

Valves

Adjustable Pressure Relief Valves

Adjustable pressure relief valves allow for variable operating pressures anywhere between 5 – 120 bar. In order to prevent overloading of the motor, however, the maximum operating pressure may never exceed the highest allowable operating pressure for the specific pump and motor combination in use.

The system user must ensure that the operating pressure never exceeds the highest allowable operating pressure (i.e. by using a second non adjustable pressure relief valve which is set for the highest allowable pressure).

3-HPB Series

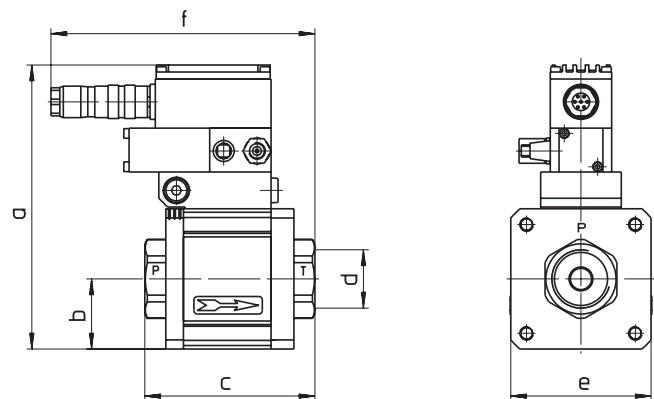
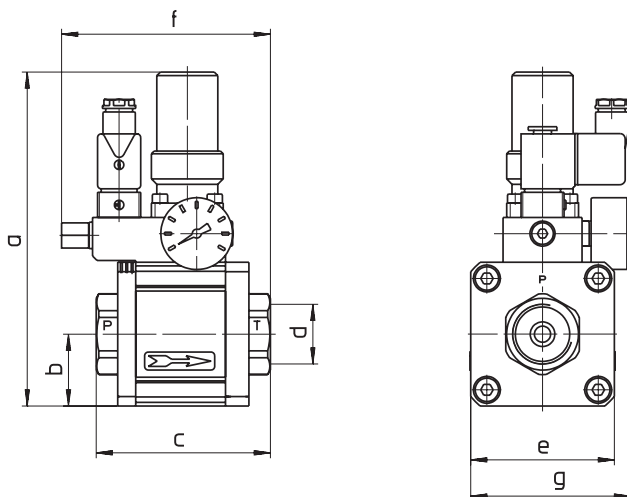
The 3-HPB series are manually adjustable pressure relief valves. The valves are pneumatically operated and control the operating pressure with the control pressure in a ratio of 1:10 and 1:18.5.

Without power and air supply the valve is fully open and in dump mode.

SPB Series

SPB Series pressure relief valves are electronically adjustable valves. The valve requires an analog signal of 0 – 10 V. The ratio between the control voltage and the operating pressure is 1:10 and 1:18.5.

Without power and air supply the valve is fully open and in dump mode.



Type	Pressure p (bar)	Flow Qmax (l/min)
3 – HPB – 08	10 – 200	18
3 – HPB – S 15	5 – 64	100
3 – HPB – H 15	5 – 120	100
3 – HPB – S 32	5 – 64	400
3 – HPB – H 32	5 – 120	240
3 – HPB – S 50	5 – 64	800

Type	Pressure p (bar)	Flow Qmax (l/min)
SPB – 08	10 – 200	18
SPB – S 15	5 – 64	100
SPB – H 15	5 – 120	100
SPB – S 32	5 – 64	400
SPB – H 32	5 – 120	240
SPB – S 50	5 – 64	800

Type 3-HPB	a mm	b mm	c mm	d mm	e mm	f mm	g mm
08	180	37	138	G ³ / ₈	Ø 74	–	–
S / H 15	186	40	97	G1	□ 80	116.3	89
S / H 32	231	60	160	G1 ¹ / ₂	□ 120	125	109
S 50	251	70	160	G1 ¹ / ₂	□ 140	–	–

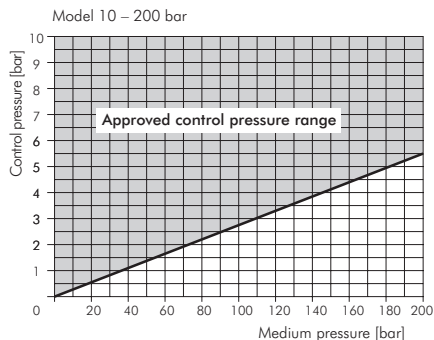
Type SPB	a mm	b mm	c mm	d mm	e mm	f mm
08	151	37	138	G ³ / ₈	Ø 74	–
S / H 15	162	40	97	G1	□ 80	150.5
S / H 32	192.5	60	160	G1 ¹ / ₂	□ 120	176.5
S 50	251	70	160	G1 ¹ / ₂	□ 140	–

Further valves on request.

