

Side Channel Pumps

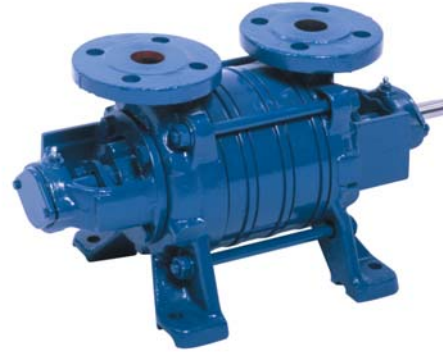
Self-priming, segmental type



AKH 1201 ... 6103

Technical data

Capacity:	from 1 up to 155 GPM
Head:	from 20 up to 473 feet
Speed:	1800 rpm
Temperature:	max. 250 °F
Casing pressure:	230 PSI
Shaft sealing:	stuffing box or mechanical seal
Flange connections:	DIN 2501 / PN 16
Direction of rotation:	clockwise (when seen from the drive end)



Application

The Sterling 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

Maximum 16 bar from -40 °F up to +250 °F.

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 (upon request).

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. counter-clockwise is possible.

Shaft sealing

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

Material design AKH

Cast iron

Pos	Components	Material design		
		0A	0B	0F
1060	Suction casing	EN-GJL-250 (Cast Iron)		
1070	Discharge casing			
1090 1140 1141	Intermediate piece			
2100	Shaft			
		X 20 Cr 13 (SS)		
2350	Vane wheel impeller	CuZn40Al2 (Bronze)	G-X 3 CrNiMoCuN 26 6 3 3 (Duplex SS)	PAEK (Composite)
0241	Bearing bush	EK 2203		

Stainless steel and Bronze

Pos	Components	Material design			
		2H*	3B	4B	4F
1060	Suction casing	EN-GJL-250 (Cast Iron)	GC-CuSn 12 (Bronze)	G-X 6 CrNiMo 18 10 (316 SS)	
1070	Discharge casing				
1090 1140 1141	Intermediate piece				
		G-Sn Bz 16 (Bronze)			
2100	Shaft	X 5 CrNiMo 17 12 2 (316 SS)			
2350	Vane wheel impeller	G-Cu Sn chrome plated (Bronze)	G-Cu Sn chrome plated (Bronze)	G-X 3 CrNiMoCuN 26 6 3 3 (Duplex SS)	PAEK (Composite)
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.

General comments

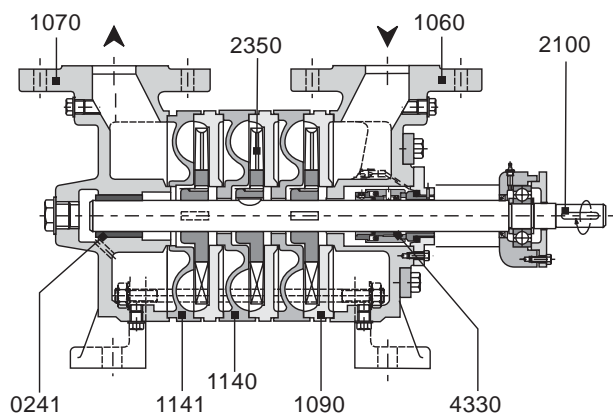
Side Channel pumps with the same hydraulic construction are manufactured in series as:

- AOH** Low duty pump with oval flanges, PN 10
- CEH** High duty pump, PN 40
Also available with magnetic coupling
- CEB** Vertical tank mounted pump, PN 25 with magnetic coupling
- CEV** Vertical tank mounted pump, PN 25 with mechanical seal (replacement for CVGP)
- AEH** High duty pump, PN 40
Also available with magnetic coupling

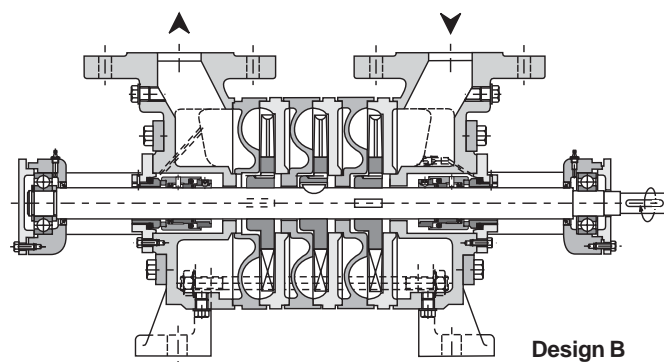
Technical documents about these pump series will be readily supplied on request.

Sectional drawing and parts list AKH (typical)

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



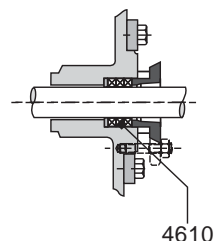
Design A
(only for sizes 1100 up to 5100)



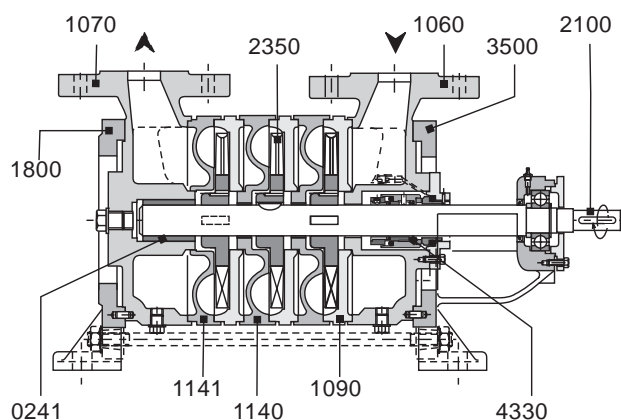
Pos. Components

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

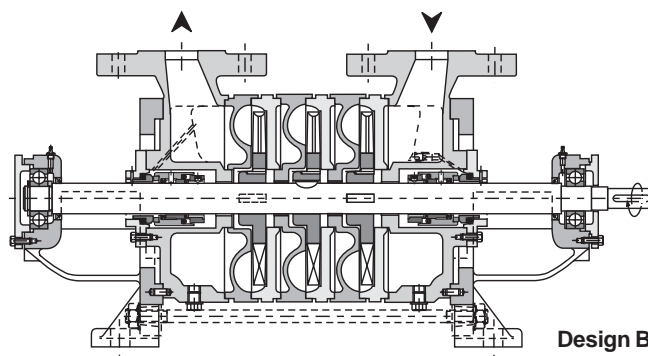
Stuffing box (available for all material designs)



AKH in Bronze (3B) and Stainless steel (4B and 4F)



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



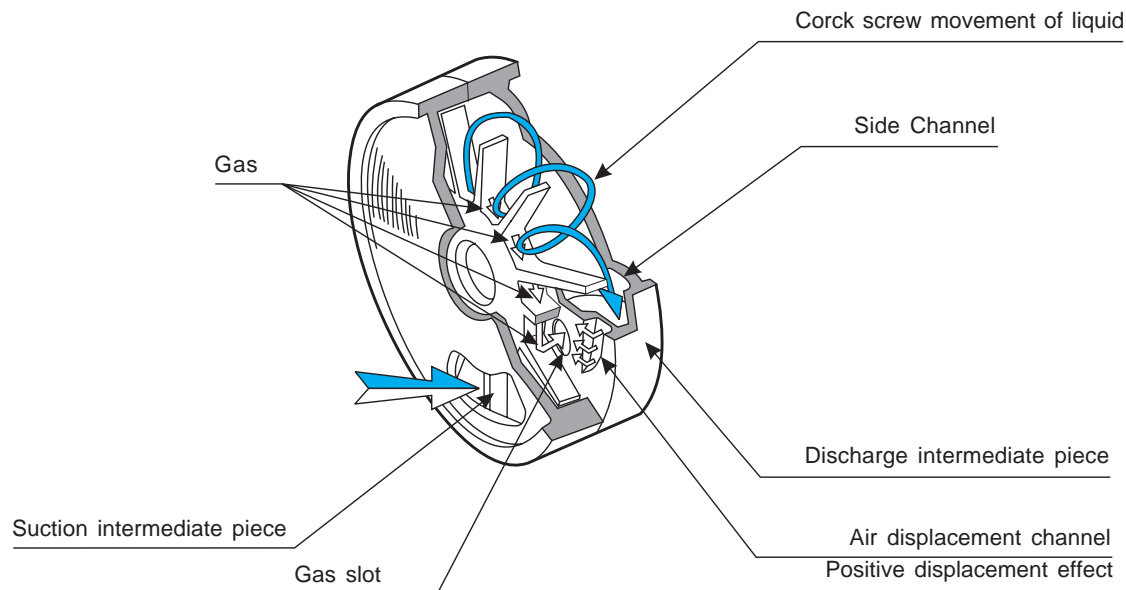
All possible design combinations can be found in the delivery program

A side channel stage consist of:

- a suction intermediate piece with the suction port,
- a discharge intermediate piece with the side channel, the air displacement channel at the end of the side channel, the discharge port and the gas slot,
- a vane wheel impeller enclosed by the two intermediate pieces.

