

Rexroth Accessories Sealing Air Connection for Synchronous Servo Motors

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Edition 01

Information



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1 Mechanical Integration

1.1 Structure and Mounting Orientations

Structure: B05 for flange mounting

Orientation: any

The following mounting orientations are possible in accordance with DIN IEC 34-7, edition dated 12/1992:

- IM B5 (horizontal)
- IM V1 (vertical, driven shaft downwards)
- IM V3 (vertical, drive shaft upwards)
-

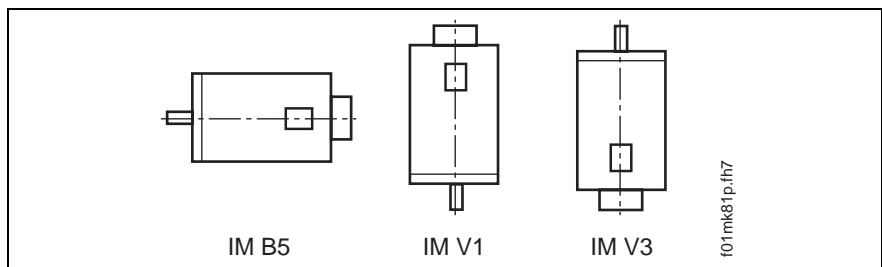


Fig. 1-1: Mounting Orientations



CAUTION

Liquids can penetrate or leak through!

Motors mounted in accordance with IM V3 are subject to liquids, that can accumulate over time at the drive shaft, penetrating or leaking through into the motor thus causing damage to it.

⇒ Therefore, make sure that no liquids can accumulate at the shaft.

1.2 Conditions of Use

Maximum Installation Elevations and Ambient Temperatures

- Nominal data** The motor power data specified applies to
- Installation elevations of 0 to 1000 m above sea level
 - Ambient temperatures of 0° to +45° C

Exceeding nominal data If motors are used above this range, then the „Load Factors,“ must be taken into account. This derates the power data.

⇒ In cases such as these, check whether the power data suffice for your application. Fig. 1-2 can help you determine the load factors. Temperature or installation elevation values that exceed those illustrated are now allowed!

⇒

Note: Motor damage and loss of guarantee!

Motors that are operated outside of the specified ranges can be damaged. Doing so also means that the guarantee is forfeited. Therefore, note and comply with all guidelines.

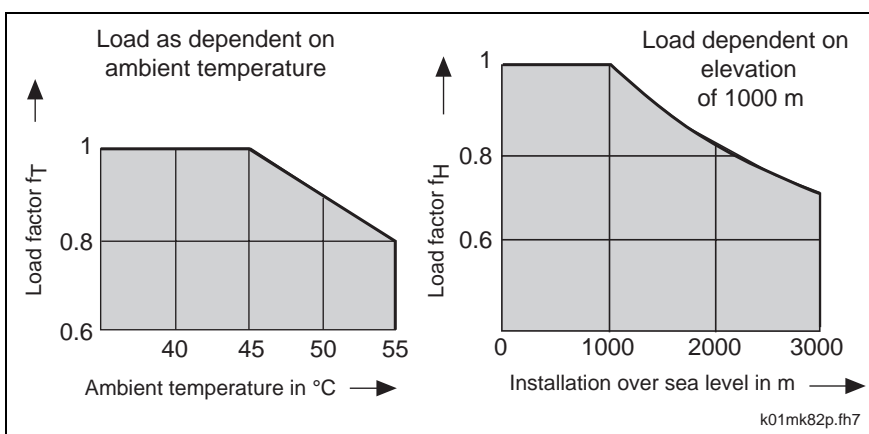


Fig. 1-2: Load factor as dependent on ambient temperature and installation elevation

In the event that **either** ambient temperature **or** installation elevation exceed nominal data:

⇒ Multiply the torque data specified in the selection data by the load factor that has been determined.

⇒ Make sure that the application does not exceed the reduced torque.

⇒

If **both** ambient temperature **and** installation elevation exceed nominal data:

⇒ Multiply the determined load factors f_T and f_H .

⇒ Multiply the value determined with the motor torque specified in the selection data.

⇒ Make sure that the application does not exceed the reduced torque.

