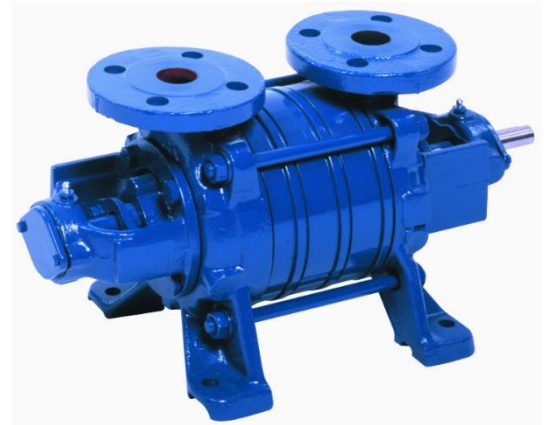


AKH

Sizes 1101 ... 6103

TECHNICAL DATA

Capacity:	max. 35 m ³ /h
Head:	max. 144 m
Speed:	max. 1800 rpm
Temperature:	max. 120 °C
Casing pressure:	PN 16
Shaft sealing:	Stuffing box, mechanical seal
Flange connections:	DIN 2501 / PN 16
Direction of rotation:	Clockwise (when viewed from the drive end)



APPLICATION

The SIHI AKH pump is a self-priming side channel pump capable of handling gas along with the medium and operates at a low noise level. The AKH is suitable for trouble free handling of clean or turbid liquids without any abrasive particles.

The performance curve steepness admits a precise regulation of the pressure with a small change in capacity.

The AKH pump has been developed for a broad range of medium duty applications in:

- Chemical industry,
- Petro-Chemical industry,
- Oil industry,
- Machinery and automobile industry,
- Food industry,
- Building trades,
- Plastic and rubber industry,
- Surface treatment,
- Ship yards.

DESIGN

Pumps of the series AKH have a segmental type construction with open vane wheel impellers. The pump construction is either with one liquid surrounded slide bearing and one ball bearing or in a more industrial construction by using a double ball bearing design.

The program comprises 6 sizes with up to 4 stages (an extension with 5 or 6 stages is possible for certain sizes). The performance curves of the AKH are identical for all the material designs.

The applied hydraulic components are from our Modular Side Channel system (interchangeability of parts).

CONSTRUCTION

Casing pressure

Maximal 16 bar from -40 °C to + 120 °C.

Please observe

Technical rules and safety regulations.
Casing pressure = inlet pressure + delivery head at minimum pump capacity.

Position of branches

Suction and discharge branch point radially upwards.

Flanges

The flanges correspond to DIN EN 1092-2 / PN 16. Flange design as per DIN 2512 with groove or drilled according to ANSI 150 or 300 lbs is basically possible.

Bearing

Either by one grease lubricated ball bearing and one liquid surrounded sleeve bearing (design A) or by two grease lubricated ball bearings (design B). The ball bearings are according to DIN 625. The first grease filling is done in the factory.

Direction of rotation

Clockwise, when looking at the pump from the drive end. Anti-clockwise is possible.

Shaft sealing

The shaft can be sealed by either a stuffing box or a standard mechanical seal.

Material design

Cast iron

Pos.	Components	Material design		
		0A	0B	0F
1060	Suction casing	EN-GJL-250		
1070	Discharge casing	EN-GJL-250		
1090 1140 1141	Intermediate piece	EN-GJL-250		
2100	Shaft	X 20 Cr 13		
2350	Vane wheel impeller	CuZn 40 Al 2	G-X 3 CrNiMoCu 26 6 3 3	PAEK
0241	Bearing bush	EK 2203		

Bronze and stainless steel

Pos.	Components	Material design			
		2H*	3B	4B	4F
1060	Suction casing	EN-GJL-250	GC-CuSn 12	G-X 6 CrNiMo 18 10	
1070	Discharge casing	EN-GJL-250	GC-CuSn 12	G-X 6 CrNiMo 18 10	
1090 1140 1141	Intermediate piece	G-SnBz 16		G-X 6 CrNiMo 18 10	
2100	Shaft	X 5 CrNiMo 17 12 2			
2350	Vane wheel impeller	G-CuSn chrome plated		G-X 3 CrNiMoCuN 26 6 3 3	PAEK
0241	Bearing bush	EK 2203			

* The construction of the AKH in material 2H is conform the construction of the AKH in Cast iron (see the next page).

Casing seal

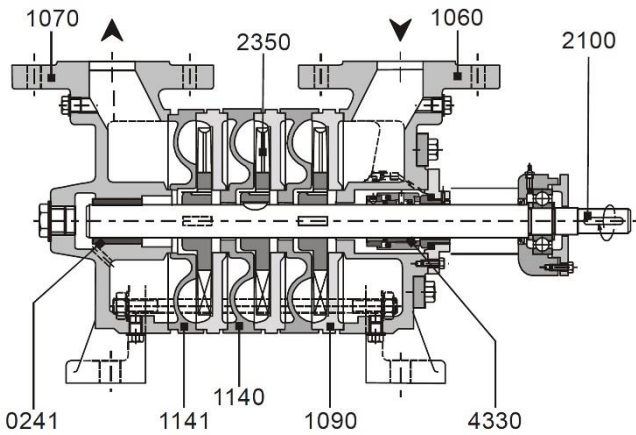
The casing can be sealed with a liquid sealing compound or soft Teflon.

Drive

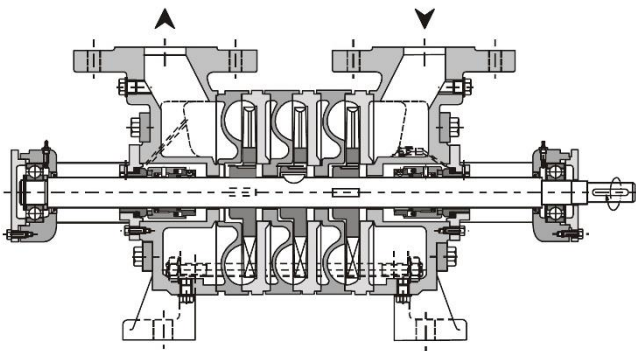
By electric motor, type of construction IM B3.

Sectional drawing with parts list

Cast iron (0A, 0B, 0F, 2H)



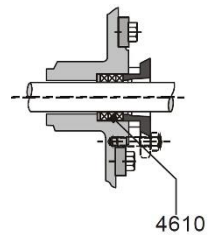
Design A (only for sizes 1100 up to 5100)



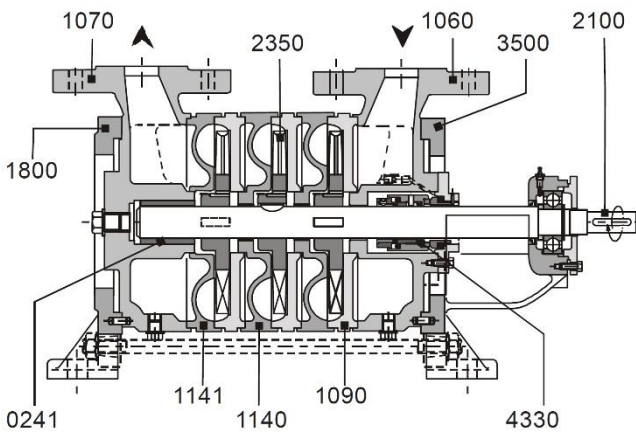
Design B

- 0241 Bearing bush
- 1060 Suction casing
- 1070 Discharge casing
- 1090 Suction intermediate piece
- 1140 Discharge intermediate piece
- 1141 Discharge intermediate piece
- 1800 Mounting flange
- 2100 Shaft
- 2350 Vane wheel impeller
- 3500 Bearing housing
- 4330 Mechanical seal
- 4610 Stuffing box

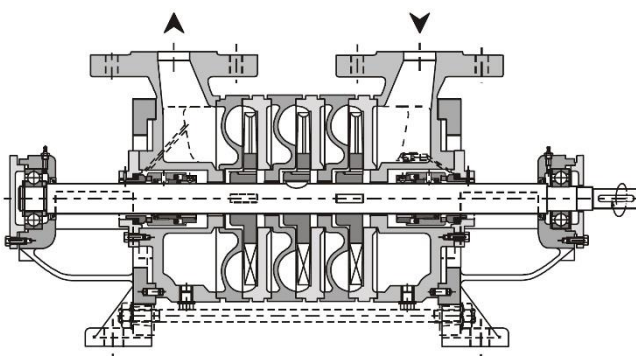
Stuffing box



Bronze (3B) and stainless steel (4B, 4F)



Design A (only for stainless steel in sizes 1200 up to 5100)



Design B

Performance range

General conditions

Liquid: Water
 Density: 1 kg/dm³
 Viscosity: 1 cSt
 Temperature: 20 °C
 Atmospheric pressure: 1013 mbar

