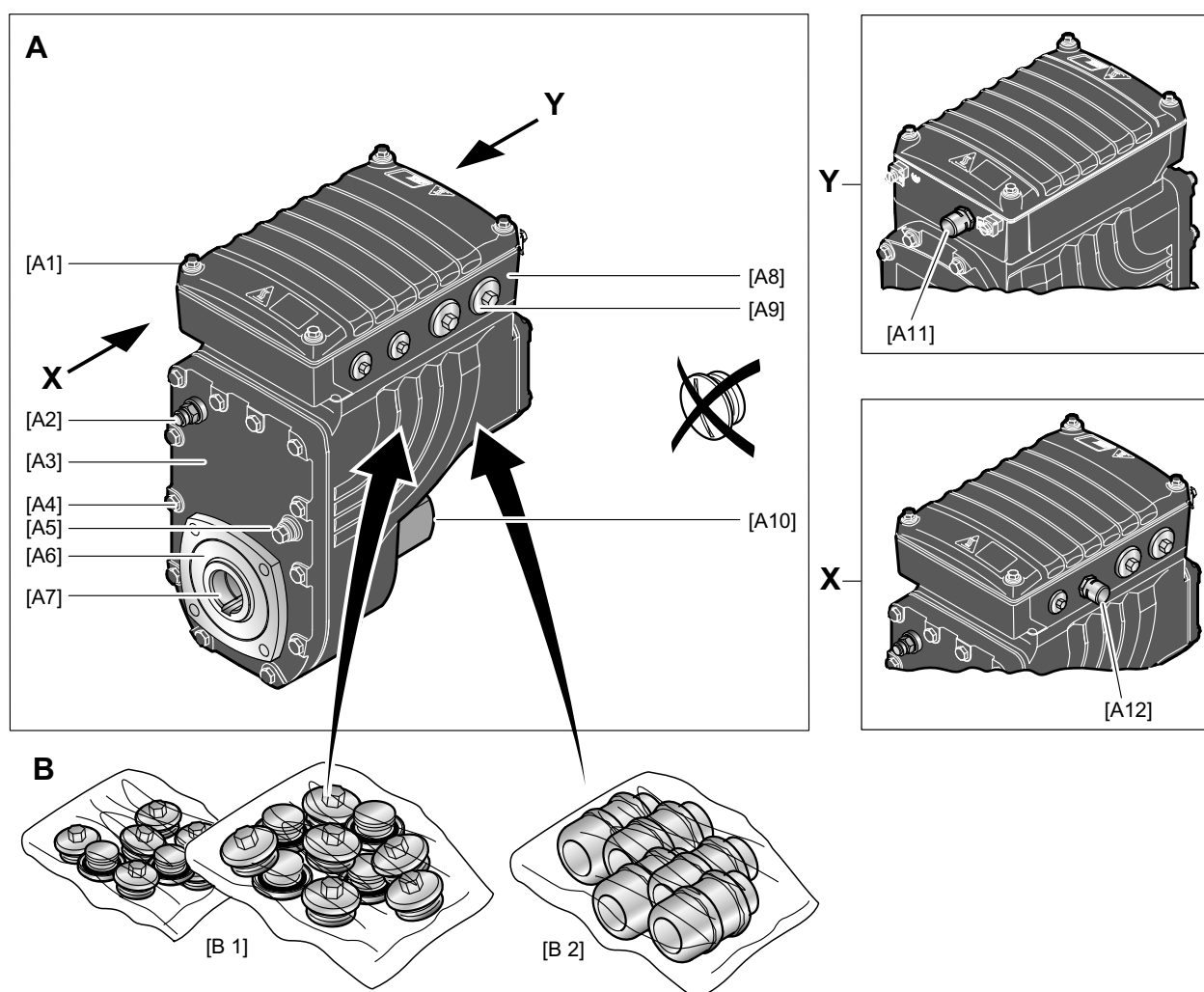
INFORMATION



Slight color differences are possible in the HP200 surface finish due to the treatment process (individual treatment of the components).

The following figure shows the additional features of MGF...DSM drive units with the optional version for applications in wet areas (/WA option):

- The variant for use in wet areas is delivered as standard with screw plugs made of stainless steel.
- Plastic screw plugs can be chosen instead. To achieve degree of protection IP66 and compatibility with cleaning agents, you have to replace the plastic screw plugs by suitable screw fittings made of stainless steel.



12853936651

/WA

In this publication, all illustrations depicting the version for use in wet areas are displayed with a shading (= HP200 surface protection).

