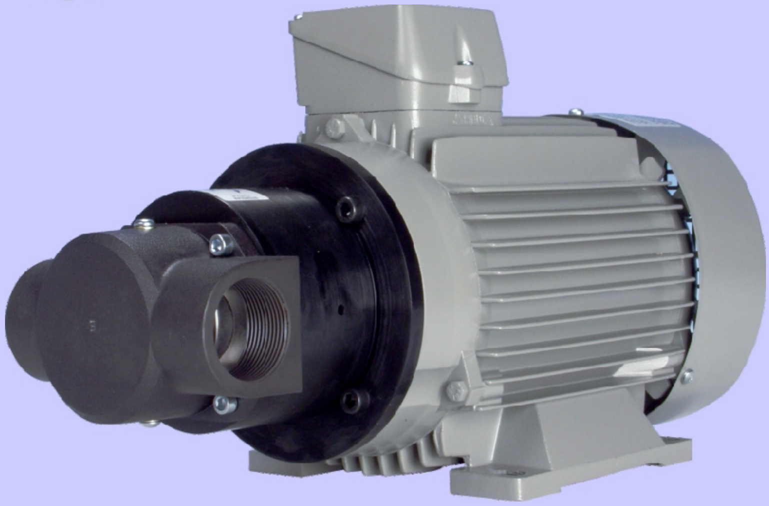
Circulation pumps BFP



- Low noise emission
- High vol. efficiency
- Optimum suction
- Integrated bell housing
- Gerotor principle
- Resistant to contamination
- Reliable
- Well tested

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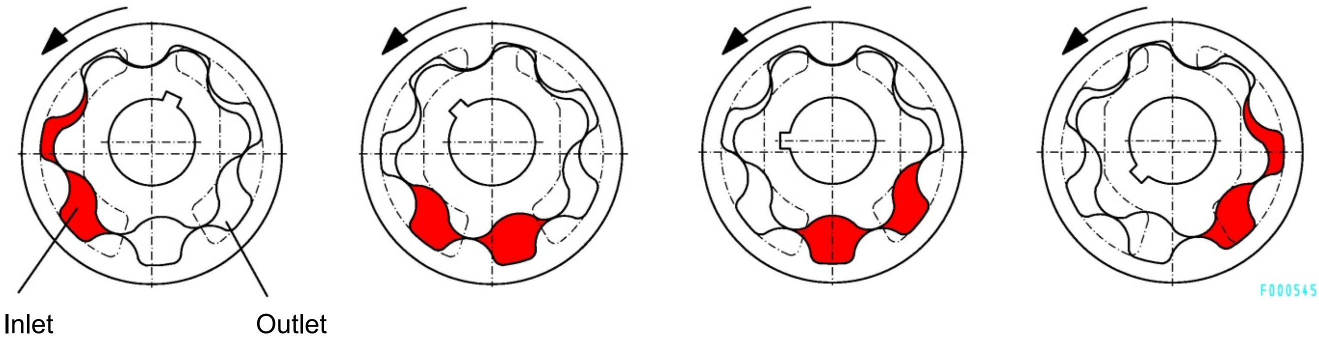
Why a gerotor?

Numerous applications in hydraulic and lubrication systems just require the circulation of the fluid. In such cases low noise emissions and low pressure ripples are more important than highly efficient transmission of energy.

The gerotor is the ideal principle for such applications. The displacement mechanism consists of the inner and the outer rotor. The number of teeth of the inner rotor is always one less then the outer rotor. The rotation of the gerotor generates chambers of changing volumes between the inner and outer rotor. The variation of the volume follows a sinus curve with low amplitude resulting in a proportional flow with very low pressure ripples.



The relation between number of teeth, diameter and width of the gerotor has been chosen with the target for a very compact design featuring small physical dimensions, low weight and minimal loss in efficiency. The low differential of revolutions between the inner and outer rotor provides low vibration and long life. The internal design of the pump head reduces the loss of pressure and ensures good suction performance.

Why complete pump units?

Each additional component increases the physical volume of a system and results in higher space consumption and cost. Therefore the main target for the BFP-series was set to provide a compact solution. With the models BFP 5 up to 40 the gerotor is directly driven by the motor shaft. The larger pumps BFP 60 and 90 are driven with a special coupling where the motor shaft is integrated. This concept results in additional benefits like good cooling and lubrication.