Protection Category The construction of MHD and MDD motors meets the demands of the protection categories as specified in DIN VDE 0470, section 1, edition dated 11/1992 (EN 60 529):

In the area of the motor	Protection category	Comments
Motor housing, driven shaft, power and feedback connections (only if properly mounted)	Approximates IP67	Given option of sealing-air connection
Motor housing, driven shaft, power and feedback connections (if properly mounted)	IP 65	Standard design
Blower motor	IP 44	Standard design
Surface cooling (blower grid) and blower connection	IP 24	Standard design

Fig. 1-3: The protection category ranges of the motor

The protection category is specified with the use of the two-letter code **IP** (International Protection) and two numbers for the level or extent of protection.

The **first number** specifies the extent of protection against contact and penetration by foreign objects. The **second** specifies the level of protection against water.

First number	Protection level
6	Protection against penetration by dust (dust proof), complete contact protection.
4	Protection against penetration by foreign objects with a diameter exceeding 1mm.
2	Protection against penetration by solid foreign objects with a diameter exceeding 12 mm. ⇒ Keep fingers and similar objects away!
Second number	Protection level
7	Protection against damage that could be caused by a brief or temporary submersion in water.
5	Protection against a jet of water from a nozzle coming from all directions and directed against the housing (jet of water).
4	Protection against water being sprayed out of all directions (sprayed water)

Fig. 1-4: IP Protection categories

Note: The tests for the second number are conducted with the use of fresh water. If the machine is cleaned with the use of high pressure and/or cleansing agents, lubricants or creeper oils, then a higher level of protection is advisable.

Sealing-air connection option

Motor flange lids outfitted with sealing air connections are available for those motor types that might require them. These are mounted by simply removing the motor flange lid which comes on the motor at delivery and replacing it with a flange lid that is additionally outfitted with the sealing air connection. By generating a defined overpressure within the motor, it is possible to prevent the penetration of, e.g., creeper oils or other aggressive lubricants.

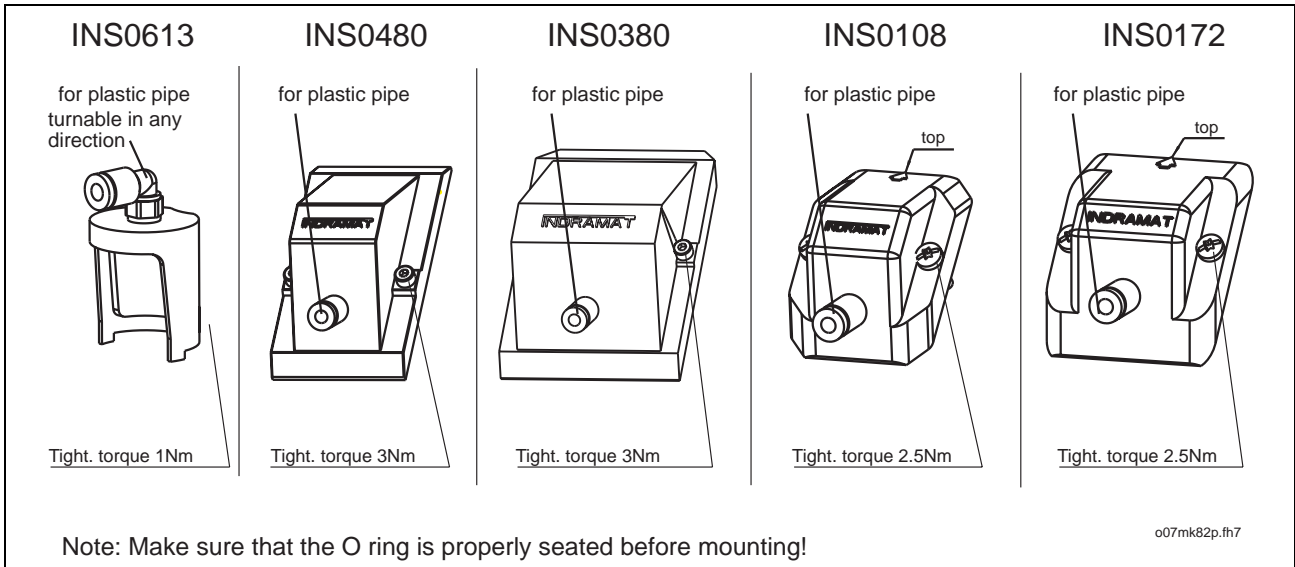


Fig. 1-5: Mounting a motor flange lid additionally outfitted with a sealing air connection

Note: When mounting the lid that has a sealing air connection make sure that the O ring is correctly seated. Only a correct seating will ensure the specified protection category.