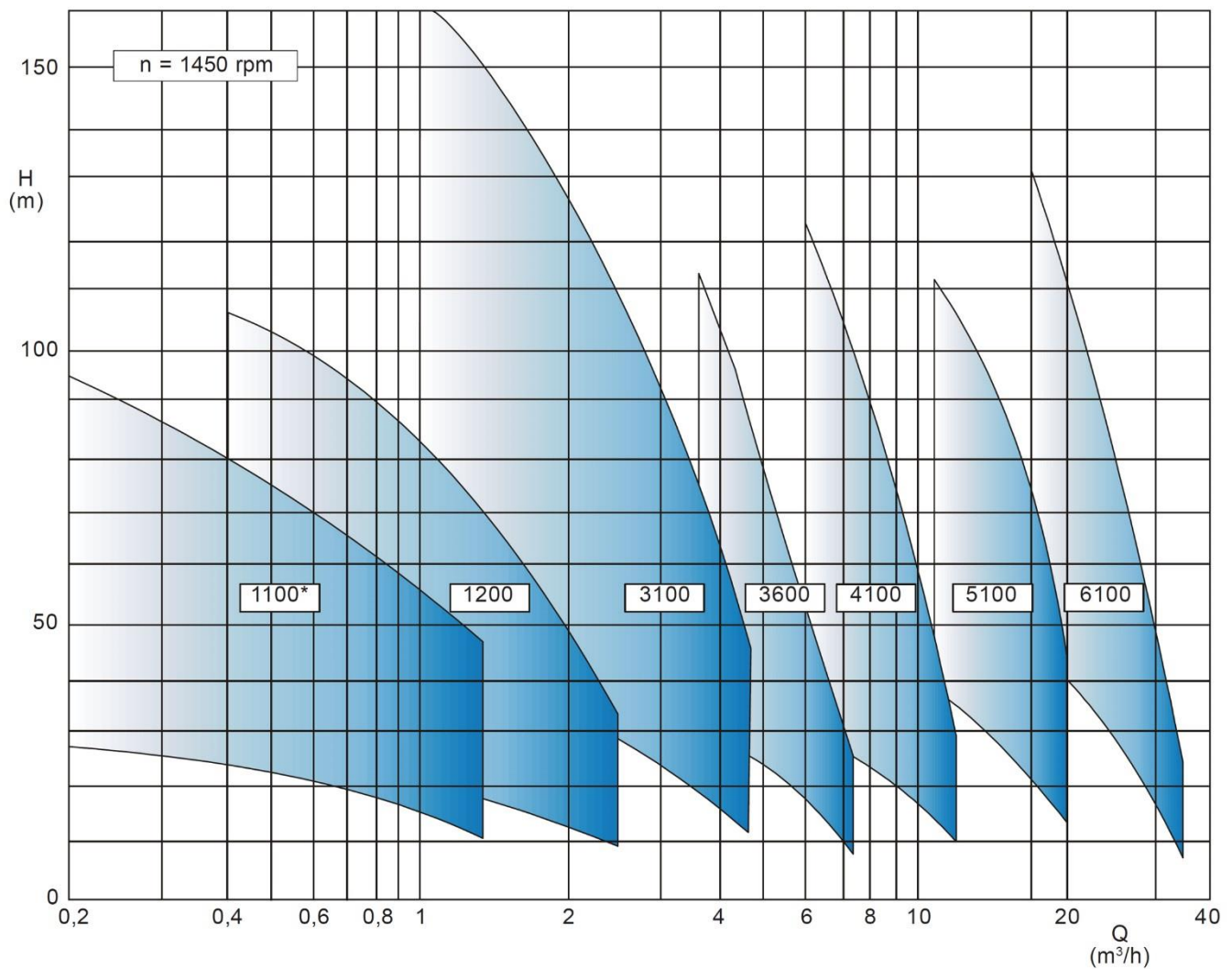
Characteristic tolerances

Capacity ± 10% - Delivery head ± 10% - Power + 10%

For designs with a mechanical seal or casing seal in soft Teflon, the tolerance for the delivery head is extended by 2% each.

Measuring standard

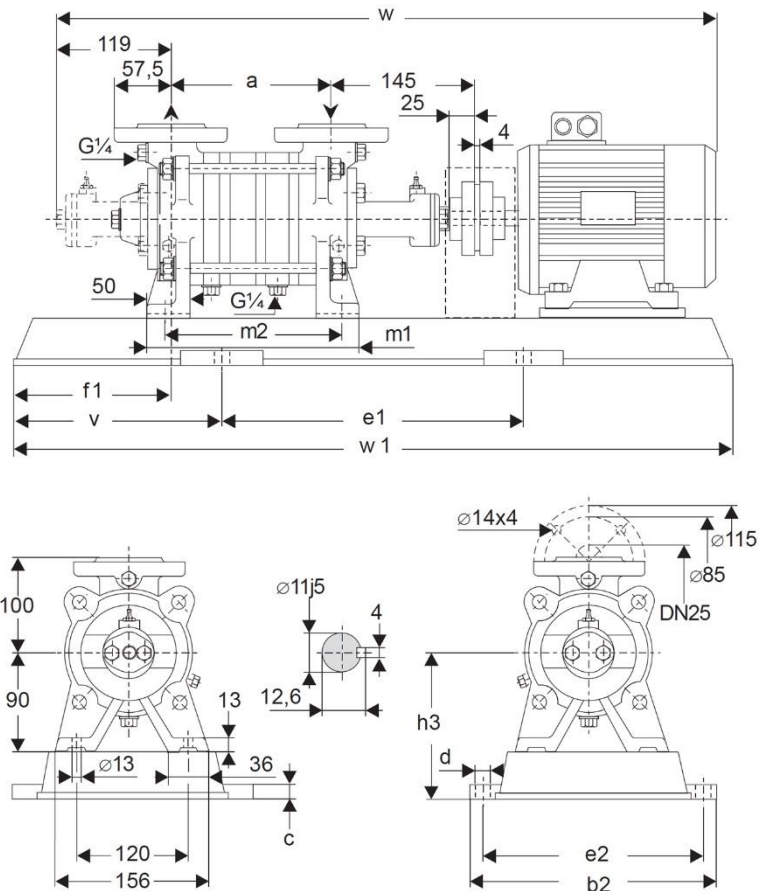
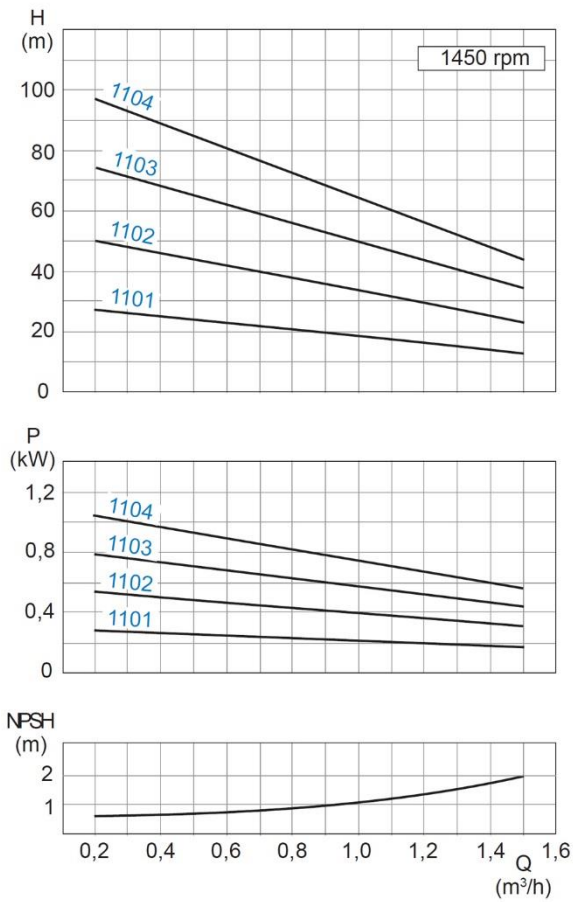
According ISO 5198.



* only for cast iron design.

Dimension chart, pump set drawing and performance curves

AKH 1100 in cast iron (0A, 0B, 0F, 2H)



Values are valid for water with density = 1 kg/dm³ and viscosity = 1 cSt.

Capacity ± 10% - Delivery head ± 10% - Power + 10%

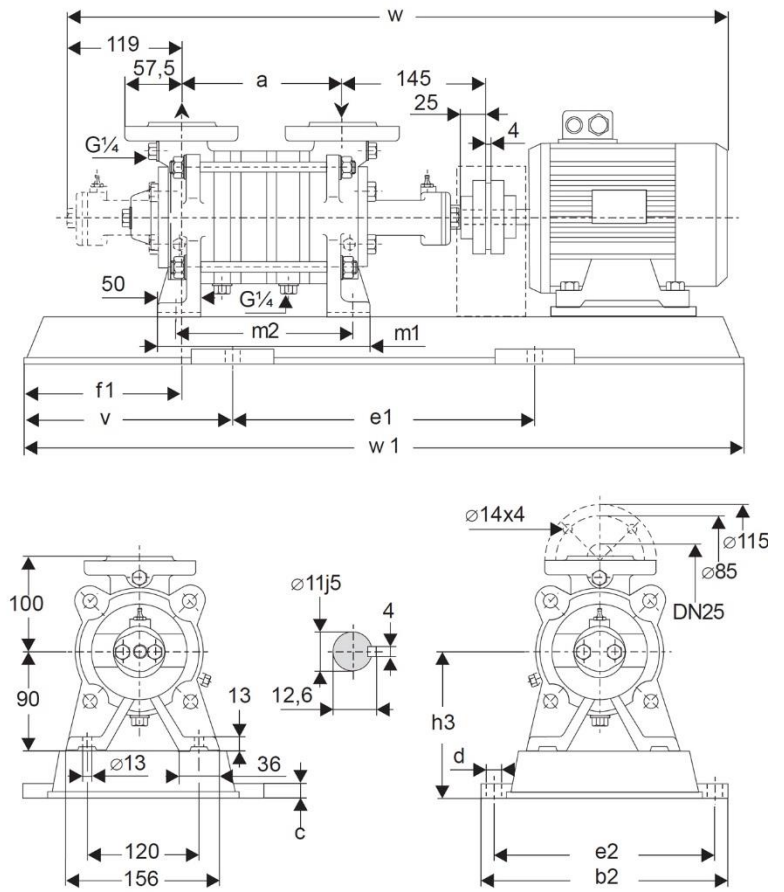
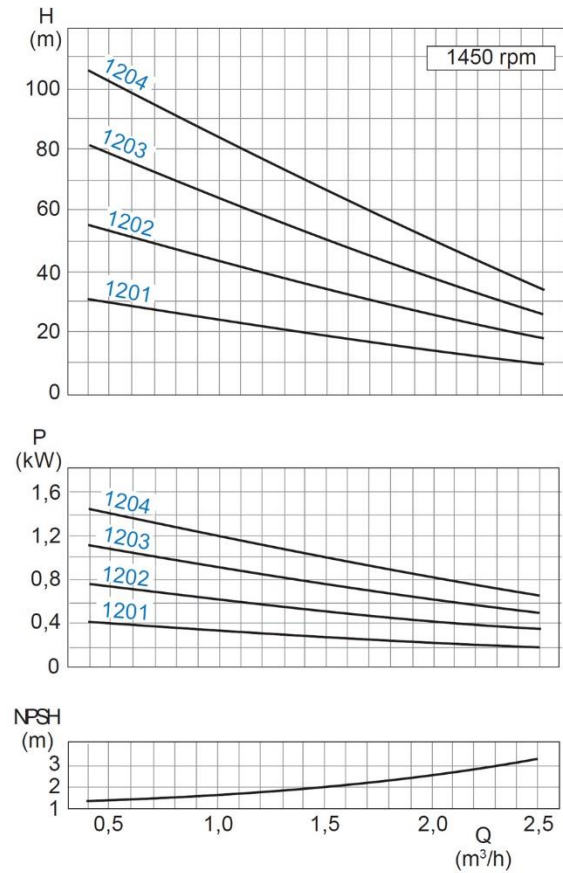
For designs with a mechanical seal or casing seal in soft Teflon, the tolerance for the delivery head is extended by 2% each.

