

Motor pump and hydraulic power pack type R and RG

Product documentation



Operating pressure p_{\max} :	700 bar
Displacement volume $V_{g \max}$:	64.2 cm ³ /rev.
Flow rate Q_{\max} :	91.2 l/min



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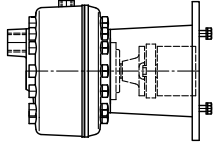
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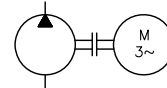
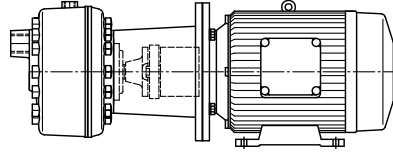
1 Overview of radial piston pump type R and RG

Motor pumps

For separate setup outside of an oil tank

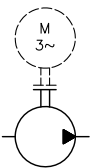
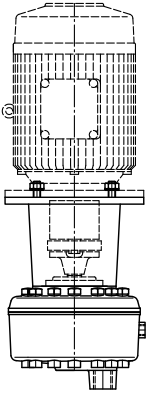


Ready for DIY installation on standard motor version IM B 35

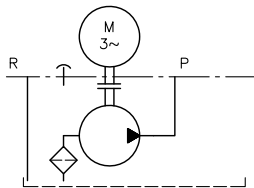
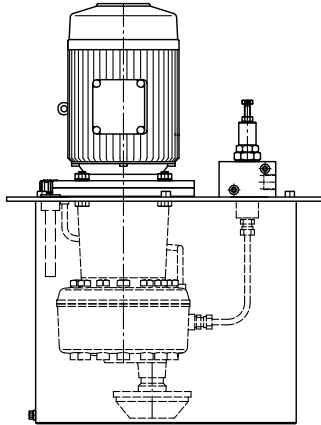


Ready-for-connection motor pump with motor version IM B 35

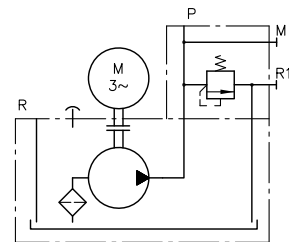
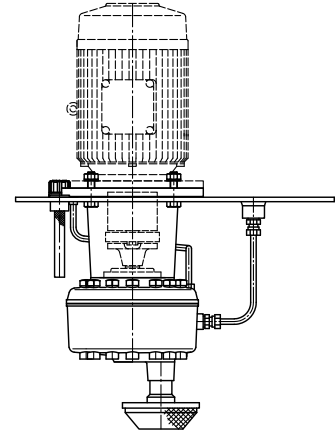
Hydraulic power packs



Flange combination for DIY pipe connection and hooking into your own cover plates and tanks; without or with standard motor version IM B5



Cover plate version for hooking into your own tanks, without or with standard motor version IM B5; without or with pressure-limiting valve



Ready-for-connection hydraulic power pack, without or with standard motor version IM B5; without or with pressure-limiting valve

2 Available versions, main data

2.1 Radial piston pumps as per [D 6010](#)

Ordering example:

R	5.8
	Delivery flow coding "Table 2"
	Basic type "Table 1"

Table 1 Basic type

Type	Description
R	Series, version with roller bearing
RG	Version with plain bearing (type RG not available for assembly 7631)

Where the load duration is between 75% and 100% in successive work cycles, e.g. accumulator charging mode or similar, the maximum permissible operating pressure should not be fully utilised in order to preserve an economically viable service life of bearings. It is better to select a pump with a similar displacement volume and smaller piston diameter.

Table 2 Delivery flow coding

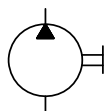
Coding for delivery flow (lpm) at 1450 rpm	Displacement volume V _g (cm ³ /rev)	Operating pressure p _{max} (bar)	Assembly	Pump elements number	Pump element, piston Ø (mm)	Power range of motor (kW)
0.18	0.13	700	7631	2	4	0.25 - 0.55
0.27	0.19	700	7631	3	4	0.25 - 0.75
0.28	0.2	550	7631	2	5	0.25 - 0.55
0.3	0.21	700	6010	1	6	0.25 - 2.2
0.41	0.29	600	6010	1	7	0.25 - 2.2
0.42	0.29	550	7631	3	5	0.25 - 0.75
0.43	0.28	450	7631	2	6	0.25 - 0.55
0.46	0.31	700	7631	5	4	0.25 - 1.1
0.5	0.38	550	6010	1	8	0.25 - 2.2
0.56	0.38	350	7631	2	7	0.25 - 0.55
0.6	0.43	700	6010	2	6	0.25 - 2.2
0.64	0.42	450	7631	3	6	0.25 - 0.75
0.7	0.49	550	7631	5	5	0.25 - 1.1
0.73	0.5	300	7631	2	8	0.25 - 0.55
0.8	0.6	450	6010	1	10	0.25 - 2.2
0.81	0.58	350	7631	3	7	0.25 - 0.75
0.83	0.58	600	6010	2	7	0.25 - 2.2
0.9	0.64	700	6010	3	6	0.25 - 3
0.92	0.64	250	7631	2	9	0.25 - 0.55
1	0.76	550	6010	2	8	0.25 - 2.2
1.08	0.71	450	7631	5	6	0.25 - 1.1
1.1	0.75	300	7631	3	8	0.25 - 0.75
1.2	0.86	350	6010	1	12	0.25 - 2.2
1.25	0.88	600	6010	3	7	0.25 - 3
1.35	0.95	250	7631	3	9	0.25 - 0.75
1.39	0.96	350	7631	5	7	0.25 - 1.1
1.4	1.07	700	6011	5	6	0.25 - 4
1.45	1.01	300	6010	1	13	0.25 - 2.2
1.5	1.15	550	6010	3	8	0.25 - 3
1.6	1.19	450	6010	2	10	0.25 - 2.2
1.7	1.17	250	6010	1	14	0.25 - 2.2
1.77	1.26	300	7631	5	8	0.25 - 1.1
1.9	1.34	200	6010	1	15	0.25 - 2.2
2.08	1.46	600	6011	5	7	0.25 - 4
2.1	1.5	700	6011	7	6	0.55 - 5.5
2.2	1.53	160	6010	1	16	0.25 - 2.2
2.27	1.59	250	7631	5	9	0.25 - 1.1
2.4	1.72	350	6010	2	12	0.25 - 2.2
2.5	1.79	450	6010	3	10	0.25 - 3

Coding for delivery flow (lpm) at 1450 rpm	Displacement volume V _g (cm ³ /rev)	Operating pressure p _{max} (bar)	Assembly	Pump elements number	Pump element, piston Ø (mm)	Power range of motor (kW)
2.6	1.91	550	6011	5	8	0.25 - 4
2.7	2.15	700	6012	10	6	2.2- 7.5 (9)
2.8	2.02	300	6010	2	13	0.25 - 2.2
2.9	2.05	600	6011	7	7	0.55 - 5.5
3.3	2.34	250	6010	2	14	0.25 - 2.2
3.6	2.58	350	6010	3	12	0.25 - 3
3.7	2.67	550	6011	7	8	0.55 - 5.5
3.8	2.69	200	6010	2	15	0.25 - 2.2
4	3.01	700	6012	14	6	2.2 - 11
4.15	2.92	600	6012	10	7	2.2- 7.5 (9)
4.2	2.98	450	6011	5	10	0.25 - 4
4.3	3.03	300	6010	3	13	0.25 - 3
4.4	3.06	160	6010	2	16	0.25 - 2.2
5.1	3.51	250	6010	3	14	0.25 - 3
5.3	3.82	550	6012	10	8	2.2- 7.5 (9)
5.6	4.03	200	6010	3	15	0.25 - 3
5.8	4.18	450	6011	7	10	0.55 - 5.5
5.85	4.09	600	6012	14	7	2.2 - 11
6	4.3	350	6011	5	12	0.25 - 4
6.1	4.3	700	6014	20	6	5.5 - 18.5
6.5	4.58	160	6010	3	16	0.25 - 3
7	5.04	300	6011	5	13	0.25 - 4
7.4	5.35	550	6012	14	8	2.2 - 11
8	6.02	700	6014	28	6	5.5 - 22
8.2	5.97	450	6012	10	10	2.2- 7.5 (9)
8.3	5.85	250	6011	5	14	0.25 - 4
8.35	5.85	600	6014	20	7	5.5 - 18.5
8.4	6.02	350	6011	7	12	0.55 - 5.5
9.5	6.72	200	6011	5	15	0.25 - 4
9.8	7.06	300	6011	7	13	0.55 - 5.5
10.9	7.64	160	6011	5	16	0.25 - 4
11	7.64	550	6014	20	8	5.5 - 18.5
11.6	8.36	450	6012	14	10	2.2 - 11
11.65	8.19	600	6014	28	7	5.5 - 22
11.8	8.19	250	6011	7	14	0.55 - 5.5
12	8.6	350	6012	10	12	2.2- 7.5 (9)
12.7	9.03	700	6016	42	6	11 - 30
13.3	9.4	200	6011	7	15	0.55 - 5.5
14.2	10.09	300	6012	10	13	2.2- 7.5 (9)
15	10.7	550	6014	28	8	5.5 - 22
15.3	10.7	160	6011	7	16	0.55 - 5.5

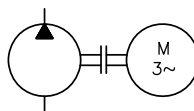
Coding for delivery flow (lpm) at 1450 rpm	Displacement volume V _g (cm ³ /rev)	Operating pressure p _{max} (bar)	Assembly	Pump elements number	Pump element, piston Ø (mm)	Power range of motor (kW)
16.8	11.7	250	6012	10	14	2.2- 7.5 (9)
17	12.03	350	6012	14	12	2.2 - 11
17.4	11.94	450	6014	20	10	5.5 - 18.5
17.45	12.28	600	6016	42	7	11 - 30
19.3	13.43	200	6012	10	15	2.2- 7.5 (9)
20	14.12	300	6012	14	13	2.2 - 11
21.7	15.28	160	6012	10	16	2.2- 7.5 (9)
22	16.04	550	6016	42	8	11 - 30
23	16.71	450	6014	28	10	5.5 - 22
23.5	16.38	250	6012	14	14	2.2 - 11
25	17.19	350	6014	20	12	5.5 - 18.5
26.5	18.8	200	6012	14	15	2.2 - 11
30	20.18	300	6014	20	13	5.5 - 18.5
30.4	21.39	160	6012	14	16	2.2 - 11
34	24.07	350	6014	28	12	5.5 - 22
34.5	25.07	450	6016	42	10	11 - 30
35	23.4	250	6014	20	14	5.5 - 18.5
38	26.86	200	6014	20	15	5.5 - 18.5
40	28.24	300	6014	28	13	5.5 - 22
43.4	30.56	160	6014	20	16	5.5 - 18.5
47	32.76	250	6014	28	14	5.5 - 22
51	36.1	350	6016	42	12	11 - 30
53	37.6	200	6014	28	15	5.5 - 22
60	42.37	300	6016	42	13	11 - 30
60.8	42.79	160	6014	28	16	5.5 - 22
70	49.14	250	6016	42	14	11 - 30
80	56.41	200	6016	42	15	11 - 30
91.2	64.18	160	6016	42	16	11 - 30

2.2 Motor pumps

Circuit symbol:



pump ready for DIY installation on standard motor



ready-for-connection motor pump

Ordering examples:

R 4.0 / W 4

Characteristics ["Table 3"](#)

- Basic pump**
- ["Table 1 Basic type"](#)
 - ["Table 2 Delivery flow coding"](#)

R 17.0 / M 7.5

Characteristics ["Table 3"](#)

- Basic pump**
- ["Table 1 Basic type"](#)
 - ["Table 2 Delivery flow coding"](#)

Table 3 Characteristics

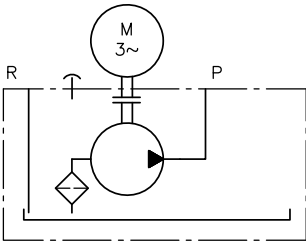
Coding	Description
W	Pump ready for DIY installation on standard motor version IM B 35
M	Ready-for-connection motor pump with standard motor version IM B 35

Drive power (kW)	Assembly combinable as standard					
	7361	6010	6011	6012	6014	6016
0.25	●	●				
0.37						
0.55	●	●	●			
0.75						
1.1	●	●	●			
1.5						
2.2						
3		●	●	●		
4						
5.5						
7.5			●	●	●	
(9)*						
11						
15				●	●	●
18.5						
22					●	●
30						●

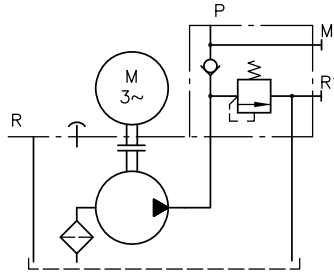
* Motor drive power not standardised. Motor usually equivalent to standard size 132M. Too powerful for assembly 6011.