2.3.1 Key**A Scope of delivery**

[A1] Mounting screws for cover made of stainless steel

[A2] **Standard:**

Optional:

Breather valve made of non-corrosive steel installed and activated according to mounting position

Integrated pressure compensation /PG

[A3] HP200 surface protection, see chapter "Technical data and dimension sheets"

[A4] Mounting screws for gear unit housing made of stainless steel

[A5] Oil screw plug made of stainless steel (hexagon)

[A6] FKM oil seal (fluorocarbon rubber)

[A7] Output shaft made of stainless steel

[A8] Connection ring only possible with cable outlet "at the bottom" or "on the side":

- In connection with mounting positions M1, M2, M3: 2 + 3, 2 + X, X + 3, 2 + X + 3
- In connection with mounting position M4: 2 + X
- In connection with mounting position M5: X + 3
- In connection with mounting position M6: 2 + 3

[A9] **Standard:**

Optional:

Screw plugs made of stainless steel

Plastic screw plugs. To achieve degree of protection IP66 and compatibility with cleaning agents, you have to replace the plastic screw plugs by suitable screw fittings made of stainless steel.

[A10] Additional cover opposite the output side

[A11] Factory-installed pressure compensation fitting electronics /PE (M16) with mounting positions M5, M6

[A12] Factory-installed pressure compensation fitting electronics /PE (M16) with mounting position M1, M2, M3, M4

B Required screw fittings

[B1] Screw plugs made of stainless steel ¹⁾

[B2] Cable glands made of stainless steel ¹⁾

The required screw fittings can be ordered from SEW-EURODRIVE. For an overview, refer to chapter "Optional metal screw fittings".

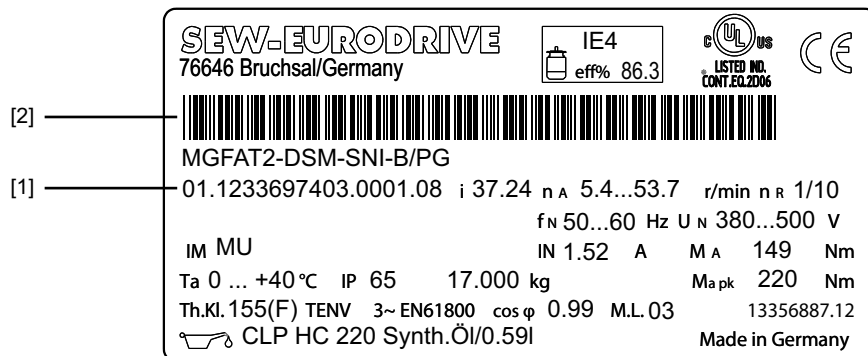
1) Make sure to select plug seals that are compatible with the cleaning agents used

2.4 Nameplate and type designation

2.4.1 MOVIGEAR® mechatronic drive unit

Nameplate

The following figure gives an example of a MOVIGEAR® nameplate. For the structure of the type designation, refer to chapter "Type designation".



12833216267

- [1] Unique manufacturing number
[2] The bar code on the nameplate (code 39) according to ISO/IEC 16388 represents the unique manufacturing number (with a period as separator).

Type designation

The following table shows the MOVIGEAR® type designation:

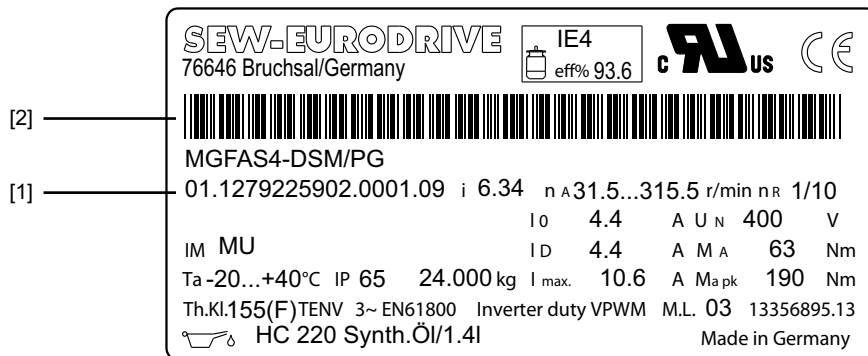
MG	Product line MG = MOVIGEAR®
F	Gear unit type F = Parallel-shaft helical gear unit
A	Shaft type A = Shaft-mounted gear unit (hollow shaft with key) T = TorqLOC® hollow shaft mounting system
S	Housing mounting T = Drive with torque arm S = Housing with threads for mounting a torque arm
2	Size 2 = Torque class 200 Nm 4 = Torque class 400 Nm
—	
DSM	Motor type
—	

SNI	MOVIGEAR® installation technology DBC = Direct B inary C ommunication DAC = Direct AS -Interface C ommunication DSC = Direct S Bus C ommunication SNI = S ingle Line N etwork I nstallation
-	
B	MOVIGEAR® version
/	
DSP	MOVIGEAR® option DSP = Electrodynamic deceleration function DynaStop® ECR = Extended control range XT = Increased torque IV = Plug connector WA = Variant for wet areas PG = Integrated pressure compensation gear unit PE = Pressure compensation fitting electronics

2.4.2 MGF...DSM drive unit

Nameplate

The following figure gives an example of an MGF...DSM nameplate. For the structure of the type designation, refer to chapter "Type designation".