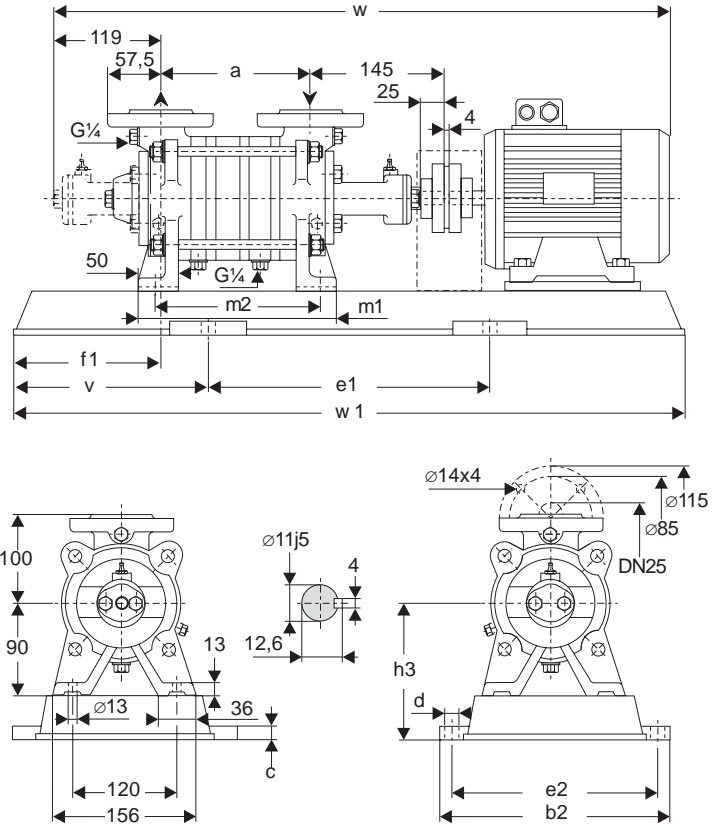
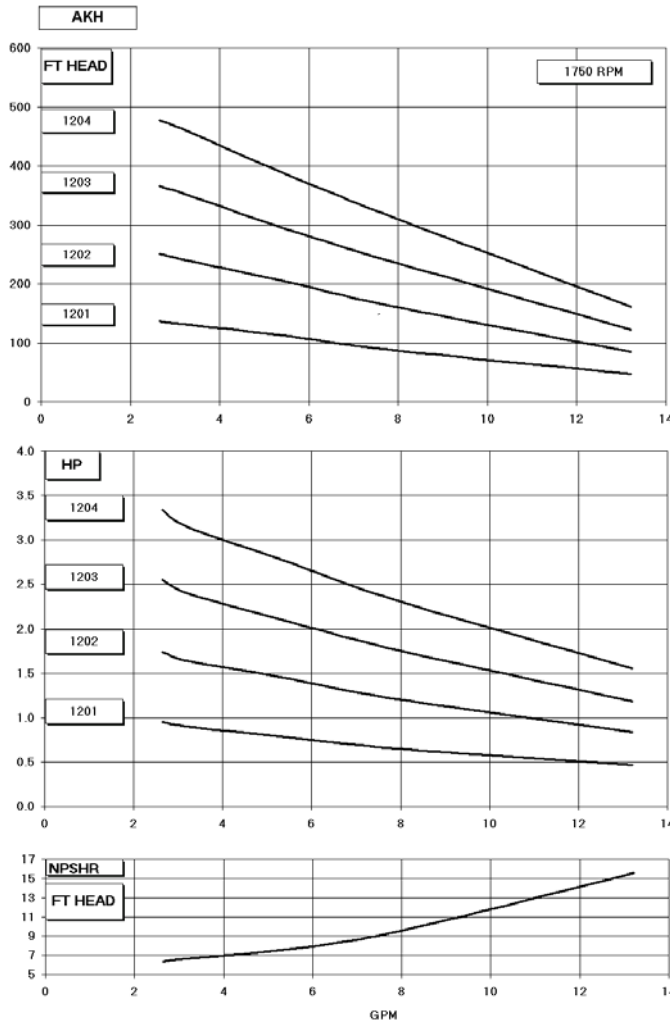
The turning of the vane wheel impeller creates an under pressure at the beginning of the side channel (centrifugal effect) and the gas or liquid with gas is drawn in. The air displacement channel provokes a **positive displacement** effect so the gas remaining at the root of the vane wheel impeller is forced out through the gas slot.

The pressure generating is obtained by the repetitive re-entering of the liquid in the side channel (**corkscrew movement**).



A side channel pump can de-aerate and degas the suction line by itself and is thus very suitable for suction lift operation. A side channel pump can handle large quantities of (entrained) gas. Mixtures up to a gas share of 50% are possible. The ability for self-priming and the handling of large amounts of (entrained) gas, will guarantee continuous operation even in case of evaporation and therefore contribute to a higher level of safety in industrial processes.

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



General:

Values are valid for water $\rho = 1 \text{ kg/dm}^3$ and $\nu = 1 \text{ cSt}$.

Characteristic tolerances:

Capacity $\pm 5\%$ - Delivery head $\pm 5\%$ - Power $+ 10\%$.
For designs with a mechanical seal or casing seal of soft Teflon, the tolerance for the delivery head is extended by 2% each.

All dimensions in millimeters (mm).

Pump size	Motor HP ¹⁾	Motor size	Weight pump	Weight (lbs.) set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
1201	1	143T	31	94	120	297	20	15	400	265	120	53	130	182	146	699	640
1202	2	145T	33	140	120	297	20	15	400	265	120	53	130	182	146	726	640
1203	3	182T	37	155	154	330	25	19	480	290	125	53	180	216	180	799	730
1204	5	184T	42	175	171	360	25	19	540	320	140	53	180	250	214	855	820

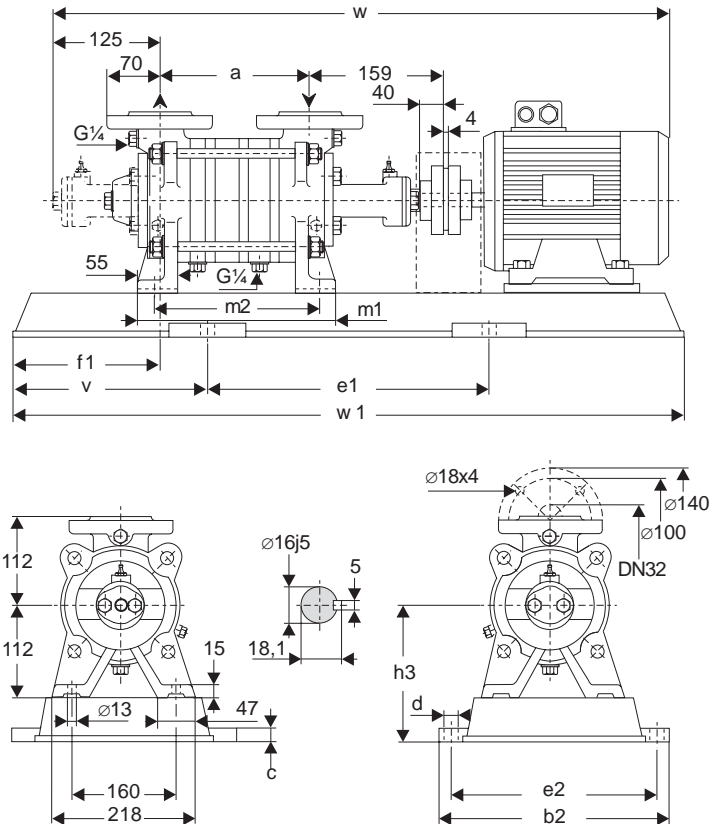
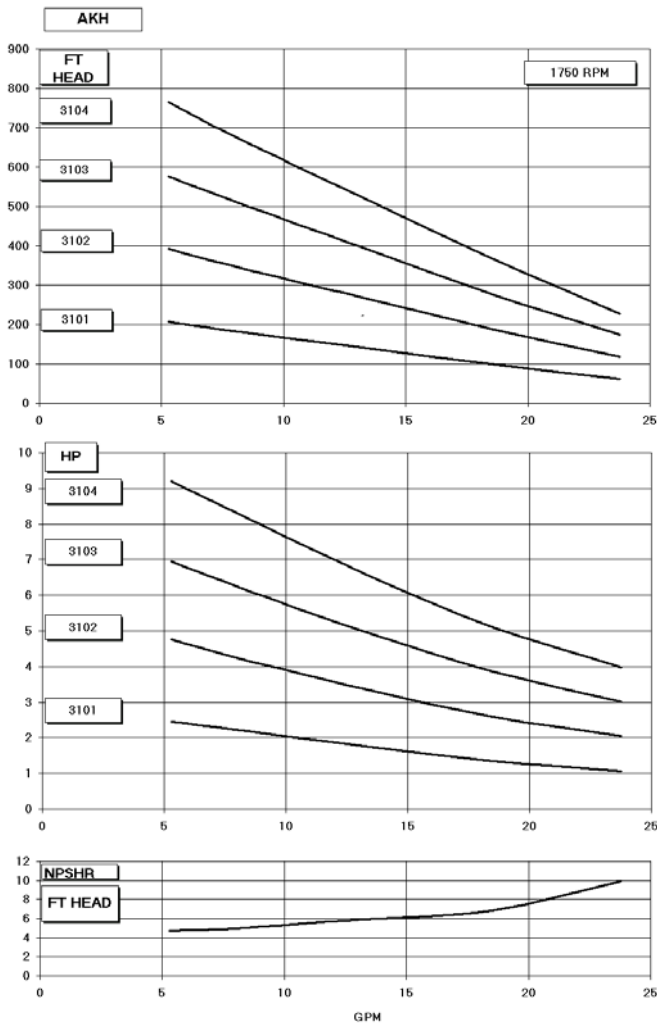
Dimensions and weights shown reference only - refer to factory for detailed information.