Pump size	Motor		Base plate	Coupling	Weight [kg]		Dimensions [mm]												
	kW	size			Pump	Set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
1101	0.37	71	P007	B68	14	35	120	317	20	15	350	285	110	53	125	182	146	627	570
1102	0.55	80	P007	B68	15	38	120	317	20	15	350	285	110	53	125	182	146	661	570
1103	0.75	80	P008	B68	17	45	154	297	20	15	400	265	120	53	130	216	180	695	640
	1.1	90S				753													
1104	0.75	80	P008	B68	19	50	188	297	20	15	400	265	120	53	130	250	214	729	640
	1.1	90S	P210			55												300	

* Design B – dimensions depend upon motor brand.
The weight of the pump in design A will be approx. 1 kg less.

Dimension chart, pump set drawing and performance curves

AKH 1200 in cast iron (0A, 0B, 0F, 2H)



Values are valid for water with density = 1 kg/dm³ and viscosity = 1 cSt.

Capacity ± 10% - Delivery head ± 10% - Power + 10%

For designs with a mechanical seal or casing seal in soft Teflon, the tolerance for the delivery head is extended by 2% each.

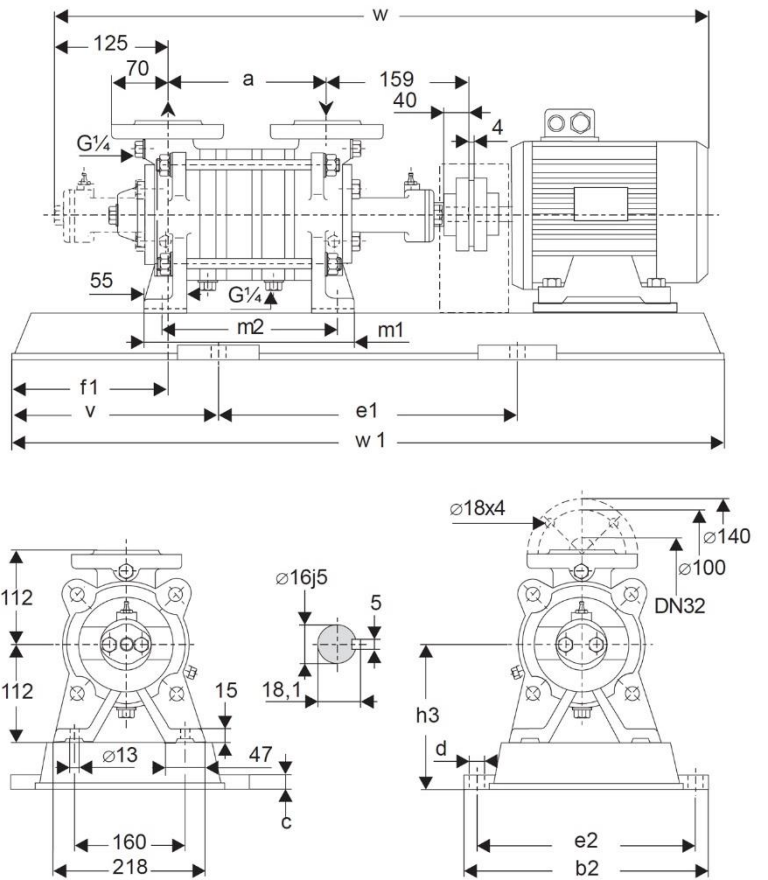
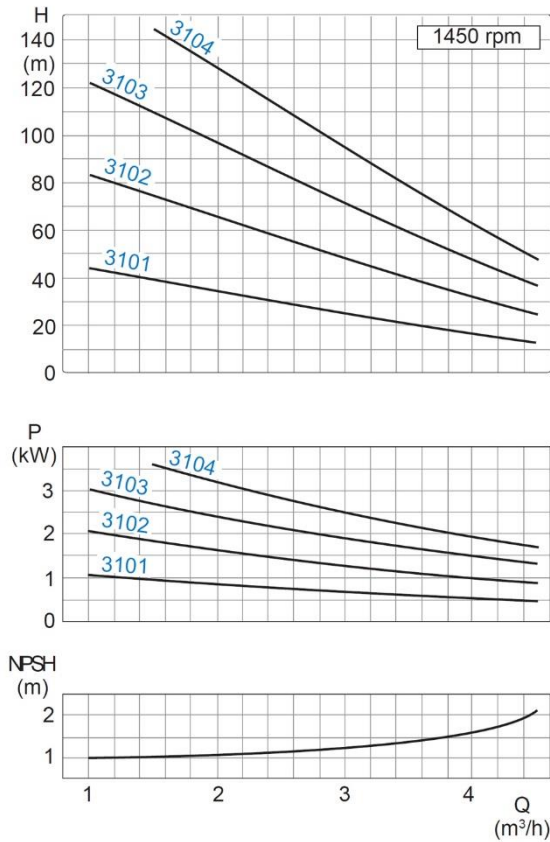
Pump size	Motor		Base plate	Coupling	Weight [kg]		Dimensions [mm]												
	kW	size			Pump	Set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
1201	0.37	71	P007	B68	14	35	120	317	20	15	350	285	110	53	125	182	146	627	570
	0.55	80				661													
1202	0.55	80	P007	B68	15	38	120	317	20	15	350	285	110	53	125	182	246	661	570
	0.75	80				661													
1203	0.75	80	P008	B68	17	45	154	297	20	15	400	265	120	53	130	216	180	695	640
	1.1	90S				753													
1204	1.1	90S	P210	B68	19	52	188	300	25	19	420	260	115	53	155	250	214	787	650
	1.5	90L				P241					59							330	

* Design B – dimensions depend upon motor brand.

The weight of the pump in design A will be approx. 1 kg less.

Dimension chart, pump set drawing and performance curves

AKH 3100 in cast iron (0A, 0B, 0F, 2H)



Values are valid for water with density = 1 kg/dm³ and viscosity = 1 cSt.

Capacity ± 10% - Delivery head ± 10% - Power + 10%

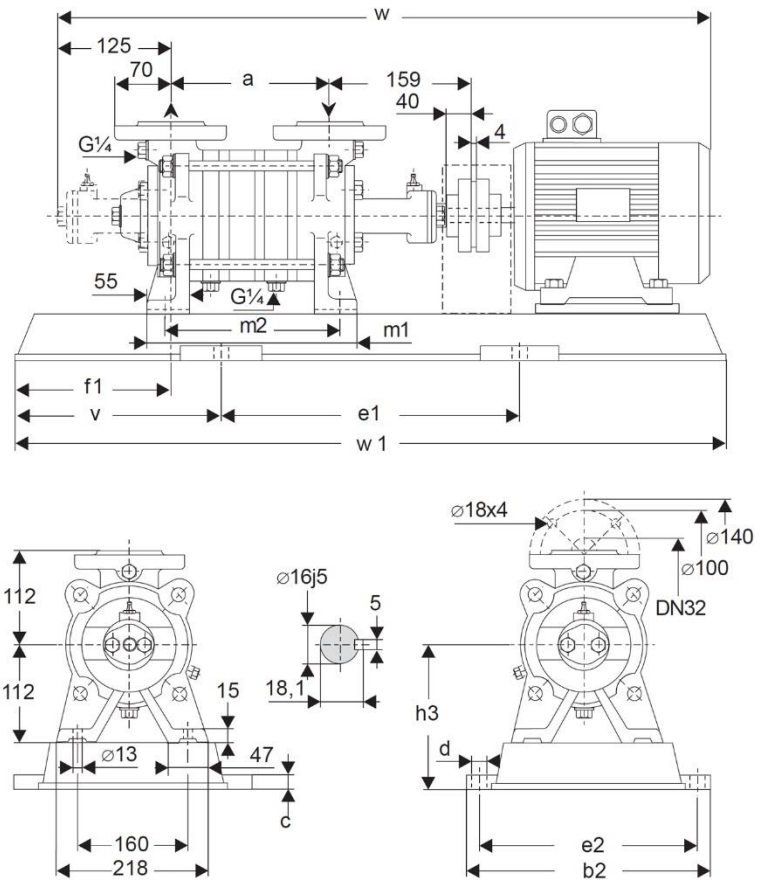
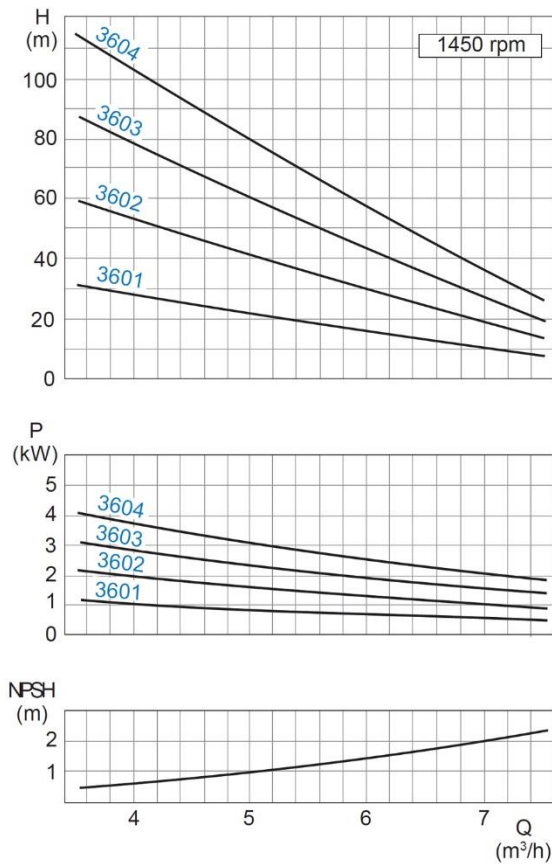
For designs with a mechanical seal or casing seal in soft Teflon, the tolerance for the delivery head is extended by 2% each.

