

**Operating Instructions BA 2019-001
for Buddeberg Magnetic Stirrer Couplings**



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1. Important notices

Safety and warning symbols:



Danger



Information and safety notices

Non-observance of these safety instructions and warnings can result in personal injury !

2. Functional description for magnetic stirrer couplings

Magnetic stirrer couplings are used for stirring tasks under vacuum and high pressure. Stirring shaft rotation is achieved by magnetic coupling without any physical contact, so no moving parts require sealing. The size of the magnetic stirrer coupling shall be selected according to the viscosity, volume and temperature of the medium to be stirred. Magnetic stirrer couplings can be used with any drive motor in consideration of the speed allowed. The drive shaft is equipped with ball bearings which minimise the driving load of the motor. The output shaft is, according to the type, equipped with slide or ball bearings. Chemical resistance corresponds to the generally valid resistance lists of the material producers.

3. Use for the intended purpose

Magnetic stirrer couplings are gastight and vacuum-tight and are suitable, according to the type, for pressures up to 700 bar and temperatures up to 550°C. Different bearings and/or construction materials are offered to accommodate almost any application requiring chemical resistance. The specifications in this technical documentation and on the type label need to be observed.

3.1 Magnetic stirrer couplings with ground joint

The NS types are offered with NS ground joint and are particularly suitable for pressureless applications using glass reaction vessels. Stirring shafts made from stainless steel and glass may be fitted. NS ground joint types may only be used for pressureless or vacuum applications. Specific technical data can be found in the technical data sheet of these operating instructions and on the type label.

3.2 Magnetic stirrer couplings with flange

The F types with flange are suitable for a pressure up to 10 bar. Stirring shafts made from stainless steel and glass may be fitted. Specific technical data can be found in the technical data sheet of these operating instructions and on the type label.

3.3 Magnetic stirrer couplings with thread

The G types with M30x2 thread connection are designed to be used on high pressure reactors (stirring autoclaves). Depending on the construction material, they are suitable for pressures up to 200 bar (material nos. 1.4435, 2.4602) or up to 700 bar (material no. 1.4980) and a maximum temperature of 300°C.

The Mini types have an M18x1 thread connection and are suitable for high pressure reactors (stirring autoclaves). Depending on the material, they can be used for pressures up to 300 bar (mat.no. 1.4435) or up to 700 bar (mat.no. 1.4980) and a temperature up to 200°C.

Specific technical data can be found in the technical data sheet of these operating instructions and on the type label.

Attention !!! 

Buddeberg GmbH disclaims any liability arising from modifications to the magnetic stirrer couplings as described above without prior consultation and written agreement of Buddeberg GmbH.

4. Safety instructions



- The range of application of the magnetic stirrer couplings are to be found in the technical data sheet of these operating instructions and on the type label.
- Standard magnetic stirrer couplings are not to be used in potentially explosive atmospheres.
- Magnetic stirrer couplings need to be separated from the drive motor before changing the stirring rotor.
- Magnetic coupling and drive motor need to be connected with a suitable flexible coupling.
- Repair may only be carried out by properly-qualified specialist personnel.
- Only original Buddeberg replacement parts may be used.

5. Maintenance

- Before starting any maintenance work, disconnect the magnetic stirrer coupling from stirring motor and vessel.
- Models with thread connection should remain screwed in the lid to avoid damages to the sealing during reinstallation when cutting rings are used.
- Check the bearings of drive shaft and output shaft in regular intervals.
- Clean the interior from product residues after stirring.
- According to the type, check O-rings and gaskets for visible damage.
- Failure to use original spare parts will invalidate the guarantee.
- Repairs may only be carried out by trained personnel. In case of any questions please contact Buddeberg GmbH or an authorised distributor.

6. Fault diagnosis

Deterioration in performance of the magnetic stirrer couplings may be due to the following:

- Damaged bearings.
- Soiling of the interior by product residues.
- Damaged sealing.
- Magnets damaged by hydrogen.