Compressed air data

Pressure 0.1 to 0.2 bar, maximum of 0.3 bar
 Air dust and oil free
 Relevance humidity 20 to 30%

Recommended supplier of the plastic pipe

Mannesmann Rexroth
 Plastic pipe PA 4x 0.75

Size [mm]	Length [m]	Color	Order no.
4 x 0.75	25	blue	281 520 402 0
	50	blue	281 520 405 0

Fig. 1-6: Plastic pipe

Accessory Kits

The available motor flange lids with sealing air connections are listed in the table below.

Motor flange socket (type)	Designation of accessories for sealing air connection
INS0108 (power connection)	SUP-M01-MDD
INS0172 (power connection)	SUP-M02-MDD
INS0480 (power connection)	SUP-M01-MHD
INS0380 (power connection)	SUP-M02-MHD
INS0613 (feedback connection)	SUP-M03-MHD

Fig. 1-7: Sealing air connection accessories



WARNING

Injury to personnel or damage to property!

Power or feedback connections that have not been correctly hooked up can endanger personnel or damage the motor!

- ⇒ Make sure that the power and feedback connections are correctly hooked up.
- ⇒ Use the motor only in those areas in which sufficient protection can be guaranteed.

Selecting the Protection Category

The protection category must be selected to suit and meet the demands of the mounting orientation and the application.

The table below can assist in selecting the protection category that is needed for an application.

Affect	Affected by	Recommended protection category
dry	air	IP65
moisture	Water; any lubricant with about 5% oil	IP65
	Creepers oils, biological oils and aggressive lubricants	IP65 with sealing air (about IP67)
Gush of water	Water, any lubricant with about 5% oil	IP65 with sealing air (about IP67)
	Creepers oils, biological oils, aggressive lubricants	IP65 with sealing air (about IP67)

Fig. 1-8: Selecting the protection category

1.3 Selection List for the Sealing-Air Connection Accessories

The following selection lists offer an overview of those motors for which the sealing air connection option is available.

If a motor type is not listed, then such a connection is not available for it. It is advisable to note this when selecting a motor.

Accessories Overview: Sealing Air connections for MDD Motors				
Motor type	INS 0252	INS 0108	INS 0172	Sealing Air Conn. Access.
MDD 021 A-N-100	X			not available
MDD 021 B-N-100	X			not available
MDD 025 A-N-100	X			not available
MDD 025 B-N-100	X			not available
MDD 025 C-N-100	X			not available
MDD 041 A-N-100	X			not available

Accessories Overview: Sealing Air connections for MDD Motors				
Motor type	INS 0252	INS 0108	INS 0172	Sealing Air Conn. Access.
MDD 041 B-N-100	X			not available
MDD 041 C-N-100	X			not available
MDD 065 A-N-040	X			possible in SO form
MDD 065 A-N-060	X			possible in SO form
MDD 065 B-N-040	X			possible in SO form
MDD 065 B-N-060	X			possible in SO form
MDD 065 C-N-040	X			possible in SO form
MDD 065 C-N-060	X			possible in SO form
MDD 065 D-N-040	X			possible in SO form
MDD 065 D-N-060	X			possible in SO form
MDD 071 A-N-030	X			possible in SO form
MDD 071 A-N-040	X			possible in SO form
MDD 071 A-N-060	X			possible in SO form
MDD 071 B-N-030	X			possible in SO form
MDD 071 B-N-040		X		SUP M01-MDD
MDD 071 B-N-060		X		SUP M01-MDD
MDD 071 C-N-030		X		SUP M01-MDD
MDD 071 C-N-040		X		SUP M01-MDD
MDD 071 C-N-060		X		SUP M01-MDD
MDD 090 A-N-020	X			possible in SO form
MDD 090 A-N-030	X			possible in SO form
MDD 090 A-N-040	X			possible in SO form
MDD 090 B-N-020	X			possible in SO form
MDD 090 B-N-030		X		SUP-M01-MDD
MDD 090 B-N-040		X		SUP-M01-MDD
MDD 090 C-N-020		X		SUP-M01-MDD
MDD 090 C-N-030		X		SUP-M01-MDD
MDD 090 C-N-040		X		SUP-M01-MDD
MDD 090 A-F-020		X		SUP-M01-MDD
MDD 090 A-F-030		X		SUP-M01-MDD
MDD 090 A-F-040		X		SUP-M01-MDD
MDD 090 B-F-020		X		SUP-M01-MDD
MDD 090 B-F-030		X		SUP-M01-MDD
MDD 090 B-F-040		X		SUP-M01-MDD
MDD 090 C-F-020		X		SUP-M01-MDD
MDD 090 C-F-030		X		SUP-M01-MDD
MDD 090 C-F-040		X		SUP-M01-MDD
MDD 093 A-N-020		X		SUP-M01-MDD
MDD 093 A-N-030		X		SUP-M01-MDD
MDD 093 A-N-040		X		SUP-M01-MDD
MDD 093 A-N-060			X	SUP-M02-MDD
MDD 093 B-N-020		X		SUP-M01-MDD
MDD 093 B-N-030		X		SUP-M01-MDD
MDD 093 B-N-040			X	SUP-M02-MDD
MDD 093 B-N-060			X	SUP-M02-MDD
MDD 093 C-N-020		X		SUP-M01-MDD
MDD 093 C-N-030		X		SUP-M01-MDD
MDD 093 C-N-040			X	SUP-M02-MDD
MDD 093 C-N-060			X	SUP-M02-MDD
MDD 093 D-L-030			X	SUP-M02-MDD
MDD 093 D-N-015			X	SUP-M02-MDD
MDD 093 D-N-020			X	SUP-M02-MDD
MDD 093 D-N-030			X	SUP-M02-MDD
MDD 093 D-N-040			X	SUP-M02-MDD
MDD 093 A-F-020		X		SUP-M01-MDD
MDD 093 A-F-030		X		SUP-M01-MDD
MDD 093 A-F-040			X	SUP-M02-MDD
MDD 093 A-F-060			X	SUP-M02-MDD