* Design B - dimensions depend upon the motor brand.

The weight of the pump in design A will be approximately 2.2 lbs less

¹⁾ Maximum Motor Sizes Shown.

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



General:

Values are valid for water $\rho = 1 \text{ kg/dm}^3$ and $\nu = 1 \text{ cSt}$.

Characteristic tolerances:

Capacity $\pm 5\%$ - Delivery head $\pm 5\%$ - Power $+ 10\%$.
For designs with a mechanical seal or casing seal of soft Teflon, the tolerance for the delivery head is extended by 2% each.

All dimensions in millimeters (mm).

Pump size	Motor HP ¹⁾	Motor size	Weight pump	Weight (lbs.) set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
3101	3	182T	48	171	145	297	20	15	400	265	120	56	180	214	178	810	730
3102	7.5	213T	51	243	145	360	25	19	540	320	140	56	198	214	178	891	830
3103	10	215T	57	315	185	361	25	15	600	325	160	56	183	254	218	969	920
3104	10	215T	64	330	225	361	25	15	600	325	160	56	183	294	258	1009	920

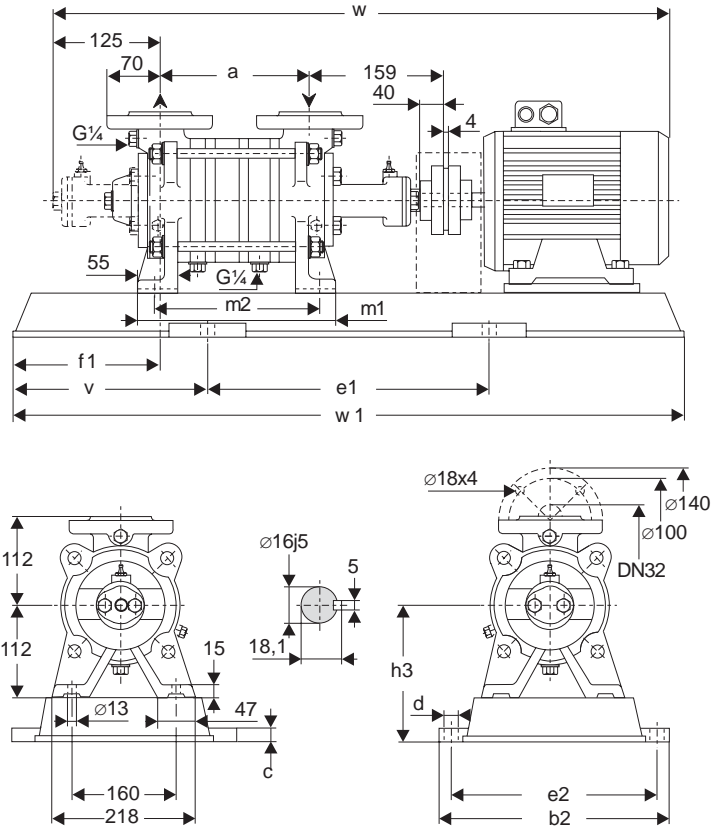
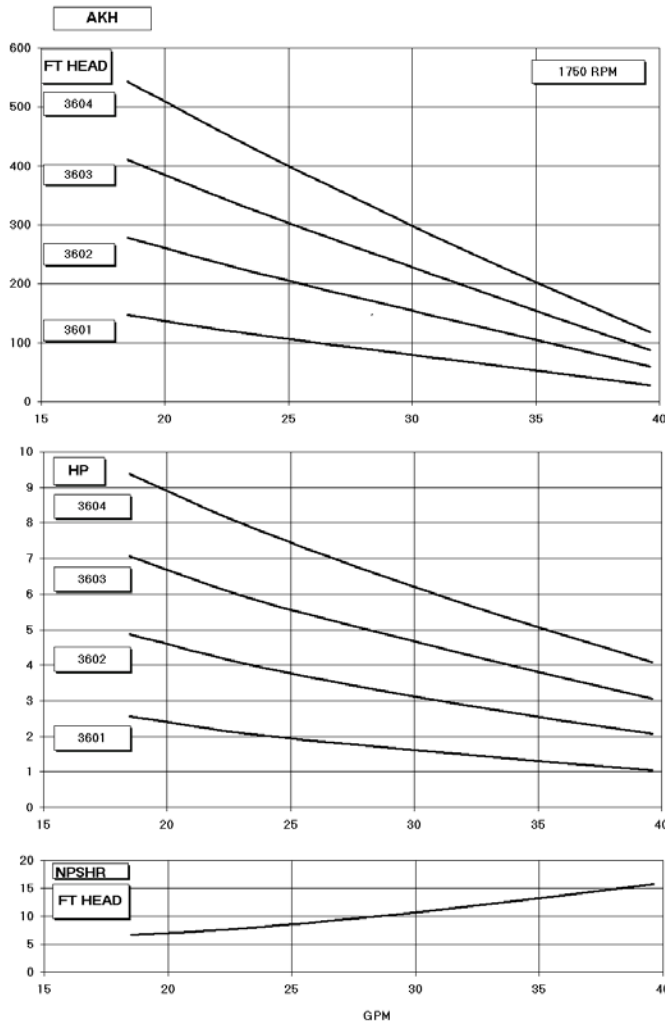
Dimensions and weights shown reference only - refer to factory for detailed information.

* Design B - dimensions depend upon the motor brand.

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

¹⁾ Maximum Motor Sizes Shown.

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



General:

Values are valid for water $\rho = 1 \text{ kg/dm}^3$ and $\nu = 1 \text{ cSt}$.

Characteristic tolerances:

Capacity $\pm 5\%$ - Delivery head $\pm 5\%$ - Power $+ 10\%$.
For designs with a mechanical seal or casing seal of soft Teflon, the tolerance for the delivery head is extended by 2% each.

All dimensions in millimeters (mm).

Pump size	Motor HP ¹⁾	Motor size	Weight pump	Weight (lbs.) set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
3601	3	182T	48	173	145	330	25	19	480	290	125	56	180	214	178	810	730
3602	7.5	213T	51	243	145	360	25	19	540	320	140	56	198	214	178	891	820
3603	10	215T	57	345	185	361	25	15	600	325	160	56	183	254	218	969	920
3604	15	254T	64	401	225	361	25	15	700	325	200	56	219	294	258	1103	1100

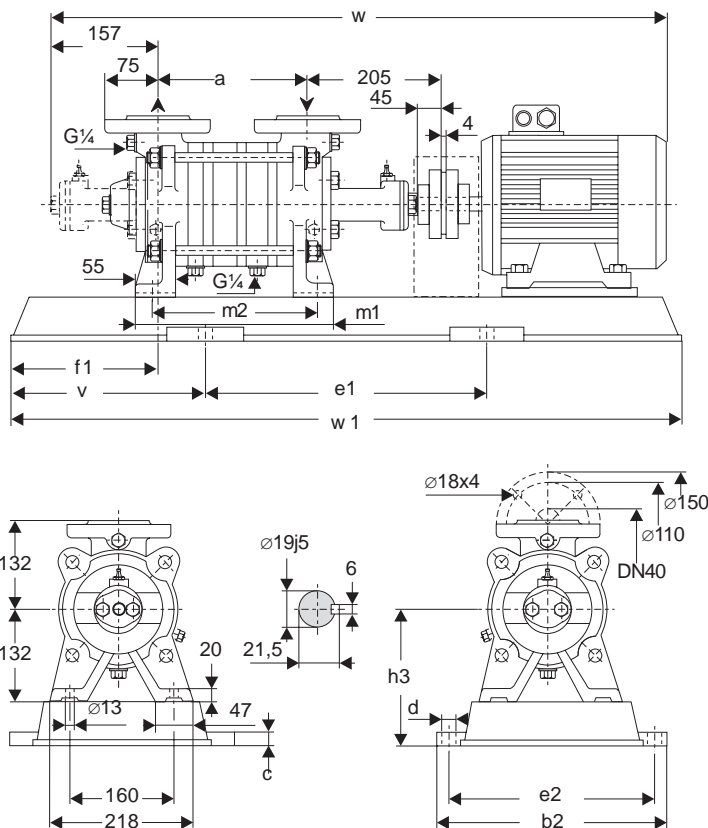
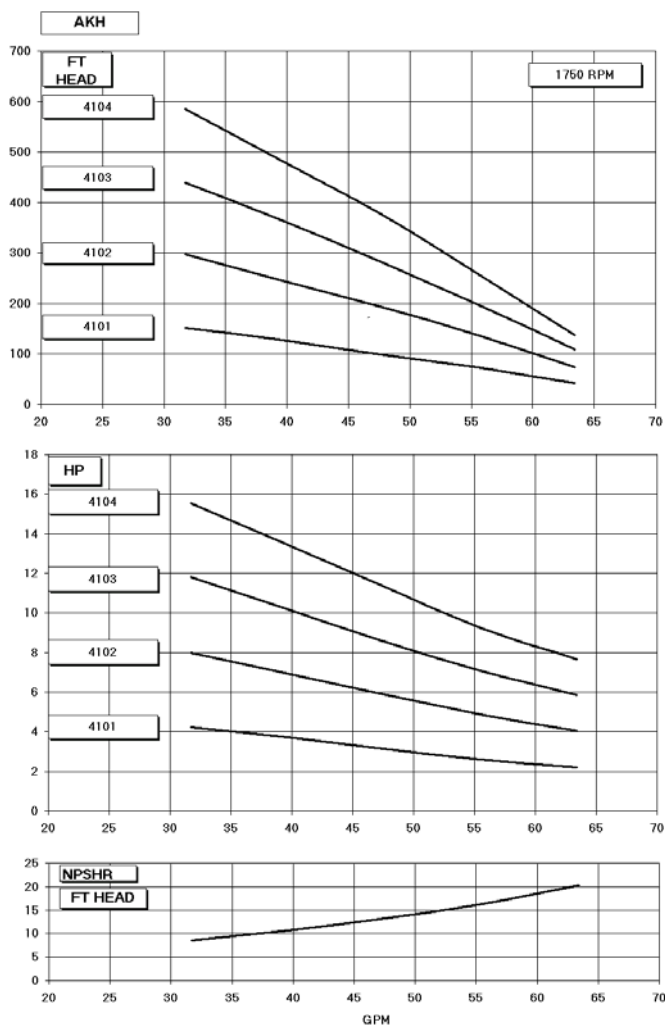
Dimensions and weights shown reference only - refer to factory for detailed information.