Using standard IEC-motors the installation-ready pump unit is easy to integrate and saves administrative costs.

General Data

Pump body	anodised and impregnated cast aluminum
Gerotor	sintered steel
Operating fluids	mineral oil according to DIN 51524
Fluid temperature	max. 100°C
Sealing	Perbunan (NBR) on request: Viton (FPM)
Ambient temperature	-20°C to + 40°C

Electric motors

Voltage	230/400 V, 50 Hz ±5% 276/480 V, 60 Hz ±5%
Protection class	IP 55
Design	three-phase asynchronous squirrel-cage induction motor, totally enclosed fan cooled (TEFC) Insulation Class F / temperature Class B
on request:	other voltages higher motor power for higher viscosity UL or CSA- certified motors higher protection class

All pumps are delivered without cable gland in the terminal box of the motor. The total length and height of the pump slightly differs depending on the motor brand.

Selection of pumps:
Select the pump model by selecting the required motor power with respect to the viscosity of the oil used. The stated motor power refers to the maximum oil viscosity at maximum working pressure.

As an option pump models BFP 5 to BFP 40 can be equipped with an additional internal bypass valve opening at 6 bar. Dimensions are not affected.

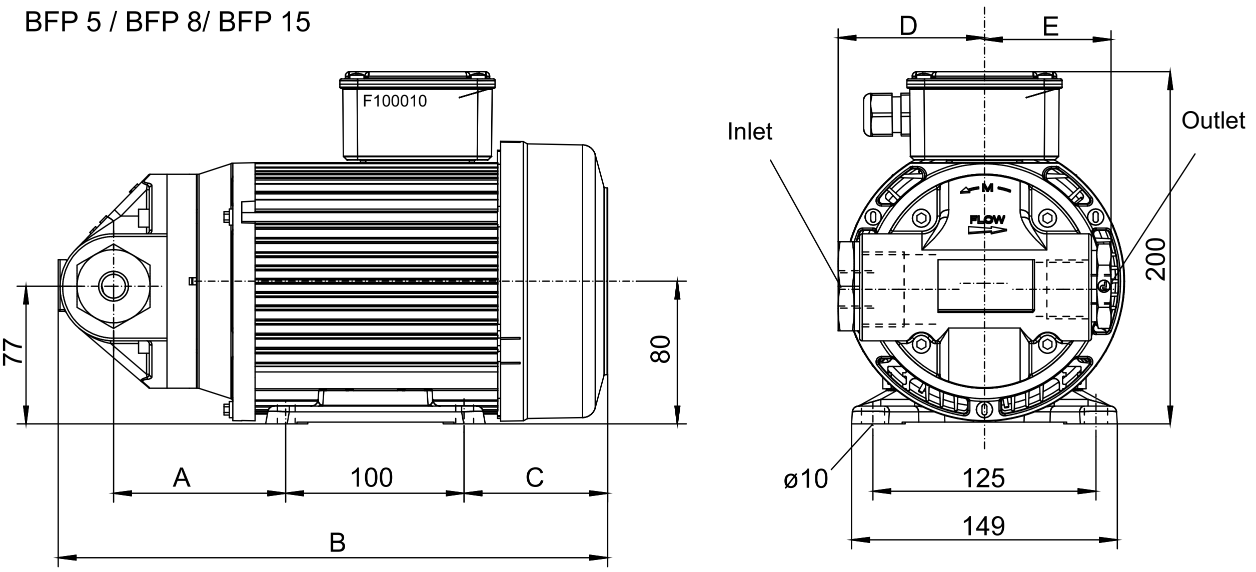
Installation notes:
The pump head can be mounted for all models in rotating steps of 90° to align the connections to the piping layout. Regard the offset of the connection threads to the centerline of the motor. The threads are manufactured according to ISO 228. The sealing surfaces are machined and suitable for soft sealing. We recommend using thread ends according to ISO 1179-2.

Note:
Regard dimensioning of the suction line. The stated nominal cross-section should not be reduced. A high noise level normally indicates too low cross-section of the suction line.
Please take notice of the instructions in the manual.