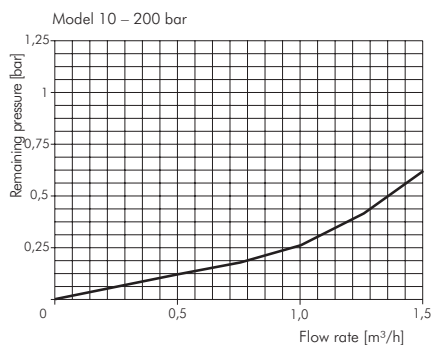
Valves

3-HPB – 08 | SPB – 08

Control pressure diagram

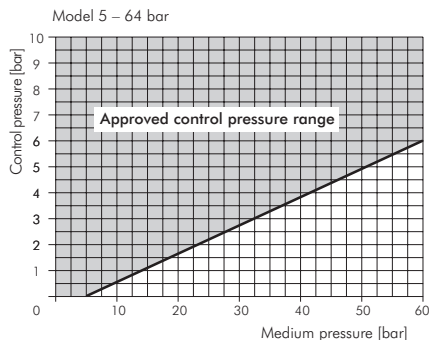


Depressurized recirculation mode

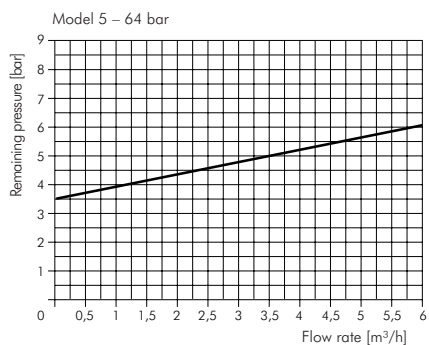


3 – HPB – S 15 | SPB – S 15

Control pressure diagram

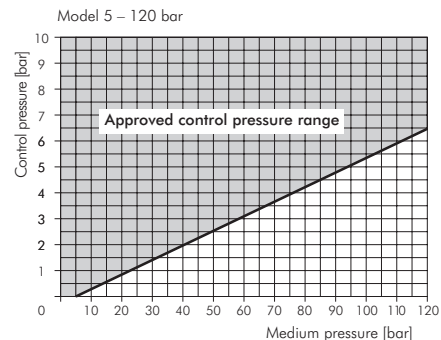


Depressurized recirculation mode

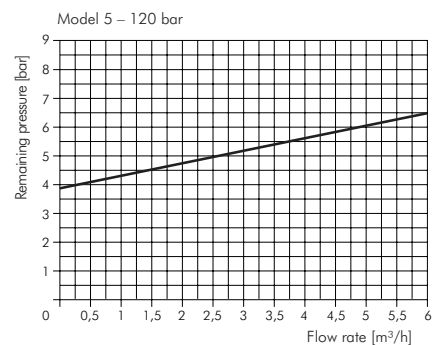


3 – HPB – H 15 | SPB – H 15

Control pressure diagram

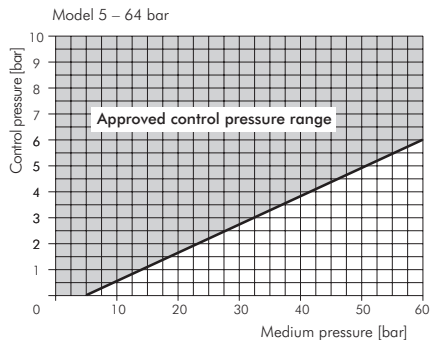


Depressurized recirculation mode

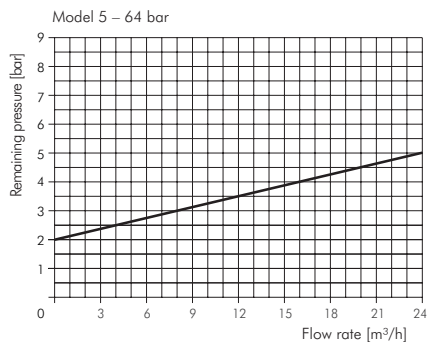


3 – HPB – S 32 | SPB – S 32

Control pressure diagram

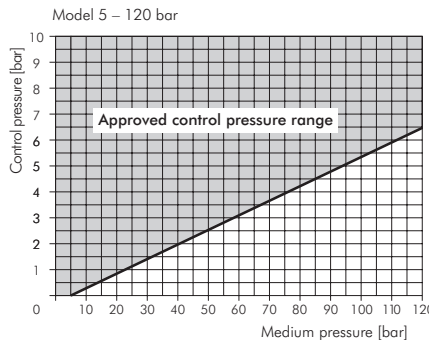


Depressurized recirculation mode

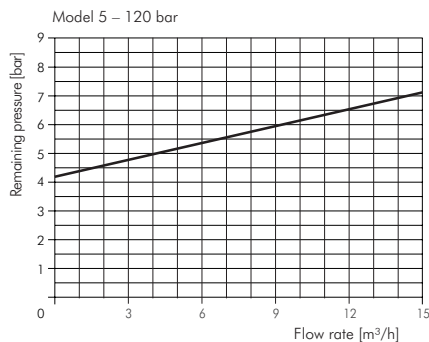


3 – HPB – H 32 | SPB – H 32

Control pressure diagram

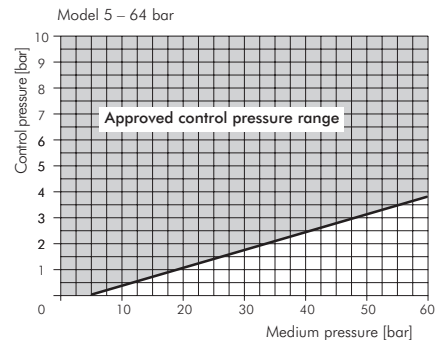


Depressurized recirculation mode

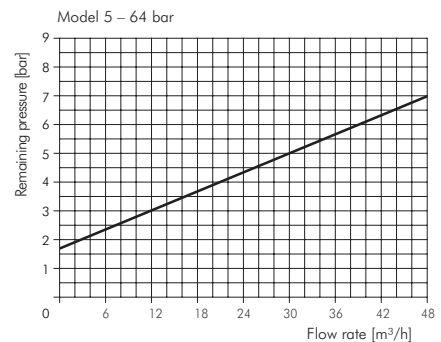


3 – HPB – S 50 | SPB – S 50

Control pressure diagram



Depressurized recirculation mode



Valves

Non-adjustable Pressure Relief Valves

Screw spindle pumps are positive displacement pumps which always require the installation of a pressure relief valve in order to prevent bursting. Pressure relief valves are set for a maximum operating pressure and protect the pump motor from overloading. Once the set maximum pressure is reached, the relief valve opens and the excess flow rate is passed through the valve back into the tank. In order to avoid pressure spikes in the system a pressure relief valve which dampens against vibration is recommended.