* Design B - dimensions depend upon the motor brand.

The weight of the pump in design A will be approximately 2.2 lbs less

¹⁾ Maximum Motor Sizes Shown.

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



General:

Values are valid for water $\rho = 1 \text{ kg/dm}^3$ and $\nu = 1 \text{ cSt}$.

Characteristic tolerances:

Capacity $\pm 5\%$ - Delivery head $\pm 5\%$ - Power $+ 10\%$.
For designs with a mechanical seal or casing seal of soft Teflon, the tolerance for the delivery head is extended by 2% each.

All dimensions in millimeters (mm).

Pump size	Motor HP ¹⁾	Motor size	Weight pump	Weight (lbs.) set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
4101	5	184T	62	208	155	360	25	19	540	320	140	42	197	195	159	924	820
4102	10	215T	75	354	210	361	25	15	700	325	200	42	198	250	214	1072	1100
4103	15	254T	88	436	265	361	25	15	700	325	200	42	219	305	269	1221	1100
4104	20	256T	99	584	320	490	30	24	740	440	200	42	239	360	324	1320	1140

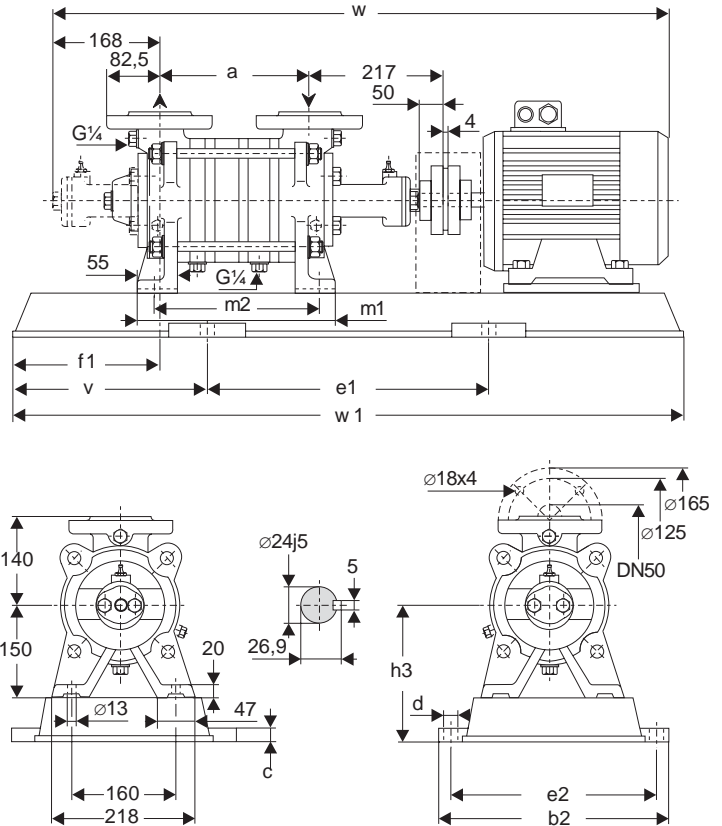
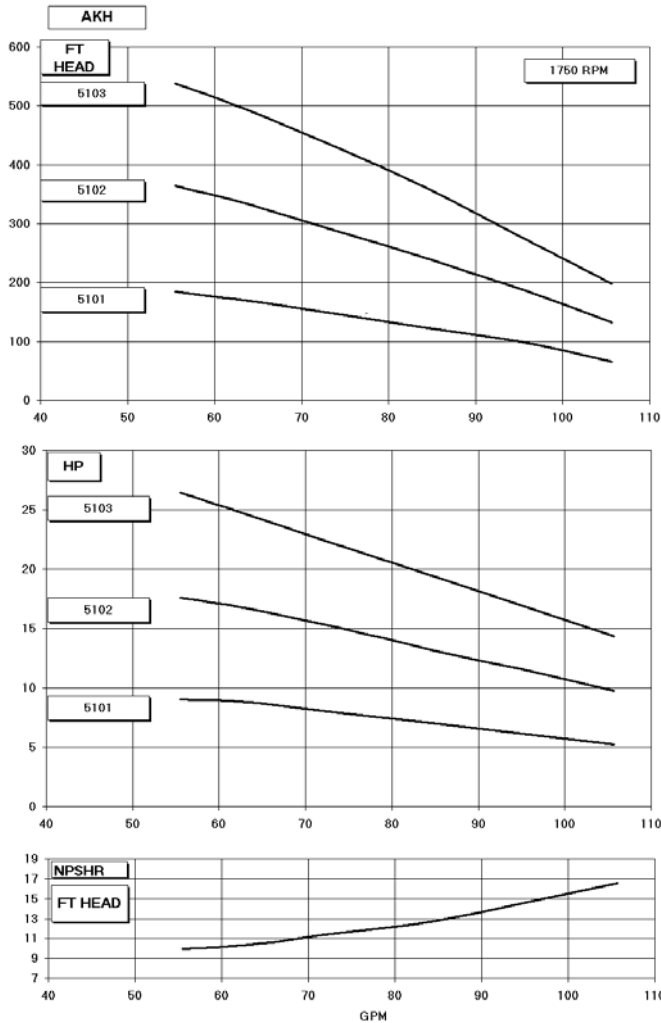
Dimensions and weights shown reference only - refer to factory for detailed information.

* Design B - dimensions depend upon the motor brand.

The weight of the pump in design A will be approximately 2.2 lbs less

¹⁾ Maximum Motor Sizes Shown.

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



General:

Values are valid for water $\rho = 1 \text{ kg/dm}^3$ and $\nu = 1 \text{ cSt}$.

Characteristic tolerances:

Capacity $\pm 5\%$ - Delivery head $\pm 5\%$ - Power $+ 10\%$.
For designs with a mechanical seal or casing seal of soft Teflon, the tolerance for the delivery head is extended by 2% each.

All dimensions in millimeters (mm).

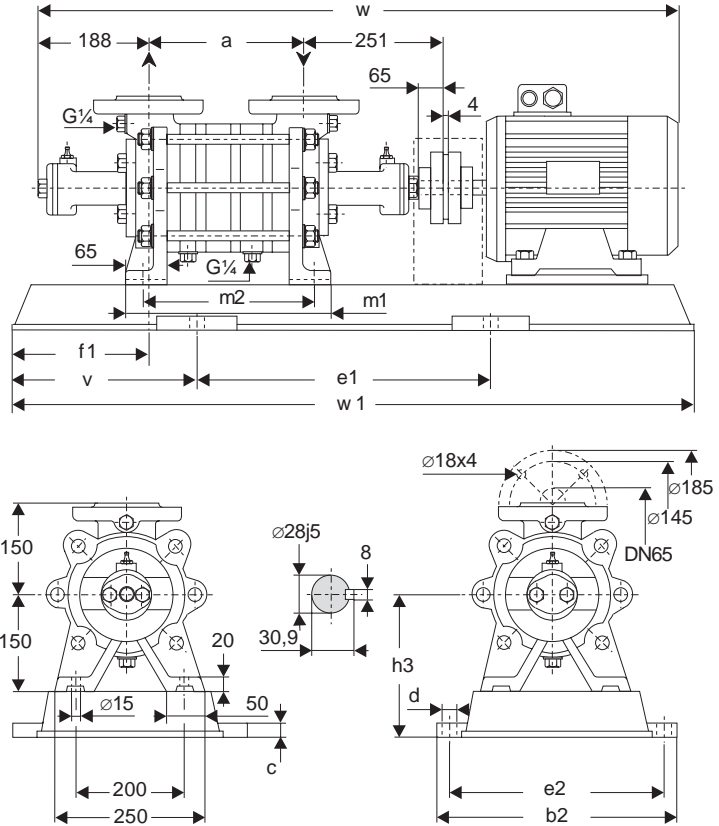
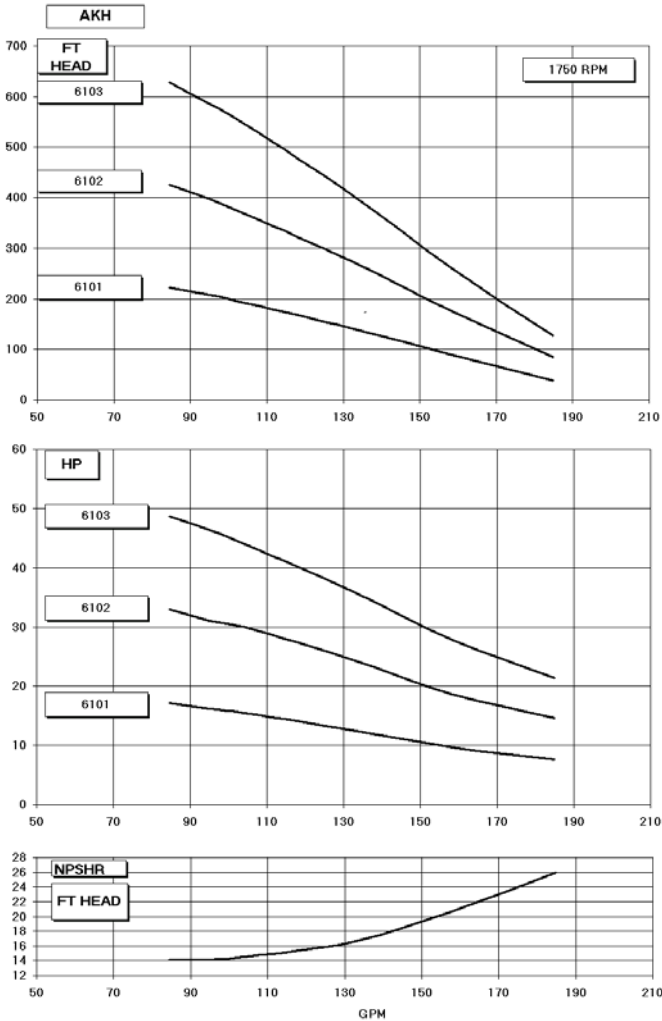
Pump size	Motor HP ¹⁾	Motor size	Weight pump	Weight set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
5101	10	215T	79	336	170	361	25	15	700	325	200	48	215	220	185	1055	1100
5102	20	256T	101	618	245	490	30	24	740	440	200	48	240	295	260	1268	1140
5103	30	286T	121	761	320	540	30	24	840	490	215	48	258	370	335	1418	1270