Pump size	Motor		Base plate	Coupling	Weight [kg]		Dimensions [mm]												
	kW	size			Pump	Set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
3101	0.75	80	P008	B68	22	50	145	297	20	15	400	265	120	56	152	214	178	706	640
	1.1	90S				56												764	
3102	1.1	90S	P008	B68	23	55	145	297	20	15	400	265	120	56	152	214	178	764	640
	1.5	90L				59												805	
	2.2	100L	P241	B80		70	330	25	19	480	290	125	177	730					
3103	2.2	100L	P241	B80	26	73	185	330	25	19	480	290	125	56	177	254	218	845	730
	3.0	100L				74												906	
3104	2.2	100L	P272	B80	29	80	225	360	25	19	540	320	140	56	177	294	258	885	820
	3.0	100L				81												906	
	4.0	112M				99												906	

* Design B – dimensions depend upon motor brand.
The weight of the pump in design A will be approx. 2.5 kg less.

Dimension chart, pump set drawing and performance curves

AKH 3600 in cast iron (0A, 0B, 0F, 2H)



Values are valid for water with density = 1 kg/dm³ and viscosity = 1 cSt.

Capacity ± 10% - Delivery head ± 10% - Power + 10%

For designs with a mechanical seal or casing seal in soft Teflon, the tolerance for the delivery head is extended by 2% each.

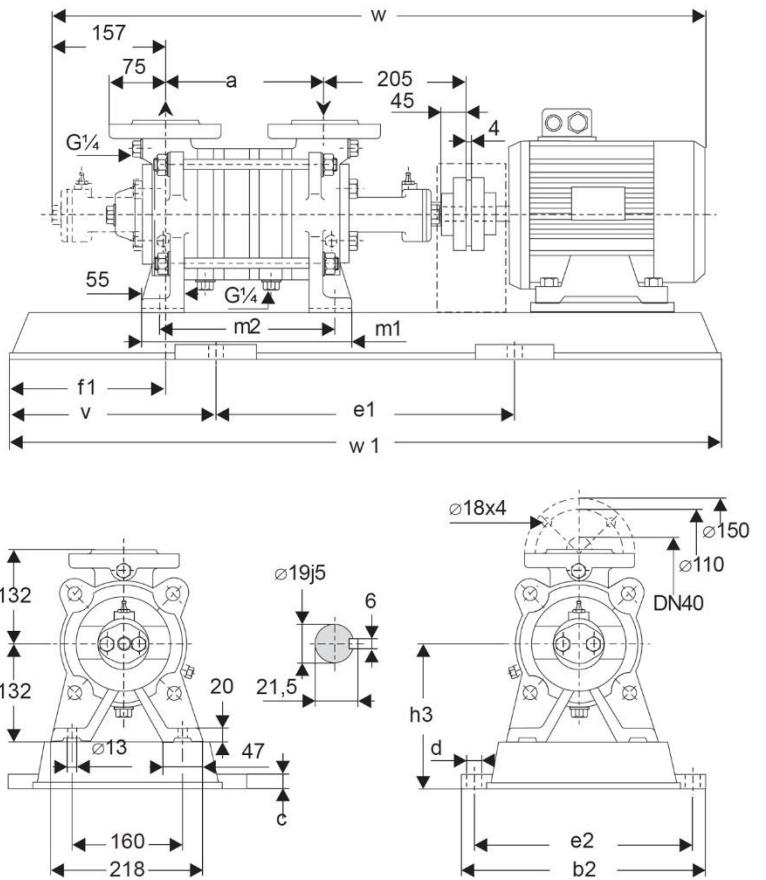
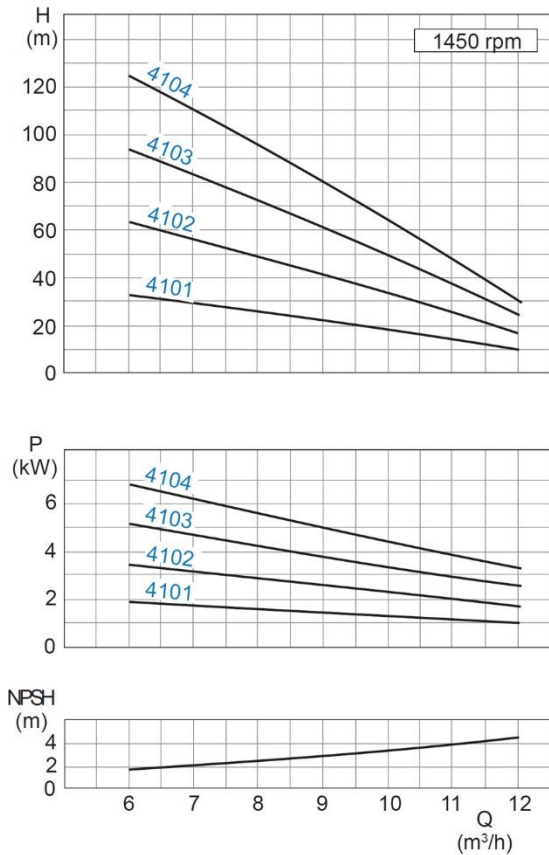
Pump size	Motor		Base plate	Coupling	Weight [kg]		Dimensions [mm]												
	kW	size			Pump	Set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
3601	0.75	80	P008	B68	22	50	145	297	20	15	400	265	120	56	152	214	178	706	640
	1.1	90S				56												764	
3602	1.5	90L	P241	B80	23	59	145	297	20	15	400	265	120	56	152	214	178	764	640
	2.2	100L				70												330	
3603	2.2	100L	P241	B80	26	73	185	330	25	19	480	290	125	56	177	254	218	845	730
	3.0	100L				74												866	
	4.0	112M				92												866	
3604	3.0	100L	P272	B80	29	81	225	360	25	19	540	320	140	56	177	294	258	885	820
	4.0	112M				99												906	
	5.5	132S				126												361	

* Design B – dimensions depend upon motor brand.

The weight of the pump in design A will be approx. 2.5 kg less.

Dimension chart, pump set drawing and performance curves

AKH 4100 in cast iron (0A, 0B, 0F, 2H)



Values are valid for water with density = 1 kg/dm³ and viscosity = 1 cSt.