7. Technical data

Please refer to the technical data sheet in appendix 1 of these operating instructions. For customised versions please refer to the type label and/or supplied documentation.

8. Accessories

Accessories for magnetic stirrer couplings may be found on the list of accessories in appendix 2.

Appendix 1: Technical data sheet for magnetic stirrer couplings

Magnetic stirrer couplings BUK Mikro with NS ground joint, drive shaft supplied with 6 mm external square stub and brass adapter 8 mm				
Type	BUK Mikro K50S.1	BUK Mikro K50S.1 HC	BUK Mikro K50S.2	BUK Mikro K50S.2 HC
Joint size NS	14/23	14/23	19/26	19/26
Volume max. ml	250	250	500	500
Temperature max. °C	200	200	200	200
Viscosity max. mPas	1500	1500	1500	1500
Torque Ncm	50	50	50	50
Speed max. rpm	1750	1750	1750	1750
Material no.	1.4435	1.4435	2.4602	2.4602
Seals	O-rings Viton®	O-rings Kalrez®	O-rings Viton®	O-rings Kalrez®
Bearings	Ball bearings stainless steel	Slide bearings PTFE/carbon	Ball bearings stainless steel	Slide bearings PTFE/carbon
Code-No.	4026446008161	4026446008178	4026446008130	4026446008147

Magnetic stirrer couplings BUK Mini with NS 29/32 ground joint, drive shaft supplied with 6 mm external square stub and brass adapter 8 mm				
Type	BUK K20S Mini (MRK Mini 20 NS)	BUK K50S Mini (MRK Mini 50 NS)	BUK K20S Mini HC (MRK Mini 20 NS HC)	BUK K50S Mini HC (MRK Mini 50 NS HC)
Volume max. ml	500	1000	500	1000
Temperature max. °C	200	200	250	250
Viscosity max. mPas	500	1500	500	1500
Torque Ncm	20	50	20	50
Speed max. rpm	2000	2000	1150	1150
Material no.	1.4435	1.4435	2.4602	2.4602
Seals	O-rings Viton®	O-rings Viton®	O-rings FFKM	O-rings FFKM
Bearings	Ball bearings stainless steel	Ball bearings stainless steel	Slide bearings PTFE/carbon	Slide bearings PTFE/carbon
Code-No.	4026446003722	4026446003739	4026446003876	4026446003883

Magnetic stirrer couplings BUK with NS 29/32 ground joint, drive shaft supplied with 6 mm external square stub and brass adapter 8 mm								
Type	BUK K20 S1 (MRK 1/20)	BUK K 40 S1 (MRK 1/40)	BUK K60 S1 (MRK 1/60)	BUK K90 S1 (MRK 1/90)	BUK K20 S1 HC (MRK 1/20 HC)	BUK K 40 S1 HC (MRK 1/40 HC)	BUK K60 S1 HC (MRK 1/60 HC)	BUK K90 S1 HC (MRK 1/90 HC)
Volume max. ml	500	1000	3000	5000	500	1000	3000	5000
Temperature max. °C	240	240	240	240	250	250	250	250
Viscosity max. mPas	500	1500	6000	10000	500	1500	6000	10000
Torque Ncm	20	40	60	90	20	40	60	90
Speed max. rpm	2500	2500	2500	2500	1150	1150	1150	1150
Material No.	1.4435	1.4435	1.4435	1.4435	2.4602	2.4602	2.4602	2.4602
Seals	O-rings Viton®	O-rings Viton®	O-rings Viton®	O-rings Viton®	O-rings FFKM	O-rings FFKM	O-rings FFKM	O-rings FFKM
Bearings	Ball bearings stainless steel	Ball bearings stainless steel	Ball bearings stainless steel	Ball bearings stainless steel	Slide bearings PTFE/carbon	Slide bearings PTFE/carbon	Slide bearings PTFE/carbon	Slide bearings PTFE/carbon
Code-No.	4026446001575	4026446001582	4026446001599	4026446001605	4026446003890	4026446003906	4026446003913	4026446003920