2.3 Hydraulic power packs

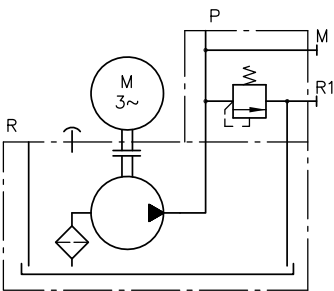
Circuit symbol:



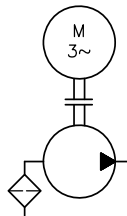
Tank version; see ordering example 1 in [Chapter 2.3.1](#)



Cover plate version



Tank and cover plate version with pressure-limiting valve; see ordering example 2 in [Chapter 2.3.2](#)



Motor/pump combination for DIY installation in your own tanks; see ordering example 2 and 3 in [Chapter 2.3.2](#)

2.3.1 Tank and cover plate version B 6 to B 40 and D 6 to D 40

Usable volume approx. 6 to 45 litres; for setting up the standard bell housings, couplings and suction elements, see [Chapter 6.2](#)

Ordering example 1:

R 1.39	/ B 6	K	- V 0.55	Motor voltage 3~ 230/400 V 50 Hz
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Drive unit ["Table 6"](#)

Additional equipment ["Table 5"](#)

Tank, cover plate and drive power ["Table 4"](#)

- Basic pump
- ["Table 1 Basic type"](#)
 - ["Table 2 Delivery flow coding"](#)

Ordering example 2:

R 5.8	/ D 13.2	- V 2.2	- E/160	Motor voltage 3~ 230/400 V 50 Hz
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Connection blocks ["Table 8"](#)

Drive unit ["Table 6"](#)

Tank, cover plate and drive power ["Table 4"](#)

- Basic pump
- ["Table 1 Basic type"](#)
 - ["Table 2 Delivery flow coding"](#)

Table 4 Tank, cover plate and drive power

Tank version		Cover plate version	combinable with assembly as standard	Drive power (kW) ²⁾			
Coding	Usable volume approx. (l) ¹⁾			0.25 0.37	0.55 0.75	1.1 1.5	2.2 3 4
B 6	6	D 6	7631	●	●	●	
			6010	●	●	●	
			6011		●	●	
B 13	13	D 13.1	7631	●	●	●	
			6010	●	●	●	
			6011		●	●	●
B 20	20	D 13.2	7631	●	●	●	
			6010	●	●	●	
			6011		●	●	●
		D 20	6012				●
B 30 B 40	31 45	D 30	7631	●	●	●	
			6010	●	●	●	●
			6011		●	●	●
		D 40	6012				●

¹⁾ Fill volume affected slightly by pump size and drive power (size of bell housing used): Fill volumes are given as reference values only. For further notes, see [Chapter 5.2.1](#)

Type	B 6	B 13	B 20	B 30	B 40
approx. (l)	9 to 9.3	16 to 17	24 to 25	37 to 39	52 to 55

²⁾ For more data on the radial piston pump, see [D 6010](#)

- Recalculating power requirements
- Shaft and flange dimensions

Table 5 Additional equipment

Additional equipment not available for AT or PYD versions.

Coding	Description
K	Fluid level gauge
T	Temperature switch
D	Level switch

! **NOTE**
For additional versions, see [Chapter 6.1, "Additional equipment"](#).

Table 6 Drive unit

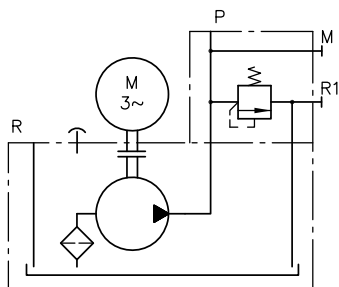
Coding	Description
Z	Hydraulic power pack without motor
V	Hydraulic power pack complete with motor

! **NOTE**
If you are ordering only pump/motor combination - Z ... as per ordering example 2 in [Chapter 2.3.2](#) for installation in your own tanks, please clearly state in the notes the desired size of bell housing L ... as per [Chapter 6.2](#). Different flange sizes are available depending on the drive power.

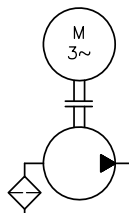
2.3.2 Tank and cover plate versions B 50 and D 50.1 to B 400 and D 250.2

Usable volume approx. 60 to 450 litres; for setting up the standard bell housings, couplings and suction elements, see [Chapter 6.2](#)

Circuit symbol:



Tank and cover plate versions with pressure-limiting valve



Motor/pump combination for DIY installation in your own tanks

Hydraulic power pack

Ordering example 1:

R 11.6	/ B 75	...	- V 7.5	- A/315	Motor voltage 3~ 400 V 50 Hz
				Connection blocks	"Table 8"
			Drive unit	"Table 6"	
			Additional equipment	"Table 5"	
			Tank, cover plate and drive power	"Table 7"	

- Basic pump**
- ["Table 1 Basic type"](#)
 - ["Table 2 Delivery flow coding"](#)

Motor/pump combination

Ordering example 2:

R 8.3	- Z 3	Motor voltage 3~ 230/400 V 50 Hz
R 1.5	- V 0.75	Motor voltage 3~ 230/400 V 50 Hz
	Drive unit	"Table 6"

- Basic pump**
- ["Table 1 Basic type"](#)
 - ["Table 2 Delivery flow coding"](#)

Table 7 Tank, cover plate and drive power

Tank version		Cover plate version	combinable with assembly as standard	Drive power (kW) ²⁾							
Coding	Usable volume approx. (l) ¹⁾			0.25 0.37	0.55 0.75	1.1 1.5	2.2 3 4	5.5 7.5 (9) ³⁾	11 15	18.5 22	30
B 50	60	D 50.1	6010	●	●	●	●				
			6011		●	●	●	●			
			6012				●	●	●		
B 75	80	D 50.2	6010	●	●	●	●				
			6011		●	●	●	●			
			6012				●	●	●		
			6014					●	●	●	
B 100	120	D 100.1	6011		●	●	●				
			6012				●	●	●		
			6014					●	●	●	
			6016						●	●	
B 160	160	D 100.2	6011		●	●	●				
			6012				●	●	●		
			6014					●	●	●	
			6016						●	●	
B 250	260	D 250.1	6014						●	●	
			6016						●	●	●
B 400	450	D 250.2	6014						●	●	
			6016						●	●	●

¹⁾ Fill volume affected slightly by pump size and drive power (size of bell housing used): Fill volumes are given as reference values only. For further notes, see [Chapter 5.2.1](#)

Type	B 50	B 75	B 100	B 160	B 250	B 400
approx. (l)	81 to 85	98 to 107	140 to 152	180 to 193	302 to 309	461 to 469

²⁾ For more data on the radial piston pump, see [D 6010](#)

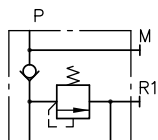
- Recalculating power requirements
- Shaft and flange dimensions

³⁾ Motor drive power not standardised. Motor usually equivalent to standard size 132 M, matching accessory parts from [Chapter 6.2](#) correspondingly available if so.

2.3.3 Connection blocks

The connection blocks are mounted directly on the hydraulic power packs. A pressure-limiting valve is generally integrated. It is possible to attach directional valve banks. Versions with a return line filter may be chosen optionally.

Circuit symbol:



Ordering example:

R 11.6 / B 75 - V 7.5	- A	/315	Motor voltage 3~ 400 V 50 Hz
R 5.8 / B 20 - V 2.2	- EF 1	/160	Motor voltage 3~ 230/400 V 50 Hz

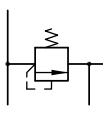
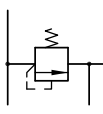
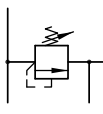
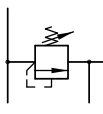
Pressure setting (bar)

Connection blocks ["Table 8"](#)

NOTE

Always observe the respective pressure limits permitted for the chosen pump!

Table 8 Connection blocks

Suitable for tank and cover plate size	Connection block	Pressure setting p_{max} (bar)	Versions	MANN -micro- Top Filter Filter material: water-proofed paper Filter fineness: approx. 12 μm nom. 50% -30 μm abs.		
				Manufacturer's designation	nominal flow (lpm)	Filter area approx. (cm ²)
B 6 to B 40 D 6 to D 40	A /...	700	Fixed	--	--	--
				B 50 to B 400 D 50 to D 250		
B 6 to B 40 D 6 to D 40	AF 0 /...	700		W 77/2	7	637
	AF 1 /...			HAWE 6905 117 F1	15	1230
	AF 2 /...			HAWE 6905 117 F2	21	1900
	AF 3 /...			HAWE 6905 117 F3	32	3190
B 50 to B 400 D 50 to D 250	AF 4 /...	700		WD 940/2	32	3190
	AF 5 /...			WD 962	52	5110
B 6 to B 40 D 6 to D 40	B /...	700	Adjustable	--	--	--
				B 50 to B 400 D 50 to D 250		
B 6 to B 40 D 6 to D 40	BF 0 /...	700		7	W 77/2	637
	BF 1 /...			15	HAWE 6905 117 F1	1230
	BF 2 /...			21	HAWE 6905 117 F2	1900
	BF 3 /...			32	HAWE 6905 117 F3	3190
B 50 to B 400 D 50 to D 250	BF 4 /...	700		32	WD 940/2	3190
	BF 5 /...			52	WD 962	5110
B 6 to B 40 D 6 to D 40	E /...	700	Fixed	--	--	--
	EF 0 /...			7	W 77/2	637
	EF 1 /...			15	HAWE 6905 117 F1	1230
	EF 2 /...			21	HAWE 6905 117 F2	1900
	EF 3 /...			32	HAWE 6905 117 F3	3190
B 6 to B 40 D 6 to D 40	F /...	700	Adjustable	--	--	--
	FF 0 /...			7	W 77/2	637
	FF 1 /...			15	HAWE 6905 117 F1	1230
	FF 2 /...			21	HAWE 6905 117 F2	1900
	FF 3 /...			32	HAWE 6905 117 F3	3190

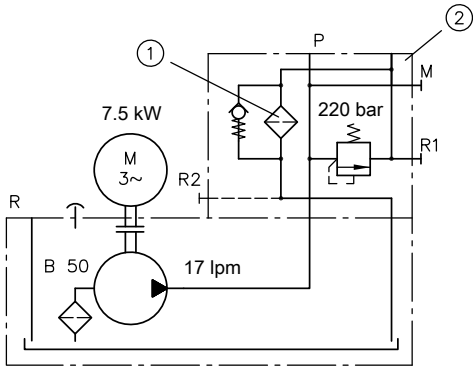
Employed pressure-limiting valves and pressure ranges

Tank, cover plate	Connection block	Pressure-limiting valve	pressure ranges (bar)
B 6 to B 40 D 6 to D 40	A /... B /... E /... F /...	MVE 5 A (R) MVE 5 B (R) MVE 5 C (R) MVE 5 E (R) MVE 5 F (R) See D 7000/1	500 to 700 315 to 500 160 to 315 80 to 160 (0) to 80
B 6 to B 40 D 6 to D 40	AF 0(1, 2, 3) /... to FF 0(1, 2, 3) /...	MVF 5 A (R) MVF 5 B (R) MVF 5 C (R) MVF 5 E (R) MVF 5 F (R) See D 7000/1	500 to 700 315 to 500 160 to 315 80 to 160 (0) to 80
B 50 to B 75 D 50	A /... B /...	SVP 6 A (R) SVP 6 B (R) SVP 6 C (R) SVP 6 E (R) SVP 6 F (R) See D 7722	500 to 700 315 to 500 160 to 315 80 to 160 (0) to 80
B 100 to B 400 D 100 to D 250	A /... B /...	SVP(R) 30 A SVP(R) 34 B SVP(R) 34 D See D 7722	200 to 300 150 to 200 (0) to 150
B 50 to B 400 D 50 to D 250	AF 4(5) /... BF 4(5) /...	MVF 6 A (R) MVF 6 B (R) MVF 6 C (R) MVF 6 E (R) MVF 6 F (R) See D 7000 E/1	500 to 700 315 to 500 160 to 315 80 to 160 (0) to 80

Option to mount directional valve banks

Ordering example:

R 17.0/B50 V7.5 - AF 5/220



- 1 Return line filter
- 2 Option to mount directional valve banks

Connection block	Tank, cover plate	Directional valve bank	
A /..., AF 0(1, 2, 3) /... B /..., BF 0(1, 2, 3) /... E /..., EF 0(1, 2, 3) /... F /..., FF 0(1, 2, 3) /...	(B 6 to B 40)	BWN(H) 1C BWH 2(3) C VB 01(11, 21) C	as per D 7470 B/1 as per D 7470 B/1 as per D 7302
A /..., B /... AF 4(5) /..., BF 4(5) /...	(B 50 to B 75) (B 50 to B 400)	SWR 1D BWH 2(3) D VB 32E	as per D 7450 as per D 7470 B/1 as per D 7302
A /... B /...	(B 100 to B 400)	VB 31E	as per D 7302

If the design accommodates mounting of directional valve banks, please add two fastening screws and two tapped plugs to your order (if you will be using P and R):

Connection block complete	Drawing no.	Cylinder screw ISO 4762	Tapped plug
AF 0(1, 2, 3) /... to FF 0(1, 2, 3) /...	4000 640	M8x35-8.8-A2K	G 1/2 as per drawing no. 943 008
AF 4(5) /... BF 4(5) /...	6330 100 a...d	M10x50-8.8-A2K	G 1/2 as per drawing no. 943 008
	6340 100 a...d	M12x60-8.8-A2K	G 3/4 as per drawing no. 1980 010

3 Parameters

General information

i NOTE

The following conditions may result in efficiency losses:

- Viscosities > 500 mm²/s and < 10 mm²/s
- Operating pressures < 20 bar
- Rotation speeds > 2000 min⁻¹; especially with a small piston diameter