12833213579

- [1] Unique manufacturing number
 [2] The bar code on the nameplate (code 39) according to ISO/IEC 16388 represents the unique manufacturing number (with a period as separator).

Type designation

The following table shows the type designation for MGF...DSM:

MG	Product line MG = MOVIGEAR®
F	Gear unit type F = Parallel-shaft helical gear unit
A	Shaft type A = Shaft-mounted gear unit (hollow shaft with key) T = TorqLOC® hollow shaft mounting system
S	Housing mounting T = Drive with torque arm S = Housing with threads for mounting a torque arm
2	Size 2 = Torque class 200 Nm 4 = Torque class 400 Nm
-	
DSM	Motor type
/	
WA	MOVIGEAR® option WA = Variant for wet areas PE = Pressure compensation fitting electronics PG = Integrated pressure compensation gear unit

3 Mechanical installation

INFORMATION



Additionally you must observe the following publications, especially the safety and warning instructions.

- See the respective MOVIGEAR® operating instructions
- "MGF...-DSM Drive Unit" operating instructions

3.1 Notes

3.1.1 Change in mounting position

Make sure to read the following information when you operate the drive unit in a mounting position other than the one indicated in the order:

- **Adjust the position of the breather valve and, if necessary, the position of the pressure compensation fitting.**

3.1.2 Gear unit venting

Drive units with installed breather valve

Except for the M3 mounting position, SEW-EURODRIVE delivers all drive units ordered for a specific mounting position with a breather valve that is activated and installed according to the required mounting position.

Except for the M3 mounting position, SEW-EURODRIVE delivers drive units with optional design for use in wet areas with an activated breather valve installed according to the mounting position.

Drive units with breather valve enclosed in the delivery

NOTICE



The breather valve cannot be used for drive units in M3 mounting position.

Possible damage to property

- In drive units in mounting position M3, use the variant with integrated pressure compensation (/PG option).

SEW-EURODRIVE delivers drive units ordered for universal operation in mounting positions M1, M2, M4, M5, M6, with an enclosed breather valve.

In this case, the breather valve is delivered in the hollow shaft of the drive unit. Before startup, you must replace the highest oil screw plug with the provided breather valve.

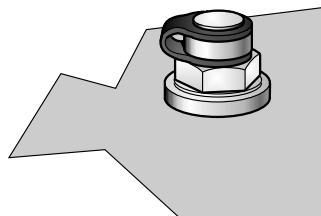
Drive units with integrated pressure compensation (option /PG)

Since no breather valve is needed for drive units with integrated pressure compensation (/PG option), no further measures are required.

Activating the breather valve (not with integrated pressure compensation /PG)

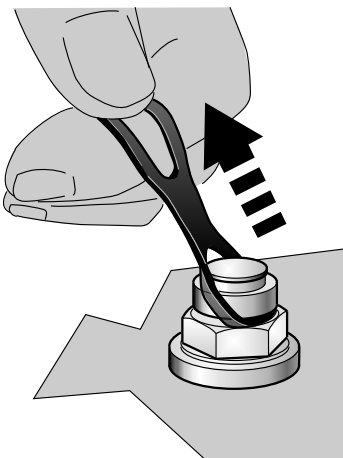
Once you have installed the breather valve, activate it as follows. For designs with the breather valve screwed in: Check whether the breather valve is activated. If not, you have to remove the transport fixture of the breather valve before you start up the drive unit.

1. Breather valve with transportation protection device



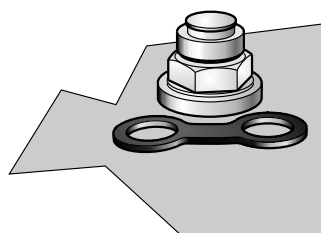
2350149003

2. Remove transport fixture



2350216203

3. Activated breather valve



2350269835

3.2 Permitted mounting positions

Drive units with optional design for use in wet areas are delivered with a breather valve and a pressure compensation fitting (/PE) both installed according to the mounting position.

As an alternative, you can order the option "integrated pressure compensation gear unit (/PG).