Magnetic stirrer couplings BUK with NS 45/40 ground joint, drive shaft supplied with 6 mm external square stub and brass adapter 8 mm								
Type	BUK K60 S2 (MRK 2/60)	BUK K90 S2 (MRK 2/90)	BUK K120 S2	BUK K150 S2	BUK K60 S2 HC (MRK 2/60 HC)	BUK K90 S2 HC (MRK 2/90 HC)	BUK K120 S2 HC	BUK K150 S2 HC
Volume max. ml	5000	10000	15000	20000	5000	10000	15000	20000
Temperature max. °C	240	240	240	240	250	250	250	250
Viscosity max. mPas	6000	10000	15000	15000	6000	10000	15000	15000
Torque Ncm	60	90	120	150	60	90	120	150
Speed max. rpm	2500	2500	2500	2500	1150	1150	1150	1150
Material No.	1.4435	1.4435	1.4435	1.4435	2.4602	2.4602	2.4602	2.4602
Seals	O-rings Viton®	O-rings Viton®	O-rings Viton®	O-rings Viton®	O-rings FFKM	O-rings FFKM	O-rings FFKM	O-rings FFKM
Bearings	Ball bearings stainless steel	Ball bearings stainless steel	Ball bearings stainless steel	Ball bearings stainless steel	Slide bearings PTFE/carbon	Slide bearings PTFE/carbon	Slide bearings PTFE/carbon	Slide bearings PTFE/carbon
Code-No.	4026446001629	4026446001636	4026446006143	4026446008338	4026446003951	4026446003968	4026446008321	4026446008390

Magnetic stirrer couplings with flange, pressure max. 10 bar, drive shaft supplied with 6 mm external square stub and brass adapter 8 mm