Overview of Accessories: Sealing air connection for MDD Motors				
Motor type	INS 0252	INS 0108	INS 0172	Sealing Air Conn. Access.
MDD 093 B-F-020		X		SUP-M01-MDD
MDD 093 B-F-030			X	SUP-M02-MDD
MDD 093 B-F-040			X	SUP-M02-MDD
MDD 093 B-F-060			X	SUP-M02-MDD
MDD 093 C-F-020			X	SUP-M02-MDD
MDD 093 C-F-030			X	SUP-M02-MDD
MDD 093 C-F-040			X	SUP-M02-MDD
MDD 093 C-F-060			X	SUP-M02-MDD
MDD 093 D-F-015			X	SUP-M02-MDD
MDD 093 D-F-020			X	SUP-M02-MDD
MDD 093 D-F-030			X	SUP-M02-MDD
MDD 112 A-N-015		X		SUP-M01-MDD
MDD 112 A-N-020		X		SUP-M01-MDD
MDD 112 A-N-030		X		SUP-M01-MDD
MDD 112 A-N-040		X		SUP-M01-MDD
MDD 112 B-N-015		X		SUP-M01-MDD
MDD 112 B-N-020		X		SUP-M01-MDD
MDD 112 B-N-030		X		SUP-M01-MDD
MDD 112 B-N-040			X	SUP-M02-MDD
MDD 112 B-L-030			X	SUP-M02-MDD
MDD 112 C-N-015		X		SUP-M01-MDD
MDD 112 C-N-020		X		SUP-M01-MDD
MDD 112 C-N-030			X	SUP-M02-MDD
MDD 112 C-N-040			X	SUP-M02-MDD
MDD 112 C-N-060			X	SUP-M02-MDD
MDD 112 C-L-020			X	SUP-M02-MDD
MDD 112 D-L-015			X	SUP-M02-MDD
MDD 112 D-N-015		X		SUP-M01-MDD
MDD 112 D-N-020			X	SUP-M02-MDD
MDD 112 D-N-030			X	SUP-M02-MDD
MDD 112 D-N-040			X	SUP-M02-MDD
MDD 112 D-N-060			X	SUP-M02-MDD
MDD 112 A-F-015		X		SUP-M01-MDD
MDD 112 A-F-020		X		SUP-M01-MDD
MDD 112 A-F-030		X		SUP-M01-MDD
MDD 112 A-F-040			X	SUP-M02-MDD
MDD 112 B-F-015		X		SUP-M01-MDD
MDD 112 B-F-020			X	SUP-M02-MDD
MDD 112 B-F-030			X	SUP-M02-MDD
MDD 112 B-F-040			X	SUP-M02-MDD
MDD 112 C-F-015			X	SUP-M02-MDD
MDD 112 C-F-020			X	SUP-M02-MDD
MDD 112 C-F-030			X	SUP-M02-MDD
MDD 112 C-F-040			X	SUP-M02-MDD
MDD 112 C-F-060			X	SUP-M02-MDD
MDD 112 D-F-015			X	SUP-M02-MDD
MDD 112 D-F-020			X	SUP-M02-MDD
MDD 112 D-F-030			X	SUP-M02-MDD
MDD 112 D-F-040			X	SUP-M02-MDD
MDD 115 A-N-015		X		SUP-M01-MDD
MDD 115 A-N-020		X		SUP-M01-MDD
MDD 115 A-N-030			X	SUP-M02-MDD
MDD 115 A-L-020			X	SUP-M02-MDD
MDD 115 B-N-015		X		SUP-M01-MDD
MDD 115 B-N-020			X	SUP-M02-MDD
MDD 115 B-N-030			X	SUP-M02-MDD
MDD 115 B-L-015			X	SUP-M02-MDD
MDD 115 C-N-015			X	SUP-M02-MDD
MDD 115 C-N-020			X	SUP-M02-MDD
MDD 115 C-N-030			X	SUP-M02-MDD