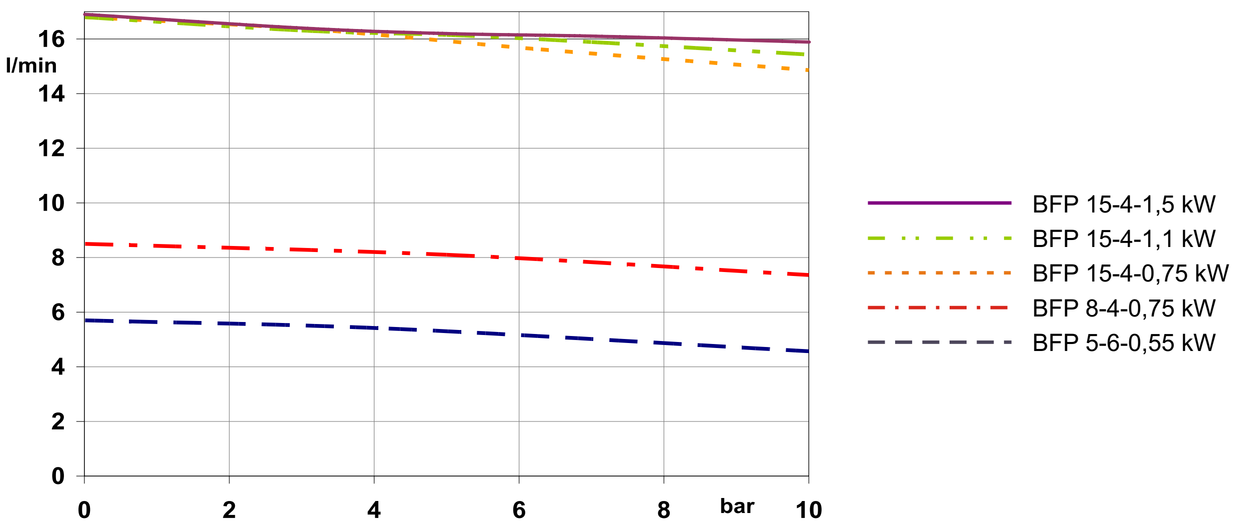
	BFP 5-6-0,55kW	BFP 8-4-0,75kW	BFP15-4-0,75kW	BFP15-4-1,1kW	BFP15-4-1,5kW
Part No.	3705055	3708075IE2	3715075IE2	3715110IE2	3715150IE2
Motor power	0,55 kW	0,75 kW	0,75 kW	1,1 kW	1,5 kW
Max. oil viscosity	1500 cSt	1500 cSt	300 cSt	1500 cSt	2000cSt
At max. working pressure	10 bar	10 bar	10 bar	10 bar	10 bar
Number of poles	6	4	4	4	4
Max. current consumption (400V/50Hz)*	ca. 1,8 A	ca. 2,1 A	ca. 2,1 A	ca. 2,7 A	ca. 3,5 A
Delivery volume nominal *	5,8 cm³/U	5,8 cm³/U	11,7 cm³/U	11,7 cm³/U	11,7 cm³/U
	5,5 l/min	8 l/min	16 l/min	16 l/min	16 l/min
Connection suction side	G1/2-DN16	G3/4/DN20	G1 1/4-DN32	G1 1/4-DN32	G1 1/4-DN32
Connection pressure side	G3/8-DN12	G1/2-DN16	G1-DN25	G1-DN25	G1-DN25
Suction pressurefor all models	-0,4 bar	-0,4 bar	-0,4 bar	-0,4 bar	-0,4 bar
temporarily up to	-0,6 bar				
Acoustic power acc. to ISO 3744*	52 dB(A)	56 dB(A)	59 dB(A)	59 dB(A)	59 dB(A)
Weight	10,8 kg	10,8 kg	10,9 kg	13,2 kg	16,2 kg
Dimensions (mm)					
A	96,5	96,5	96,5	96,5	96,5
B	308	308	308	346	368
C	80	80	80	118	140
D	82	82	70	70	70
E	71	71	60	60	60

* With 60 Hz versions, please multiply delivery volume and current consumption with 1.2. Acoustic emission increases by about 3 db.