Type	Flange size	Volume max. ml	Temperature max. °C	Viscosity max. mPas	Torque Ncm	Speed max. rpm	Material No.	Bearings	Code-No.
BUK K60 F (MRK 3/60)	DN 15	3000	240	6000	60	2000	1.4435	Ball bearings stainless steel	4026446001759
BUK K90 F (MRK 3/90)	DN 15	5000	240	10000	90	2000	1.4435	Ball bearings stainless steel	4026446003975
BUK K120 F (MRK 3/120)	DN 15	10000	240	10000	120	2000	1.4435	Ball bearings stainless steel	4026446003982
BUK K150 F (MRK 3/150)	DN 15	10000	240	30000	150	2000	1.4435	Ball bearings stainless steel	4026446003999
BUK K60 F (MRK 3/60)	DN 25	3000	240	6000	60	2000	1.4435	Ball bearings stainless steel	4026446001766
BUK K90 F (MRK 3/90)	DN 25	5000	240	10000	90	2000	1.4435	Ball bearings stainless steel	4026446001834
BUK K120 F (MRK 3/120)	DN 25	10000	240	10000	120	2000	1.4435	Ball bearings stainless steel	4026446004002
BUK K150 F (MRK 3/150)	DN 25	10000	240	30000	150	2000	1.4435	Ball bearings stainless steel	4026446004019
BUK K60 F (MRK 3/60)	DN 40	3000	240	6000	60	2000	1.4435	Ball bearings stainless steel	4026446001780
BUK K90 F (MRK 3/90)	DN 40	5000	240	10000	90	2000	1.4435	Ball bearings stainless steel	4026446001797
BUK K120 F (MRK 3/120)	DN 40	10000	240	10000	120	2000	1.4435	Ball bearings stainless steel	4026446004026
BUK K150 F (MRK 3/150)	DN 40	10000	240	30000	150	2000	1.4435	Ball bearings stainless steel	4026446004033
BUK K60 F (MRK 3/60)	DN 50	3000	240	6000	60	2000	1.4435	Ball bearings stainless steel	4026446001810
BUK K90 F (MRK 3/90)	DN 50	5000	240	10000	90	2000	1.4435	Ball bearings stainless steel	4026446001827
BUK K120 F (MRK 3/120)	DN 50	10000	240	10000	120	2000	1.4435	Ball bearings stainless steel	4026446004040
BUK K150 F (MRK 3/150)	DN 50	10000	240	30000	150	2000	1.4435	Ball bearings stainless steel	4026446004057
BUK K60 F HC (MRK 3/60)	DN 15	3000	240	6000	60	1150	2.4602	Slide bearings PTFE/carbon	4026446004071
BUK K90 F HC (MRK 3/90)	DN 15	5000	240	10000	90	1150	2.4602	Slide bearings PTFE/carbon	4026446004088
BUK K120 F HC (MRK 3/120)	DN 15	10000	240	10000	120	1150	2.4602	Slide bearings PTFE/carbon	4026446004095
BUK K150 F HC (MRK 3/150)	DN 15	10000	240	30000	150	1150	2.4602	Slide bearings PTFE/carbon	4026446004101
BUK K60 F HC (MRK 3/60)	DN 25	3000	240	6000	60	1150	2.4602	Slide bearings PTFE/carbon	4026446004125
BUK K90 F HC (MRK 3/90)	DN 25	5000	240	10000	90	1150	2.4602	Slide bearings PTFE/carbon	4026446004132
BUK K120 F HC (MRK 3/120)	DN 25	10000	240	10000	120	1150	2.4602	Slide bearings PTFE/carbon	4026446004149
BUK K150 F HC (MRK 3/150)	DN 25	10000	240	30000	150	1150	2.4602	Slide bearings PTFE/carbon	4026446004156
BUK K60 F HC (MRK 3/60)	DN 40	3000	240	6000	60	1150	2.4602	Slide bearings PTFE/carbon	4026446004170
BUK K90 F HC (MRK 3/90)	DN 40	5000	240	10000	90	1150	2.4602	Slide bearings PTFE/carbon	4026446004187
BUK K120 F HC (MRK 3/120)	DN 40	10000	240	10000	120	1150	2.4602	Slide bearings PTFE/carbon	4026446004194

BUK K150 F HC (MRK 3/150)	DN 40	10000	240	30000	150	1150	2.4602	Slide bearings PTFE/carbon	4026446004200
BUK K60 F HC (MRK 3/60)	DN 50	3000	240	6000	60	1150	2.4602	Slide bearings PTFE/carbon	4026446004224
BUK K90 F HC (MRK 3/90)	DN 50	5000	240	10000	90	1150	2.4602	Slide bearings PTFE/carbon	4026446004231
BUK K120 F HC (MRK 3/120)	DN 50	10000	240	10000	120	1150	2.4602	Slide bearings PTFE/carbon	4026446004248
BUK K150 F HC (MRK 3/150)	DN 50	10000	240	30000	150	1150	2.4602	Slide bearings PTFE/carbon	4026446004255

Magnetic stirrer couplings with M18x1 thread, drive shaft supplied with 6 mm external square stub and brass adapter 8 mm

Type	Pressure max. bar	Volume max. ml	Temperature max. °C	Viscosity max. mPas	Torque Ncm	Speed max. rpm	Material No.	Bearings	Code-No.
BUK K20G Mini (Mini 100-20)	300	500	200	500	20	2000	1.4435	Ball bearings stainless steel	4026446001841
BUK K50G Mini (Mini 100-50)	300	1000	200	1500	50	2000	1.4435	Ball bearings stainless steel	4026446001896
BUK K20G Mini HP (Mini 100-20)	700	500	200	500	20	2000	1.4980	Ball bearings stainless steel	4026446001858
BUK K50G Mini HP (Mini 100-50)	700	1000	200	1500	50	2000	1.4980	Ball bearings stainless steel	4026446001872
BUK K20G Mini HC (Mini 100-20)	300	500	200	500	20	1150	2.4602	Slide bearings PTFE/carbon	4026446004262
BUK K50G Mini HC (Mini 100-50)	300	1000	200	1500	50	1150	2.4602	Slide bearings PTFE/carbon	4026446004279