BBV/HBV series are such relief valves. They are available in 10 bar increments and are preset by the factory for the highest allowable operating pressure for the specific pump and motor combination.

Non-adjustable Pressure Relief Valves BBV/HBV

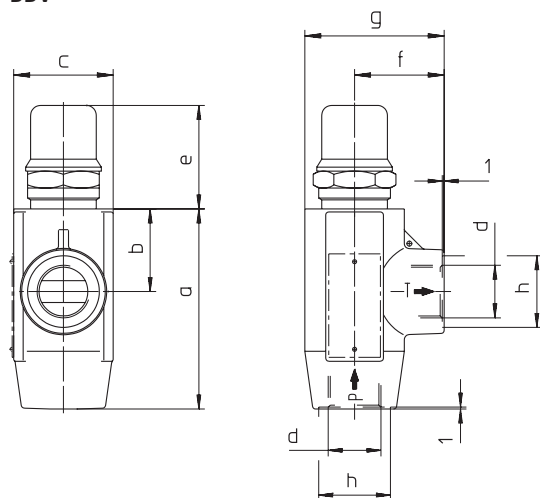
Non-adjustable Pressure Relief valves of the series BBV and HBV are shock absorbent valves which open at a preset pressure.

The relief valve opens at the factory set pressure which is available in 10 bar increments and the excess flow rate is diverted through a separate bypass line back into the tank.

Type of Pumps	Type of Valves	Pressure (bar)														
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
BFS1, FFS1 BFS232, FFS232	BBV1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
BFS2, FFS2	BBV2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
BFS1-H, BFS2-H	HBV2	●	●	●	●	●	●	●	●	●	●	●	●	—	—	—
TFS3, FFS3	BBV3	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TFS3-H	HBV3	●	●	●	●	●	●	●	●	●	●	●	●	—	—	—

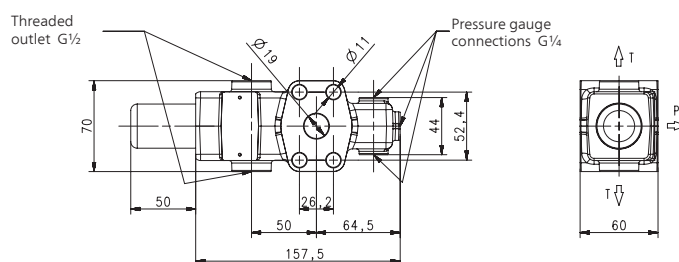
Ordering description: e.g. BBV 3 / 50

BBV

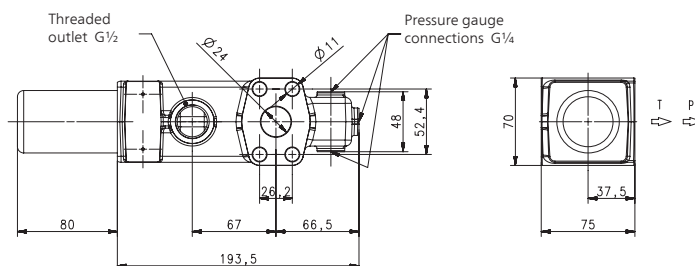


	BBV 1 + 2 mm	BBV 3 mm
a	100.5	130
b	41.5	53
c	50	65
d	G 3/4	G1
e	52	81
f	45	49
g	70	81.5
h	36	42

HBV 1+2



HBV 3



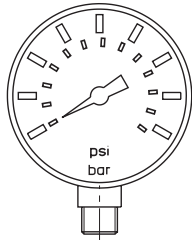
Additional relief valve characteristics upon request. The actual opening pressure may deviate from the nominal pressure setting of the valve because of the tension of the loaded spring rate.

Above mentioned pressure relief valves BBV are available upon request in a adjustable version.

The system user must ensure that the operating pressure never exceeds the highest allowable operating pressure (i.e. by using a second non adjustable pressure relief valve which is set for the highest allowable pressure).

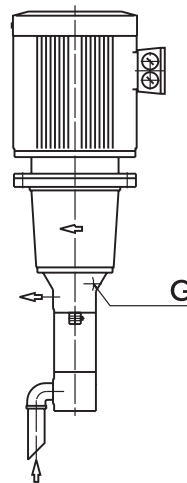
Pressure gauge / Suction protection G4 Version

Pressure gauge



Type	Pressure p (bar)
M 60	0 – 60
M 100	0 – 100
M 160	0 – 160

G4 Version

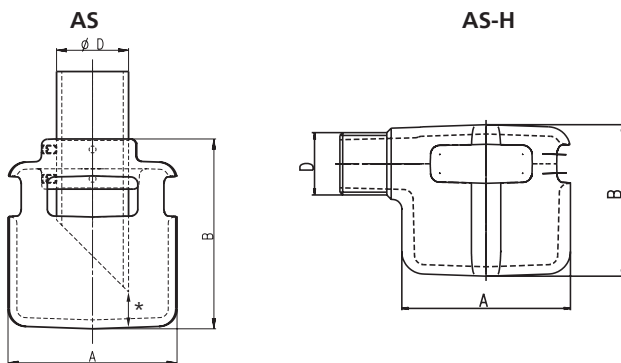


G $\frac{1}{8}$ BFS/FFS 1, 2
G $\frac{1}{4}$ TFS/FFS 3, 4, 5

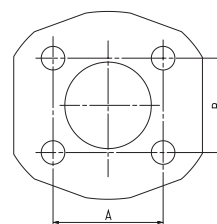
Depressurized leakage return to tank

Suction protection

The patented suction protection prevents large particles (and foreign objects) from entering the screw pump's suction.