Dimensions and weights shown reference only - refer to factory for detailed information.

* Design B - dimensions depend upon the motor brand.
The weight of the pump in design A will be app. 8.8 lbs less.

¹⁾ Maximum Motor Sizes Shown.

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



General:

Values are valid for water $\rho = 1 \text{ kg/dm}^3$ and $\nu = 1 \text{ cSt}$.

Characteristic tolerances:

Capacity $\pm 5\%$ - Delivery head $\pm 5\%$ - Power $+ 10\%$.

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

All dimensions in millimeters (mm).

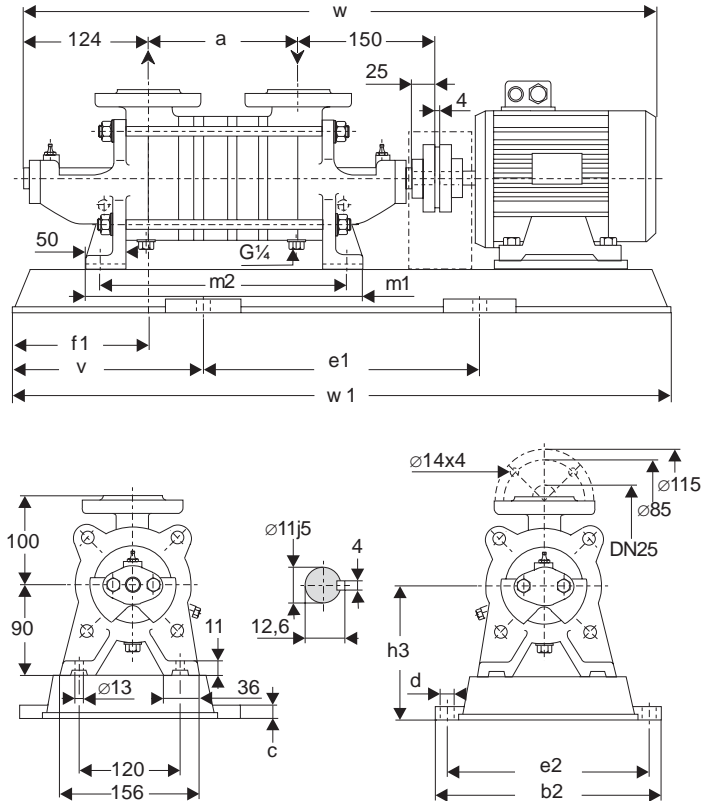
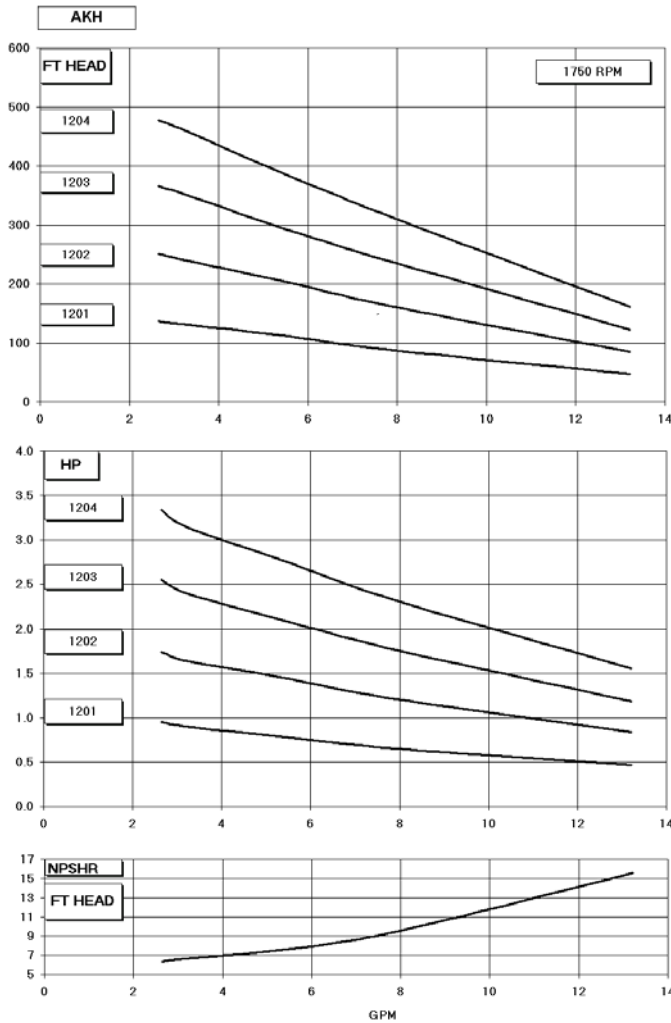
Pump size	Motor HP ¹⁾	Motor size	Weight pump	Weight (lbs.) set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
6101	20	256T	119	456	190	490	30	24	740	440	200	63	240	276	220	1267	1140
6102	40	324T	143	991	280	610	30	24	940	550	240	63	303	366	310	1475	1420
6103	60	364T	167	1264	370	660	35	28	1060	600	280	63	329	456	400	1669	1620

* Dimensions depend upon the motor brand.

Dimensions and weights shown reference only - refer to factory for detailed information.

¹⁾ Maximum Motor Sizes Shown.

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



General:

Values are valid for water $\rho = 1 \text{ kg/dm}^3$ and $\nu = 1 \text{ cSt}$.

Characteristic tolerances:

Capacity $\pm 5\%$ - Delivery head $\pm 5\%$ - Power $+ 10\%$.

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

All dimensions in millimeters (mm).

Pump size	Motor HP ¹⁾	Motor size	Weight (lbs.) pump	Weight (lbs.) set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
1201	1	143T	33	96	120	297	20	15	400	265	120	87	130	256	214	709	640
1202	2	145T	35	142	120	297	20	15	400	265	120	87	130	256	214	736	640
1203	3	182T	40	158	154	330	25	19	480	290	125	87	180	290	248	809	730
1204	5	184T	44	173	188	360	25	19	540	320	140	87	180	324	282	869	820