This is why drive units with optional design for use in wet areas must be used only in the mounting position specified in the order:

- Mounting position
 - M1
 - M2
 - M3: Only possible with the option "integrated pressure compensation gear unit (/PG)".
 - M4
 - M5
 - M6
- Cable entries
 - Position 3 (not possible with M4 mounting position)
 - Position 2 (not possible with M5 mounting position)
 - Position X (not possible with M6 mounting position)

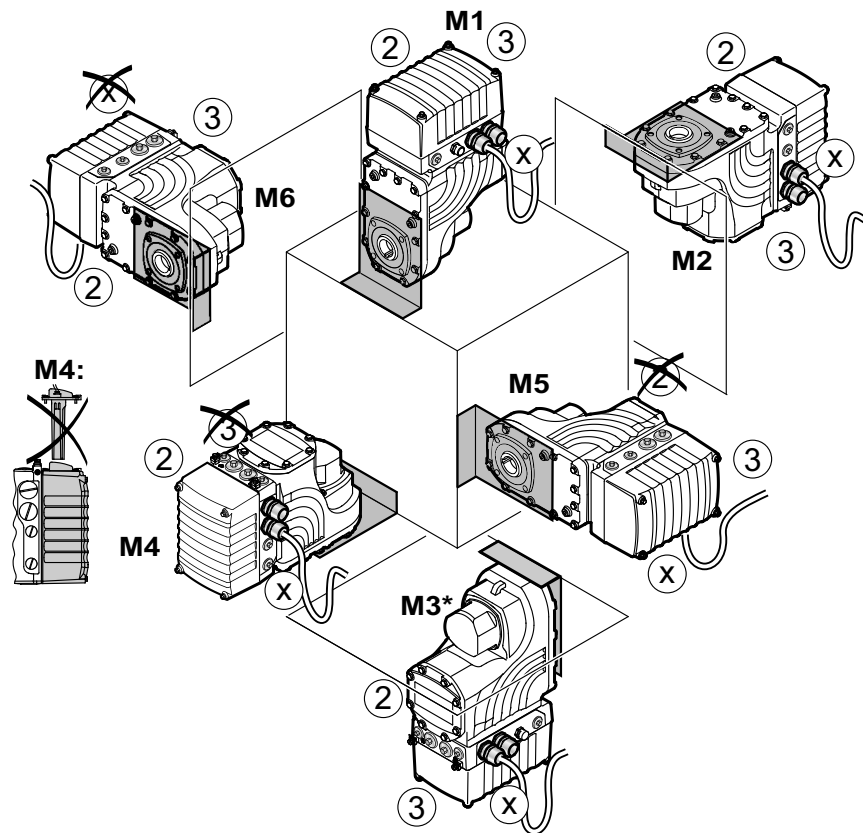


INFORMATION

Also with the option "integrated pressure compensation gear unit (/PG)", drive units must only be used in the mounting position that they were ordered because of the mounting position-dependent pressure compensation fitting electronics (/PE).

3.2.1 MOVIGEAR® with optional design for wet areas

The following figure shows the position of the drive unit when installed in mounting positions M1 to M6:



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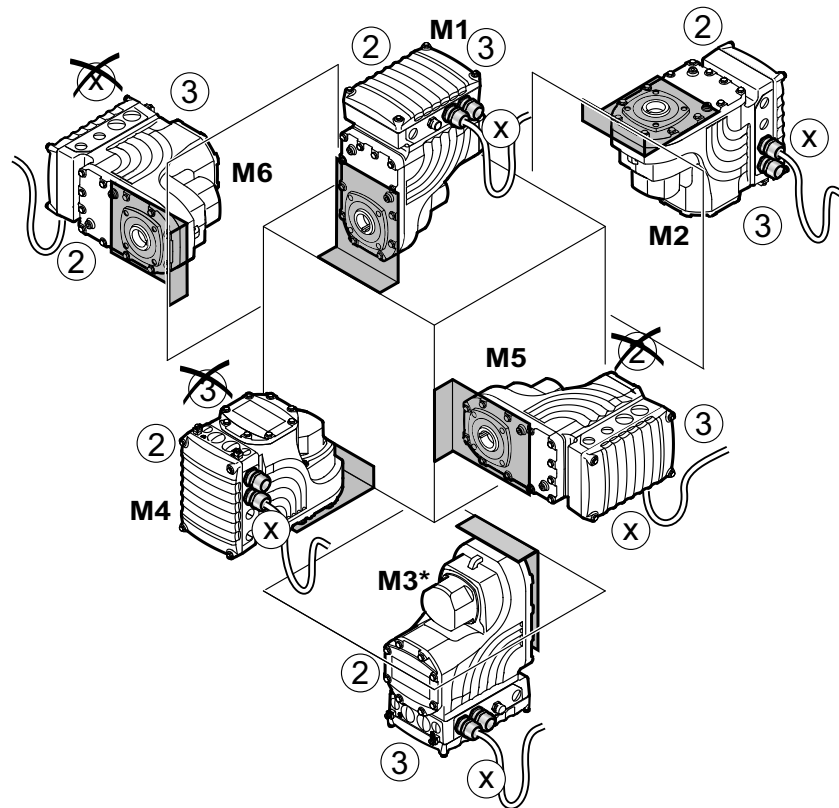
* = mounting position M3: Only possible with the option "integrated pressure compensation gear unit (/PG)".

