

Rexroth Sytronix

Motor-Pump Unit MPAS1

PGH/PGM - MSK

Mounting Instruction

R911342449**Edition 02**

About this Documentation

This documentation is for fitters and service engineers. This documentation contains important information to safely and properly assemble the product.

Validity of this Documentation

This documentation is valid for the following motor-pump units consisting of:

- ▶ Motor
 - MSK071
 - MSK101
- ▶ Pump
 - PGH2
 - PGH3
 - PGH4
 - PGH5
 - PGM4
 - PGM5
- ▶ Couplings, bellhousing, (optionally with foot flange)

Identification

MPAS1-PGxxNB-xxxNNNN-VBB-110CBHA-S3FN-NN

1	3	5	7	9	11	13	15
2	4	6	8	10	12	14	

- 1 Pump type
- 2 Pump option
- 3 Pump generation
- 4 Nominal size of pump (3-digit)
- 5 Sealing material (V = FKM)
- 6 Assembly/pump orientation (N = not assembled, B = suction port below; L = suction port left; R = suction port right, T = suction port top)
- 7 Fastening (B = flange fastening horizontal, foot on flange, N = flange fastening horizontal, without foot)
- 8 Motor frame size (MSK071 = 07, MSK101 = 11)
- 9 Rotor inertia low = 0
- 10 Motor frame length (C, D, E, F)
- 11 Winding (2,000 = BH, 3,000 = BN)
- 12 Cooling mode (axial fan 230 V = A, 115 V = B, without = N)
- 13 Encoder Singleturn Hiperface, capacitive, 16 signal periods = S3)
- 14 Electrical connection (rotatable connector = U, terminal boxes = F)
- 15 Motor orientation (electrical connection left = L, standard = N, electrical connection right = R)

General Safety Instructions

- ▶ Observe the valid regulations about accident prevention and environmental protection.
- ▶ Heed the safety regulations and instructions of the country in which the product is used.
- ▶ Use Rexroth products only in proper state.
- ▶ Please observe all notes on the product.
- ▶ Only use accessories and spare parts which are permitted by the manufacturer to prevent from risk of injury due to unsuitable spare parts.

Qualified Personell

Mounting and installing of motor-pump units MPAS1 must be done by qualified personell or competent persons. A person is qualified, if knowledge or experiences of respective standards and regulations exists. Assigned work must be evaluated and possible danger be recognized.

Tools and Auxiliary Materials

Keep the following tools and auxiliary materials ready for assembly:

- ▶ For torque wrench for internal hexagon screws refer to list
- ▶ For torque wrench for hexagon head screws refer to list
- ▶ Screw lock (e.g. Loctite 243®)

Mounting Instruction

Description Assembly Procedure

The assembly procedure is standardized for various motor-pump combinations. Optional components are indicated in the assembly pictures with (x). Use mounting screws (amount, size, tightening torque) acc. to the tables for motor-pump units to be assembled.

Assemble the components according to the drawing and observe all assembly steps. Tolerance of the specified tightening torque (M_A) ± 10 %.

For screw connections use screw lock, e.g. Loctite 243 and observe the specified tightening torques.

NOTICE

Motor damage due to beats onto the motor shaft

Do never beat onto the shaft end and do not exceed the allowed axial and radial forces of the motor.

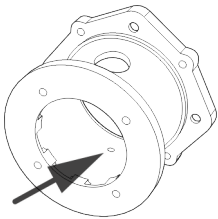
By heating the hubs (approx. 80 °C), it is easier to draw it on onto the shaft.

CAUTION

Burns by touch of hot hubs!
Wear protective gloves if you assemble heated coupling elements.