BFP 5 / BFP 8/ BFP 15



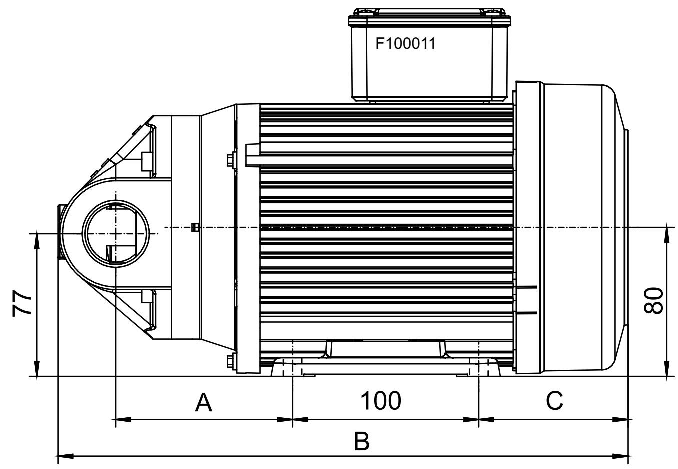
Flow rate BFP 5/ BFP 8/ BFP 15

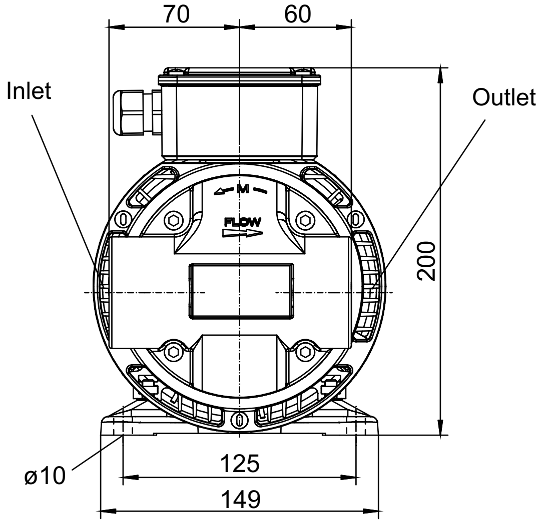


	BFP 30-4-0,75kW	BFP 30-4-1,1kW	BFP30-4-1,5kW	BFP40-4-1,1kW	BFP40-4-1,5kW
Part No.	3730075IE2	3730110IE2	3730150IE2	3740110IE2	3740150IE2
Motor power	0,75kW	1,1kW	1,5 kW	1,1kW	1,5kW
Max. oil viscosity	100 cSt	300 cSt	1000 cSt	100 cSt	700cSt
At max. working pressure	6 bar	8 bar	10 bar	6 bar	8 bar
Number of poles	4	4	4	4	4
Max. current consumption (400V/50Hz)*	ca. 2,1 A	ca. 2 ,7 A	ca. 3,5 A	ca. 2,7 A	ca. 3,5 A
Delivery volume nominal *	20,4 cm³/U	20,4 cm³/U	20,4 cm³/U	30,6 cm³/U	30,6 cm³/U
	29 l/min	29 l/min	29 l/min	42 l/min	42 l/min
Connection suction side	G1 1/4-DN32	G1 1/4-DN32	G1 1/4-DN32	G1 1/4-DN32	G1 1/4-DN32
Connection pressure side	G1-DN25	G1-DN25	G1-DN25	G1-DN25	G1-DN25
Suction pressurefor all models	-0,4 bar	-0,4 bar	-0,4 bar	-0,4 bar	-0,4 bar
temporarily up to	-0,6 bar				
Acoustic power acc. to ISO 3744*	61 dB(A)	61 dB(A)	61 dB(A)	62 dB(A)	62 dB(A)
Weight	11 kg	13,2 kg	16,2 kg	13,7 kg	16,7 kg
Dimensions (mm)					
A	95	95	95	104,5	104,5
B	306	344	366	354	376
C	80	118	140	118	140