Application options are not possible in connection with the design for use in wet areas and mounting position M4.

Mounting positions M5 and M6 are not possible in connection with the DAC electronics variant and design for use in wet areas.

3.2.2 MGF...DSM with optional design for use in wet areas

The following figure shows the position of MGF...DSM when installed in mounting positions M1 to M6:



9007201605774475

* = mounting position M3: Only possible with the option "integrated pressure compensation gear unit (/PG)".

4 Technical data

4.1 Lubricants

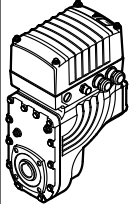
4.1.1 Key to lubricant tables

Abbreviations, meaning of shading and notes:

- CLP PG = Polyglycol (PG) / Polyglycol (PG) NSF-H1-compliant
- CLP HC = Polyalphaolefin (PAO) / Polyalphaolefin (PAO) NSF-H1-conformity
- E = Ester oil (water hazard classification 1 (German regulation – "WKG"))
-  = Synthetic lubricant (= synthetic-based bearing grease)
- 4) Observe the critical starting behavior at low temperatures.
- 6) Ambient temperature
-  Lubricant for the food industry (food grade oil)
-  Biodegradable oil (lubricant for agriculture, forestry, and water management)

4.1.2 Lubricant table /PG option

The following table shows the permitted lubricants for the option "integrated pressure compensation /PG":

	6)		 DIN (ISO)	ISO,NLGI	Mobil®	 	
	°C	Standard					
MGF.. /PG 		-20 +60	CLP HC	VG 220	Mobil SHC 630		
	4)	-40 +40	CLP HC	VG 150	Mobil SHC 629		
	4)	-40 +20	CLP HC	VG 68	Mobil SHC 626		
	4)	-40 0	CLP HC	VG 32	Mobil SHC 624		
		-10 +40	CLP HC NSF H1 	VG 460		Optileb GT 460	
		-20 +30		VG 220		Optileb GT 220	
	4)	-40 0	E 	VG 68		Optileb HY 68	
	4)	-20 +40		VG 460			Plantogear 460 S

12850589323

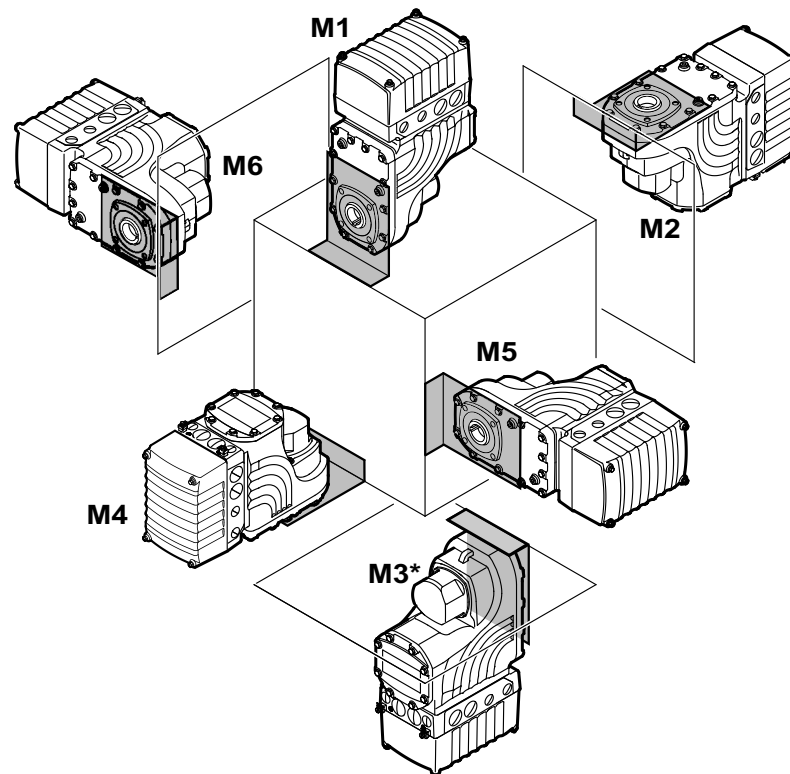
4.2 Mounting position designation

The following mounting positions are possible for the drive units:

- Specified mounting position: M1 or M2 or M3* or M4 or M5 or M6
- Universal operation in mounting positions M1, M2, M4, M5, M6
- Universal mounting position MU (= M1 to M6) with option "integrated pressure compensation /PG"

4.2.1 Mounting positions MOVIGEAR®

The following figure shows the position of MOVIGEAR® in mounting positions M1 to M6:

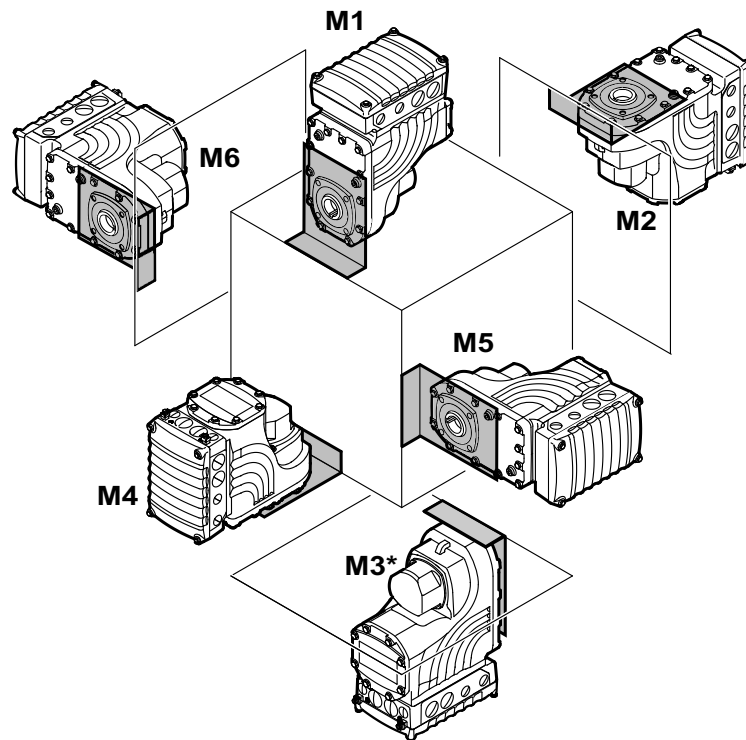


9007201642698379

* = mounting position M3: Only possible with the option "integrated pressure compensation /PG".

4.2.2 Mounting positions MGF...DSM drive unit

The following figure shows the spatial orientation of MGF...DSM in mounting positions M1 to M6:



9007201642735371

* = mounting position M3: Only possible with the option "integrated pressure compensation /PG".

5 Inspection and maintenance

5.1 Inspection and maintenance intervals /PG option

The following table shows the inspection and replacement intervals for the option "integrated pressure compensation (/PG)":

Time interval	What to do?	Who is permitted to perform the work?
Recommendation: Every 10 000 operating hours ¹⁾	Have the integrated pressure compensation mechanism (/PG option) inspected by SEW-EURODRIVE Service or qualified personnel trained by SEW-EURODRIVE.	SEW-EURODRIVE Service Qualified personnel trained by SEW-EURODRIVE

1) Wear times are influenced by many factors. The system manufacturer must calculate the required inspection/maintenance intervals individually in accordance with the project planning documents.

5.2 Inspection and maintenance work

5.2.1 Preliminary work regarding inspection and maintenance

MGF...-DSM drive unit

Observe the following notes before you start with inspection/maintenance work for MGF...-DSM.



⚠ WARNING

Risk of injury if the drive starts up unintentionally.

Electric shock caused by dangerous voltages in the connection box.

- Before removing the cover, de-energize the MGF...-DSM drive units by means of a suitable external disconnection device.
- Secure the drive unit against unintended re-connection of the voltage supply.
- Secure the output shaft against rotation.



⚠ WARNING

Risk of burns due to hot surfaces and hot gear unit oil.

Severe injuries

- Let the units cool down before touching them.
- Carefully remove the screw plug and the breather valve.
- The gear unit must still be warm, otherwise the high viscosity of excessively cold oil will make it more difficult to drain the oil properly.



NOTICE

Damage to the MGF...-DSM drive unit

Potential damage to property

- Make sure that only the SEW-EURODRIVE Service or qualified personnel trained by SEW-EURODRIVE opens the inspection cover.



NOTICE

Filling in the wrong oil may result in significantly different lubricant characteristics.