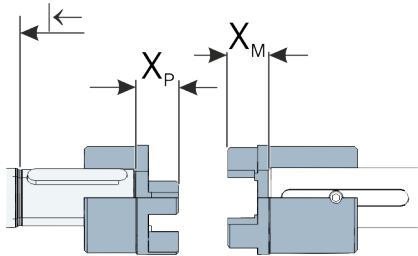
Necessary working steps

- Assemble coupling onto the pump shaft**
Insert the coupling 3.1 onto the shaft of the pump by considering the adjustment dimensions and fasten the coupling with the clamping screw 3.5.
- Assemble coupling onto the motor shaft**
Insert the coupling 3.3 onto the shaft of the motor by considering the adjustment dimensions and fasten the coupling with the clamping screw 3.4.
- This working step is only necessary for PGH4 pumps (otherwise proceed with step 4)**
Fasten the distance ring 2.1 on the bellhousing 2 with the screws 2.2.
Fasten the pump 1 with screws 1.1 and washers 1.2 onto the distance ring 2.1. The leakage hole within the bellhousing must show down in the case of horizontal assembly.
Proceed with working step 5.
- Screw on pump on bellhousing**
Fasten the pump 1 with the screws 1.1 and the washers 1.2 on the bellhousing 2. In the case of horizontal assembly, the leakage hole within the bellhousing must show to the bottom.
- Screw on motor on bellhousing.**
Fasten the motor 5 with screws 5.1 and washers 5.2 onto the bellhousing 2. When joining the coupling heed the correct seat of the ring gear 3.2.
In the case of an assembled motor-pump unit, the leakage hole must be at the bottom that escaping oil can flow out.



Leakage hole

- Screw on pump foot (option)**
Fasten the pump foot 4 with the screws 4.1, washers 4.2 and hexagon nuts 4.3 on the motor-pump unit.
- Mount fan unit**
Assemble the fan unit according to the mounting instruction, which is enclosed to the fan unit.



mpes2-0009ma.des

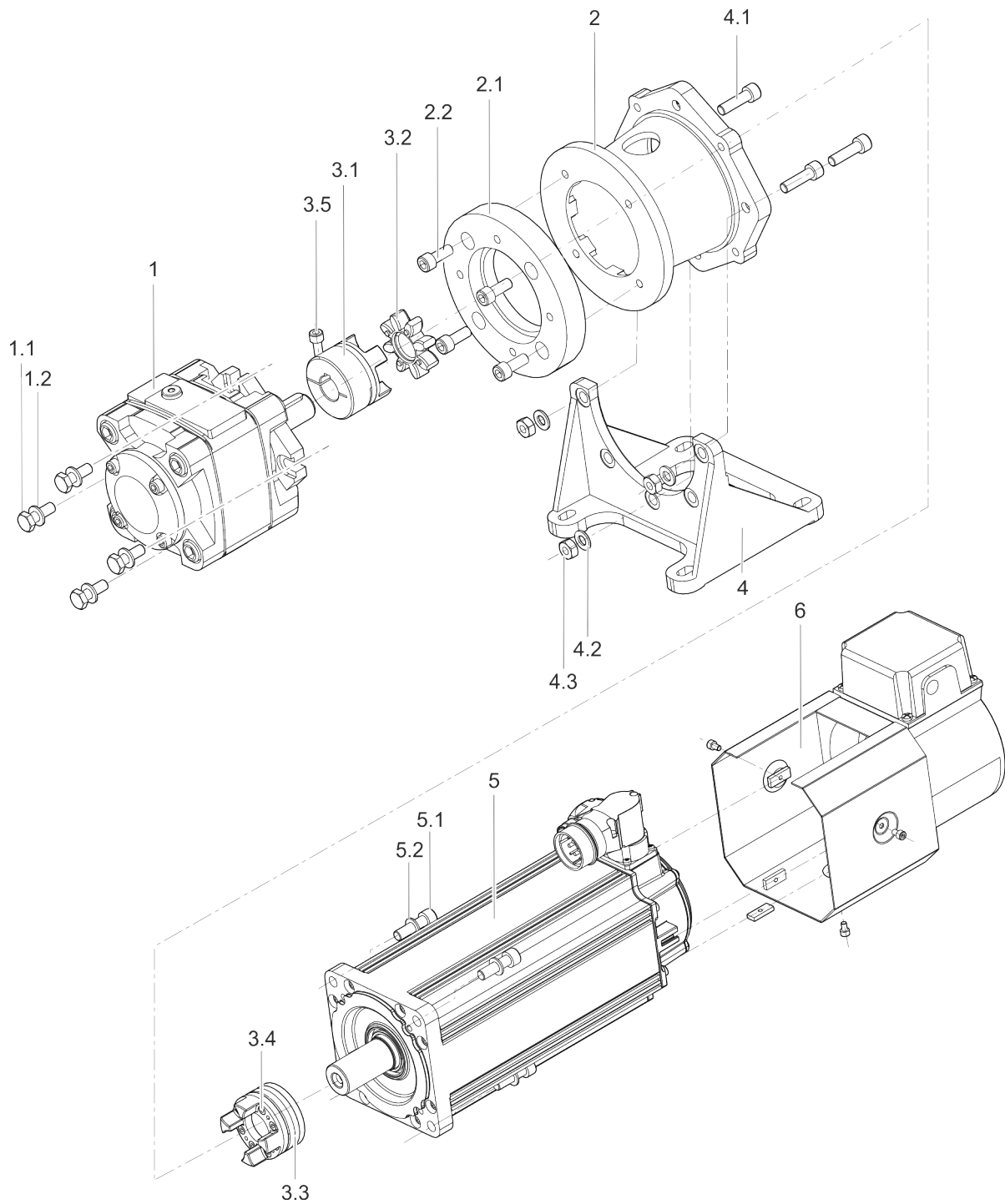
- X_p** Assembly dimension pump hub: Front face of hub to front face of the pump shaft
- X_m** Assembly dimension motor hub: Front face of hub to front face of the motor shaft
- I**← Assembly of hub as far as it will go
- Mounting dimension (see table mounting accessories and setting dimensions in the following chapters)