SAE flange



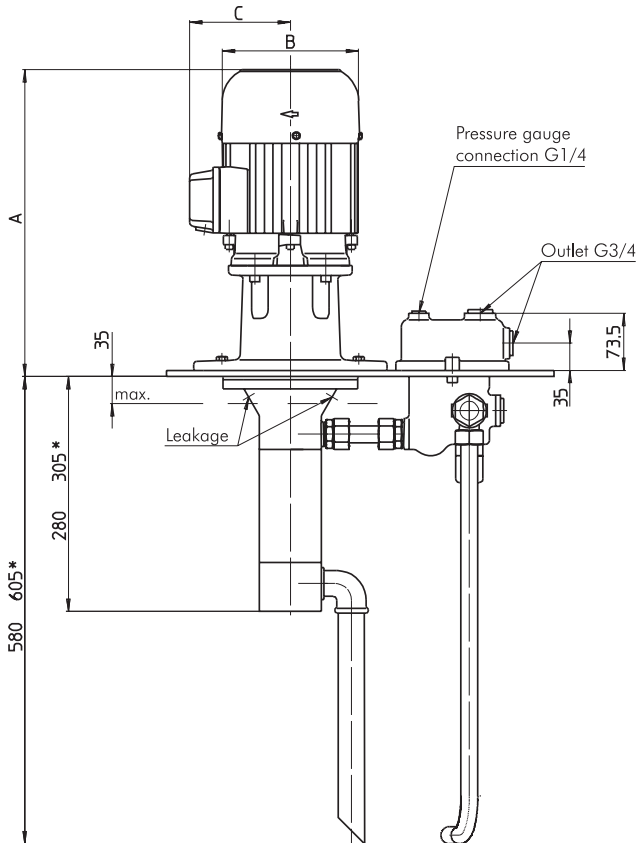
* Minimum distance $\frac{1}{3}$ D

Type	Type of Pumps	A mm	B mm	Ø D
AS1-2	BFS1, BFS2	90	94	1"
AS3	TFS3	115	129	1½"
AS4	TFS4	150	175	2"
AS5	TFS5	195	190	2½"
AS1-2-H	BFS1, BFS2	90	80	1"
AS3H	TFS3	115	115	G1½
AS4H	TFS4	153	175	G2
AS5H	TFS5	194	190	G2½

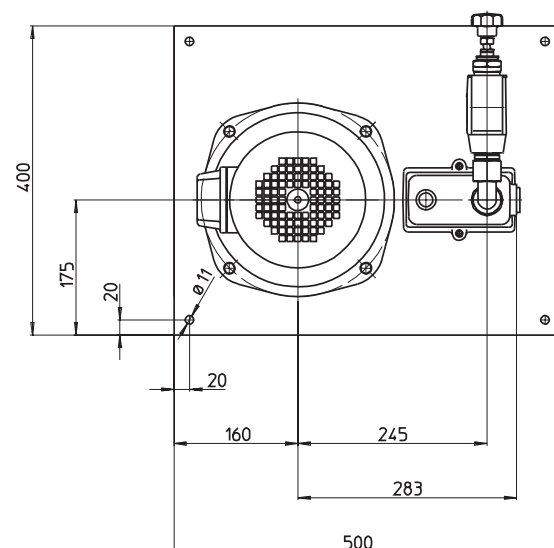
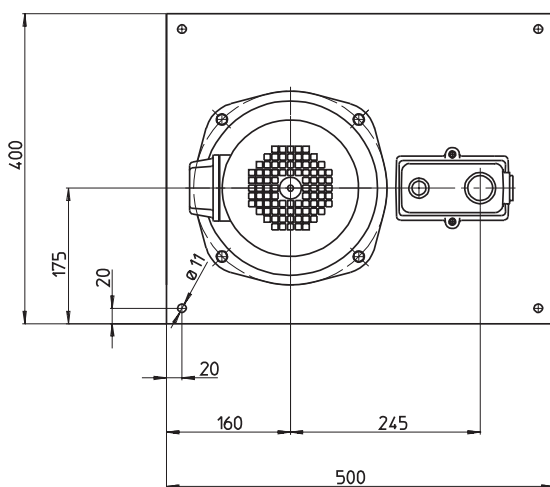
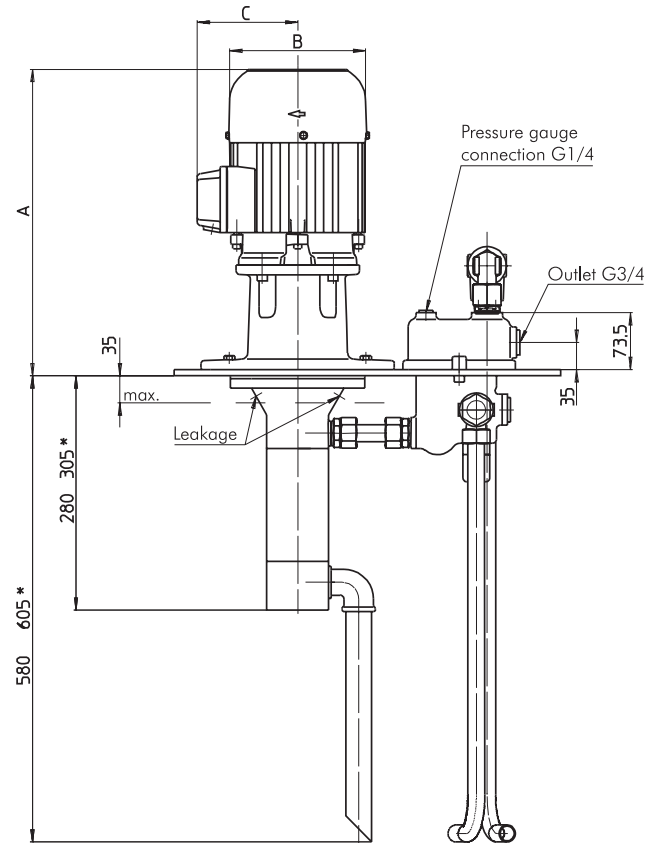
Type	Type of Pumps	A mm	B mm
SAE 2 ½	TFS5, FFS5	88.9	50.8
SAE 3	TFS6, FFS6	120.6	69.8

Pump system, fully assembled

- Series **BFS1** and **BFS2**, non-adjustable pressure relief valve:
Screw pump with mounting plate, integrated connection block and piping fully assembled.
The non-adjustable pressure relief valve is integrated into the connection block.