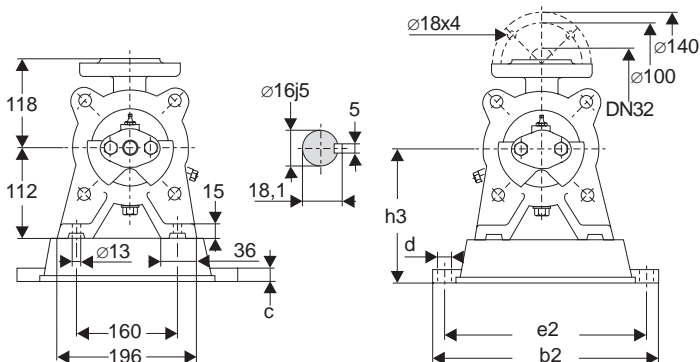
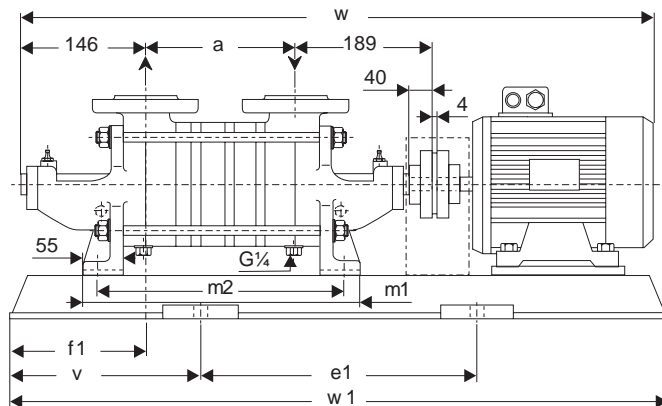
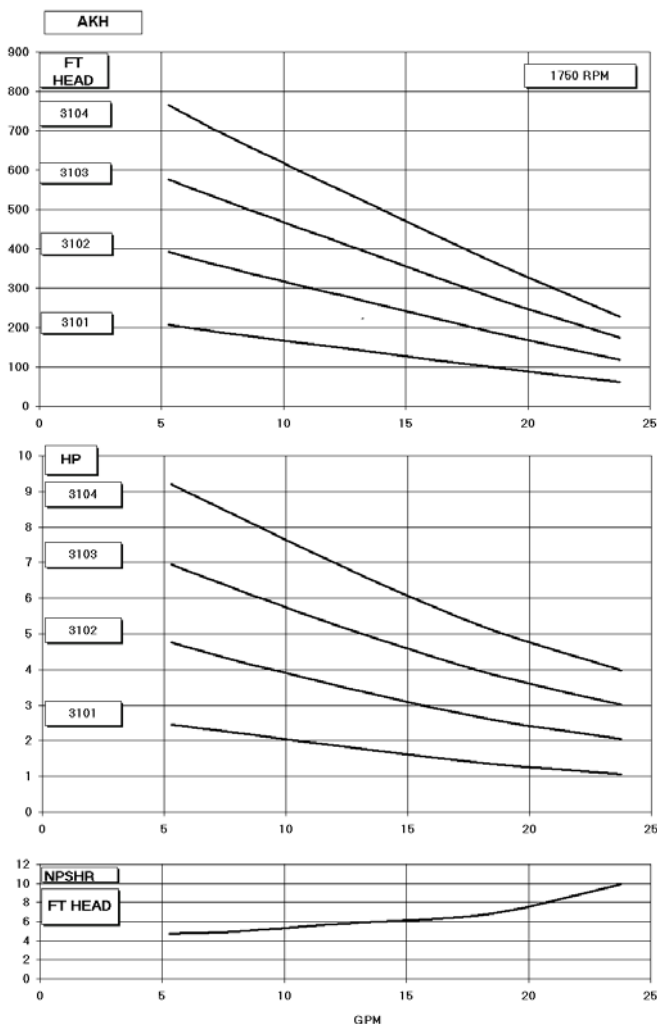
Dimensions and weights shown reference only - refer to factory for detailed information.

* Design B - dimensions depend on the motor brand.

The weight of the pump in design A (only available in Stainless steel) will be approximately 2.2 lbs less.

¹⁾ Maximum Motor Sizes Shown.

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



General:

Values are valid for water $\rho = 1 \text{ kg/dm}^3$ and $\nu = 1 \text{ cSt}$.

Characteristic tolerances:

Capacity $\pm 5\%$ - Delivery head $\pm 5\%$ - Power $+ 10\%$.
For designs with a mechanical seal or casing seal of soft Teflon, the tolerance for the delivery head is extended by 2% each.

All dimensions in millimeters (mm).

Pump size	Motor HP ¹⁾	Motor size	Weight pump	Weight (lbs.) set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
3101	3	182T	57	175	150	360	25	19	540	320	140	99	180	308	268	866	820
3102	7.5	213T	59	252	150	360	25	19	540	320	140	99	198	308	268	947	820
3103	10	215T	68	322	190	361	25	15	600	325	160	99	183	348	308	1025	920
3104	10	215T	75	412	230	361	25	15	700	325	200	99	219	388	348	1159	1100

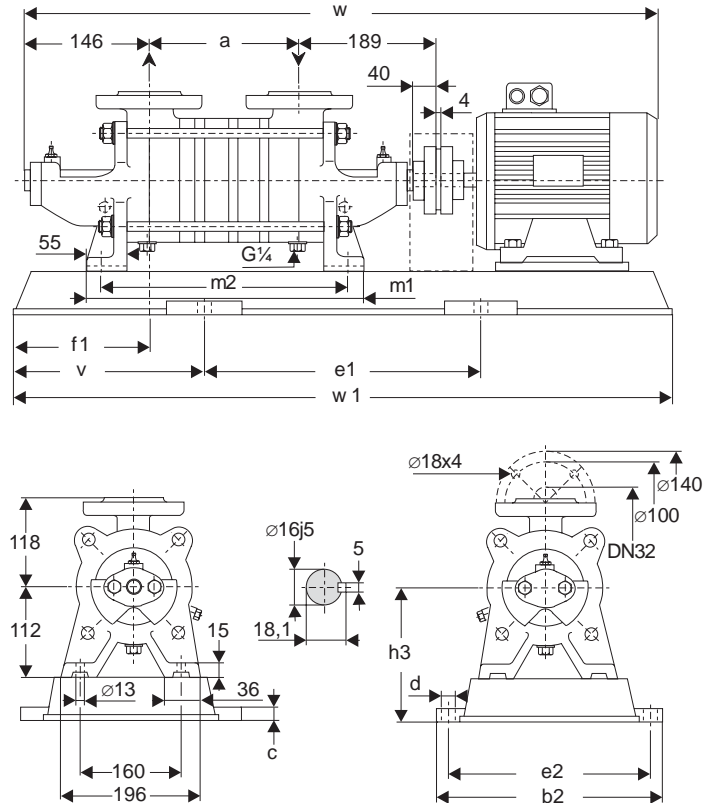
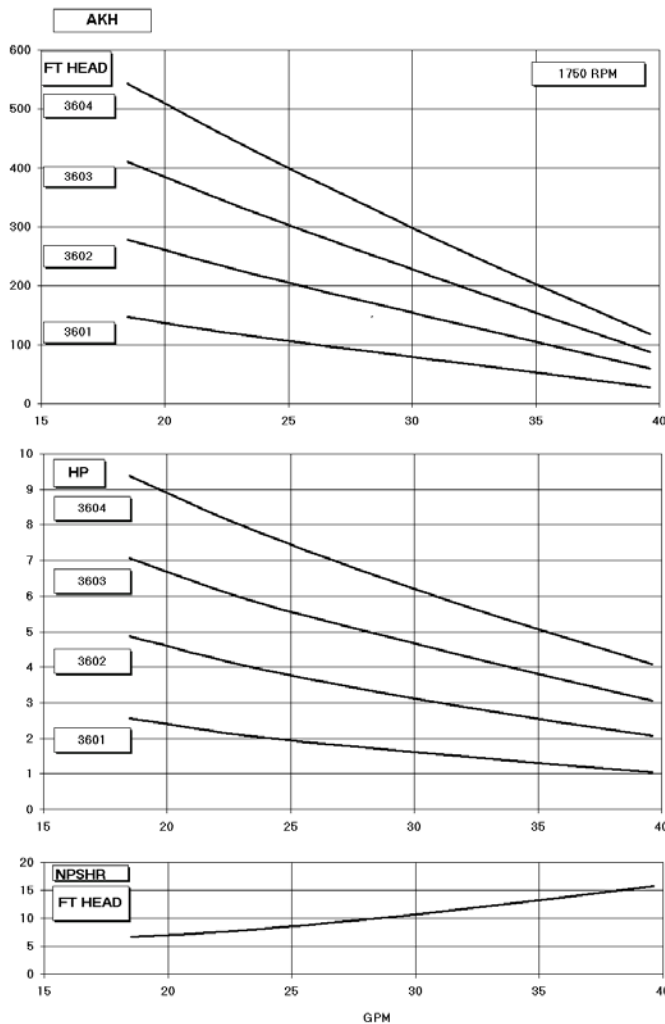
Dimensions and weights shown reference only - refer to factory for detailed information.

* Design B - dimensions depend on the motor brand.

The weight of the pump in design A (only available in Stainless steel) will be approximately 6 lbs less.

¹⁾ Maximum Motor Sizes Shown.

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



General:

Values are valid for water $\rho = 1 \text{ kg/dm}^3$ and $\nu = 1 \text{ cSt}$.

Characteristic tolerances:

Capacity $\pm 5\%$ - Delivery head $\pm 5\%$ - Power $+ 10\%$.
For designs with a mechanical seal or casing seal of soft Teflon, the tolerance for the delivery head is extended by 2% each.

All dimensions in millimeters (mm).