Designation	Motor pumps, hydraulic power packs
Installation position	horizontal to vertical
Surfaces	<p>B 6 und D 6</p> <ul style="list-style-type: none"> ▪ Tanks electroplated ▪ Cover plates with one pressure port either electroplated or aluminium (choice) ▪ Cover plates with more than one pressure port are made of aluminium <p>B 13 and B 20 as well as D 13.1 to D 20</p> <ul style="list-style-type: none"> ▪ Tanks powder-coated on outside ▪ Cover plates with one pressure port either electroplated or aluminium (choice) ▪ Cover plates with more than one pressure port are made of aluminium <p>B 30 and B 40 as well D 30 and D 40</p> <ul style="list-style-type: none"> ▪ Tank B 30 electroplated ▪ Tank B 40 powder-coated on outside ▪ Cover plates with one pressure port either electroplated or aluminium (choice) ▪ Cover plates with more than one pressure port are made of aluminium <p>B 50 and B 75 as well as D 50.1 and D 50.2 B 100 to B 400 as well as D 100.1 to D 250.2</p> <ul style="list-style-type: none"> ▪ Exposed surfaces (tanks and cover plates) base-coated grey
Attachment	On the front side via the flange
Line connection	Pipe thread ISO 228-1, for port sizes see dimension diagrams Chapter 4, "Dimensions"
Drive and rotation direction	Via flex-coupling, rotation direction as desired
Flow direction	Determined by suction and pressure port, independent of the rotation direction
Speed range	<p>Continuous:</p> <p>R = 100 to 2000 rpm RG = 1000 to 2000 rpm</p> <p>2800 rpm admissible for brief periods, please note in this connection that bell housings, flanges, couplings etc. are only available for standard motor sizes 71 to 200 L. The associated motor power as per DIN 42677 (Chapter 6.2) applies to the standard range. If the motor is used under increased speed conditions, a reduction of the maximum pump pressure should be expected, see D 6010, see Section 2.3 Motor.</p>

Hydraulic fluid	<p>Hydraulic fluid: equivalent to (part 1 to 3) 10 to 68 mm²/s at 40°C; ISO VG 10 to 68 as per DIN ISO 3448</p> <p>Optimum operating viscosity: approx. 10 ... 500 mm²/s</p> <p>Viscosity limits (start viscosity):</p> <p>Type R 0.18 ... R 2.27: min. approx. 4; max. approx. 800 mm²/s R 0.3 ... R 91.2: min. approx. 4; max. approx. 1500 mm²/s</p> <p>Also suitable for biologically degradable hydraulic fluids type HEPG (polyalkylene glycol) and HEES (synthetic ester) at operating temperatures up to approx. 70°C. Version type R..-HFA is also suitable for water-based hydraulic fluids. Due to the limited lubricity of the hydraulic fluid, the pump should only be operated in standby mode in order to preserve a reasonable service life. The max. operating pressure should not exceed approx. 75% of the p_{max} indicated in "Table 2".</p>
Cleanliness level	<p>Recommended cleanliness as per ISO 4406, see oil recommendations D 5488/1</p>
Temperatures	<p>Ambient temperature: approx. -40 to +80°C, Hydraulic fluid: -25 to +80°C, note viscosity range. Start temperature: down to -40°C is permissible (observe start viscosities!), as long as the steady-state temperature is at least 20K higher during subsequent operation. Biologically degradable hydraulic fluids: note manufacturer specifications. With consideration for the seal compatibility, not above +70°C.</p>
Pressure and flow rate	
Operating pressure	<p>Pressure side (outlet): Depending on piston Ø, see Chapter 2, "Available versions, main data"</p> <p>Suction side: - 0.3 bar to + 1 bar (approx. 0.7 bar abs. to approx. 2 bar abs.) + 2 bar (3 bar abs.) with type R(G) ... - A, see D 6010, Section 5.2.2</p>
Flow rate	<p>See "Table 2"</p> <p>Reference value depending on rotation speed:</p> $Q_{Pu} = V_g n \cdot \eta_{Vol} \cdot 10^{-3} \text{ lpm}$ <p>where:</p> <p>V_g in cm³/rev Displacement volume "Table 2" n in min⁻¹ Rotation speed η_{Vol} ≈ 0.98 Volumetric efficiency</p>

Weight

Radial piston pumps:

see [D 6010](#), Section 3 Parameters

Motor pump:

Power rating (kW)	Weight of flange and coupling when combined with assembly (kg)						Motor (kg)
	7631	6010	6011	6012	6014	6016	
0.25 0.37	3.1	3.1	--	--	--	--	6 to 7.3
0.55 0.75	3.5	3.5	--	--	--	--	9 to 10
1.1	3.5	3.5	3.8	--	--	--	12 to 14
1.5			--	--	--	15	
2.2	--	3.8	3.9	4.0	--	--	20 to 21
3	--				--	--	23 to 24
4	--				--	--	28 to 35
5.5	--	--	6.4	6.4	6.4	--	45 to 58
7.5 9	--	--				--	60 to 80
11	--	--	--	8.9	9.2	10.3	80 to 110
15	--	--	--				100 to 145
18.5	--	--	--	--	8.8	9.9	115 to 170
22	--	--	--	--			140 to 185
30	--	--	--	--	--	11.9	170 to 240

! **NOTE**
The values specified for motors are reference values based on two makes. Check the manufacturer's specifications for actual values.

Hydraulic power packs:

Tank and cover plate version	Assembly	m (kg)						Versions with pressure-limiting valve add
		<ul style="list-style-type: none"> ▪ Tank version = first value ▪ Cover plate version = () - value 						
		at used drive power (kW)						
		0.25 - 1.5	2.2; 3; 4	5.5; 7; 9	11; 15	18.5; 22	30	
B 6 D 6	7631 6010 6011	9.2 (6.2)						1.2
B 13 D 13.1		13.5 (9)						
B 20 D 13.2 D 20		6012	15 (9)	15.3 (9.5)				
B 30 D 30 D 40	7631 6010 6011 6012	19.2 (11.7)	19.5 (12)					1.2
B 40 D 30 D 40	7631 6010 6011 6012	21.2 (11.7)	21.5 (12)					
B 50 D 50.1	7631 6010 6011 6012	33.2 (16.2)	33.5 (16.5)					
B 75 D 50.2	7631 6010 6011 6012 6014	36 (16.5)	36 (16.5)					
B 100 D 100.1	6011 6012 6014 6016	55.7 (24.7)	56.5 (25.5)					
B 160 D 100.2	6011 6012 6014 6016	62.5 (25)	63.5 (26)					4.0
B 250 D 250.1	6014 6016				111 (50)	111 (50)		
B 400 D 250.2	6014 6016				136 (51)	136 (51)		
					139 (54)	139 (54)	139.5 (54.5)	

NOTE
 Weights include cover plate, coupling, bell housing, suction elements and oil tank. () -value = cover plate version D without tank. Basic pump and motor, see [Chapter 2.2](#)! If required, refer to publication [D 6010 Z](#) for the weights of each individual component.

Connection blocks:

Coding				m (kg)
A /...	B /...	E /...	F /...	1.2
AF 0 /...	BF 0 /...	EF 0 /...	FF 0 /...	2.8
AF 1 /...	BF 1 /...	EF 1 /...	FF 1 /...	2.8
AF 2 /...	BF 2 /...	EF 2 /...	FF 2 /...	2.8
AF 3 /...	BF 3 /...	EF 3 /...	FF 3 /...	3.0
A /...	B /...	--	--	1.4
AF 4 /...	BF 4 /...	--	--	5.4
AF 5 /...	BF 5 /...	--	--	5.6

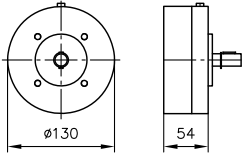
Running noise

Running noise of the motor pumps as per [Chapter 2.2](#) and the hydraulic power packs as per [Chapter 2.3](#) displays no significant differences. The specifications for the respective pumps given in [D 6010](#), Section 3, can serve as rough reference values.

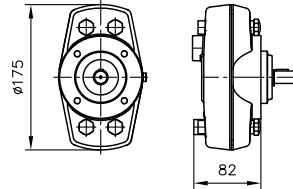
4 Dimensions

All dimensions in mm, subject to change.

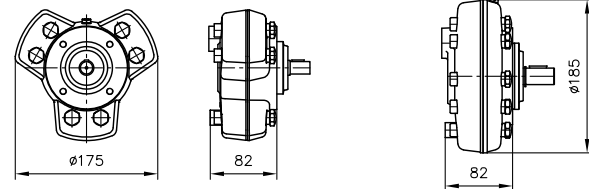
Assembly 7631



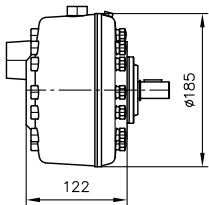
Assembly 6010



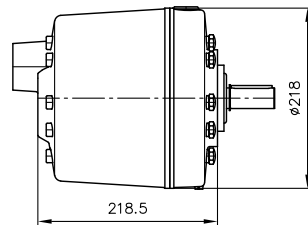
Assembly 6011



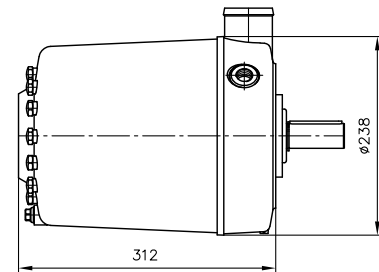
Assembly 6012



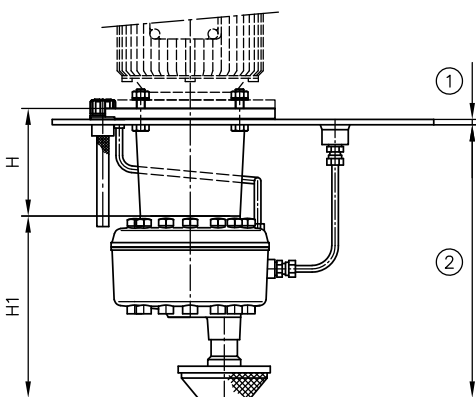
Assembly 6014



Assembly 6016



Immersion depth for cover plate versions depends on the pump combination and should be calculated from the specific values for cover plate thickness as well as H and H1 as per [D 6010 Z](#). Minimum clearance between suction head's lower edge and tank floor should be 10 mm.



- 1 Cover plate
- 2 Immersion depth

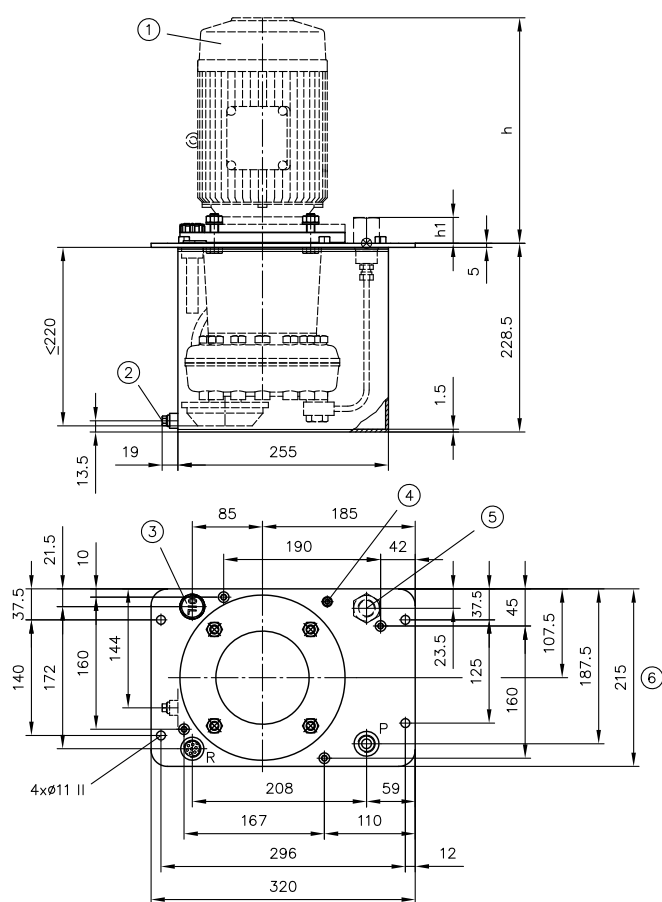
4.1 Type B 6 and D 6

For setting up the standard bell housings, couplings and suction elements, see [Chapter 6.2](#)

Surfaces: Tanks electroplated, cover plates with one pressure port either electroplated or aluminium (choice), cover plates with more than one pressure port are made of aluminium

NOTE

Cover plate version (D 6) also includes gaskets and fastening screws ISO 4762-M8x30-8.8-A2K for the tank in the scope of delivery.



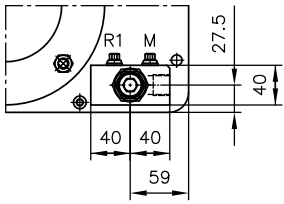
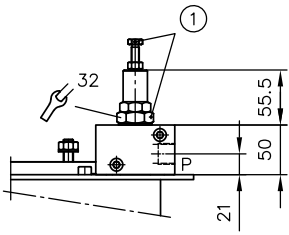
h ≈ 200 to 220 (0.25 and 0.37 kW)
 ≈ 235 to 250 (0.55 and 0.75 kW)
 ≈ 260 to 300 (1.1 and 1.5 kW)

Only reference values for two makes.
 Check motor manufacturer's data sheets for actual values. For thickness of bell housing's flange collars, see [D 6010 Z](#)

- 1 For motor dimensions, see [Chapter 4.6](#) and [D 6010 Z](#), see Section 2.1
- 2 Oil drain screw G 1/8
- 3 Oil filler and air filter with oil dipstick
- 4 Bleeder
- 5 If desired (specify separately when ordering):
 Second return line port G 1/2 (h1 = 26) or suction port G 1/2 (h1 = 38) for hand pump
- 6 Tank

Mounting option for directional valve banks

B 6 A(E).., D 6 A(E)..
B 6 B(F).., D 6 B(F)..