Capacity ± 10% - Delivery head ± 10% - Power + 10%

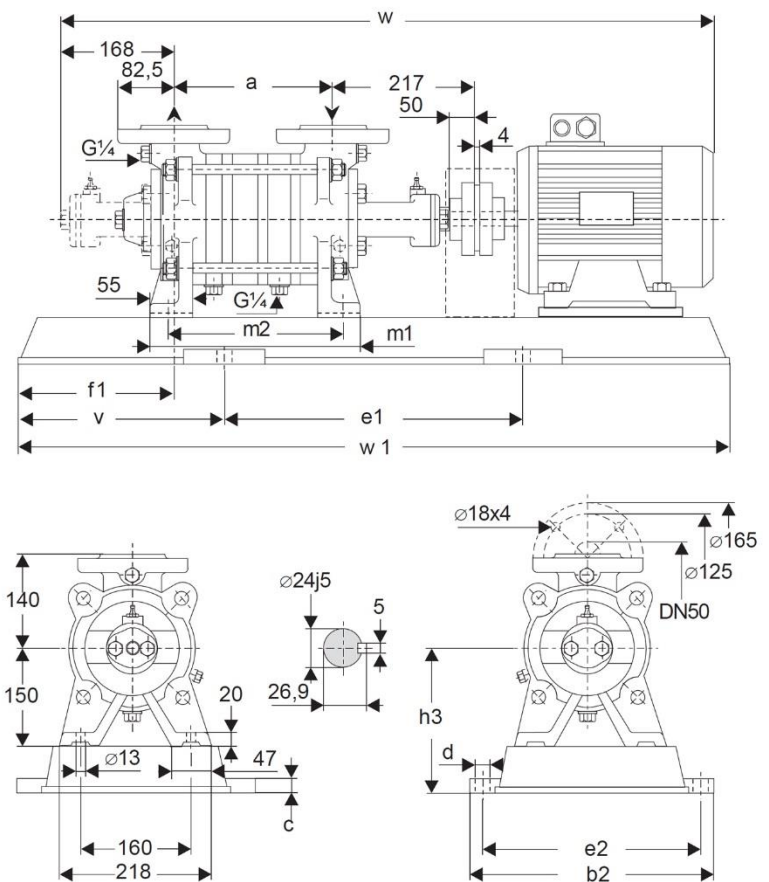
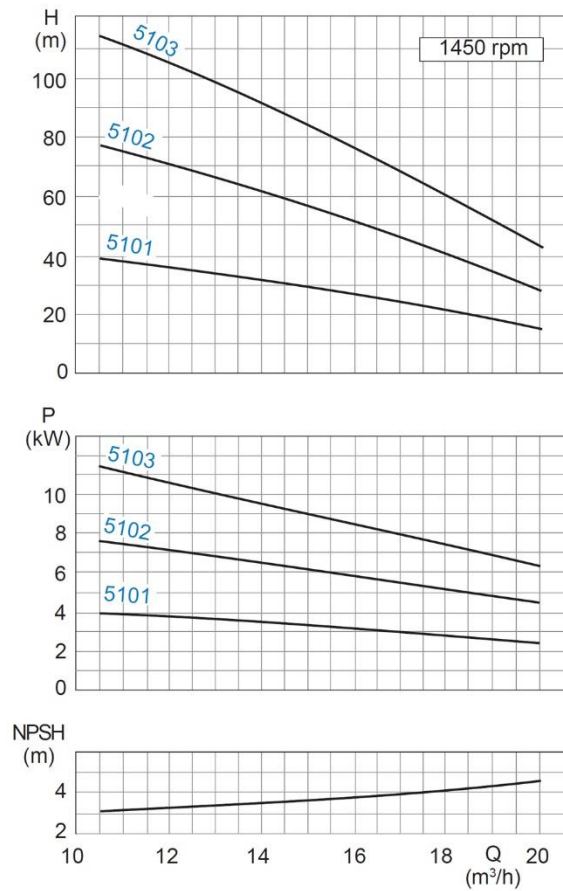
For designs with a mechanical seal or casing seal in soft Teflon, the tolerance for the delivery head is extended by 2% each.

Pump size	Motor		Base plate	Coupling	Weight [kg]		Dimension [mm]												
	kW	size			Pump	Set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
4101	1.5	90L	P241	B68	28	69	155	330	25	19	480	290	125	42	197	195	159	852	730
	2.2	100L		B80		76												893	
4102	2.2	100L	P272	B80	34	86	210	360	25	19	540	320	140	42	197	250	214	948	820
	3.0	100L				87												969	
	4.0	112M				105												969	
4103	4.0	112M	P015	B80	40	116	265	361	25	15	600	325	160	42	182	305	269	1024	920
	5.5	132S		B95		137												1100	
4104	4.0	112M	P015	B80	45	121	320	361	25	15	600	325	160	42	182	360	324	1079	920
	5.5	132S				158					1155								
	7.5	132M				P017					B95							168	

* Design B – dimensions depend upon motor brand.
The weight of the pump in design A will be approx. 3 kg less.

Dimension chart, pump set drawing and performance curves

AKH 5100 in cast iron (0A, 0B, 0F, 2H)



Values are valid for water with density = 1 kg/dm³ and viscosity = 1 cSt.

Capacity ± 10% - Delivery head ± 10% - Power + 10%

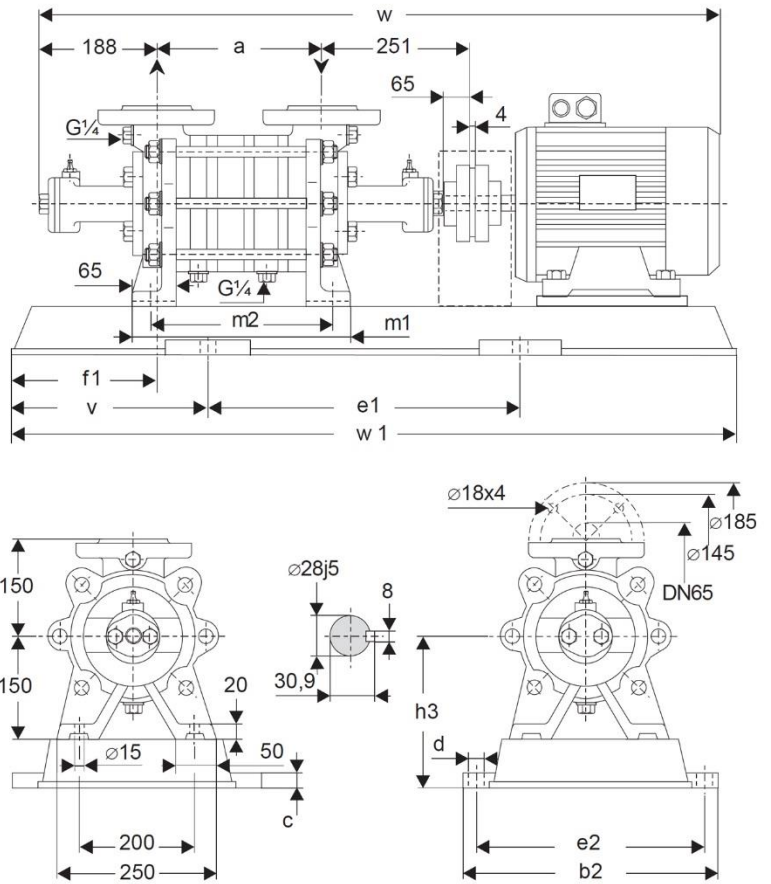
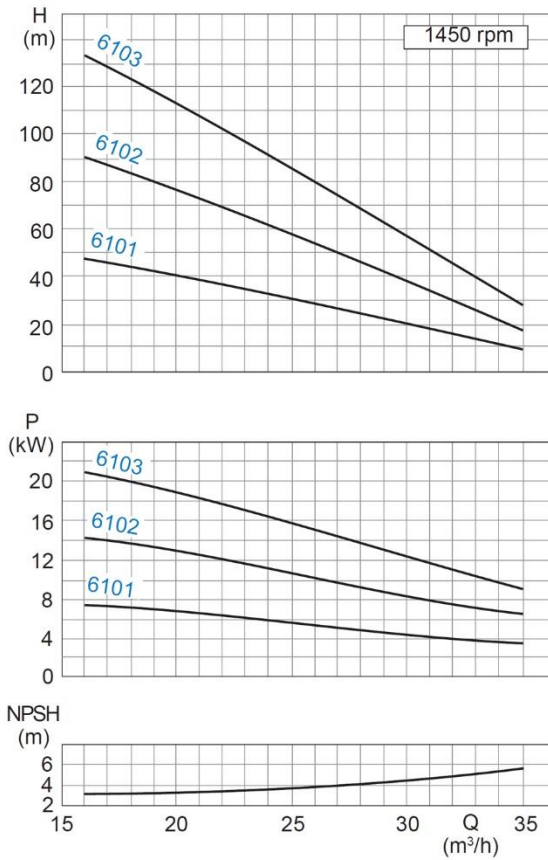
For designs with a mechanical seal or casing seal in soft Teflon, the tolerance for the delivery head is extended by 2% each.

Pump size	Motor		Base plate	Coup-ling	Weight [kg]		Dimensions [mm]												
	kW	size			Pump	Set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
5101	3.0	100L	P272	B80	36	89	170	360	25	19	540	320	140	48	215	220	185	931	820
	4.0	112M				107												952	
5102	5.5	132S	P015	B95	46	143	245	361	25	15	600	325	160	48	200	295	260	1103	920
	7.5	132M				153												1129	
	11.0	160M	P344			216		450	30	24	660	400	180	240	1221	1020			
5103	7.5	132M	P017	B95	55	178	320	361	25	15	700	325	200	48	210	370	335	1204	1100
	11.0	160M				262												1296	
	15.0	160L	P385			B110		283	490	30	24	740	440	240	1358	1140			

* Design B – dimensions depend upon motor brand.
The weight of the pump in design A will be approx. 4 kg less.

Dimension chart, pump set drawing and performance curves

AKH 6100 in cast iron (0A, 0B, 0F, 2H)



Values are valid for water with density = 1 kg/dm³ and viscosity = 1 cSt.