- Series **BFS1** and **BFS2**, adjustable pressure relief valve:
Screw pump with mounting plate, integrated connection block and piping fully assembled.
The non-adjustable pressure relief valve is integrated into the connection block.
The adjustable pressure relief valve is mounted above the plate.



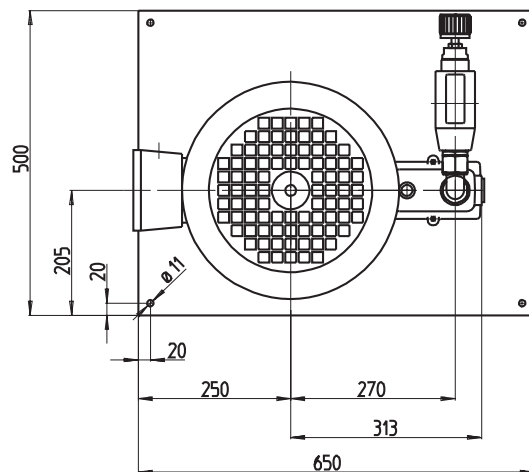
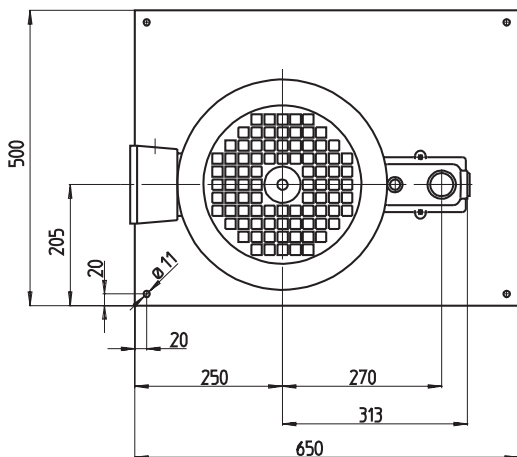
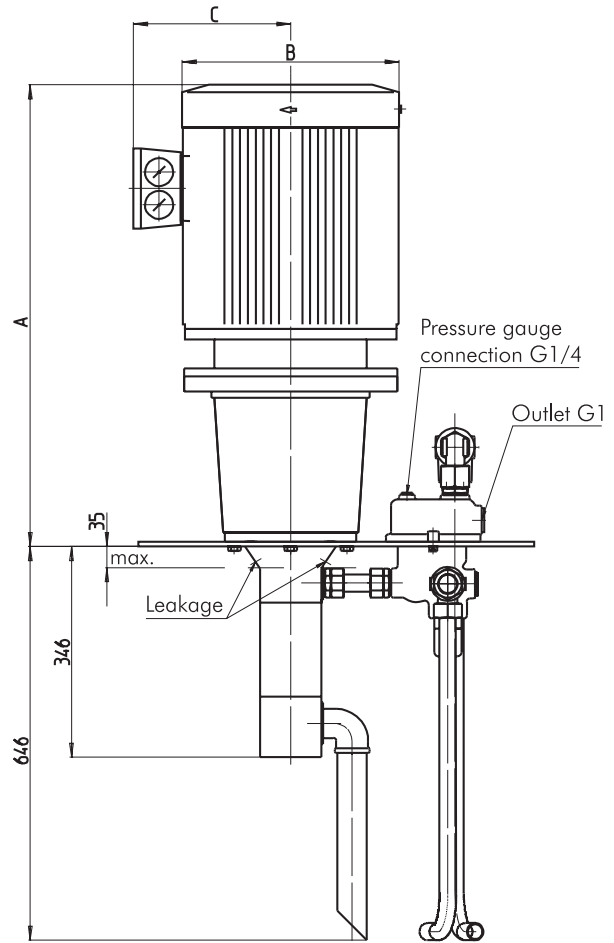
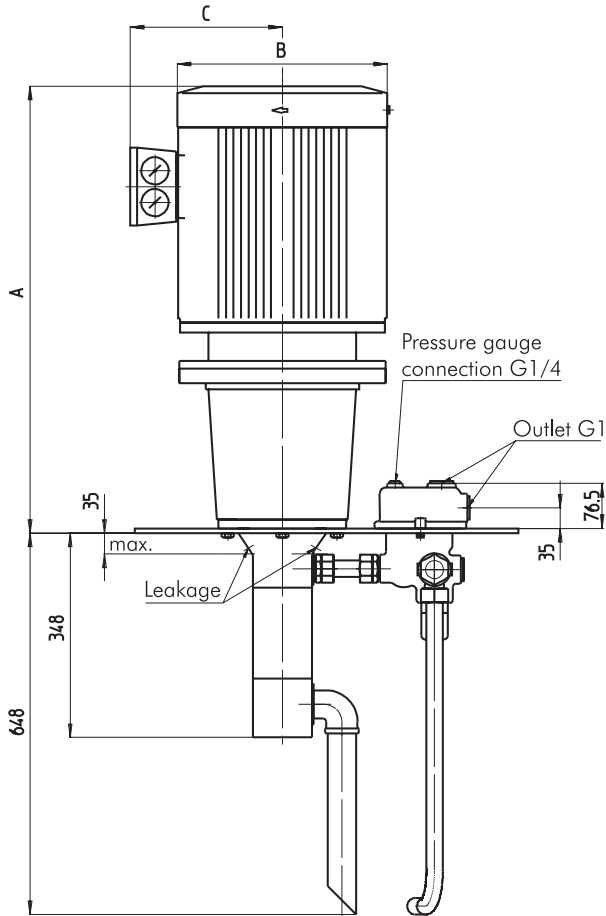
*) Dimensions for BFS2
Dimensions A + 8 mm mounting plate

*) Dimensions for BFS2
Dimensions A + 8 mm mounting plate

Pump system, fully assembled

3. Series TFS3, non adjustable pressure relief valve:
Screw pump with mounting plate, integrated connection block and piping fully assembled.
The non-adjustable pressure relief valve is integrated into the connection block.