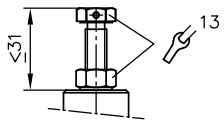
1 Sealing option

Ports as per ISO 228-1

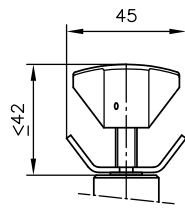
P, R	G 1/2
R1, M	G 1/8

Adjustment

Fixed



Adjustable



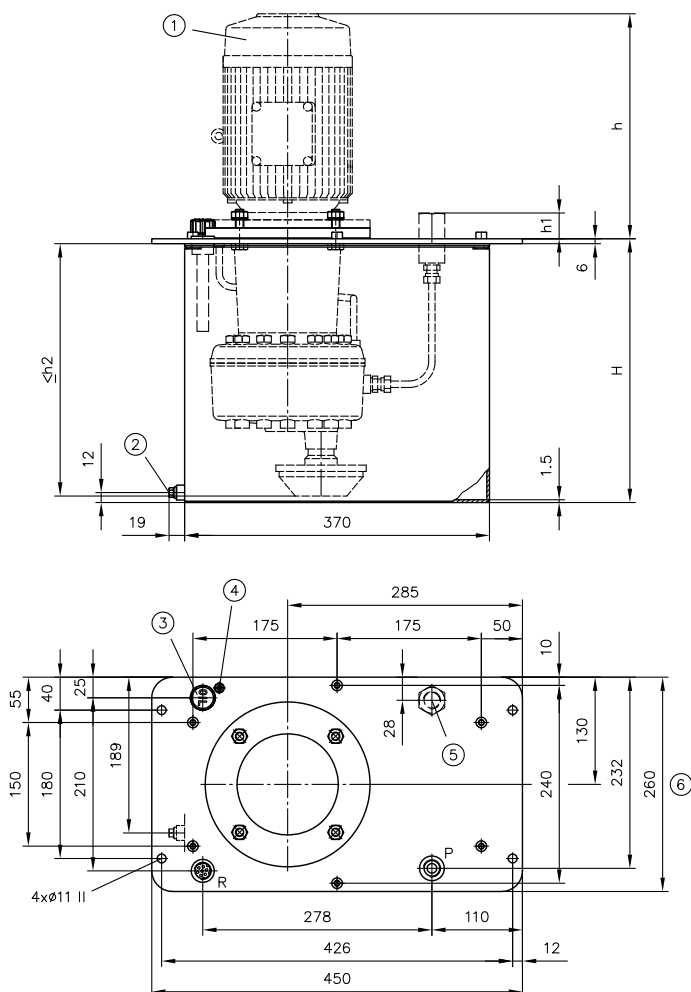
4.2 Type B 13 and B 20 as well as D 13.1 to D 20

For setting up the standard bell housings, couplings and suction elements, see [Chapter 6.2](#)

Surfaces: Tanks electroplated, cover plates with one pressure port either electroplated or aluminium (choice), cover plates with more than one pressure port are made of aluminium

NOTE

Cover plate versions (D 13.1 to D 20) also includes gaskets and fastening screws ISO 4762-M8x30-8.8-A2K for the tank in the scope of delivery.



$h \approx 200$ to 220 (0.25 and 0.37 kW)
 ≈ 235 to 250 (0.55 and 0.75 kW)
 ≈ 260 to 300 (1.1 and 1.5 kW)
 ≈ 300 to 340 (2.2 and 3 kW)
 ≈ 330 to 350 (4 kW)

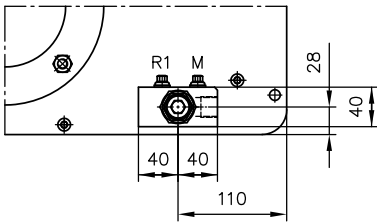
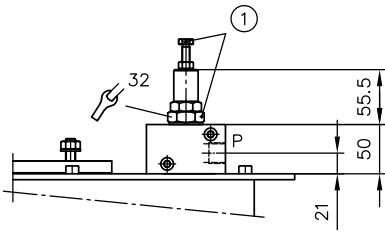
Only reference values for two makes.
Check motor manufacturer's data sheets for actual values. For thickness of bell housing's flange collars, see [D 6010 Z](#)

Type	H	h2
B 13	230	220
B 20	320	310

- 1 For motor dimensions, see [Chapter 4.6](#) and [D 6010 Z](#), see Section 2.1
- 2 Oil drain screw G 1/8
- 3 Oil filler and air filter with oil dipstick
- 4 Bleeder
- 5 If desired (specify separately when ordering):
Second return line port G 1/2 (h1 = 26) or suction port G 1/2 (h1 = 38) for hand pump
- 6 Tank

Mounting option for directional valve banks

B 13 A(E).. etc., D 13.1 A(E).. etc.
B 13 B(F).. etc., D 13.1 B(F).. etc.



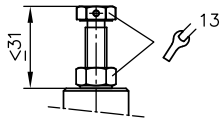
1 Sealing option

Ports as per ISO 228-1

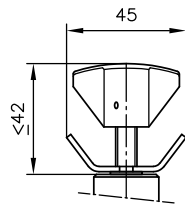
P, R	G 1/2
R1, M	G 1/8

Adjustment

Fixed



Adjustable



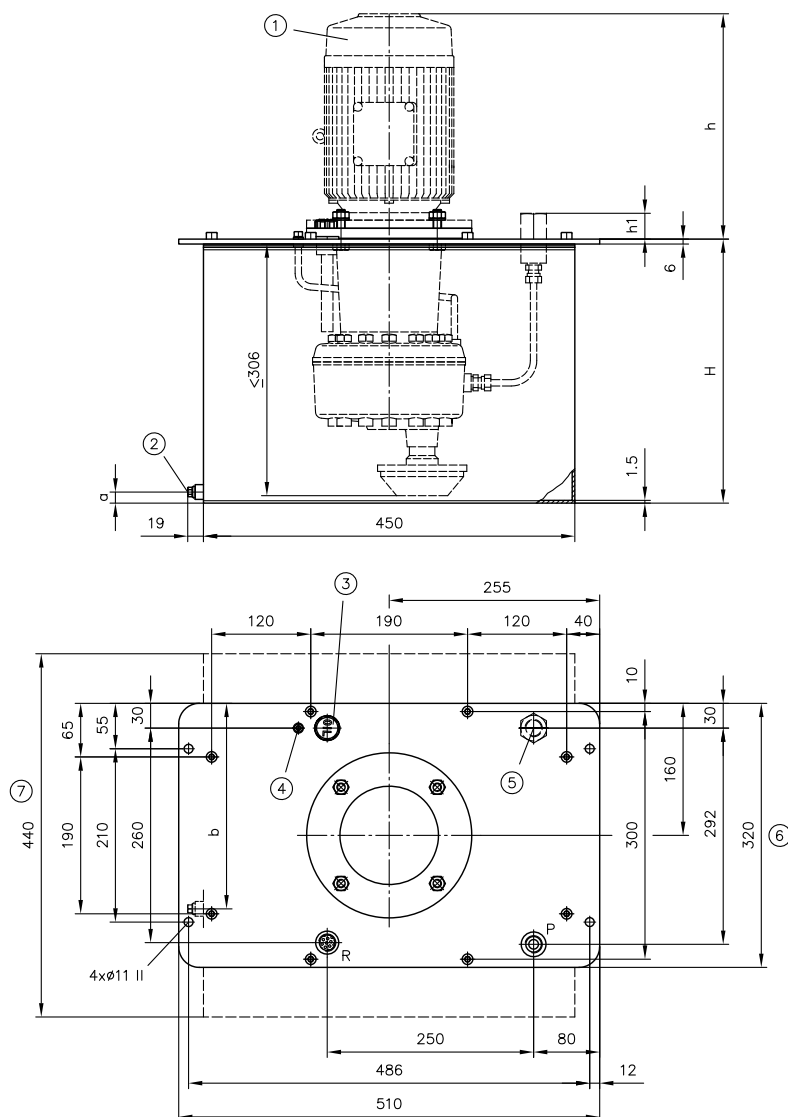
4.3 Type B 30 and B 40 as well as D 30 and D 40

For setting up the standard bell housings, couplings and suction elements, see [Chapter 6.2](#)

Surfaces: Tanks electroplated, cover plates with one pressure port either electroplated or aluminium (choice), cover plates with more than one pressure port are made of aluminium

NOTE

Cover plate versions (D 30 to D 40) also includes gaskets and fastening screws ISO 4762-M8x30-8.8-A2K for the tank in the scope of delivery.



- h ≈ 200 to 220 (0.25 and 0.37 kW)
- 44 ≈ 235 to 250 (0.55 and 0.75 kW)
- 44 ≈ 260 to 300 (1.1 and 1.5 kW)
- 44 ≈ 300 to 340 (2.2 and 3 kW)
- 44 ≈ 330 to 350 (4 kW)

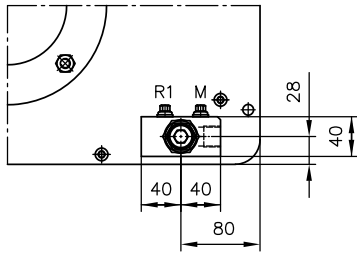
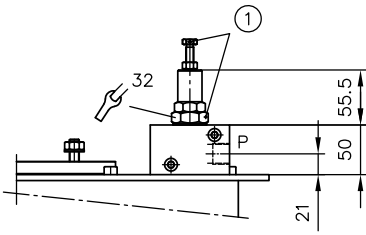
Only reference values for two makes. Check motor manufacturer's data sheets for actual values. For thickness of bell housing's flange collars, see [D 6010 Z](#)

Type	H	a	b
B 30	321.5	13.5	249
B 40	320	12	380

- 1 For motor dimensions, see [Chapter 4.6](#) and [D 6010 Z](#), see Section 2.1
- 2 Oil drain screw G 1/8
- 3 Oil filler and air filter with oil dipstick
- 4 Bleeder
- 5 If desired (specify separately when ordering):
Second return line port G 1/2 (h1 = 26) or suction port G 1/2 (h1 = 38) for hand pump
- 6 Tank from B 30 to
- 7 Tank from B 40 to

Mounting option for directional valve banks

B 30 A(E).. etc., D 30 A(E).. etc.
B 30 B(F).. etc., D 30 B(F).. etc.



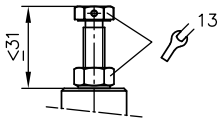
1 Sealing option

Ports as per ISO 228-1

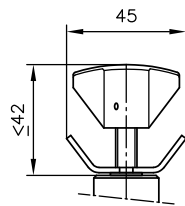
P, R	G 1/2
R1, M	G 1/8

Adjustment

Fixed



Adjustable

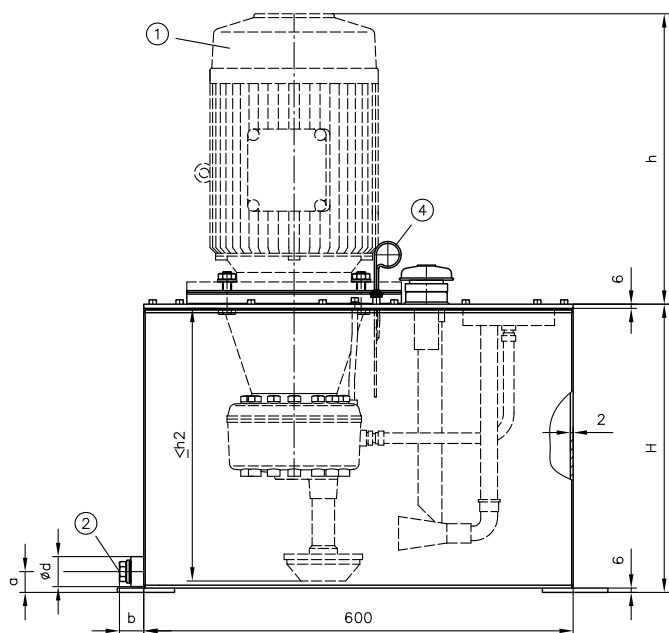


4.4 Type B 50 and B 75 as well as D 50.1 and D 50.2

For setting up the standard bell housings, couplings and suction elements, see [Chapter 6.2](#)

Surfaces: Tanks electroplated, cover plates with one pressure port either electroplated or aluminium (choice), cover plates with more than one pressure port are made of aluminium

NOTE
Cover plate version (D 50) also includes gaskets and fastening screws ISO 4762-M6x16-8.8-A2K for the tank in the scope of delivery.