Pump size	Motor HP ¹⁾	Motor size	Weight pump	Weight (lbs.) set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
3601	3	182T	57	176	150	330	25	19	480	290	125	99	180	308	268	866	820
3602	7.5	213T	59	252	150	360	25	19	540	320	140	99	198	308	268	947	820
3603	10	215T	68	322	190	361	25	15	600	325	160	99	183	348	308	1025	920
3604	15	254T	75	412	230	361	25	15	700	325	200	99	219	388	348	1159	1100

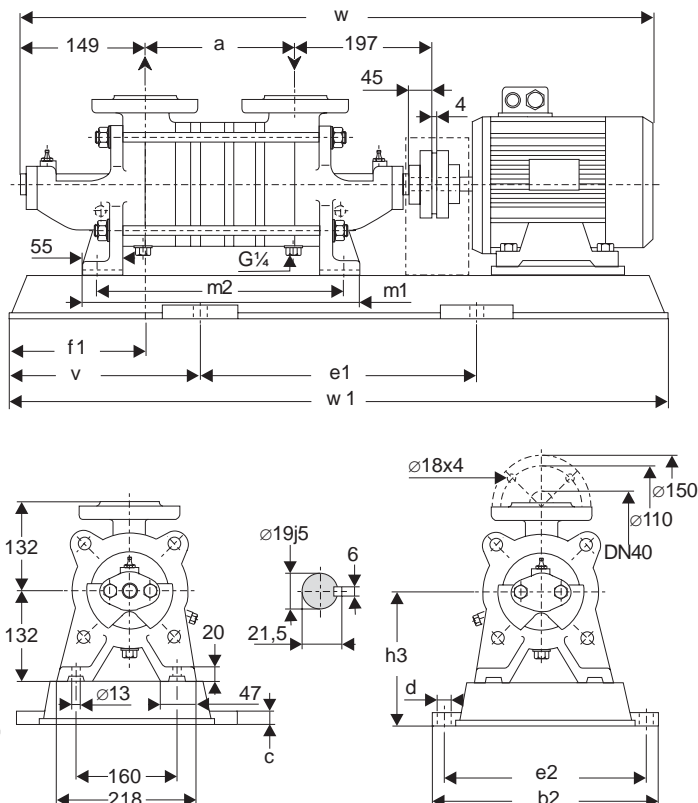
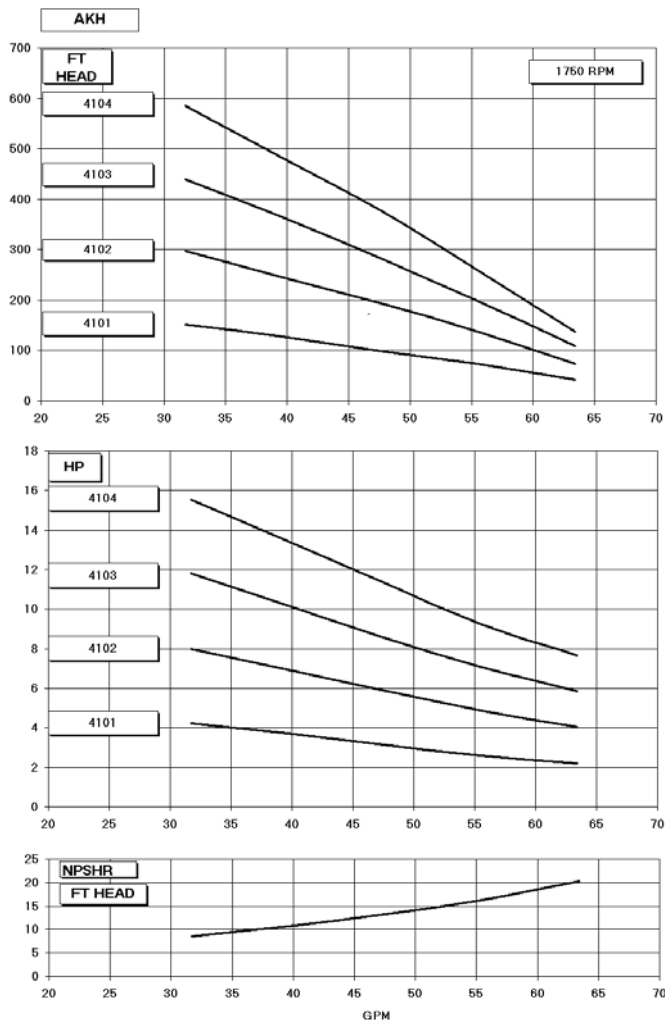
Dimensions and weights shown reference only - refer to factory for detailed information.

* Design B - dimensions depend on the motor brand.

The weight of the pump in design A (only available in Stainless steel) will be approximately 6 lbs less

¹⁾ Maximum Motor Sizes Shown..

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



General:

Values are valid for water $\rho = 1 \text{ kg/dm}^3$ and $\nu = 1 \text{ cSt}$.

Characteristic tolerances:

Capacity $\pm 5\%$ - Delivery head $\pm 5\%$ - Power $+ 10\%$.
For designs with a mechanical seal or casing seal of soft Teflon, the tolerance for the delivery head is extended by 2% each.

All dimensions in millimeters (mm).

Pump size	Motor HP ¹⁾	Motor size	Weight pump	Weight (lbs.) set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
4101	5	184T	73	219	160	360	25	19	540	320	140	92	197	303	263	913	820
4102	10	215T	86	365	215	361	25	15	700	325	200	92	198	358	318	1061	1100
4103	15	254T	97	445	270	361	25	15	700	325	200	92	219	313	373	1210	1100
4104	20	256T	110	595	325	490	30	24	740	440	200	92	239	468	428	1309	1140

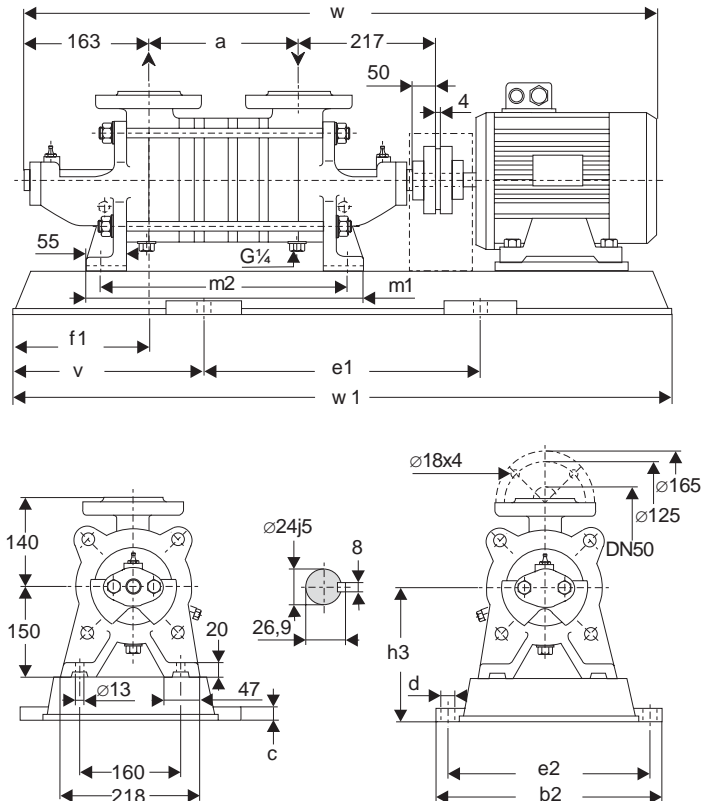
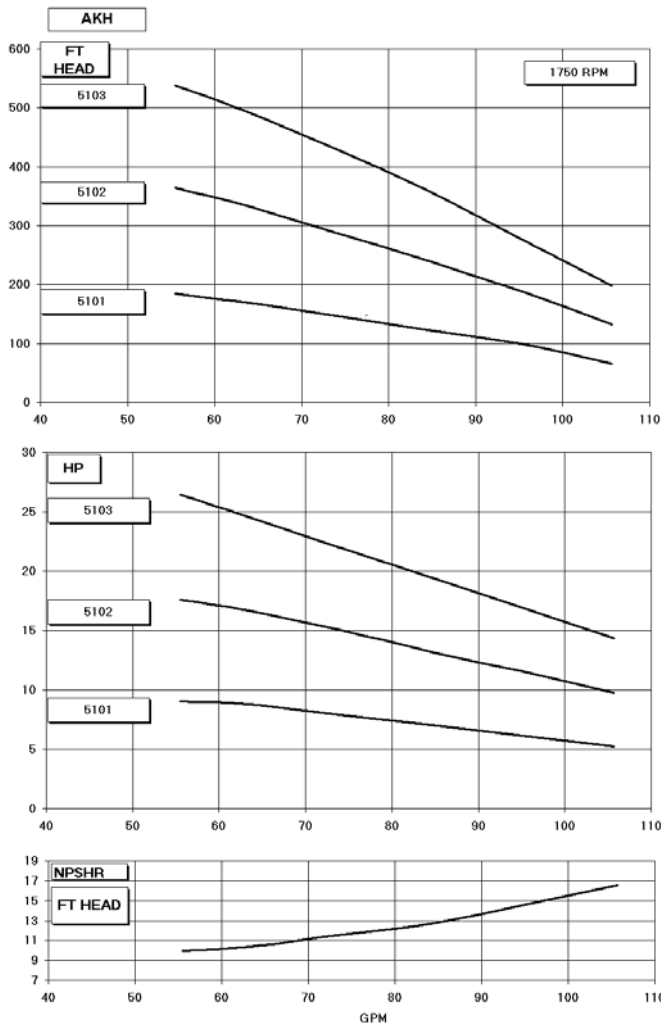
Dimensions and weights shown reference only - refer to factory for detailed information.

* Design B - dimensions depend on the motor brand.

The weight of the pump in design A (only available in Stainless steel) will be approximately 7 lbs less.

¹⁾ Maximum Motor Sizes Shown.

AKH 5100 in Bronze and Stainless steel (3B, 4B and 4F)



General:

Values are valid for water $\rho = 1 \text{ kg/dm}^3$ and $\nu = 1 \text{ cSt}$.

Characteristic tolerances:

Capacity $\pm 5\%$ - Delivery head $\pm 5\%$ - Power $+ 10\%$.