Magnetic stirrer couplings with M30x2 thread, without valve, drive shaft supplied with 6 mm external square stub and brass adapter 8 mm

Type	Pressure max. bar	Volume max. ml	Temperature max. °C	Viscosity max. mPas	Torque Ncm	Speed max. rpm	Material No.	Bearings	Code-No.
BUK K20G (MRK 10/20)	200	500	300	500	20	2500	1.4435	Ball bearings stainless steel	4026446001902
BUK K40G (MRK 12/40)	200	1000	300	1500	40	2500	1.4435	Ball bearings stainless steel	4026446001926
BUK K60G (MRK 14/60)	200	3000	300	6000	60	2500	1.4435	Ball bearings stainless steel	4026446001940
BUK K90G (MRK 16/90)	200	5000	300	10000	90	2500	1.4435	Ball bearings stainless steel	4026446001988
BUK K20G HC (MRK 10/20)	200	500	300	500	20	1150	2.4602	Slide bearings PTFE/carbon	4026446004286
BUK K40G HC (MRK 12/40)	200	1000	300	1500	40	1150	2.4602	Slide bearings PTFE/carbon	4026446004293
BUK K60G HC (MRK 14/60)	200	3000	300	6000	60	1150	2.4602	Slide bearings PTFE/carbon	4026446004309
BUK K90G HC (MRK 16/90)	200	5000	300	10000	90	1150	2.4602	Slide bearings PTFE/carbon	4026446004316
BUK K20G HP (MRK 11/20)	700	500	300	500	20	2500	1.4980	Ball bearings stainless steel	4026446001919
BUK K40G HP (MRK 13/40)	700	1000	300	1500	40	2500	1.4980	Ball bearings stainless steel	4026446001933
BUK K60G HP (MRK 15/60)	700	3000	300	6000	60	2500	1.4980	Ball bearings stainless steel	4026446001964
BUK K90G HP (MRK 17/90)	700	5000	300	10000	90	2500	1.4980	Ball bearings stainless steel	4026446001995

Magnetic stirrer couplings with M30x2 thread and valve, drive shaft supplied with 6 mm external square stub and brass adapter 8 mm

Type	Pressure max. bar	Volume max. ml	Temperature max. °C	Viscosity max. mPas	Torque Ncm	Speed max. rpm	Material No.	Bearings	Code-No.
BUK K20G-V (MRK 30/20)	200	500	300	500	20	2500	1.4435	Ball bearings stainless steel	4026446002039
BUK K40G-V (MRK 32/40)	200	1000	300	1500	40	2500	1.4435	Ball bearings stainless steel	4026446002053
BUK K60G-V (MRK 34/60)	200	3000	300	6000	60	2500	1.4435	Ball bearings stainless steel	4026446002077
BUK K90G-V (MRK 36/90)	200	5000	300	10000	90	2500	1.4435	Ball bearings stainless steel	4026446002091
BUK K20G-V HC (MRK 30/20)	200	500	300	500	20	1150	2.4602	Slide bearings PTFE/carbon	4026446004323
BUK K40G-V HC (MRK 32/40)	200	1000	300	1500	40	1150	2.4602	Slide bearings PTFE/carbon	4026446004330
BUK K60G-V HC (MRK 34/60)	200	3000	300	6000	60	1150	2.4602	Slide bearings PTFE/carbon	4026446004347
BUK K90G-V HC (MRK 36/90)	200	5000	300	10000	90	1150	2.4602	Slide bearings PTFE/carbon	4026446004354
BUK K20G-V HP (MRK 31/20)	700	500	300	500	20	2500	1.4980	Ball bearings stainless steel	4026446002046
BUK K40G-V HP (MRK 33/40)	700	1000	300	1500	40	2500	1.4980	Ball bearings stainless steel	4026446002060
BUK K60G-V HP (MRK 35/60)	700	3000	300	6000	60	2500	1.4980	Ball bearings stainless steel	4026446002084
BUK K90G-V HP (MRK 37/90)	700	5000	300	10000	90	2500	1.4980	Ball bearings stainless steel	4026446002107