4. Series TFS3, adjustable pressure relief valve:
Screw pump with mounting plate, integrated connection block and piping fully assembled.
The non-adjustable pressure relief valve is integrated into the connection block.
The adjustable pressure relief valve is mounted above the plate.

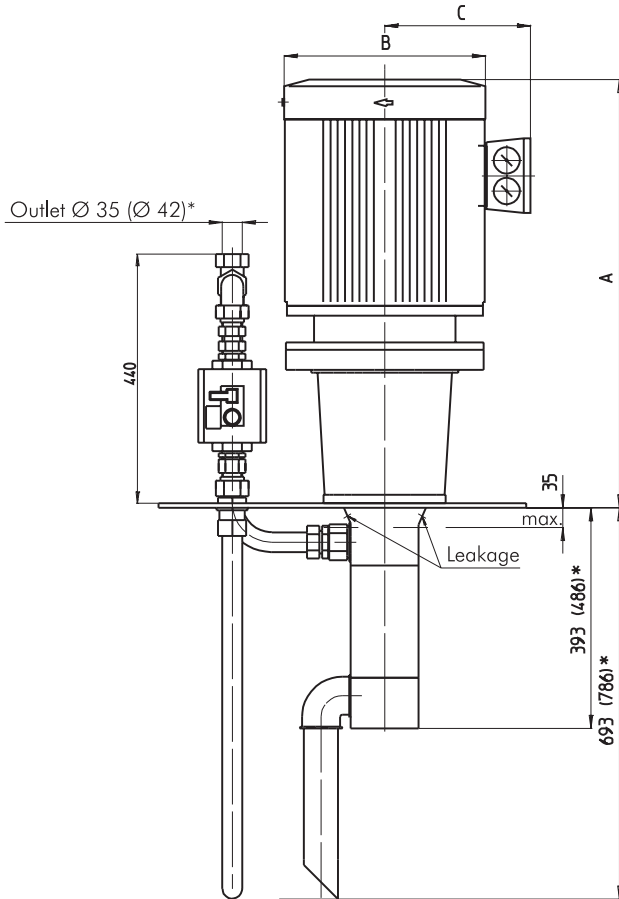


Dimensions A + 8 mm mounting plate

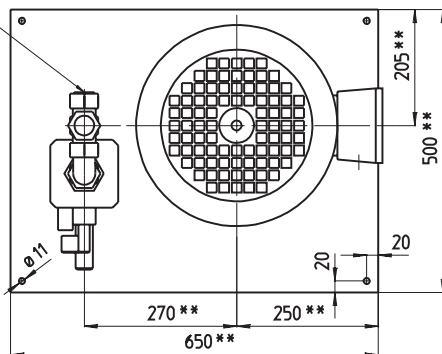
Dimensions A + 8 mm mounting plate

Pump system, fully assembled

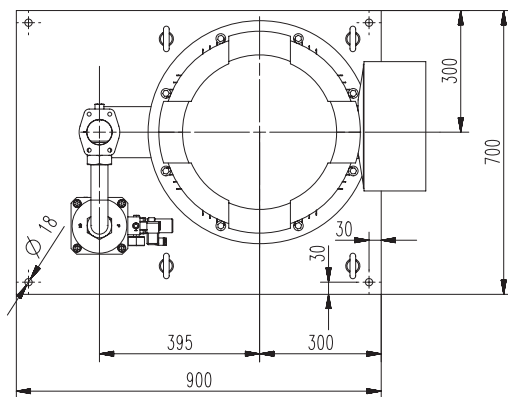
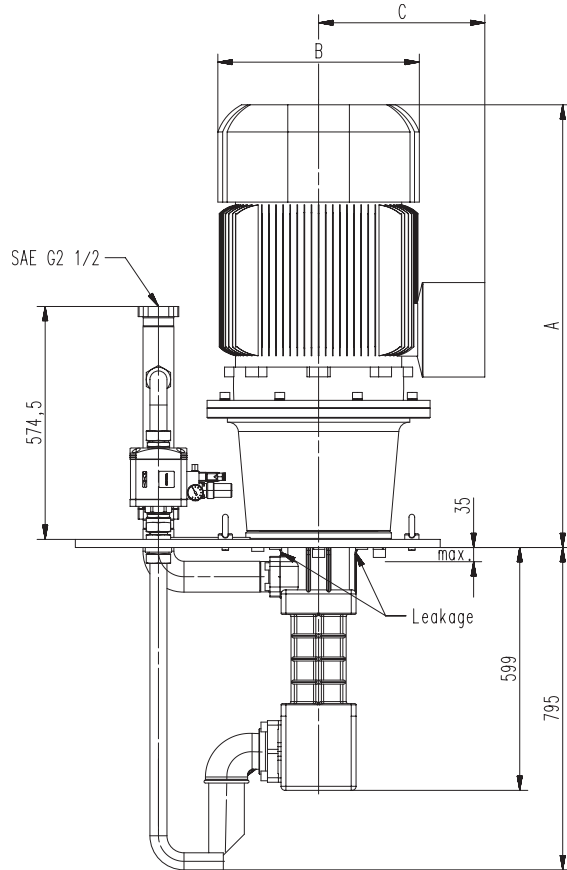
5. Series TFS4 and TFS5, adjustable pressure relief valve (pneumatically operated):
Screw pump with mounting plate, adjustable pressure relief valve (pneumatically operated) and piping fully assembled.
The adjustable pressure relief valve is mounted above the plate.