Potential damage to property

- Do not mix different synthetic lubricants and do not mix synthetic and mineral lubricants.
- Synthetic oil is used as the standard lubricant.

MOVIGEAR® mechatronic drive unit

Observe the following notes before you start with inspection/maintenance work on the MOVIGEAR®:



⚠ WARNING

Risk of injury if the drive starts up unintentionally.

Electric shock caused by dangerous voltages in the connection box.

Dangerous voltages may still be present for up to 5 minutes after disconnection from the power supply system.

- Before removing the electronics cover, de-energize the MOVIGEAR® drive units by means of a suitable external disconnection device.
- Secure the drive unit against unintended re-connection of the voltage supply.
- Secure the output shaft against rotation.
- Wait for at least **5 minutes** before removing the electronics cover.



⚠ WARNING

Risk of burns due to hot surfaces and hot gear unit oil.

Severe injuries

- Let the units cool down before touching them.
- Carefully remove the screw plug and the breather valve.
- The gear unit must still be warm, otherwise the high viscosity of excessively cold oil will make it more difficult to drain the oil correctly.



NOTICE

Damage to the MOVIGEAR® drive unit

Potential damage to property

- Make sure that only the SEW-EURODRIVE Service or qualified personnel trained by SEW-EURODRIVE opens the inspection cover.