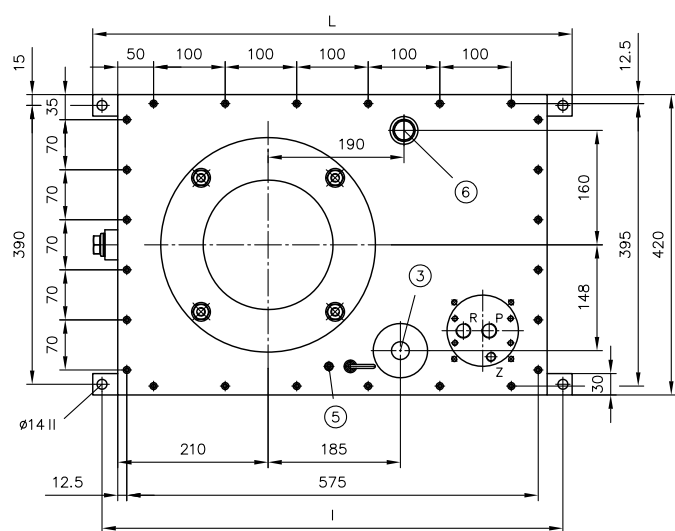


h ≈ 200 to 220 (0.25 and 0.37 kW)
 ≈ 235 to 250 (0.55 and 0.75 kW)
 ≈ 260 to 300 (1.1 and 1.5 kW)
 ≈ 300 to 340 (2.2 and 3 kW)
 ≈ 330 to 350 (4 kW)
 ≈ 410 to 420 (5.5 to 9 kW)
 ≈ 520 to 570 (11 and 15 kW)

Only reference values for two makes.
Check motor manufacturer's data sheets for actual values. For thickness of bell housing's flange collars, see [D 6010 Z](#)

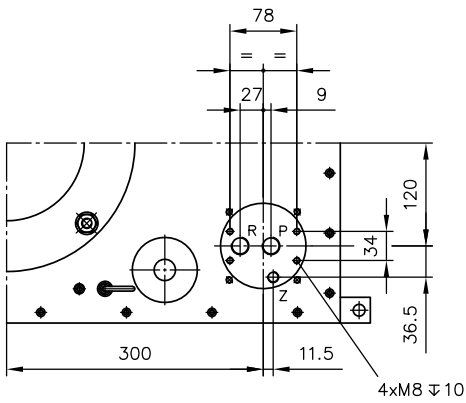
Type	H	h2	L	I
B 50	403	370	670	644
B 75	478	450	660	630

	a	b	∅d
B 50	27	34	42
B 75	26	52	31.8



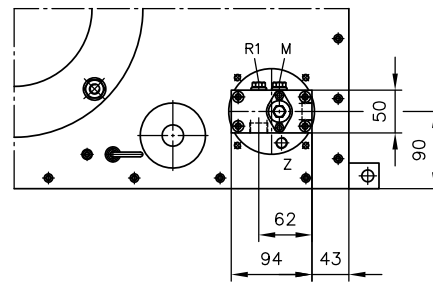
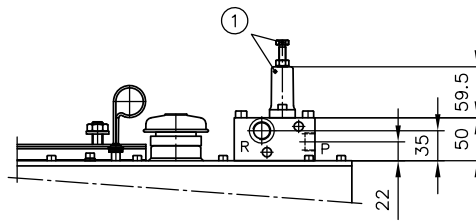
- 1 For motor dimensions, see [Chapter 4.6](#) and [D 6010 Z](#), see Section 2.1
- 2 Oil drain screw G 3/4
- 3 Oil filler and air filter
- 4 Oil dipstick
- 5 Bleeder
- 6 2. Return port G 1

Hole pattern for hydraulic power pack



Mounting option for directional valve banks

B 50 A.. etc., D 50.1 A.. etc.
B 50 B.. etc., D 50.1 B.. etc.



1 Sealing option

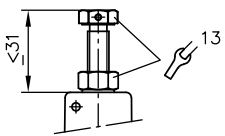
Ports as per ISO 228-1

P, R	G 1/2
R1, M, Z	G 1/4

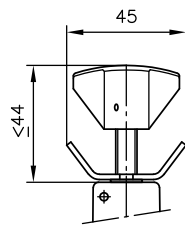
Control port Z only for versions as per [D 6010 S](#)

Adjustment

Fixed



Adjustable



4.5 Types B 100 to B 400 as well as D 100.1 to D 250.2

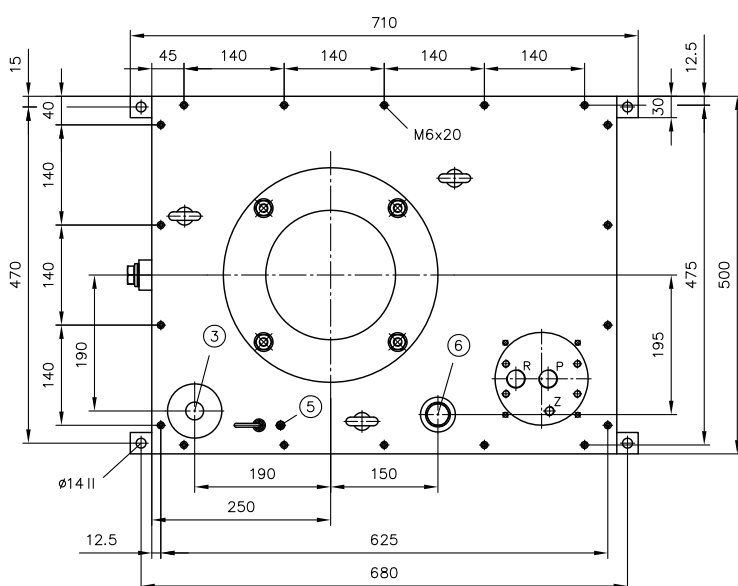
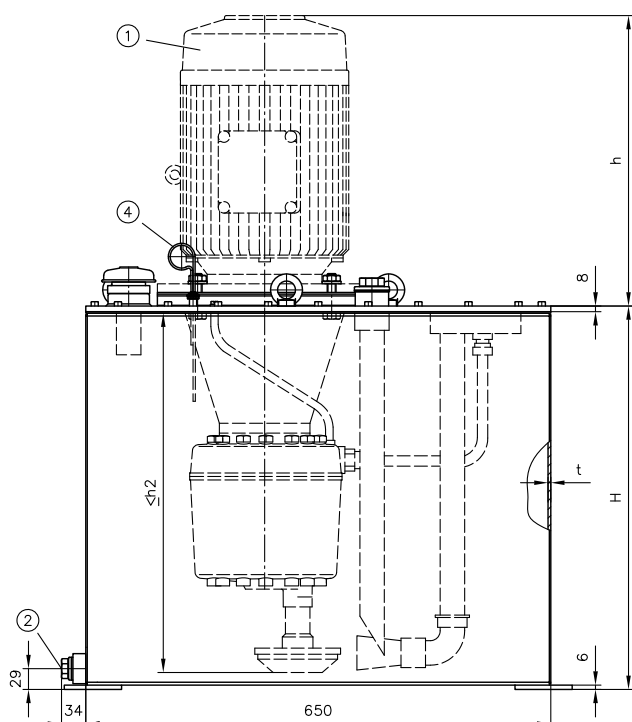
For setting up the standard bell housings, couplings and suction elements, see [Chapter 6.2](#)

Surfaces: Tanks electroplated, cover plates with one pressure port either electroplated or aluminium (choice), cover plates with more than one pressure port are made of aluminium

! NOTE

Cover plate versions (D 100.1 to 250.2) also includes gaskets and fastening screws ISO 4017-M6x20 ... -8.8-A2K or ISO 4017 -M8x20 ... -8.8-A2K for the tank in the scope of delivery.

B 100, B 160 D 100.1, D 100.2



B 100 (160) and D 100...:

- h ≈ 235 to 250 (0.55 and 0.75 kW)
- ≈ 260 to 300 (1.1 and 1.5 kW)
- ≈ 300 to 340 (2.2 and 3 kW)
- ≈ 330 to 350 (4 kW)
- ≈ 410 to 420 (5.5 to 9 kW)
- ≈ 520 to 570 (11 and 15 kW)

B 250 (400) and D 250...:

- h ≈ 520 to 570 (11 and 15 kW)
- ≈ 570 to 610 (18.5 and 22 kW)
- ≈ 640 to 670 (30 kW)

Only reference values for two makes. Check motor manufacturer's data sheets for actual values. For thickness of bell housing's flange collars, see [D 6010 Z](#)

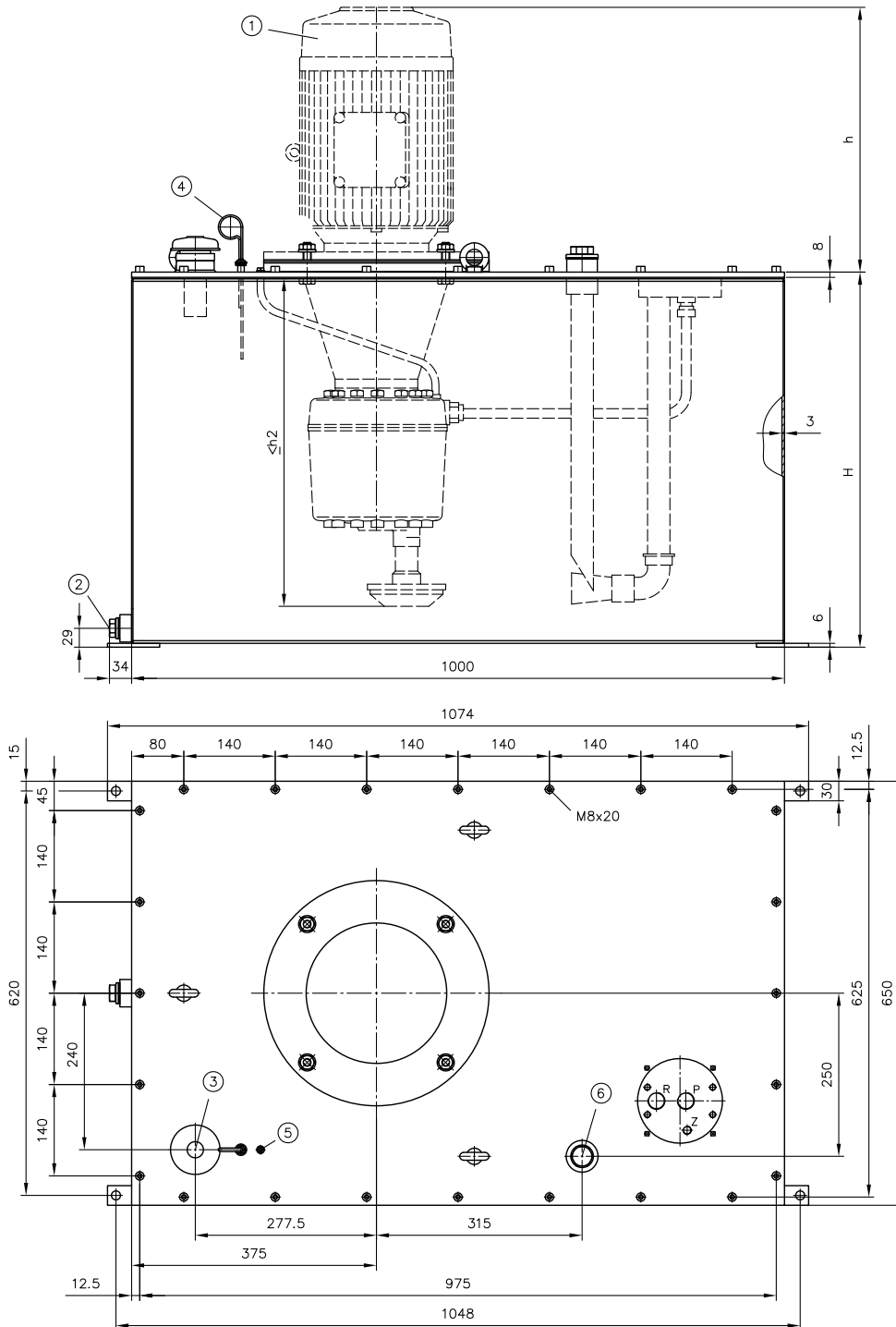
Type	H	h2	t
B 100	536	510	2
B 160	666	640	3

- 1 For motor dimensions, see [Chapter 4.6](#) and [D 6010 Z](#), see Section 2.1
- 2 Oil drain screw G 3/4
- 3 Oil filler and air filter
- 4 Oil dipstick
- 5 Bleeder
- 6 2. Return port G 1 1/4

B 250, B 400
D 250.1, D 250.2

$h \approx 520$ to 570 (11 and 15 kW)
 ≈ 570 to 610 (18.5 and 22 kW)
 ≈ 640 to 670 (30 kW)

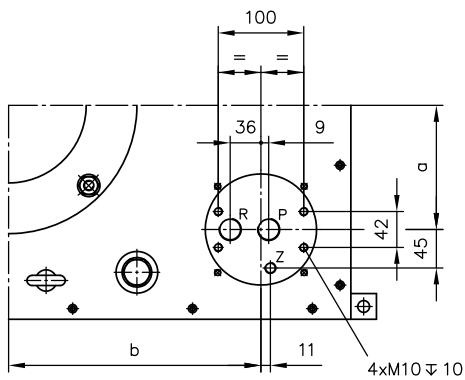
Only reference values for two makes.
Check motor manufacturer's data sheets
for actual values. For thickness of bell
housing's flange collars, see [D 6010 Z](#)



Type	H	h2
B 250	575	510
B 400	825	790

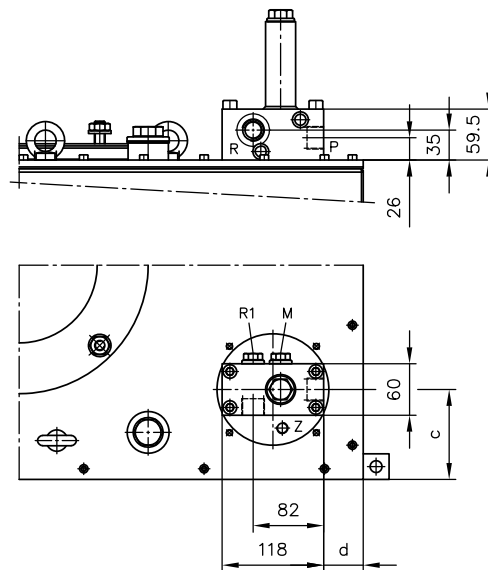
- 1 For motor dimensions, see [Chapter 4.6](#) and [D 6010 Z](#), see Section 2.1
- 2 Oil drain screw G 3/4
- 3 Oil filler and air filter
- 4 Oil dipstick
- 5 Bleeder
- 6 2. Return port G 1 1/4

Hole pattern for hydraulic power pack



Mounting option for directional valve banks

B 100 A.. etc., D 100.1 A.. etc.
B 100 B.. etc., D 100.1 B.. etc.