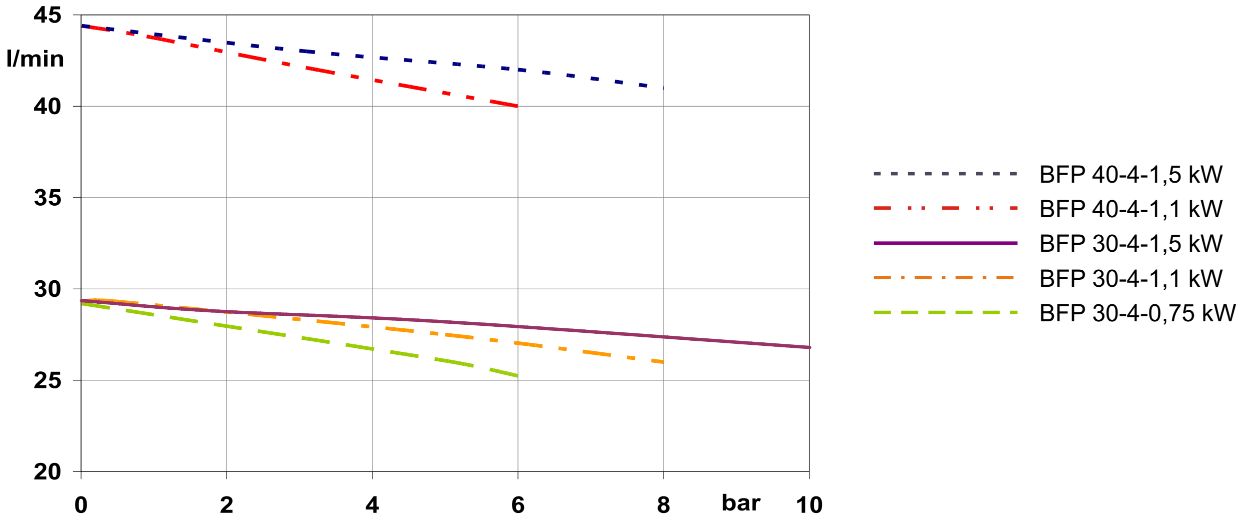
* With 60 Hz versions, please multiply delivery volume and current consumption with 1.2. Acoustic emission increases by about 3 db.

BFP 30 / BFP 40





Flow rate BFP 30/ BFP 40



	BFP 60-4-1,5kW	BFP 60-4-2,2 kW	BFP 60-4-3kW	BFP 60-4-4kW
Part No.	3760150IE2	3760220IE2	3760300IE2	3760400IE2
Motor power	1,5 kW	2,2 kW	3 kW	4 kW
Max. oil viscosity	100 cSt	300 cSt	800 cSt	1500 cSt
At max. working pressure	6 bar	8 bar	10 bar	8 bar
Number of poles	4	4	4	4
Max. current consumption (400V/50Hz)*	ca. 3,6 A	ca. 4,9 A	ca. 6,4 A	ca. 8,3 A
Delivery volume nominal*	40,8 cm³/U	40,8 cm³/U	40,8 cm³/U	40,8 cm³/U
	58 l/min	58 l/min	58 l/min	58 l/min
Connection suction side	G1 1/2-DN40	G1 1/2-DN40	G1 1/2-DN40	G1 1/2-DN40
Connection pressure side	G1 1/4-DN32	G1 1/4-DN32	G1 1/4-DN32	G1 1/4-DN32
"Suction pressurefor all models	-0,4 bar	-0,4 bar	-0,4 bar	-0,4 bar
temporarily up to"	-0,6 bar			
Acoustic power acc. to ISO 3744*	64 dB(A)	64 dB(A)	64 dB(A)	64 dB(A)
Weight	17,4 kg	23,2 kg	23,2 kg	32,6 kg
Dimensions (mm)				
A	150	172	172	179
B	410	448	466	476
C	104	105	123	126
D	125	140	140	140
E	87	97	97	109
F	90	100	100	112
G	140	160	160	190
H	175	198	198	222
J	226	248	248	276
K	10	12	12	12

* With 60 Hz versions, please multiply delivery volume and current consumption with 1.2. Acoustic emission increases by about 3 db.