Capacity ± 10% - Delivery head ± 10% - Power + 10%

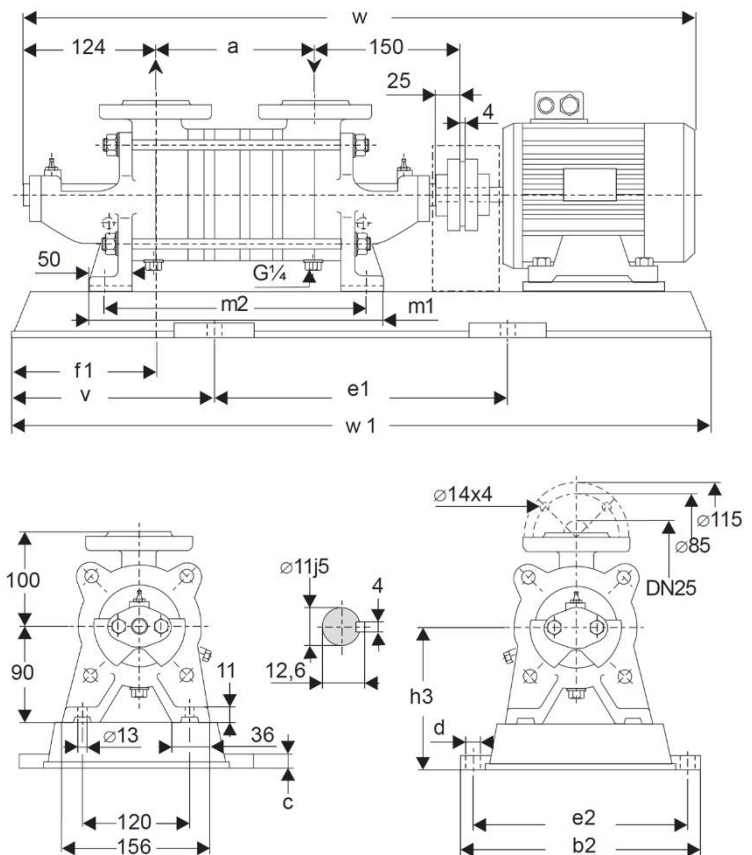
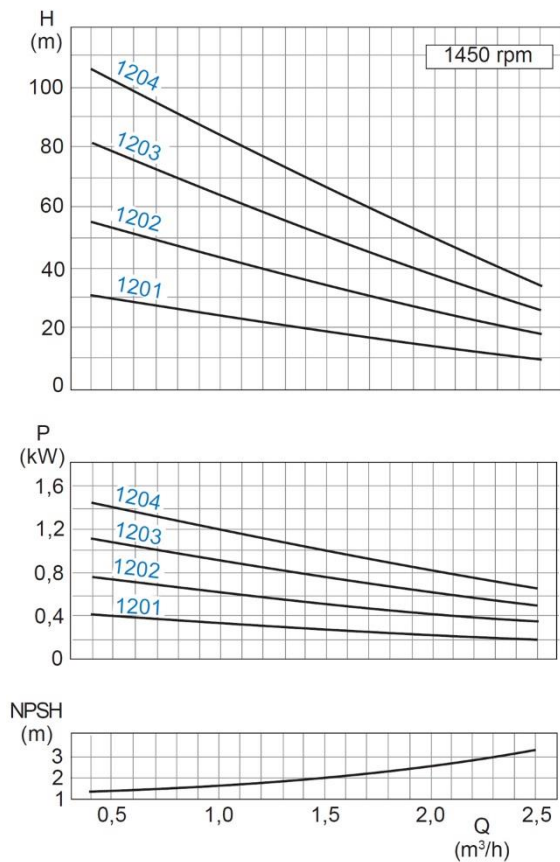
For designs with a mechanical seal or casing seal in soft Teflon, the tolerance for the delivery head is extended by 2% each.

Pump size	Motor		Base plate	Coup-ling	Weight [kg]		Dimensions [mm]												
	kW	size			Pump	set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
6101	5.5	132S	P015	B95	54	152	190	361	25	15	600	325	160	63	200	276	220	1102	920
	7.5	132M				161	1128												
6102	11.0	160M	P385	B95	65	272	280	490	30	24	740	440	200	63	240	366	310	1310	1140
	15.0	160L		B110		293	1372												
6103	18.5	180M	P436	B110	76	317	370	540	30	24	840	490	215	63	260	456	400	1524	1270
	22.0	180L		B125		337													

* Design B – dimensions depend upon motor brand.

Dimension chart, pump set drawing and performance curves

AKH 1200 in Bronze (3B) and stainless steel (4B, 4F)



Values are valid for water with density = 1 kg/dm³ and viscosity = 1 cSt.

Capacity ± 10% - Delivery head ± 10% - Power + 10%

For designs with a mechanical seal or casing seal in soft Teflon, the tolerance for the delivery head is extended by 2% each.

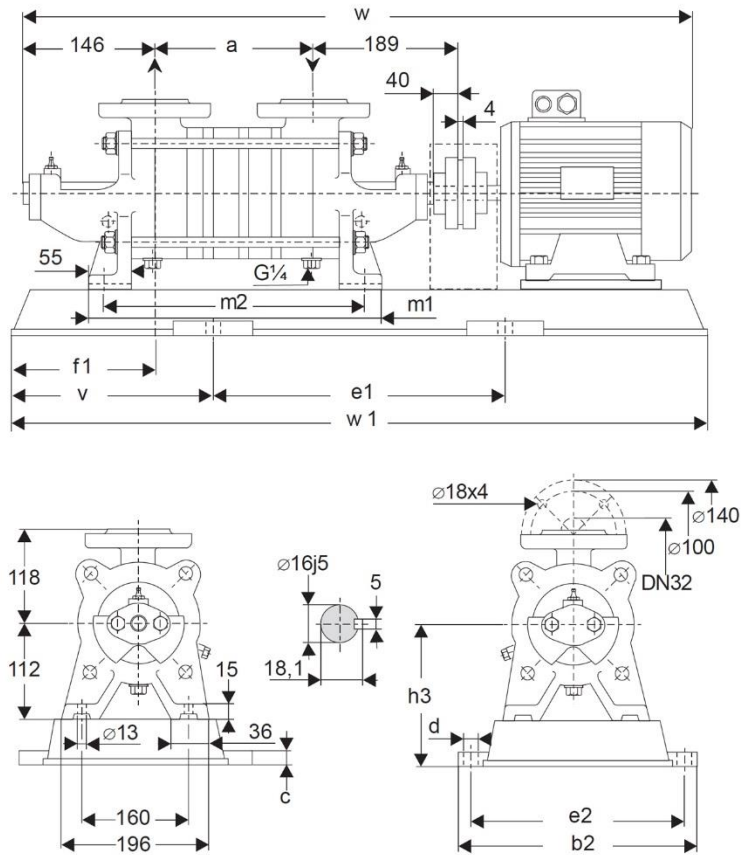
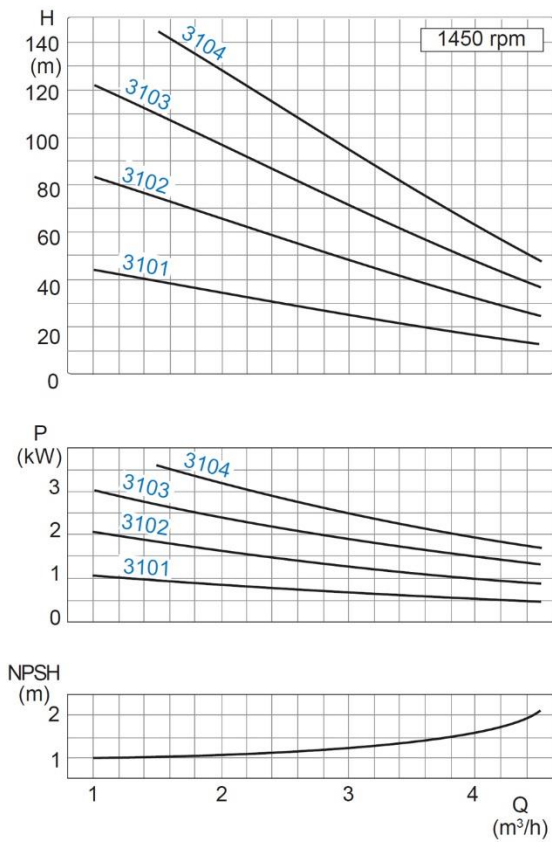
Pump size	Motor		Base plate	Coupling	Weight [kg]		Dimension [mm]												
	kW	size			Pump	Set	a	b2	C	d	e1	e2	v	f1	h3	m1	m2	w*	w1
1201	0.37	71	P007	B68	15	36	120	317	20	15	350	285	110	87	125	256	214	637	570
	0.55	80	P008			42												297	400
1202	0.55	80	P008	B68	16	43	120	297	20	15	400	265	120	87	130	256	214	671	640
	0.75	80				44												705	640
1203	0.75	80	P008	B68	18	46	154	297	20	15	400	265	120	87	130	290	248	705	640
	1.1	90S	P241			54												330	25
1204	1.1	90S	P241	B68	20	56	188	330	25	19	480	290	125	87	155	324	282	797	730
	1.5	90L				60												730	

* Design B – dimensions depend upon motor brand.

The weight of the pump in design A (only available in stainless steel) will be approx. 1 kg less.

Dimension chart, pump set drawing and performance curves

AKH 3100 in Bronze (3B) and stainless steel (4B, 4F)



Values are valid for water with density = 1 kg/dm³ and viscosity = 1 cSt.

Capacity ± 10% - Delivery head ± 10% - Power + 10%

For designs with a mechanical seal or casing seal in soft Teflon, the tolerance for the delivery head is extended by 2% each.