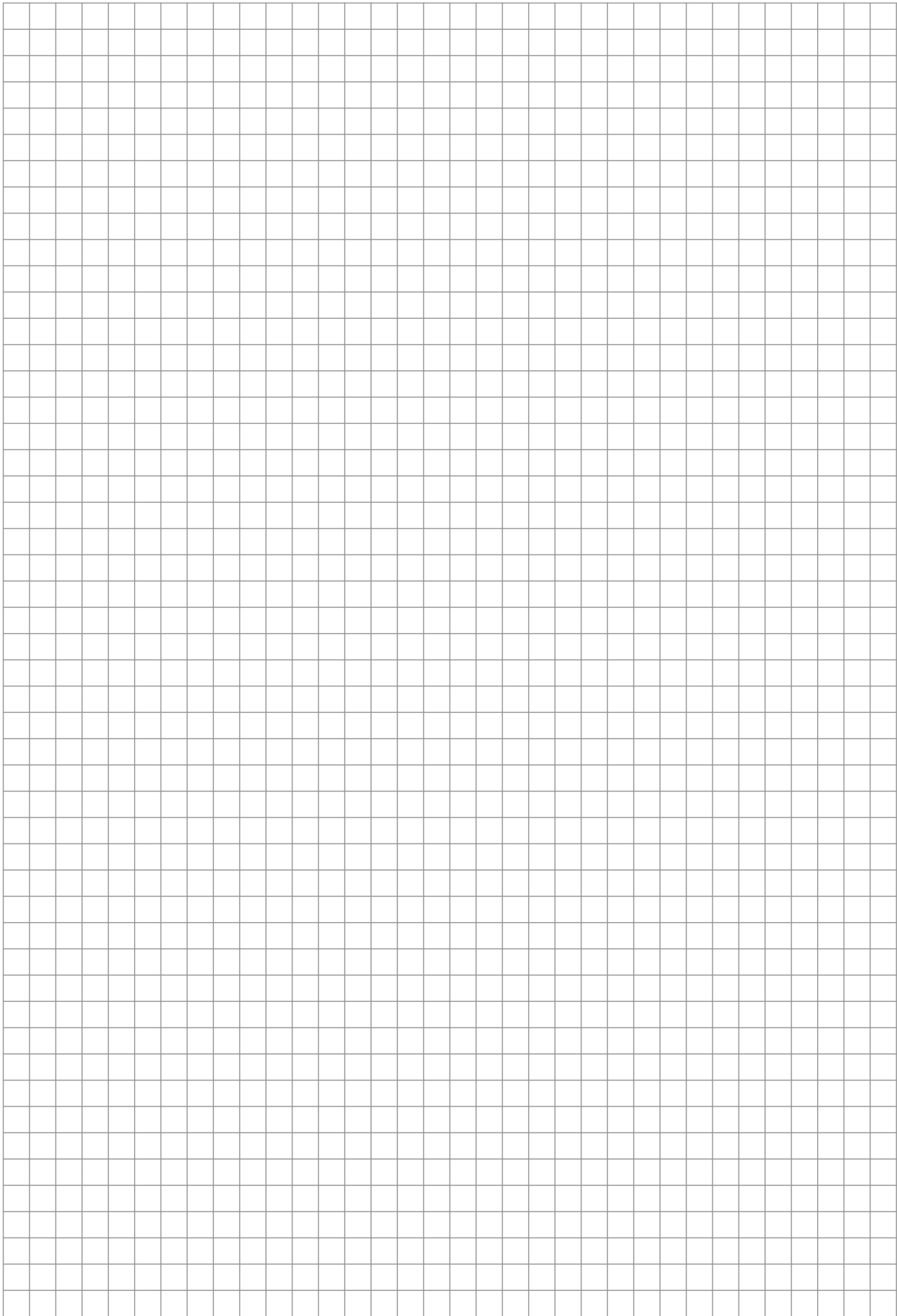


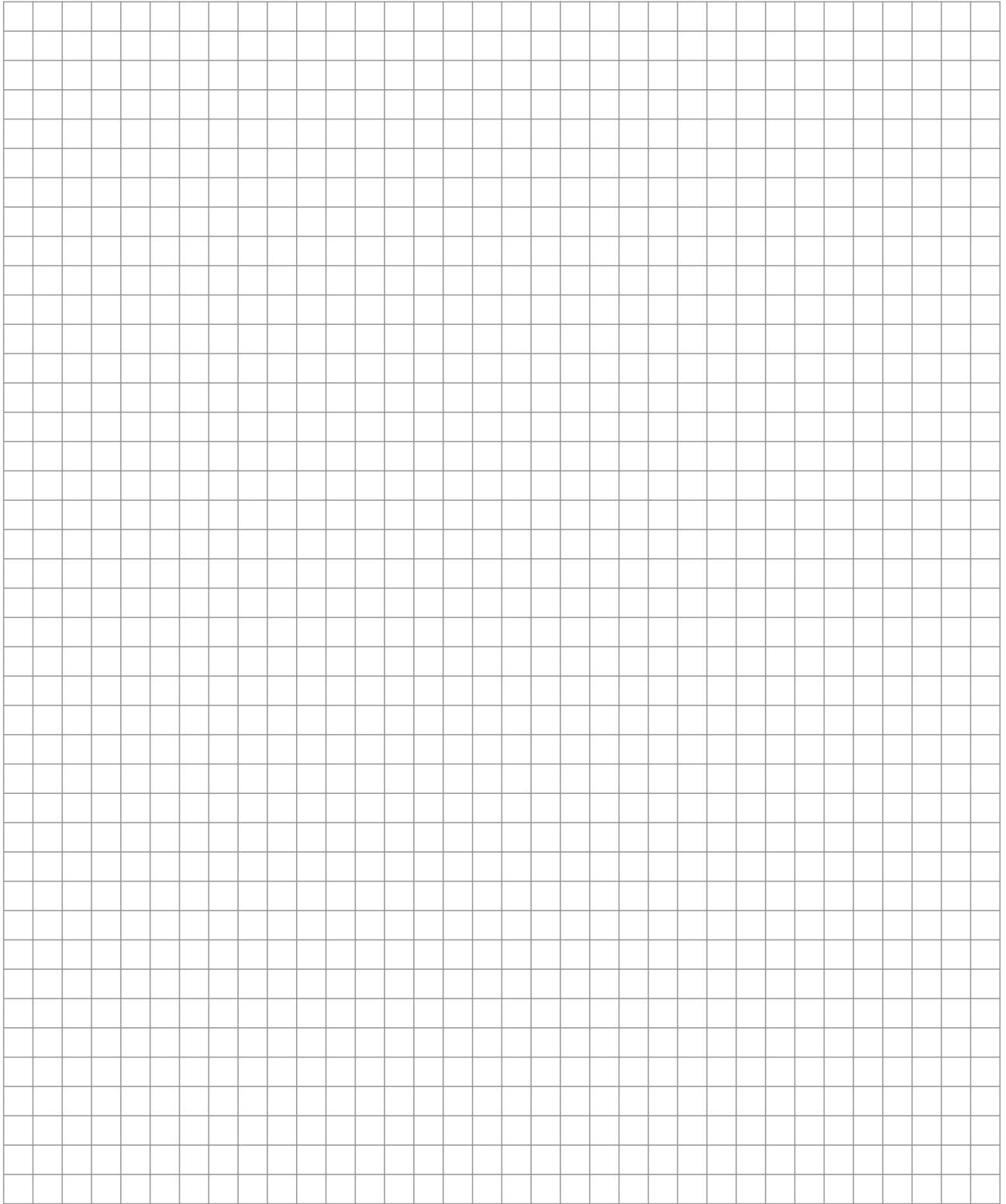
NOTICE

Filling in the wrong oil may result in significantly different lubricant characteristics.

Potential damage to property

- Do not mix different synthetic lubricants and do not mix synthetic and mineral lubricants.
- Synthetic oil is used as the standard lubricant.







SEW-EURODRIVE
Driving the world

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