Pressure gauge connection possible



6. Series TFS6, adjustable pressure relief valve:
Screw pump with mounting plate, adjustable pressure relief valve (pneumatically operated) and piping fully assembled.
The adjustable pressure relief valve is mounted above the plate.



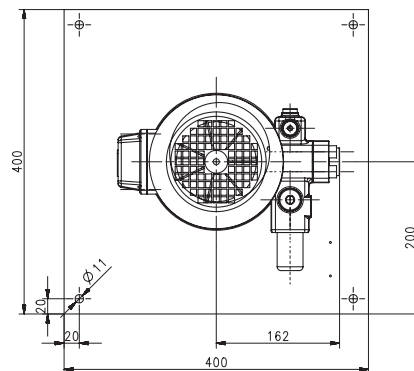
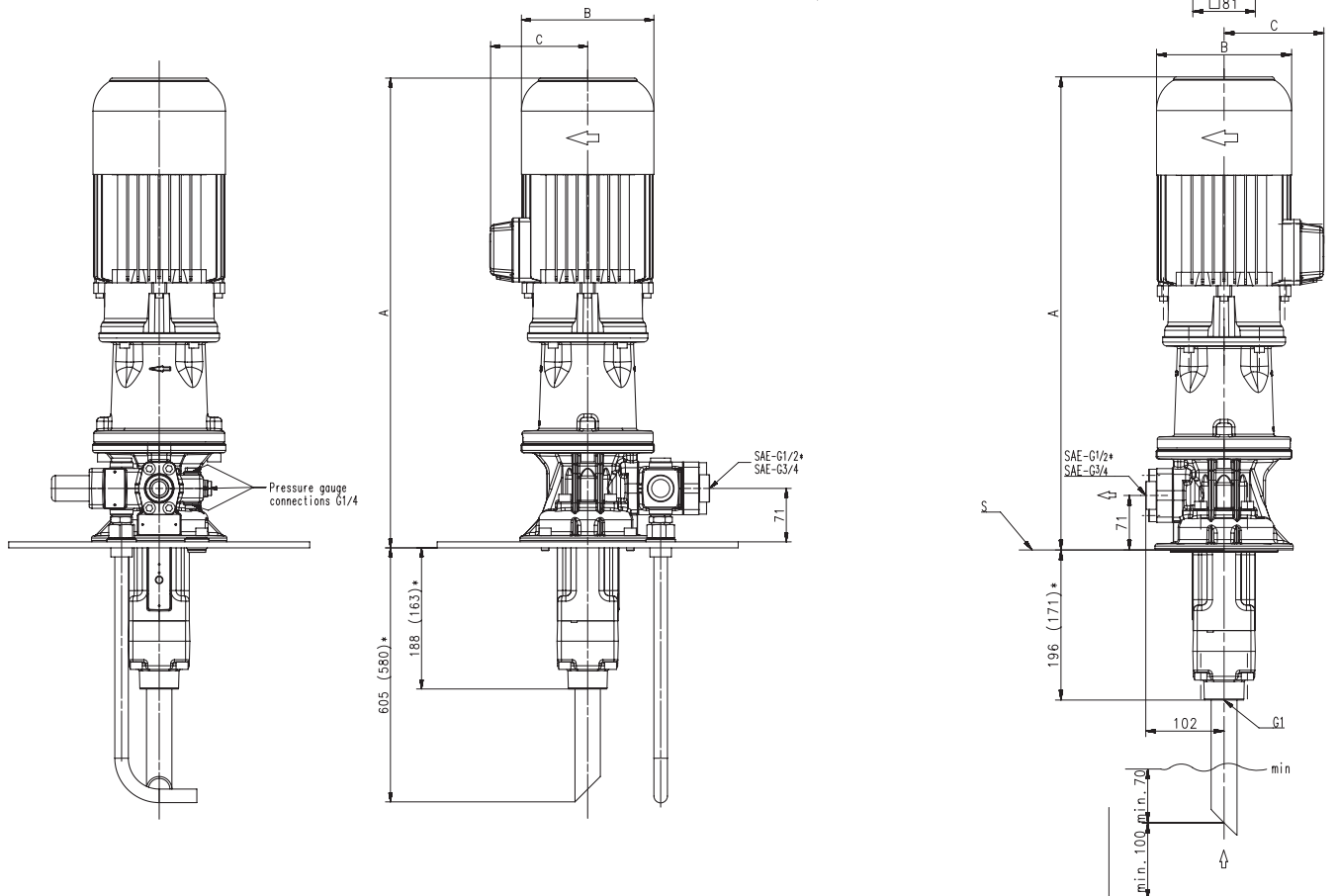
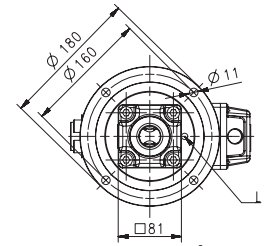
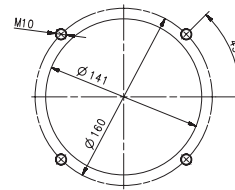
*) Dimensions for TFS5

**) Dimensions for motors larger than 37 kW upon request
Dimensions A + 12 mm mounting plate

Pump system, fully assembled

7. Series **BFS1-H / BFS2-H**, non-adjustable pressure relief valve: Screw pump with integrated connection block, fully assembled.
The non-adjustable pressure relief valve is integrated into the connection block.