Type	a	b	c	d
B 100 B 160	145	295	105	46
B 250 B 400	165	465	160	101

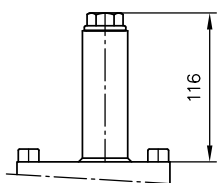
Ports as per ISO 228-1

P, R	G 3/4
R1, M	G 1/2
Z	G 1/4

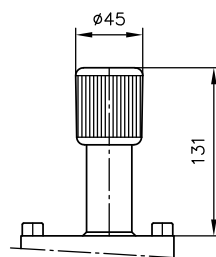
Control port Z only for versions as per [D 6010 S](#)

Adjustment

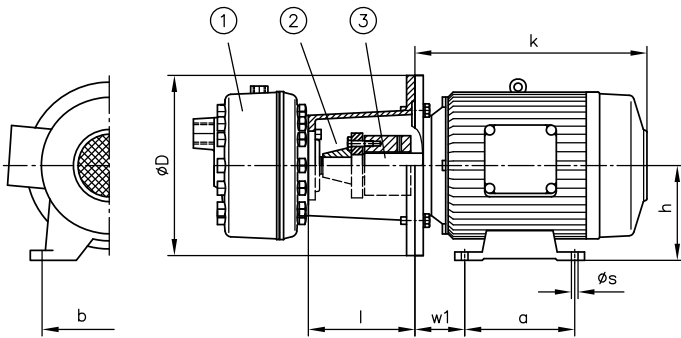
Fixed



Adjustable



4.6 Motor dimensions



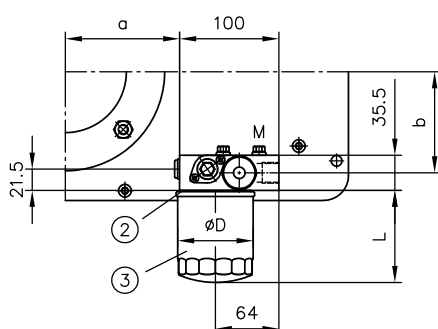
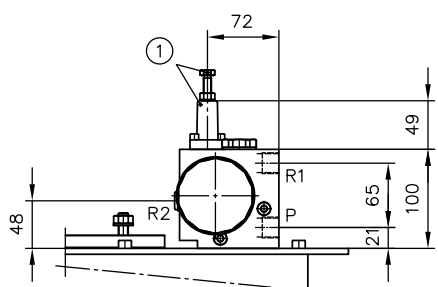
- 1 Pump
- 2 Flange
- 3 Coupling

Power rating (kW)	Flange outer ØD (mm)	Surface length I (mm) when combined with size						External dimensions standard motor					
		7631	6010	6011	6012	6014	6016	h	a	b	Øs	w1	k *
0.25 0.37	160	83	83	123	--	--	--	71	90	112	7	45	190 to 210
0.55 0.75	200	109	109	123	--	--	--	80	100	125	9	50	215 to 230
1.1	200	109	109	123	--	--	--	90	100	140	9 (10)	56	240 to 250
1.5	200	109	109	123	--	--	--	90	125	140	9 (10)	56	265 to 270
2.2	250	--	113	113	123	--	--	100	140	160	12	63	280 to 320
3	250	--	113	113	123	--	--	100	140	160	12	63	
4	250	--	113	113	123	--	--	112	140	190	12	70	315 to 320
5.5	300	--	--	160	160	160	--	132	140	216	12	89	330 to 360
7.5 9	300	--	--	160	160	160	--	132	178	216	12	89	390 to 400
11	350	--	--	--	188	188	209	160	210	254	14	108	500 to 520
15	350	--	--	--	188	188	209	160	254	254	14	108	500 to 550
18.5	350	--	--	--	--	188	209	180	241	279	14 (15)	121	
22	350	--	--	--	--	188	209	180	254	279	14 (15)	121	550 to 580
30	400	--	--	--	--	--	212	200	305	318	18	133	620 to 650

* Not standardised, rough reference values for two makes. Check the manufacturer's specifications for actual values. See also DIN 42673-4 and DIN 42677-4 (envelope dimensions)

4.7 Connection blocks with return line filter

AF 0/.. to FF 3/..



- 1 Sealing option
- 2 Lightly oil seal when changing filter
- 3 Return line filter F0 to F31

Tank and cover plate sizes	a	b
B 6, D 6	66	80
B 13, D 13 B 20, D 20	115	102
B 30, D 30 B 40, D 40	115	133

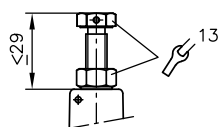
Filter Coding	L	ØD
F0	59	78
F1	93	78
F2	123	78
F3	144	93
F31	144	93

Ports as per ISO 228-1

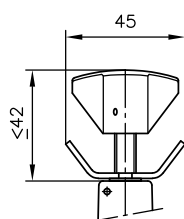
P, R1	G 1/2
R2	G 1/4
M	G 1/8

Adjustment

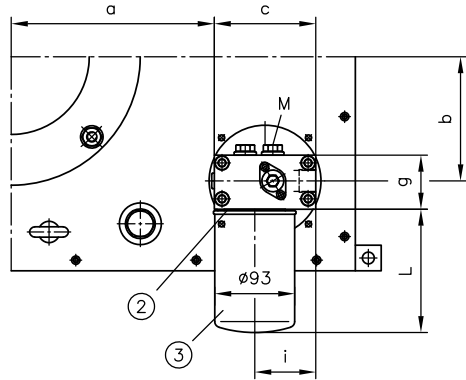
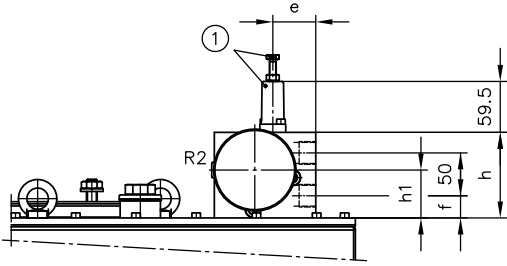
Fixed



Adjustable



AF 4/.. to BF 5/..



- 1 Sealing option
- 2 Lightly oil seal when changing filter
- 3 Return line filter F4 and F5

Tank and cover plate sizes	a	b	c	e	f	g	h	h1	i
B 50, D 50 B 75	247	120	100	38	22	50	90	54	64
B 100, D 100 B 160	236	154	118	50	26	63	100	56	71
B 250, D 250 B 400	406	165	118	50	26	63	100	56	71

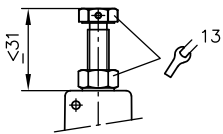
Ports as per ISO 228-1

	P, R1	R2	M
B 50, D 50 B 75	G 1/2	G 1/4	G 1/4
B 100, D 100 B 160	G 3/4	G 1/4	G 1/2
B 250, D 250 B 400	G 3/4	G 1/4	G 1/2

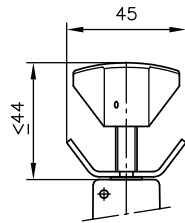
Filter Coding	L
F4	144
F5	212

Adjustment

Fixed



Adjustable



5 Assembly, operation and maintenance recommendations

5.1 Intended use

This pump is intended exclusively for use in hydraulic applications (fluid technology).

The user must observe the safety measures and warnings in this documentation.

Essential requirements for the product to function correctly and safely:

- All information in this documentation must be observed. This applies in particular to all safety measures and warnings.
- The product must only be assembled and put into operation by qualified personnel.
- The product must only be operated within the specified technical parameters. The technical parameters are described in detail in this documentation.
- All components must be suitable for the operating conditions in the event of application in an assembly.
- The operating and maintenance manual of the components, assemblies and the specific complete system must also always be observed.

If the product can no longer be operated safely:

1. Remove the product from operation and mark it accordingly.
- ✓ It is then not permitted to continue using or operating the product.

5.2 Assembly information

The product must only be installed in the complete system with standard and compliant connection components (screw fittings, hoses, pipes, fixtures etc.).

The product must be shut down correctly prior to disassembly.

When both setting up the component as a motor pump outside an oil tank and installing it in an oil tank as a hydraulic power pack, care must be taken to ensure that the pump remains below the oil level at all times, even when the oil has been pre-filled before use. The housing shell forms a sealed space around the pump cylinders, which are arranged in a star configuration. This space can only be bled effectively when the pump is submerged as described during or after filling. For details on installation, bleeding and commissioning, see [D 6010 H](#), Section 5.2.1.



DANGER

Risk to life caused by sudden movement of the hydraulic drives when dismantled incorrectly!

Risk of serious injury or death.

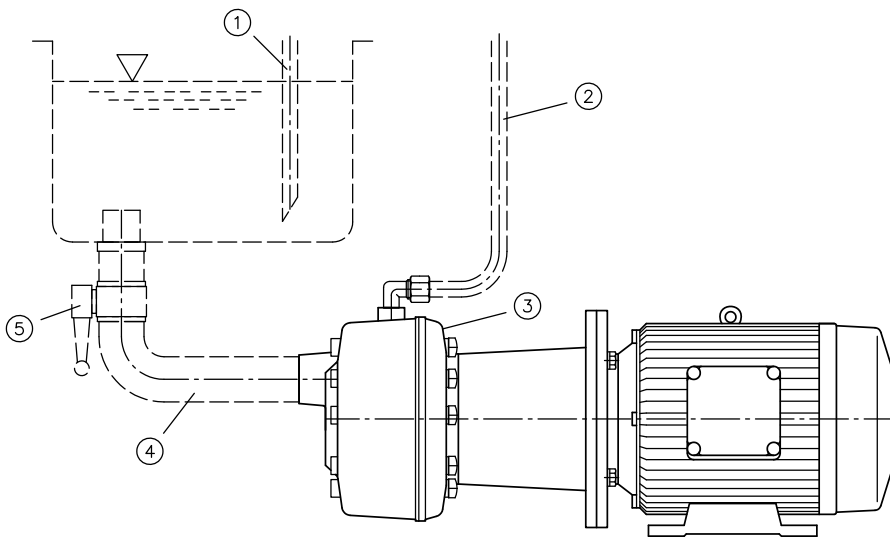
- Depressurise the hydraulic system.
- Perform safety measures in preparation for maintenance.

5.2.1 Bleeding and commissioning

When commissioning the pump for the first time and after each oil change, bleed the pumps to prevent problems with the suction and air from entering the loads. See also operating instructions [B 6010](#).

Motor pumps

The pump should always be arranged at a level lower than the lowest-possible oil level in the tank. It can be placed directly below the tank using a vertical downpipe suction line or to the side with a suction line rising gently towards the tank. Loosen the bleed screw after filling the oil tank (do not unscrew) and wait until oil leaks out. Then tighten the screw and let the pump operate for a short time with pressure-free circulation, if the control allows for this. Failing this, reset the pressure-limiting valve to pressure value zero and allow the pump to operate with pressure-free circulation above here. Next operate all the functions of the hydraulic system a few times without load, if necessary with the pressure-limiting valve put back, until they move smoothly and without hesitation. Raise pressure-limiting valve to the set point (monitor the pressure gauge).

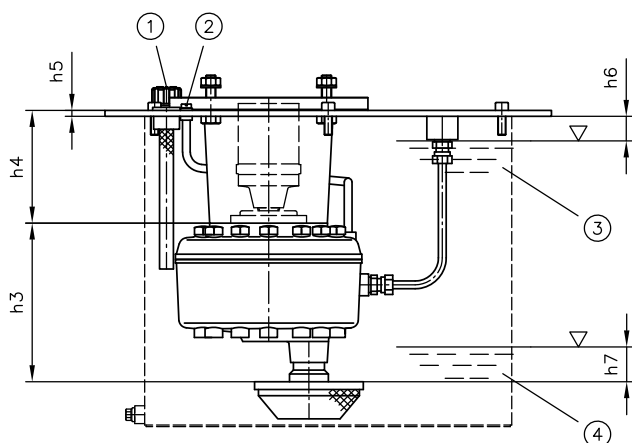


- 1 Return line
- 2 Pressure line
- 3 Bleed screw
- 4 Inflow line
- 5 Shut-off valve

Hydraulic power packs

Unscrew and remove the bleed screw on the cover plate before filling the tank. This means the air can escape from the interior of the pump during filling and the oil can also rise up unobstructed. After filling (wait a few minutes if possible), retighten the bleed screw. The bleed screw (cylinder screw ISO 1207-M6x6-8.8-A2K electroplated with sealing ring A6x10x1 DIN 7603-Cu) is located directly beside the bleeder filter or oil dipstick (B 13.., D 13.. bis B 400.., D 250..) or positioned a short space away (B 6.., D 6..), refer also to the dimension drawings.

The initial start procedure from pressure-free circulation to full operation under pressure is the same as for motor pumps. During commissioning, the oil tanks should be quite full, but not filled to the brim. This way, there will be sufficient space under the cover plate to accommodate expansion of the oil when operating temperature is reached. Take particular care to ensure this when using your own oil tanks. To gauge an appropriate minimum oil level gap **h6** to the bottom edge of the cover at maximum oil level, refer to the table below. This gap **h6** will shrink to about half its height when the oil temperature rises by about 50 K.