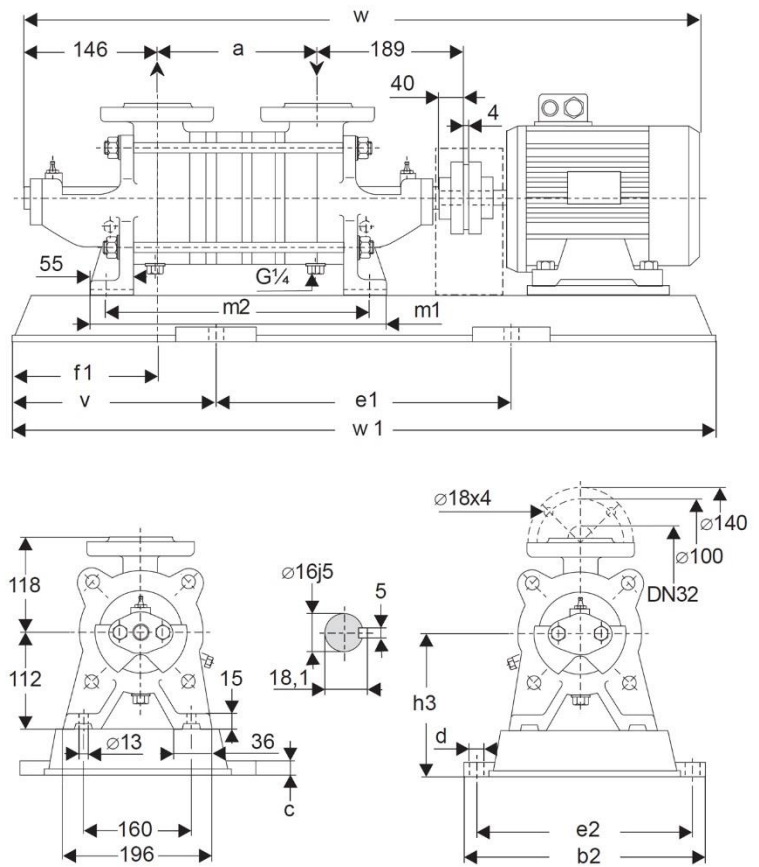
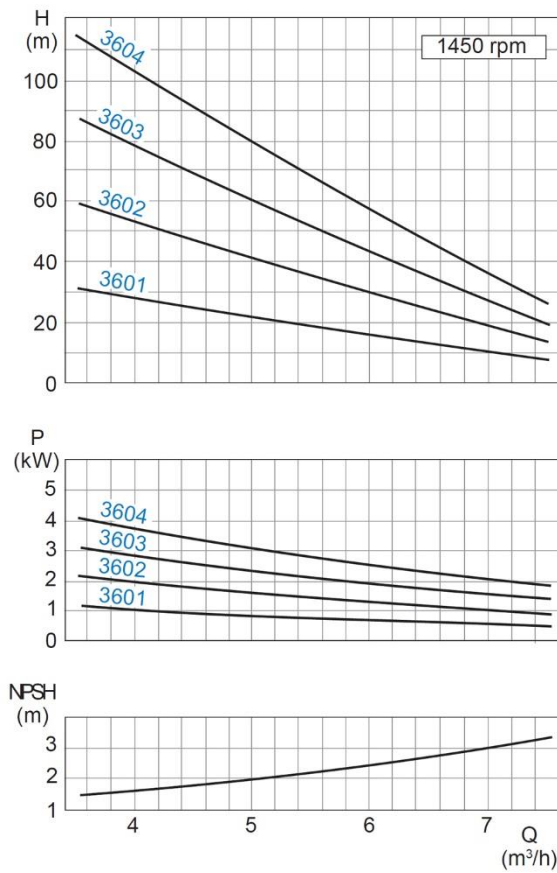
Pump size	Motor		Base plate	Coupling	Weight [kg]		Dimension [mm]												
	kW	size			Pump	Set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
3101	0.75	80	P241	B68	26	58	150	330	25	19	480	290	125	99	177	308	268	762	730
	1.1	90S				62												820	
3102	1.1	90S	P241	B68	27	63	150	330	25	19	480	290	125	99	177	308	268	820	730
	1.5	90L				67												820	
	2.2	100L	P272	B80		78	360	540	320	140	861	820							
3103	2.2	100L	P272	B80	31	82	190	360	25	19	540	320	140	99	177	348	308	901	820
	3.0	100L				83												901	
3104	2.2	100L	P272	B80	34	96	230	360	25	19	540	320	140	99	177	388	348	941	820
	3.0	100L				97												941	
	4.0	112M	P015	109		361	15	600	325	160	962	920							

* Design B – dimensions depend upon motor brand.

The weight of the pump in design A (only available in stainless steel) will be approx. 2.7 kg less.

Dimension chart, pump set drawing and performance curves

AKH 3600 in Bronze (3B) and stainless steel (4B, 4F)



Values are valid for water with density = 1 kg/dm³ and viscosity = 1 cSt.

Capacity ± 10% - Delivery head ± 10% - Power + 10%

For designs with a mechanical seal or casing seal in soft Teflon, the tolerance for the delivery head is extended by 2% each.

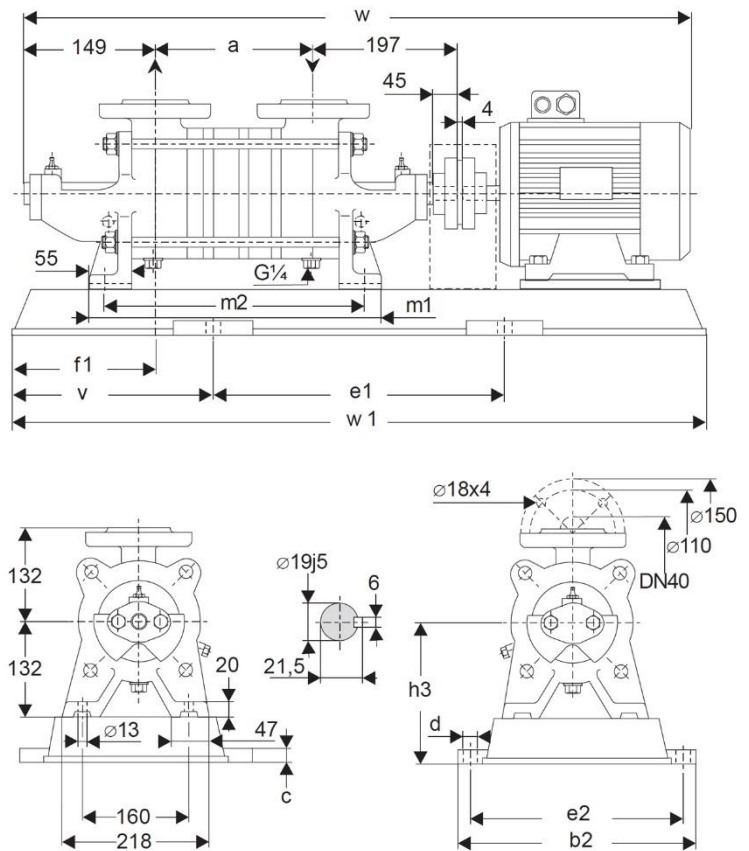
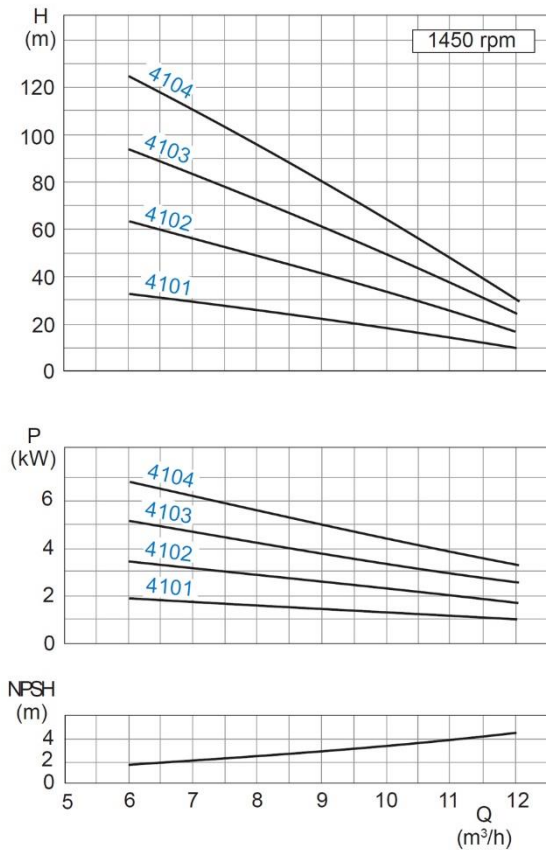
Pump size	Motor		Base plate	Coupling	Weight [kg]		Dimension [mm]												
	kW	size			Pump	Set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
3601	0.75	80	P241	B68	26	58	150	330	25	19	480	290	125	99	177	308	268	762	730
	1.1	90S				62												820	
3602	1.5	90L	P241	B68	27	67	150	330	25	19	480	290	125	99	177	308	268	820	730
	2.2	100L	P272	B80		78		360										540	
3603	2.2	100L	P272	B80	31	82	190	360	25	19	540	320	140	99	177	348	308	901	820
	3.0	100L				83												922	
	4.0	112M				101												922	
3604	3.0	100L	P272	B80	34	87	230	360	25	19	540	320	140	99	177	388	348	941	820
	4.0	112M	109			962													
	5.5	132S	P015	B95		131												361	

* Design B – dimensions depend upon motor brand.

The weight of the pump in design A (only available in stainless steel) will be approx. 2.7 kg less.

Dimension chart, pump set drawing and performance curves

AKH 4100 in Bronze (3B) and stainless steel (4B, 4F)



Values are valid for water with density = 1 kg/dm³ and viscosity = 1 cSt.

Capacity ± 10% - Delivery head ± 10% - Power + 10%

For designs with a mechanical seal or casing seal in soft Teflon, the tolerance for the delivery head is extended by 2% each.