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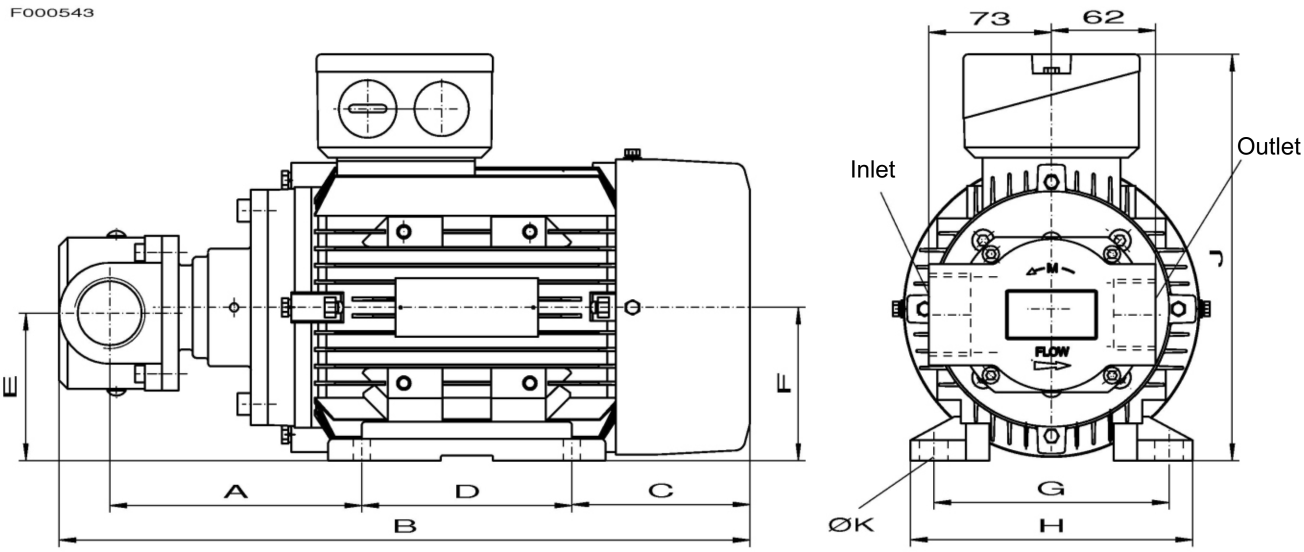
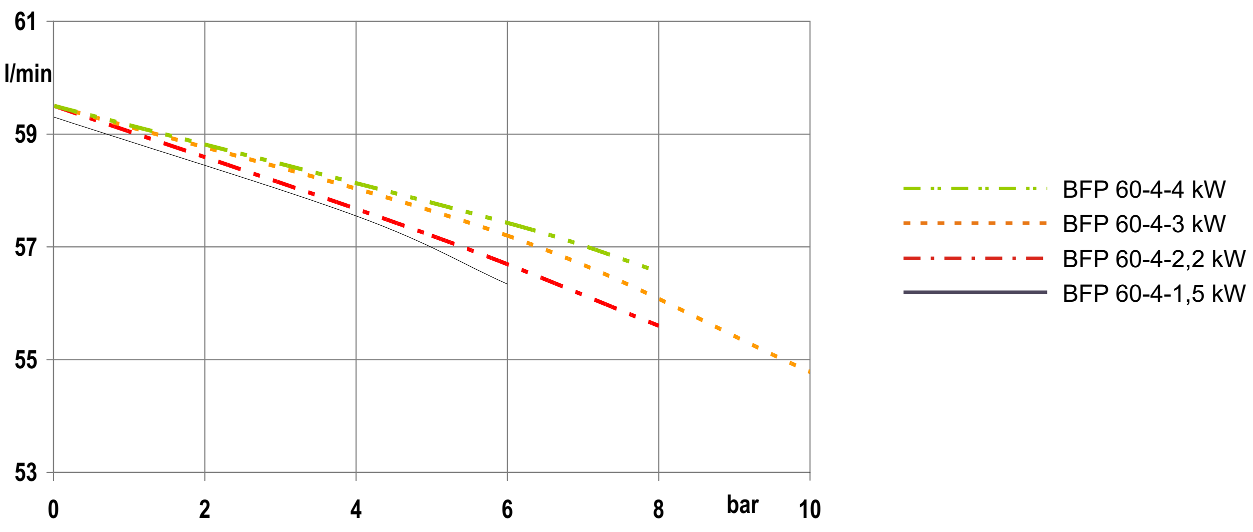