Clamping screws coupling hub

KD	Cylinder screw 3.4		Cylinder screw 3.5	
	G	M _A [Nm]	G	M _A [Nm]
28	M5	6	M8	35
38	M6	10	M8	35
42	M8	25	M10	69
48	M10	49	M12	120

- KD** Coupling size
- Tightening torque clamping screws of coupling hub

Assembly pump PGH2/3/4 on MSK071



- | | | | |
|------------------|---|------------|------------------------------|
| 1 | Internal gear pump (PGH2/3/4) | 4 | Pump foot (option) |
| 2 | Bellhousing | 5 | Motor MSK071 |
| 2.1 - 2.2 | Distance ring with fastening screws (only available for PGH4 on MSK071) | 6 | Fan unit LEM |
| 3.1 - 3.5 | Coupling elements | x.x | Assembly accessory see table |
| Mounting | | | |

Overview mounting accessories

Washer



B02	Washer ISO7089-10-200HV
B03	Washer ISO7089-12-200HV

Hexagon nut



C01	ISO4032-M10-8 (M _A 54 Nm)
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Hexagon bolt



D03	ISO4017-M10X30-8.8 (M _A 54 Nm)
D04	ISO4017-M12X30-8.8 (M _A 93 Nm)

Cylinder head screw



E01	ISO4762-M10X30-8.8
E04	ISO4762-M10X35-8.8
E06	ISO4762-M10X25-8.8

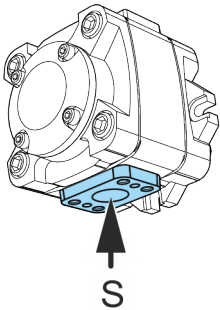
Assembly accessories and setting dimensions

MPAS1-..	KD	X _P	X _M	n 1.1	n 1.2	n 2.2	n 4.1	n 4.2	n 4.3	n 5.1	n 5.2
Pump Motor		[mm]	[mm]								
-PGH2..- -070D.. -070E..	28	17,5	22,5	2 D03	2 B02		3 E01	3 B02	3 C01	4 E04	4 B02
-PGH3..- -070D.. -070E..	28	17,5	22,5	2 D04	2 B03		3 E01	3 B02	3 C01	4 E04	4 B02
-PGH4..- -070D.. -070E..	28	17,5	17,5	4 D03	4 B02	4 E06	3 E01	3 B02	3 C01	4 E04	4 B02