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

All dimensions in millimeters (mm).

Pump size	Motor HP ¹⁾	Motor size	Weight pump	Weight (lbs.) set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
5101	10	215T	99	356	175	361	25	15	700	325	200	99	215	329	293	1055	1100
5102	20	256T	121	638	250	490	30	24	740	440	200	99	240	404	368	1268	1140
5103	30	286T	141	781	325	540	30	24	840	490	215	99	258	479	443	1418	1270

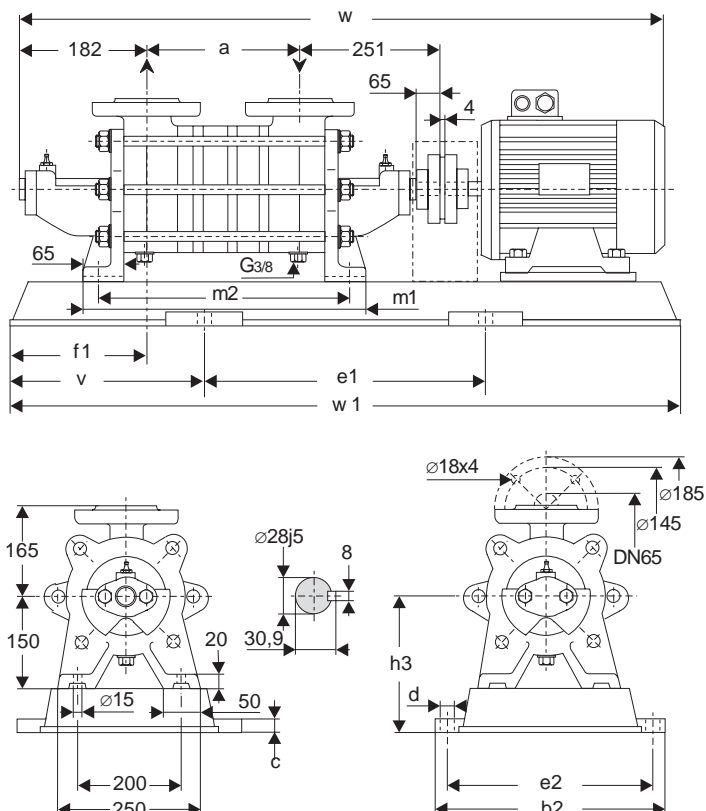
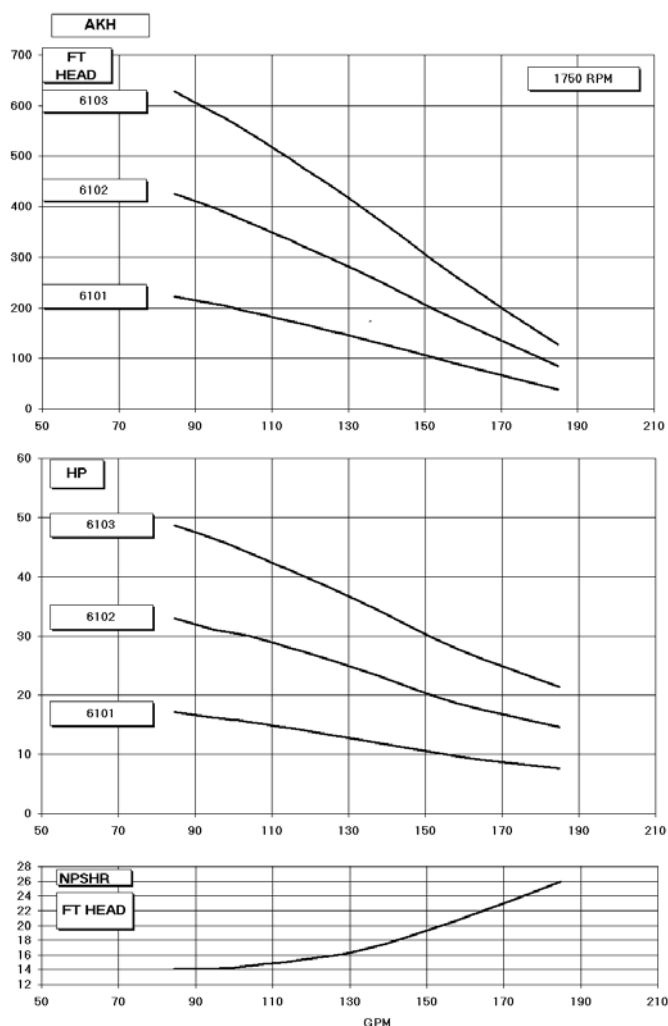
Dimensions and weights shown reference only - refer to factory for detailed information.

* Design B - dimensions depend upon the motor brand.

The weight of the pump in design A (only available in Stainless steel) will be app. 9.2 lbs less.

¹⁾ Maximum Motor Sizes Shown.

AKH 6100 in Bronze and Stainless steel (3B, 4B and 4F)



General:

Values are valid for water $\rho = 1 \text{ kg/dm}^3$ and $\nu = 1 \text{ cSt}$.

Characteristic tolerances:

Capacity $\pm 5\%$ - Delivery head $\pm 5\%$ - Power $+ 10\%$.
For designs with a mechanical seal or casing seal of soft Teflon, the tolerance for the delivery head is extended by 2% each.

All dimensions in millimeters (mm).

Pump size	Motor HP ¹⁾	Motor size	Weight pump	Weight (lbs.) set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1
6101	20	256T	136	592	195	490	30	24	740	440	200	117	240	388	328	1266	1140
6102	40	324T	165	1013	285	610	30	24	940	550	240	117	303	478	418	1474	1420
6103	60	364T	191	1288	375	660	35	28	1060	600	280	117	329	568	508	1668	1620

Dimensions and weights shown reference only - refer to factory for detailed information.

* Dimensions depend upon the motor brand.

¹⁾ Maximum Motor Sizes Shown.

Notes

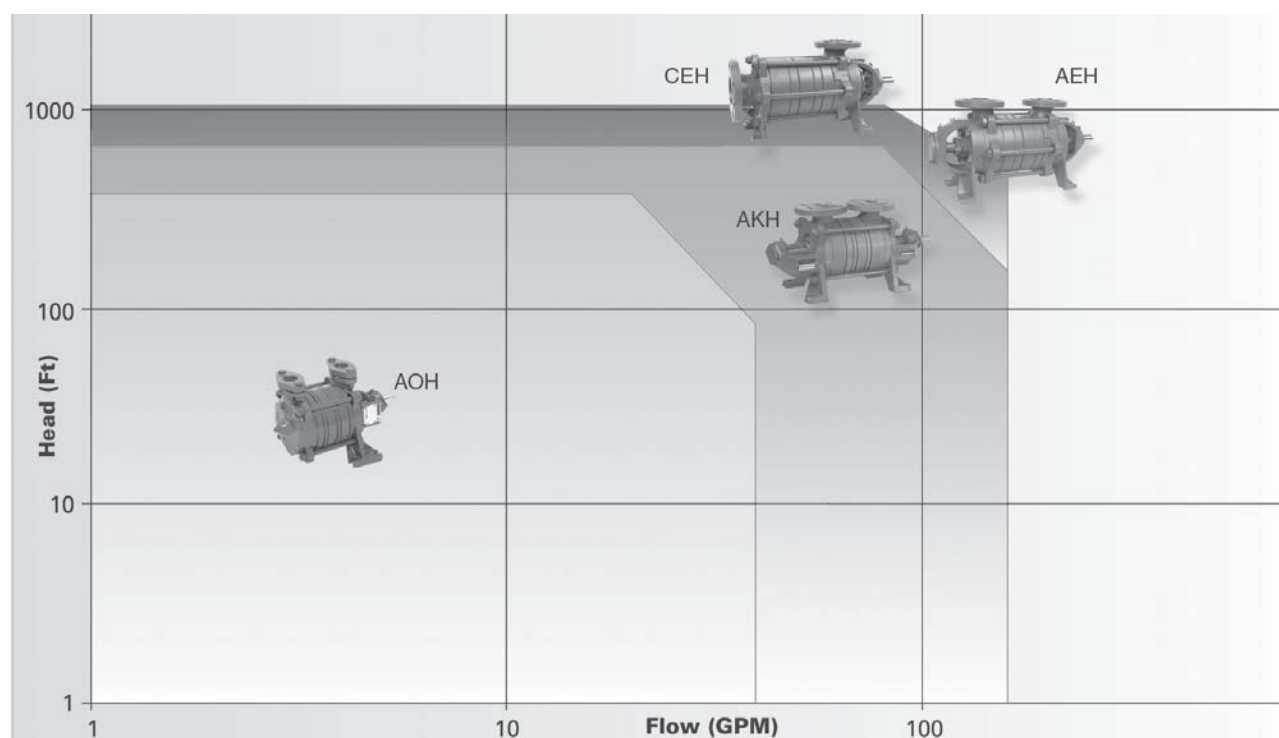
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Sterling Fluid Systems offers an extensive Side Channel pump range under its brand name Sterling SIHI. Sterling Fluid Systems has more than 80 years of experience in manufacturing, installation and support of Side Channel pumps. The Sterling SIHI Side Channel pumps can be found in a wide application range for the:

- Chemical market
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- Food industry
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- LPG industry
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The benefits of the Sterling SIHI Side Channel pumps

- Self priming
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- High-resistant materials
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- High efficiency
- Low $NPSH_R$ value
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