Accessories Overview: Sealing Air connections for MDD Motors				
Motor type	INS 0252	INS 0108	INS 0172	Sealing Air Conn. Access.
MDD 115 D-N-015			X	SUP-M02-MDD
MDD 115 D-N-020			X	SUP-M02-MDD
MDD 115 A-F-015			X	SUP-M02-MDD
MDD 115 A-F-020			X	SUP-M02-MDD
MDD 115 A-F-030			X	SUP-M02-MDD
MDD 115 B-F-015			X	SUP-M02-MDD
MDD 115 B-F-020			X	SUP-M02-MDD
MDD 115 B-F-030			X	SUP-M02-MDD
MDD 115 C-F-015			X	SUP-M02-MDD
MDD 115 C-F-020			X	SUP-M02-MDD
MDD 115 C-F-030			X	SUP-M02-MDD
MDD 115 D-F-015			X	SUP-M02-MDD
MDD 115 D-F-020			X	SUP-M02-MDD
INS 108 ⇒ SUP- M01 - MDD			SUP-M01 - MDD ⇒ Material number: 267678	
INS 172 ⇒ SUP- M02 - MDD			SUP-M02 - MDD ⇒ Material number: 267677	

Fig. 1-9: Sealing air accessories for MDD motors

Overview of Accessories: Sealing air connection for MHD Motors				
Motor type	INS0613	INS0480	INS0380	Sealing Air Conn. Access.
MHD 041 A-144	X			SUP-M03-MHD
MHD 041 B-144	X			SUP-M03-MHD
MHD 071 A-061	X			SUP-M03-MHD
MHD 071 B-035	X			SUP-M03-MHD
MHD 071 B-061	X			SUP-M03-MHD
MHD 090 B-035	X			SUP-M03-MHD
MHD 090 B-047	X			SUP-M03-MHD
MHD 090 B-058	X			SUP-M03-MHD
MHD 093 A-035		X		SUP-M01-MHD
MHD 093 A-058		X		SUP-M01-MHD
MHD 093 B-035		X		SUP-M01-MHD
MHD 093 B-058		X		SUP-M01-MHD
MHD 093 C-035		X		SUP-M01-MHD
MHD 093 C-058		X		SUP-M01-MHD
MHD 112 A-024		X		SUP-M01-MHD
MHD 112 A-058		X		SUP-M01-MHD
MHD 112 B-024		X		SUP-M01-MHD
MHD 112 B-048		X		SUP-M01-MHD
MHD 112 B-058		X		SUP-M01-MHD
MHD 112 C-024		X		SUP-M01-MHD
MHD 112 C-058			X	SUP-M02-MHD
MHD 112 D-027		X		SUP-M01-MHD
MHD 115 A-024			X	SUP-M02-MHD
MHD 115 A-058			X	SUP-M02-MHD
MHD 115 B-024			X	SUP-M02-MHD
MHD 115 B-058			X	SUP-M02-MHD
MHD 115 C-024			X	SUP-M02-MHD
MHD 115 C-058			X	SUP-M02-MHD
INS0480 SUP - M01 - MHD				SUP - M01 - MHD Material number 283022
INS0380 SUP - M02 - MHD				SUP - M02 - MHD Material number 283023
INS0613 SUP - M03 - MHD				SUP - M03 - MHD Material number 283008

Fig. 1-10: Sealing air accessories for MHD motors

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