- 1 Air filter with oil dipstick
- 2 Bleed screw
- 3 max. fluid level
- 4 greatest permissible drop in oil level during operation

Cover plates	Tank	Oil level gap approx. (mm)
		h6
D 6	B 6	... 15
D 13, D 20	B 13, B 20	... 20
D 30, D 40	B 30, B 40	... 20
D 50 to	B 50, B 75	... 30
D 100 to	B 100, B 160	... 40
D 250 to	B 250, B 400	... 50

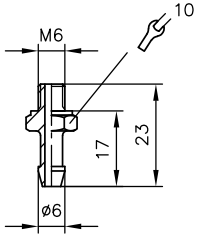
For values **h3** to **h5**, refer to publication [D 6010 Z](#).
h7 ≥ 10 mm safety clearance from upper edge of the suction head

Installation in oil tank

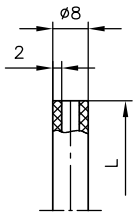
On tanks and tank cover plates not supplied by us, replace the bleed screw on the pump with a connection nipple as per drawing 6020 070 and add a bleed point in the cover plate as per the drawing below. Then connect these two connection nipples using an oil-resistant hose (8 x 2).

Available bleeding parts

1. Connection nipple as per drawing 6020 070



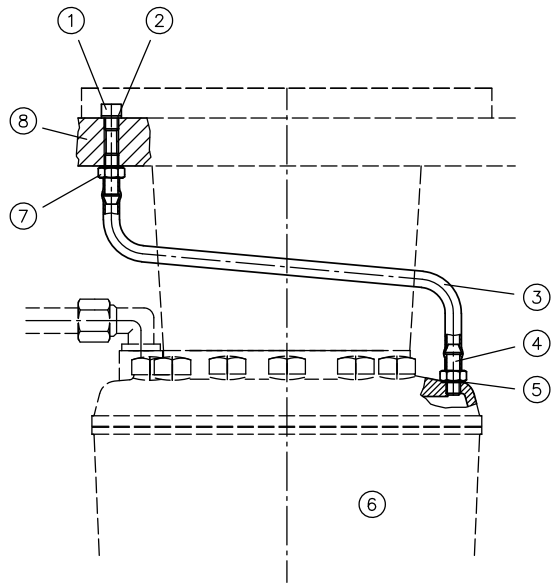
2. Hose (NBR)



Drawing no.

L

6020 077a	220
6020 077b	260
6020 077c	310
6020 077d	420
6020 077e	500



- 1 Cylinder screw ISO 4762-M6x6-8.8-A2K *
- 2 Sealing ring A6x10x1 DIN 7603-Cu *
- 3 Hose should rise steadily from pump to cover plate
- 4 Connection nipple
- 5 USIT ring U 6.7x10x1
- 6 Pump
- 7 Connection nipple with USIT ring U 6.7x10x1
- 8 Cover plate

* Parts 1 and 2 are taken from pump.

5.3 Operating instructions

Note product configuration and pressure / flow rate

The statements and technical parameters in this documentation must be strictly observed.
The instructions for the complete technical system must also always be followed.

i NOTE

- Read the documentation carefully before usage.
- The documentation must be accessible to the operating and maintenance staff at all times.
- Keep documentation up to date after every addition or update.

Purity and filtering of the hydraulic fluid

Fine contamination can significantly impair the function of the hydraulic component. Contamination can cause irreparable damage.

Examples of fine contamination include:

- Metal chips
- Rubber particles from hoses and seals
- Dirt due to assembly and maintenance
- Mechanical debris
- Chemical ageing of the hydraulic fluid

i NOTE

New hydraulic fluid from the manufacturer does not necessarily have the required level of purity.
The hydraulic fluid must be filtered during filling.

Pay attention to the cleanliness level of the hydraulic fluid to maintain faultless operation.
(Also see cleanliness level in [Chapter 3, "Parameters"](#)).

Additionally applicable document: [D 5488/1](#) Oil recommendations

5.4 Disposal information

- Valve control
 - mixed scrap
- Pump housing with motor
 - electronic waste
- Tank or hydraulic accumulator, as applicable (depressurised on the gas side)
 - scrap iron
- Hydraulic fluid
 - waste oil

6 Other information

6.1 Additional equipment

6.1.1 Fluid level gauge

Ordering example:

R 1.39 / B 6 - K - V 0.55

Basic pump with tank as per [Chapter 2.1](#) and [Chapter 2.3](#)

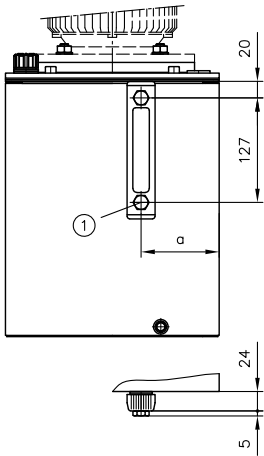
K = Series

K1 = installation in position 1 (only for tank B 50 to B 400)

Basic pump with tank as per [Chapter 2.1](#) and [Chapter 2.3](#)

Tank size

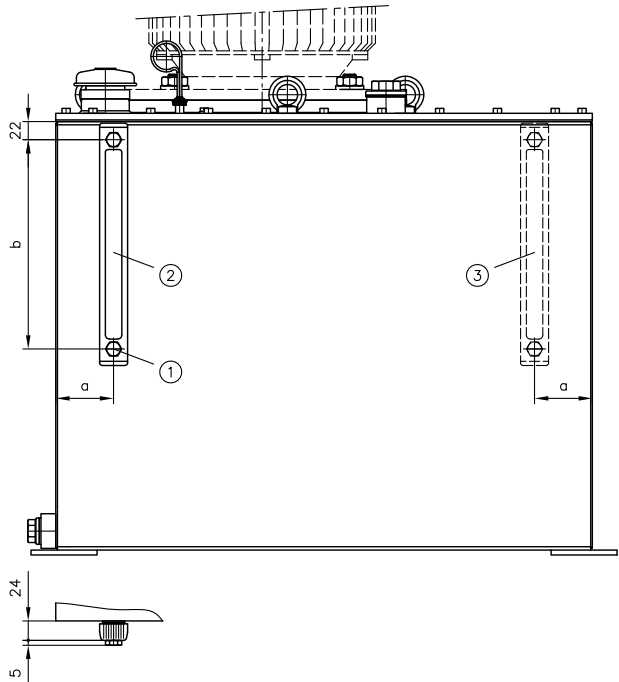
B 6 to B 40



- 1 Hole $\varnothing 11$ in tank
- 2 Position for coding K
- 3 Position for coding K1

Type	a	b
B 6	85	--
B 13 to B 30	95	--
B 40	155	--
B 50, B 75	70	127
B 100, B 160	70	254
B 250, B 400	100	254

B 50 to B 400



For single order:

STAUFF fluid level gauge

- SNA 127-B-S-0-10 for B 6 to B 75
- SNA 254-B-S-0-10 for B 100 to B 400

6.1.2 Temperature or level switch

Ordering examples:

Version with temperature switch

R 5.8 / B 13 **T** **1** **- V 0.55 - E/160** Motor voltage 3 ~ 230/400 V 50 Hz

Basic pump with tank as per [Chapter 2.1](#) and [Chapter 2.3, "Hydraulic power packs"](#)

Installation position See ["Table 10"](#)

Additional units ["Table 9"](#)

Basic pump with tank as per [Chapter 2.1](#) and [Chapter 2.3, "Hydraulic power packs"](#)

Version with level switch

R 17.0 / B 50 **D** **- V 7.5 - A/200** Motor voltage 3 ~ 400 V 50 Hz

Basic pump with tank as per [Chapter 2.1](#) and [Chapter 2.3, "Hydraulic power packs"](#)

Additional units ["Table 9"](#)

Basic pump with tank as per [Chapter 2.1](#) and [Chapter 2.3, "Hydraulic power packs"](#)

Version with temperature and level switch (any combination possible)

R 11.6 / B 75 **D** **2** **T** **3** **- V 0.75 - A/315** Motor voltage 3 ~ 230/400 V 50 Hz

Basic pump with tank as per [Chapter 2.1](#) and [Chapter 2.3, "Hydraulic power packs"](#)

Installation position See ["Table 10"](#)


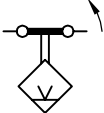
Additional units ["Table 9"](#)

Installation position See ["Table 10"](#)

Additional units ["Table 9"](#)

Basic pump with tank as per [Chapter 2.1](#) and [Chapter 2.3, "Hydraulic power packs"](#)

Table 9: Additional units*

Coding	Number	Nomenclature	Characteristics
T	1	Temperature switch 	MICROTHERM thermocouple T10V 80°C ± 5K U112 P102 L510
D	1	Level switch	<ul style="list-style-type: none"> ▪ Level switch made of PA ▪ Float made of NBR ▪ Function - N/C contact, opens with dropping oil level; switching capacity 230 V DC/AC 0.5A 30VA ▪ max. permissible temperature 90°C
DD	2		

For single order:

- Temperature switch no. 7912 000
- Level switch complete no. 7912 300

* not available for AT or PYD versions

Table 10: Installation positions

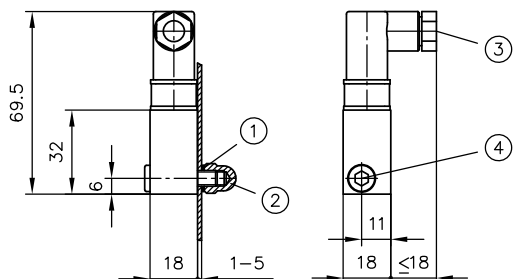
Coding	Description
No designation	Series
1	Position 1
2	Position 2
3	Position 3

See also dimensions on the next page

Dimensions

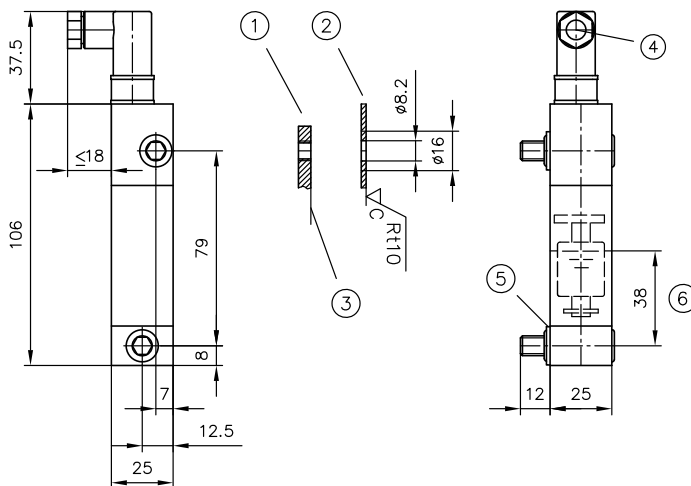
All dimensions in mm, subject to change.

Temperature switch



- 1 USIT ring 6.7x10x1 NBR 90 Sh
- 2 Acorn nut DIN 1587-M6-6
- 3 Cable fitting
- 4 Cylinder screw DIN 6912 M6x25-8.8-A2K

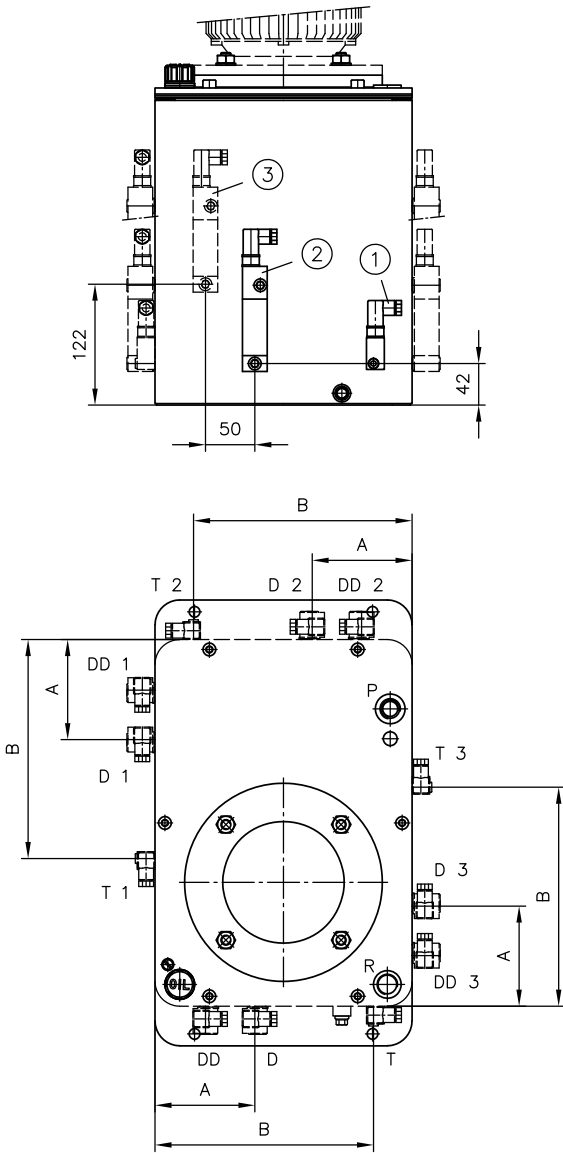
Level switch



- 1 Yoke
- 2 Tank wall
- 3 LOCTITE 326
- 4 Cable fitting
- 5 - Sealing ring A12x15.5x1.5 DIN 7603-ST
- O-ring 8x2.4 NBR 90 Sh
- USIT ring 8.7x13x1 NBR 90 Sh
- 6 Switching level