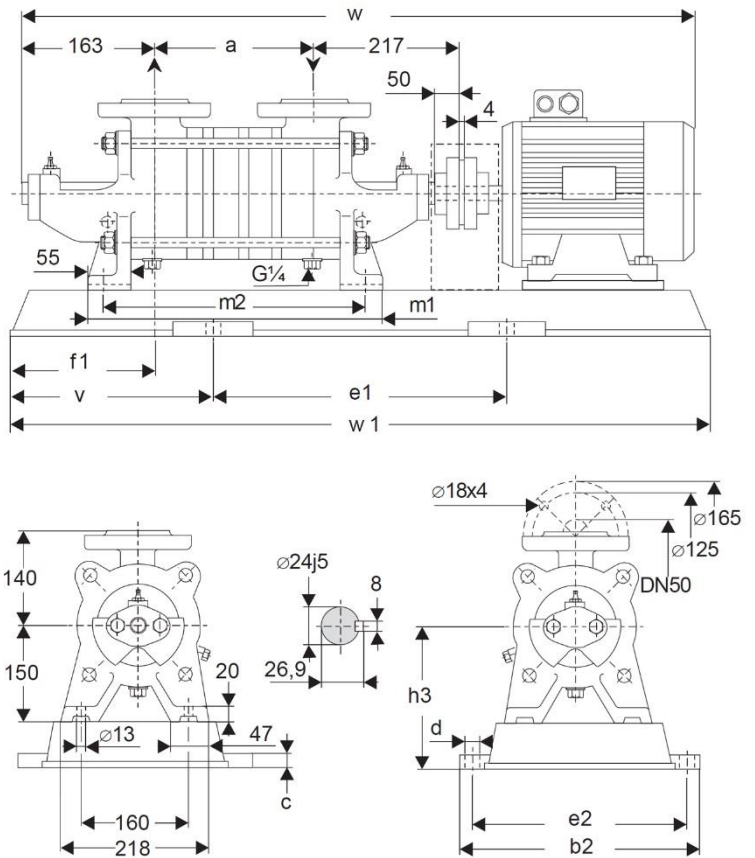
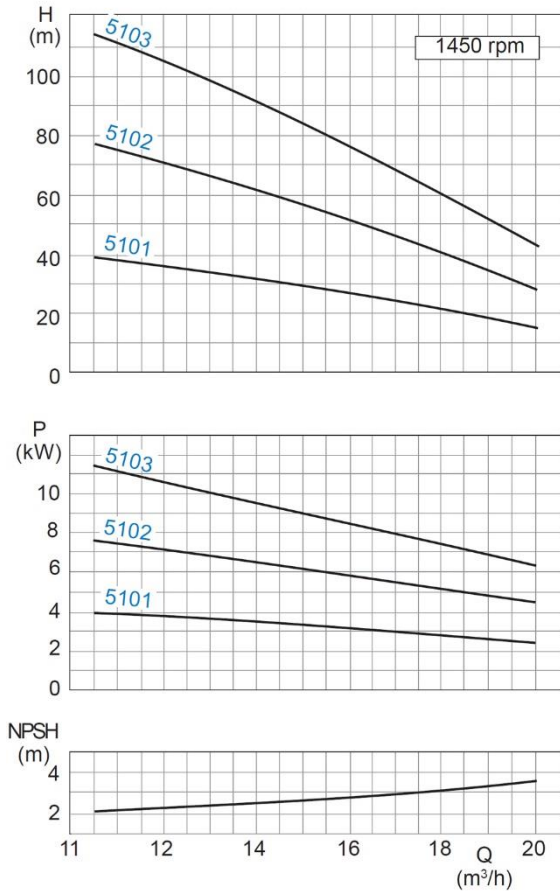
Pump size	Motor		Base plate	Coupling	Weight [kg]		Dimension [mm]												
	kW	size			Pump	Set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
4101	1.5	90L	P241	B68	33	74	160	330	25	19	480	290	125	92	197	303	263	841	730
	2.2	100L	P272	B80		85					360	320	140					882	820
4102	2.2	100L	P272	B80	39	92	215	360	25	19	540	320	140	92	197	358	318	937	820
	4.0	112M				109												958	
4103	4.0	112M	P015	B80	44	118	270	361	25	15	600	325	160	92	182	413	373	1013	920
	5.5	132S	P017	B95		157					700		200		192			1089	1100
4104	4.0	112M	P017	B80	50	140	325	361	25	15	700	325	200	92	192	468	428	1068	1100
	5.5	132S		B95		163												1144	
	7.5	132M		173		1170													

* Design B – dimensions depend upon motor brand.

The weight of the pump in design A (only available in stainless steel) will be approx. 3.2 kg less.

Dimension chart, pump set drawing and performance curves

AKH 5100 in Bronze (3B) and stainless steel (4B)



Values are valid for water with density = 1 kg/dm³ and viscosity = 1 cSt.

Capacity ± 10% - Delivery head ± 10% - Power + 10%

For designs with a mechanical seal or casing seal in soft Teflon, the tolerance for the delivery head is extended by 2% each.

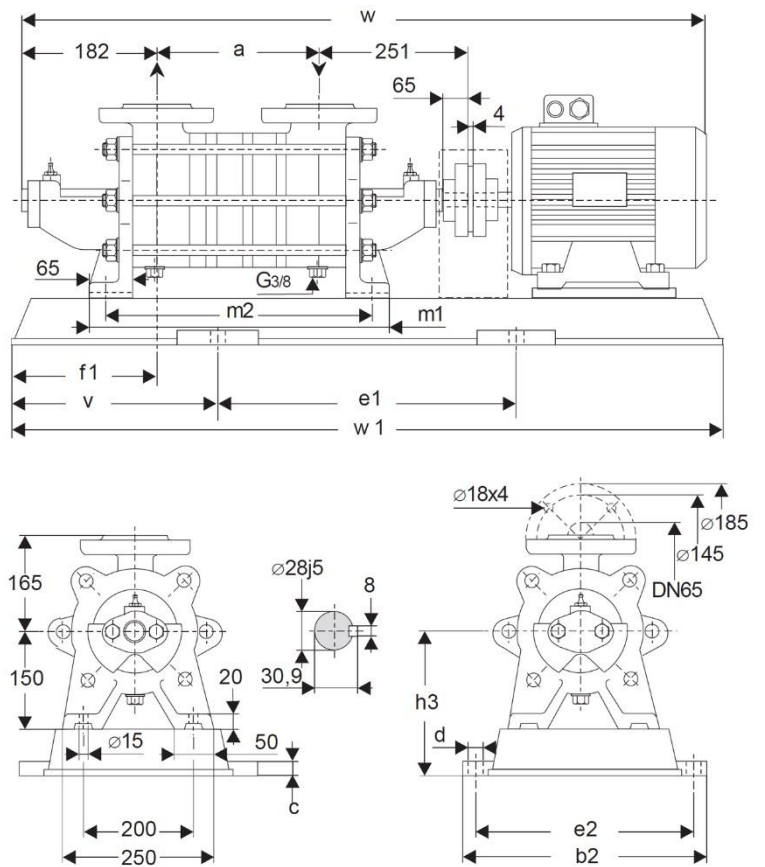
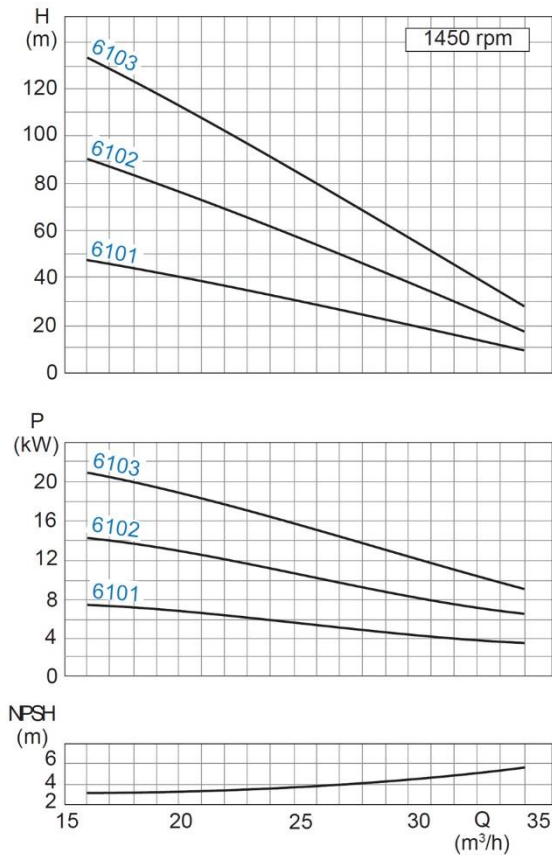
Pump size	Motor		Base plate	Coupling	Weight [kg]		Dimension [mm]																				
	kW	size			Pump	Set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1								
5101	3.0	100L	P272	B80	45	98	175	360	25	19	540	320	140	99	215	329	293	931	820								
	4.0	112M				121												952									
5102	5.5	132S	P017	B95	55	168	250	361	25	15	700	325	200	99	210	404	368	1103	1100								
	7.5	132M				178												1129									
	11.0	160M				P385												262		490	30	24	740	440	240	1221	1140
5103	7.5	132M	P017	B95	64	217	325	361	25	15	700	325	200	99	210	479	443	1204	1100								
	11.0	160M				P385												271		490	30	24	740	440	240	1296	1140
	15.0	160L				P436												B110		283	540	30	24	840	490	215	240

* Design B – dimensions depend upon motor brand.

The weight of the pump in design A (only available in stainless steel) will be approx. 4.2 kg less.

Dimension chart, pump set drawing and performance curves

AKH 6100 in Bronze (3B) and stainless steel (4B)



Values are valid for water with density = 1 kg/dm³ and viscosity = 1 cSt.

Capacity ± 10% - Delivery head ± 10% - Power + 10%

For designs with a mechanical seal or casing seal in soft Teflon, the tolerance for the delivery head is extended by 2% each.

Pump size	Motor		Base plate	Coupling	Weight [kg]		Dimension [mm]												
	kW	size			Pump	Set	a	b2	C	d	e1	e2	v	f1	h3	m1	m2	w*	w1
6101	5.5	132S	P017	B95	62	175	195	361	25	15	700	325	200	117	210	388	328	1101	1100
	7.5	132M				182												1127	
6102	11.0	160M	P385	B95	75	282	285	490	30	24	740	440	200	117	240	478	418	1309	1140
	15.0	160L	P436	B110		294												540	
6103	18.5	180M	P487	B110	87	342	375	610	35	28	940	550	240	117	280	568	508	1523	1420
	22.0	180L		B125		362												1523	

* Design B – dimensions depend upon motor brand.

General comments

Side Channel pumps with the same hydraulic construction are manufactured in series as:

Series **AOH** Low duty pump with oval flanges, PN 10

Series **AEH** High duty pump, PN 40, also available with magnetic coupling

Series **CEH** High duty pump, PN 40, also available with magnetic coupling

Series **CEB** Vertical tank mounted pump, PN 25 with magnetic

Technical documents about these pump series will be readily supplied on request.