Flow rate BFP 60



	BFP 90-4-1,5kW	BFP 90-4-2,2 kW	BFP 90-4-3kW	BFP 90-4-4kW
Part No.	3790150IE2	3790220IE2	3790300IE2	3790400IE2
Motor power	1,5 kW	2,2 kW	3 kW	4 kW
Max. oil viscosity	46 cSt	100 cSt	300 cSt	1000 cSt
At max. working pressure	6 bar	8 bar	8 bar	8 bar
Number of poles	4	4	4	4
Max. current consumption (400V/50Hz)*	ca. 3,6 A	ca. 4,9 A	ca. 6,4 A	ca. 8,3 A
Delivery volume nominal*	61,2 cm³/U	61,2 cm³/U	61,2 cm³/U	61,2 cm³/U
	88 l/min	88 l/min	88 l/min	88 l/min
Connection suction side	G1 1/2-DN40	G1 1/2-DN40	G1 1/2-DN40	G1 1/2-DN40
Connection pressure side	G1 1/4-DN32	G1 1/4-DN32	G1 1/4-DN32	G1 1/4-DN32
"Suction pressurefor all models	-0,4 bar	-0,4 bar	-0,4 bar	-0,4 bar
temporarily up to"	-0,6 bar			
Acoustic power acc. to ISO 3744*	65 dB(A)	65 dB(A)	65 dB(A)	65 dB(A)
Weight	19 kg	24,8 kg	24,8 kg	34,2 kg
Dimensions (mm)				
A	162,5	184,5	184,5	191,5
B	445	483	500	511
C	104	105	122	126
D	125	140	140	140
E	87	97	97	109
F	90	100	100	112
G	140	160	160	190
H	175	198	198	222
J	226	248	248	276
K	10	12	12	12

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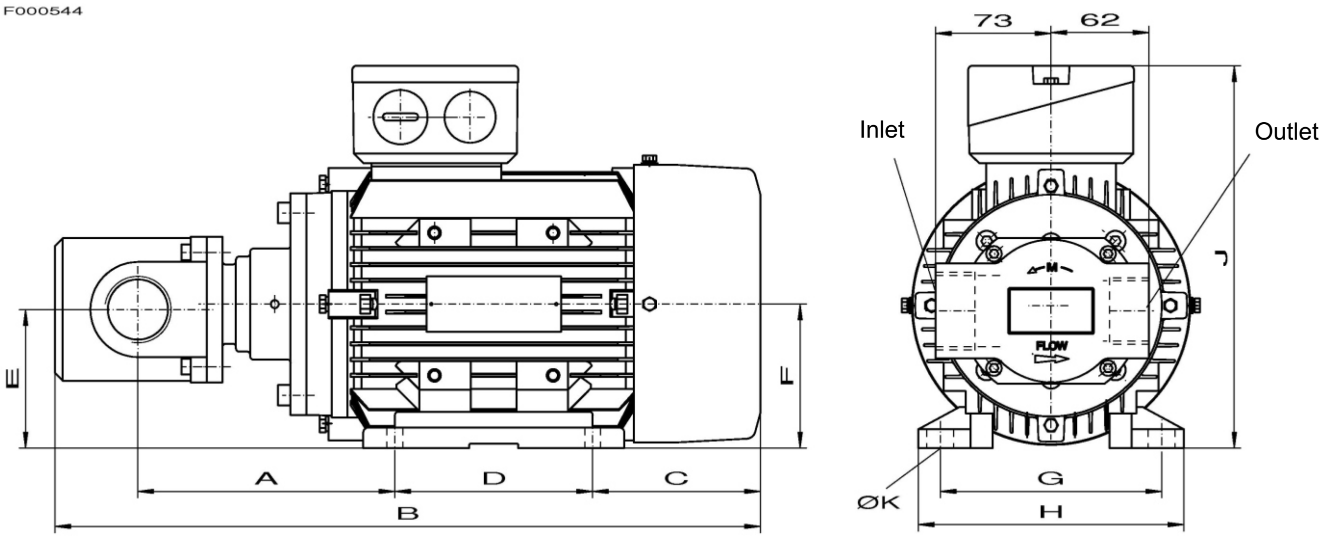