Installation position

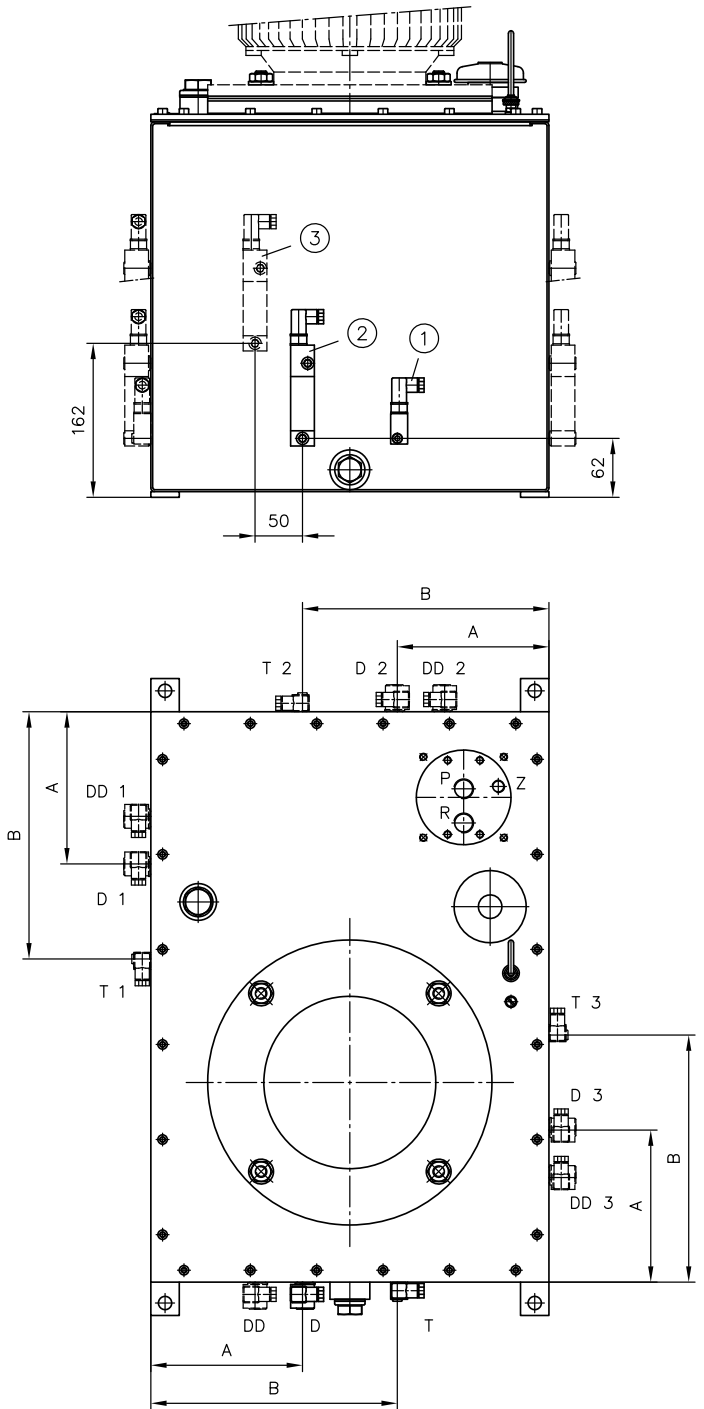
for B 6 to B 40



- 1 Temperature switch T
- 2 Level switch D
- 3 Level switch DD

Type	A	B
B 6	80	110
B 13, B 20	100	220
B 30	100	130
B 40	160	190
B 50, B 75	160	260
B 100, B 160	160	340
B 250, B 400	200	450

for B 50 to B 400



6.2 Accessories for motor pumps and hydraulic power packs

For dimensions of the various components, see [D 6010 Z](#)

6.2.1 Overview

Allocation of flange (coding **F.**), bell housing (coding **L.**), coupling (coding **K.**) and suction elements (coding **S.**) to the standard pump/motor/tank combinations.

Motor pumps

Motor power (kW) (4-pin)	DIN size	Accessory parts used for the R pump assembly as per D 6010					
		7631	6010	6011	6012	6014	6016
0.25 0.37	71	F 31 K 31	F 31 K 31				
0.55 0.75	80	F 41 K 41	F 41 K 41	F 42 K 42			
1.1 1.5	90 S(L)	F 41 K 43	F 41 K 43	F 42 K 44			
2.2 3	100 L		F 51 K 51	F 52 K 52	F 52 K 52		
4	112 M		F 51 K 51	F 52 K 52	F 52 K 52		
5.5 7.5 (9)	132 S (M)			FN 61 KN 61 ¹⁾	FN 61 KN 61 ¹⁾	FN 61 KN 62 ¹⁾	
11 15	160 M (L)				F 71 KN 71	F 71 KN 72	F 73 KN 73
18.5 22	180 M (L)					FN 71 KN 74 ²⁾	F 73 KN 75
30	200 L						F 81 K 81

¹⁾ As per SK 6020-KN61

²⁾ As per SK 6020-KN74

Hydraulic power packs

Tank and cover plate versions sizes B 6 to B 40 and D 6 to D 40

Motor power (kW) (4-pin)	DIN size	Accessory parts used for tank and cover plate sizes							
		B 6, D 6				B 13, D 13.1			
		Sizes of installed R pumps as per D 6010							
		7631	6010	6011	7631	6010	6011		
0.25 0.37	71	L 32 K 35 S 319	L 32 K 32 S 11		L 32 K 32 S 319	L 32 K 32 S 11			
0.55 0.75	80	L 41 K 41 S 319	L 41 K 41 S 11	L 42 K 42 S 21	L 41 K 41 S 319	L 41 K 41 S 11	L 42 K 42 S 21		
1.1 1.5	90 S (M)	L 41 K 43 S 319	L 41 K 43 S 11	L 42 K 44 S 21	L 41 K 43 S 319	L 41 K 43 S 11	L 42 K 44 S 21		
2.2 3	100 L						L 51 K 51 S 11	L 52 K 52 S 21	
4	112 M								

Motor power (kW) (4-pin)	DIN size	Accessory parts used for tank and cover plate sizes							
		B 20, D 13.2 (20)				B 30 (40), D 30 (40)			
		Sizes of installed R pumps as per D 6010							
		7631	6010	6011	6012	7631	6010	6011	6012
0.25 0.37	71	L 32 K 32 S 320	L 32 K 32 S 12			L 32 K 32 S 320	L 32 K 32 S 12		
0.55 0.75	80	L 41 K 41 S 320	L 41 K 41 S 12	L 42 K 42 S 22		L 41 K 41 S 320	L 41 K 41 S 12	L 42 K 42 S 22	
1.1 1.5	90 S (M)	L 41 K 43 S 320	L 41 K 43 S 12	L 42 K 44 S 22		L 41 K 43 S 320	L 41 K 43 S 12	L 42 K 44 S 22	
2.2 3	100 L		L 51 K 51 S 12	L 52 K 52 S 22	L 52 K 52 S 31		L 51 K 51 S 12	L 52 K 52 S 22	L 52 K 52 S 31
4	112 M								

Tank and cover plate versions sizes B 50 to B 400 and D 50.1 to D 250.2

Motor power (kW) (4-pin)	DIN size	Accessory parts used for tank and cover plate sizes												
		B 50, D 50.1				B 75, D 50.2				B 100, D 100.1				
		Sizes of installed R pumps as per D 6010												
		7631	6010	6011	6012	7631	6010	6011	6012	6014	6011	6012	6014	6016
0.25 0.37	71	L 32 K 32 S 13	L 32 K 32 S 13			L 32 K 32 S 14	L 32 K 32 S 14							
0.55 0.75	80	L 41 K 41 S 13	L 41 K 41 S 13	L 42 K 42 S 22		L 41 K 41 S 14	L 41 K 41 S 14	L 42 K 42 S 23			L 42 K 42 S 24			
1.1 1.5	90 S 90 M	L 41 K 43 S 13	L 41 K 43 S 13	L 42 K 44 S 22		L 41 K 43 S 14	L 41 K 43 S 14	L 42 K 44 S 23			L 42 K 44 S 24			
2.2 3 4	100 L 112 M		L 51 K 51 S 13	L 53 K 53 S 22	L 53 K 53 S 31		L 51 K 51 S 14	L 53 K 53 S 23	L 53 K 53 S 32		L 52 K 53 S 24	L 52 K 52 S 35		
5.5 7.5 (9)	132 S 132 M			LN 61 ¹⁾ KN 61 S 22	LN 61 ¹⁾ KN 61 S 31			LN 61 ¹⁾ KN 61 S 23	LN 61 ¹⁾ KN 61 S 32	LN 61 ¹⁾ KN 62 S 41		L 61 KN 70 S 33	L 70 KN 70 S 42	
11 15	160 M 160 L				L 71 KN 71 S 31				L 71 KN 71 S 32	L 71 KN 72 S 32		L 72 KN 71 S 33	L 72 KN 72 S 42	L 73 KN 73 S 51
18.5 22	180 M 180 L									LN 71 ²⁾ KN 74 S 41			LN 72 KN 74 S 42	L 73 KN 75 S 51

¹⁾ As per SK 6020-KN61

²⁾ As per SK 6020-KN74

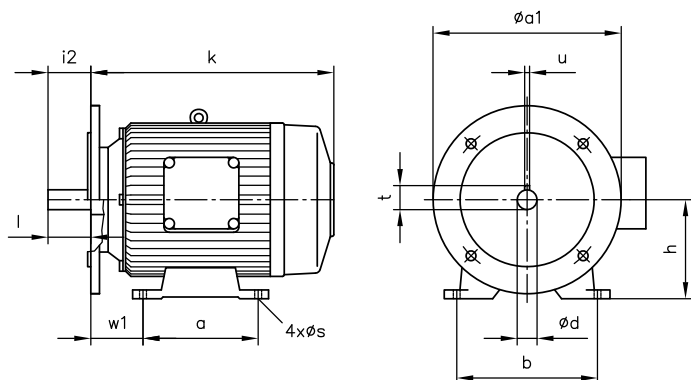
Motor power (kW) (4-pin)	DIN size	Accessory parts used for tank and cover plate sizes							
		B 160, D 100.2				B 250, D 250.1		B 400, D 250.2	
		Sizes of installed R pumps as per D 6010							
		6011	6012	6014	6016	6014	6016	6014	6016
0.55 0.75	80	L 42 K 42 S 25							
1.1 1.5	90 S 90 M	L 42 K 44 S 25							
2.2 3 4	100 L 112 M	L 52 K 52 S 25	L 52 K 52 S 36						
5.5 7.5 (9)	132 S 132 M		L 61 KN 70 S 34	L 70 KN 70 S 43					
11 15	160 M 160 L		L 72 KN 71 S 34	L 72 KN 72 S 43	L 73 KN 73 S 52	L 72 KN 72 S 42	L 73 KN 73 S 51	L 72 KN 72 S 44	L 73 KN 73 S 54
18.5 22	180 M 180 L			LN 72 KN 74 S 43	L 72 KN 75 S 52	LN 72 KN 74 S 42	L 73 KN 75 S 51	LN 72 KN 74 S 44	L 73 KN 75 S 54
30	200 L						L 81 K 81 S 51		L 81 K 81 S 54

Three-phase standard motors, 4-pin

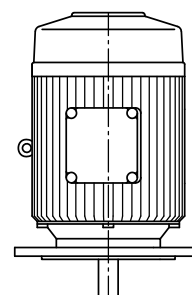
The coding only indicates the power rating.

For single orders, please also state voltage and design version IM B 35 or IM B 5.

IM B 35



IM B 5 (V1)



Flange and shaft dimensions as for IM B 35

Power rating (kW)	DIN size	Principal dimensions (mm)											
		Motor corpus			Shaft journal				Mounting pedestal				
		Øa1	i2	k *	Ød	l	u	t	h	a	b	w1	Øs
0.25	71	160	30	190 to 210	14	30	5	16	71	90	112	45	7
0.37				215 to 230									
0.55	80	200	40	215 to 230	19	40	6	21.5	80	100	125	50	9
0.75				240 to 250									
1.1	90 S	200	50	240 to 250	24	50	9	27	90	125	140	56	9 (10)
1.5	90 L			265 to 270									
2.2	100 L	250	60	280 to 320	28	60	8	27	100	140	160	63	12
3				315 to 330									
4	112 M	300	80	330 to 360	38	80	10	41	132	178	216	89	
5.5	132 S			390 to 400									
7.5	132 M	350	110	500 to 520	42	110	12	45	180	210	254	108	14
9 *	(132 M)			500 to 550									
11	160 M	350	110	500 to 550	48	110	14	51.5	180	241	279	121	14 (15)
15	160 L			550 to 580									
18.5	180 M	400	110	550 to 580	55	110	16	59	200	305	318	133	18
22	180 L			620 to 650									
30	200 L	400	110	620 to 650	55	110	16	59	200	305	318	133	18

* not standardised, rough reference values for two makes; check the manufacturer's specifications for actual values.
See also DIN 42673-4 and DIN 42677-4 (envelope dimensions)

Further information

Additional versions

- Radial piston pump type R and RG: D 6010
- Radial piston pump type R and RG with several pressure connections: D 6010 D
- Radial piston pump type R and RG with one main pressure connection and one or two ancillary pressure connections: D 6010 S
- Hydraulic power pack type R and RG: D 6010 DB

Further information

HAWE Hydraulik SE is a responsible development partner with application expertise and experience in more than 70 areas of mechanical engineering and plant engineering. The product range includes hydraulic power packs, constant and variable pumps, valves, sensors and accessories. The modular system is complemented by electronic components that are perfectly coordinated with the hydraulic components and that simplify control, signal evaluation and fault detection. The intelligent system solutions reduce energy consumption and operating costs. Compact drives save space and permit innovative machine design.

Across the globe, approximately 2000 employees in 16 countries and sales partners in more than 40 countries provide customers with local, professional and personal support.

The company is certified in accordance with ISO 9001, ISO 4413, ISO 50001, OHSAS 18001.



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- Canada
- Russia
- China
- India
- Japan
- Korea
- Singapore
- Australia

You can find further information on HAWE Hydraulik, your local contact and the range of hydraulics training sessions offered at: www.hawe.com/contact.