Mounting hole patterns



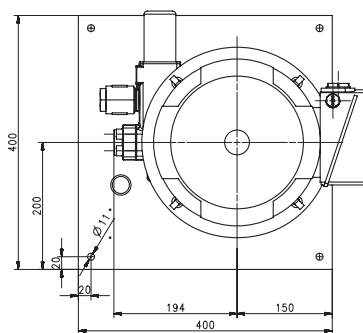
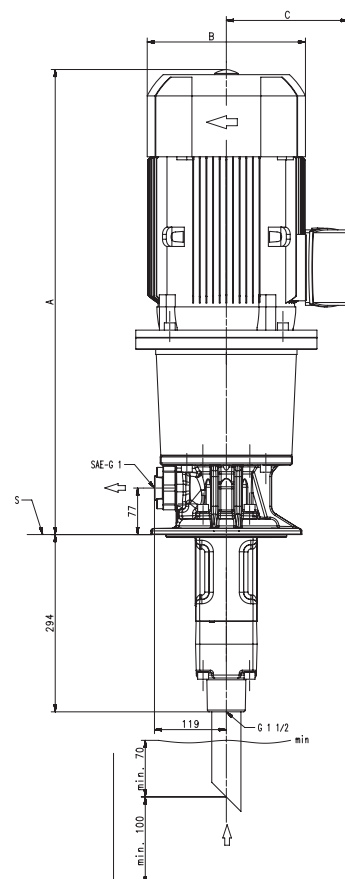
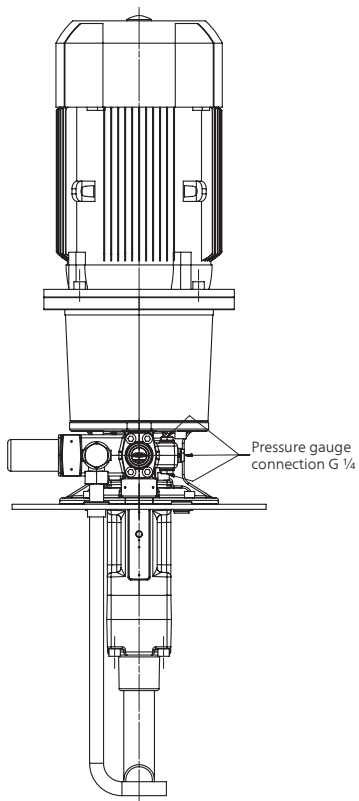
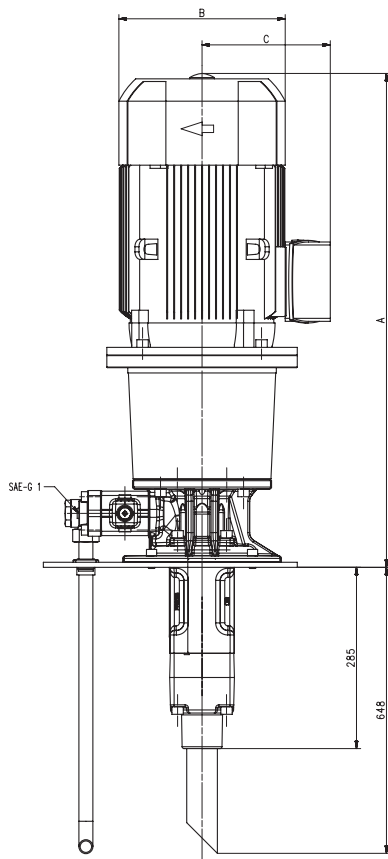
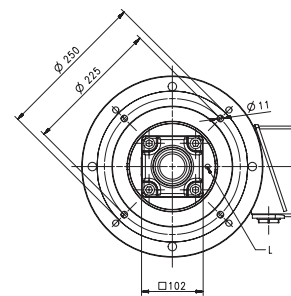
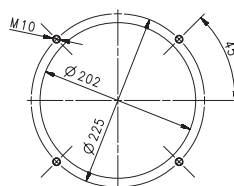
* = BFS1-H
L = Leakage hole
S = Mounting plate, please refer to the cut-out of mounting hole
Dimensions for standard motor upon request

Power 50 Hz 2-poles kW	BFS1-H			BFS2-H			Power 60 Hz 2-poles kW	BFS1-H			BFS2-H		
	A mm	B mm	C mm	A mm	B mm	C mm		A mm	B mm	C mm	A mm	B mm	C mm
B 1.3 / 1.5	558	176	130	558	176	130	B 1.49 / 1.75	558	176	130	558	176	130
B 1.7	584	176	130	584	176	130	B 2.18 / 2.55 / 2.94	617	176	130	617	176	130
B 1.9 / 2.2 / 2.6	617	176	130	617	176	130	B 3.45 / 3.8 / 4.55	656	218	150	656	218	150
B 3.3 / 4.0	656	218	150	656	218	150	B 5.75 / 6.3	686	218	150	686	218	150
B 5.0 / 5.5	686	218	150	686	218	150	B 8.6	765	258	193	765	258	193
B 7.5	765	258	193	765	258	193	B 10.3				765	258	193
B 9.0				765	258	193	B 12.6 / 15.0				773	310	240
B 11.0 / 13.0				773	310	240							

Pump system, fully assembled

8. Series TFS3-H, non-adjustable pressure relief valve: Screw pump with integrated connection block, fully assembled.
The non-adjustable pressure relief valve is integrated into the connection block.

Mounting hole patterns



L = Leakage hole
S = Mounting plate, please refer to the cut-out of mounting hole

Power 50 Hz 2-poles kW	TFS3-H		
	A mm	B mm	C mm
2.2	647	178	126
3.0	699	198	166
4.0	682	222	177
5.5	726	262	202
7.5	776	262	202
11.0 / 15.0	895	314	237
18.5	955	314	237
22.0	955	356	286
30.0	1012	396	315

Power 60 Hz 2-poles kW	TFS3-H		
	A mm	B mm	C mm
2.54	647	178	126
3.0	699	198	166
3.7 / 4.55	682	222	177
5.5 / 6.3	726	262	202
7.5 / 8.6	776	262	202
11.0 / 12.6 / 15.0 / 17.3	895	314	237
18.5 / 21.3	955	314	237
22.0 / 25.3	955	356	286
30.0 / 33.5	1012	396	315
37.0 / 41.5	1037	396	315