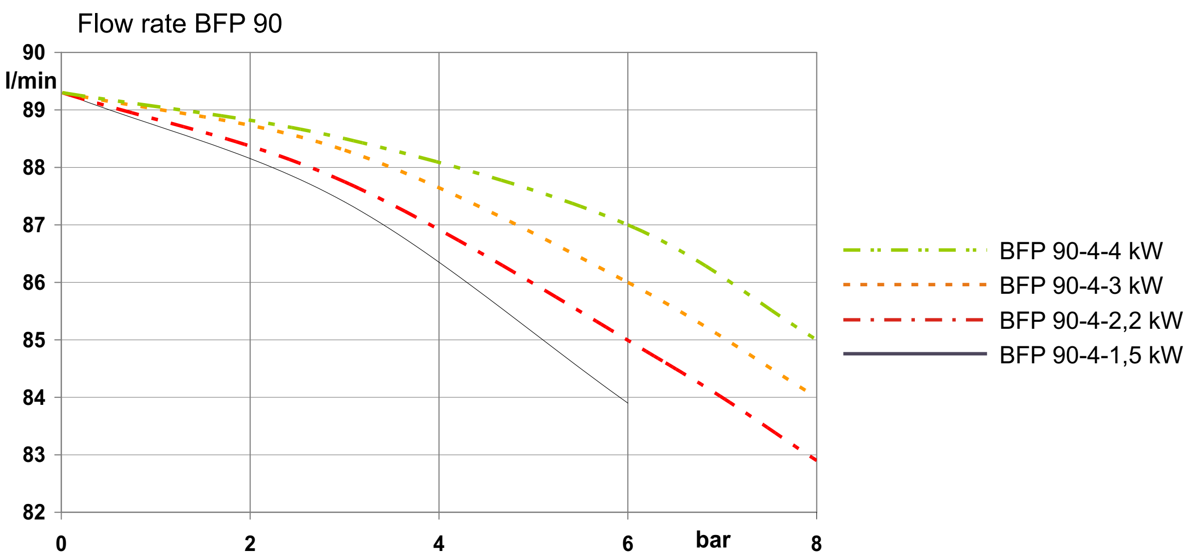

Recommendations for installation and operation

Place of installation

The place should be dry and clean and provide good air ventilation. The unit is fixed by four bolts.

Electrical connection

Make sure that the power supply corresponds with the data on the units type plate. Obey local safety regulations and standards. Make sure that the motor turns in the correct direction.

Hydraulic connection

Performance and efficiency of pumps depends highly on the proper design of the suction lines. Particularly in lubrication systems containing high viscous fluids the sufficient dimensions of pipes and fittings are very important. Whenever possible the suction line should be as short as possible. We recommend that deteiled calculations are worked up for each application. Never go for lower dimensions of the suction tube then implicated by the respective suction port of the pump!

All pipes should be free of tension and vibration. Hoses on the suction line must be reinforced to prevent collapsing under suction pressure.

If the pump is not being used on a kidney loop filter unit, the oil should be maintained at a cleanliness class of 15/11 according to ISO 4406 for maximum longevity of the pump.

The specified suction pressure should only be exceeded temporarily. In some cases it can be necessary to fill the suction pipe prior to start up.

Prevent leakages or spills to protect the environment. Use dip pans or similar whenever appropriate.

The series BFP is a product designed by BÜHLER company

The company
BÜHLER Technologies GmbH, Ratingen was founded in 1969.

BÜHLER's corporate philosophy is to offer products and solutions representative of the state of the art.

BÜHLER also specialises in producing level and temperature measuring equipment, particularly for the fluid power industry.

The products
Our commitment to customers has given rise to a production program which comprises specialized products for fluid technology.

Although these products were initially developed entirely as specials many of them have now become industry standards.

Bühler quality
Bühler has achieved accreditation from Lloyd's register to be in compliance with ISO 9001 and therefore consider it our obligation to offer our customers not only excellent products, but also the best service possible.