- KD Coupling size
- X_P Assembly dimension pump hub
- X_M Assembly dimension motor hub
- Assembly accessories and setting dimensions

- n Number
- Pump Designation pump acc. to MPAS1 type code
- Motor Designation motor acc. to MPAS1 type code

Assembly alignment pump (PGH2/3/4)

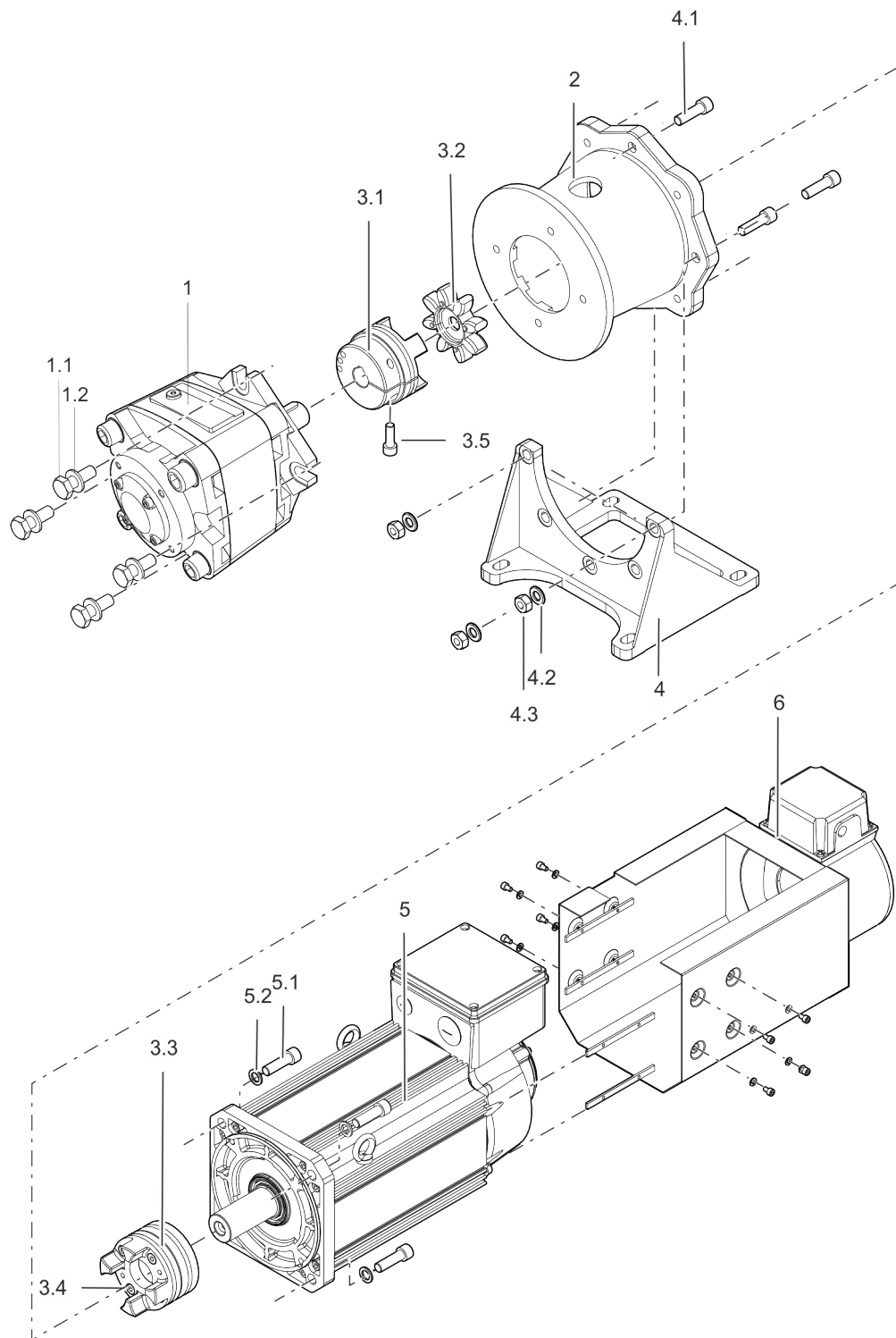


	Bottom	Top	Left	Right
PGH2	✓	✓	✗	✗
PGH3	✓	✓	✗	✗
PGH4	✓	✓	✓	✓

Allowed assembly alignment pump (suction port)