Appendix 2: List of accessories for magnetic stirrer couplings

PTFE lip seals for glass flanges



For use in glass reactors to seal two all-glass flanges or glass on metal flange. Suitable for up to 10 bar. Single collar seals are recommended for the use with magnetic stirrer couplings. Double collar recommended for sealing two glass flanges.

Lip seal with 1 collar	Article number	Lip seal with 2 collars	Article number
DN 15	4026446000127	DN 15	4026446000042
DN 25	4026446000134	DN 25	4026446000059
DN 40	4026446000141	DN 40	4026446000066
DN 50	4026446000158	DN 50	4026446000073
DN 80	4026446000165	DN 80	4026446000080
DN 100	4026446000172	DN 100	4026446000097
DN 150	4026446000189	DN 150	4026446000103
DN 200	4026446000196	DN 200	4026446000110

Connection couplings VKG for glass stirring shafts Ø 8 and 10 mm



Type	Suits	Material no.	Article number
VKG 6	BUK Mikro/Mini	1.4435 (AISI 316L)	4026446004712
VKG 7	BUK NS 29 and NS 45	1.4435 (AISI 316L)	4026446004729
VKG 8	Flange versions	1.4435 (AISI 316L)	4026446004736
VKG 6 HC	Mikro/Mini HC	2.4602 (HC 22)	4026446004743
VKG 7 HC	NS 29 and NS 45 HC	2.4602 (HC 22)	4026446004750
VKG 8 HC	Flange versions HC	2.4602 (HC 22)	4026446004767

Connection couplings between stirring motor and magnetic stirrer coupling

Double-cardan-coupling DCK made of stainless steel



Type	Receiver drive side	Receiver output side	Length	Article number
DCK I	external hex 8 mm	square socket 6 mm	110 mm	4026446001414
DCK II	inside Ø 10 mm	square socket 6 mm	110 mm	4026446003685

Cardan coupling PK made of plastic



Type	Receiver drive side	Receiver output side	Length	Article number
PK 10	i.d. 10 mm	clamp width 6-10 mm	80 mm	4026446000585
PK 10/13	i.d. 10/13 mm	clamp width 6-10 mm	80 mm	4026446000592

Flexible coupling K



Type	Receiver drive side	Receiver output side	Length	Article number
K 10	i.d. 10 mm	clamp width 6-10 mm	105 mm	4026446000547
K 10/13	i.d. 10/13 mm	clamp width 6-10 mm	105 mm	4026446000554
K 15	i.d. 15 mm	clamp width 6-10 mm	105 mm	4026446000615
FK 1	with stud Ø 8 mm	clamp width 6-10 mm	108 mm	4026446005955

Connection coupling between magnetic stirrer coupling and stirring rotor shaft.



Type	Receiver	Material no.	Article number
VK 7 x 6	i.d. 7 and 6 mm	1.4305	4026446000332
VK 7 x 8	i.d. 7 and 8 mm	1.4305	4026446000349
VK 7 x 10	i.d. 7 and 10 mm	1.4305	4026446000363
VK 10 x 8	i.d. 10 and 8 mm	1.4305	4026446000370

Please find a wide selection of stirring rotors our PLR Mixing Technology Catalogue or online at www.Buddeberg.de