Allowed assemble position of the suction port

Assembly pump PGH5 / PGM4 on MSK101



- 1** Internal gear pump (PGM4 / PGH5)
- 2** Bellhousing
- 3.1 - 3.5** Coupling elements
- 4** Pump foot (option)
- Mounting**

- 5** Motor MSK101
- 6** Fan unit LEM
- x.x** Assembly accessory see table

Assembly accessory

Washer



B03	Washer ISO7089-12-200HV
B04	Washer ISO7089-16-200HV
B07	Washer ISO7092-12-200HV
B08	Washer ISO7090-16-200HV

Hexagon nut



C02	ISO4032-M12-8 (M _A 93 Nm)
C03	ISO4032-M16-8 (M _A 230 Nm)

Hexagon bolt



D04	ISO4017-M12X30-8.8 (M _A 93 Nm)
D06	ISO4017-M16X40-8.8 (M _A 230 Nm)

Cylinder head screw



E02	ISO4762-M12X40-8.8
E05	ISO4762-M16X45-8.8

Assembly accessories and setting dimensions

MPAS1-..		KD	X _P	X _M	n 1.1	n 1.2	n 4.1	n 4.2	n 4.3	n 5.1	n 5.2
Pump	Motor		[mm]	[mm]							
-PGH5..-	-110C..	42	23	0	4 D06	4 B04	3 E05	3 B04	3 C03	4 E05	4 B08
	-110D..	42	23	0							
	-110E..	42	23	0							
	-110F..	42	23	0							
-PGM4..-	-110C..	42	23	22	2 D04	2 B03	3 E02	3 B03	3 C02	4 E02	4 B07
	-110D..	42	23	22							
	-110E..	42	23	22							
	-110F..	48	24,5	21,5							

KD Coupling size

X_P Assembly dimension pump hubX_M Assembly dimension motor hub

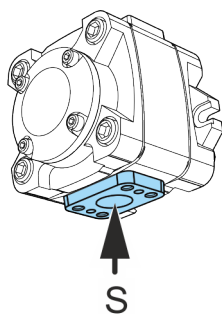
n Number

Assembly accessories and setting dimensions

*) only necessary for vertical flange mounting, without foot

Pump Designation pump acc. to MPAS1 type code**Motor** Designation motor acc. to MPAS1 type code

Assembly alignment pump PGH5 / PGM4



Transport

The transport with cranes or lifting tools may only be done with suitable lifting means, like e.g. lifting belts, belts and chains. The single components are provided with lifting points for ring screws DIN 580. The specified weights are valid for single components. Weights of motor-pump combinations add up from the single values.



Ensure a sufficiently dimensioned loading capacity of the lifting tools to ensure a safe transport of the weight of the motor-pump unit or the single parts.

Transport the completed motor-pump unit only via lifting belts.

Allowed assemble position of the suction port

	Bottom	Top	Left	Right
PGH5	✓	✓	✓	✓
PGM4	✓	✓	✗	✗

Allowed assembly alignment pump (suction port)

For further information about carrying capacity of the ring screws refer to the DIN 580 standard.

Weights pump / motor

Component	Weight [kg]	Component	Weight [kg]
PGH2...-006	6.2	PGM4...-025	12
PGH2...-008	6.5	PGM4...-032	12.5
PGH3...-011	7.4	PGM4...-040	13.5
PGH3...-013	7.7	PGM4...-050	14
PGH3...-016	8	PGM4...-063	14.5
PGH4...-020	14		

Component	Weight [kg]	Component	Weight [kg]
PGH4...-025	14.6	MSK071D	18 (+ 3)*
PGH4...-032	15.5	MSK071E	23.5 (+ 3)*
PGH4...-040	16.2		
PGH4...-050	17.3	MSK101C	28.3 (+ 4.3)*
PGH5...-063	41	MSK101D	40.0 (+ 4.3)*
PGH5...-080	42.5	MSK101E	53.5 (+ 4.3)*
PGH5...-100	45	MSK101F	59.8 (+ 4.3)*
PGH5...-125	47.5		
PGH5...-160	51		
PGH5...-200	55		
PGH5...-250	61		

*) Values in brackets specify the weight of the fan unit
Weight of components

Weight assembly accessory

Component	Weight [kg]	Component	Weight [kg]
Bellhousing MSK071	4.3	Coupling	1.2
		MSK071x	
Bellhousing MSK101	9.7	Coupling	3.3
		MSK101C, D, E	
Pump foot	3	Coupling	4.7
MSK071		MSK101F	
Pump foot	6		
MSK101			

Weight assembly accessory

Check Motor-Pump Unit

- Check the motor-pump unit for visible damage.
- Check the installation dimensions of the motor-pump unit according to the dimension sheets in the operating instruction manual DOK-SYTROX-MPAS1*****-ITRS-xx-P.

Deviating installation measures or tolerances can show a wrong assembly. Check and correct the failure cause before you mount the motor-pump unit into the construction.

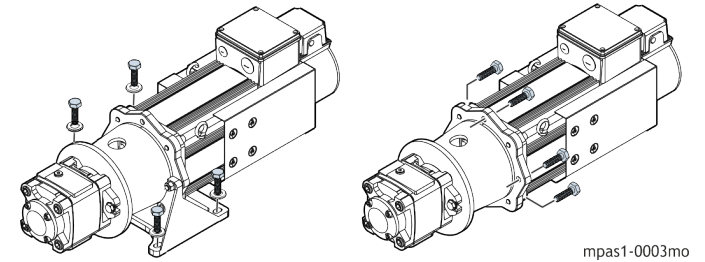
Installation MPAS1

The screw connection must be adjusted to the installation situation (screw-length, property class, screw-in depth, material, ...). The dimensioning of the screw connection is in the responsibility of the customer.

- Assemble in dry, dust free environment.
- Ensure a burr-free machine-side contact surface.
- Securely screw the motor-pump-unit with the machine construction.

Fastening	Hole ø [mm]	Bolt size-ISO-grade	Washer
Foot (MSK071)	12	M10	Yes
Flange (MSK071)	11	M10	-
Foot (MSK101)	14	M12	Yes
Flange (MSK101)	13,5	M12	-

MPA accessory for fastening



Assemble motor-pump-unit MPAS1 into the construction.

Dismantling

For disassembly proceed in reverse order, as described in chapter "Assembly". Proceed carefully and avoid damages on the components. Only components in proper state can be reused.

Additional Documentation

All documentation listed in the following are very important for the whole system. They are available in the Bosch Rexroth Media Directory.

<http://www.boschrexroth.com/various/utilities/mediadirectory/index.jsp>

Title	Material number (R911...) Documentation Type (Dok-...)
Rexroth Sytronix Safety Notes and Instructions on Use Motor-Pump Unit	R911339831 DOK-SYTROX-SAFETY*MP**SARS-EN-P
Rexroth Sytronix Mounting and Commissioning Internal Gear Pump PGH/PGM/PGF	R911340908 DOK-SYTROX-PG**ASRS-EN-P
Rexroth Fan Unit LEM-AB140T-xx-NPNN	R911345187 DOK-MOTOR*LEMAB140TNP-ASRS-DE-P
Rexroth Fan Unit LEM-AB192T-xx-NPNN	R911340921 DOK-MOTOR*LEMAB192TNP-ASRS-EN-P
Rexroth IndraDyn S Electrical Connection MSK101 Terminal Box	R911340001 DOK-MOTOR*MSK101F*NP-ASRS-EN-P

Applicable Documentation

Bosch Rexroth AG
Electric Drives and Controls
Bgm.-Dr.-Nebel-Str. 2
97816 Lohr, Germany
Phone +49 9352 18 0
service.svc@boschrexroth.de
www.boschrexroth.com/electrics



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