

**ASK and ASK-MK series**  
**Side channel pumps with NPSH suction stage**  
**in modular design**

**With mechanical seal or magnetic coupling**  
**self-priming, delivering gas**

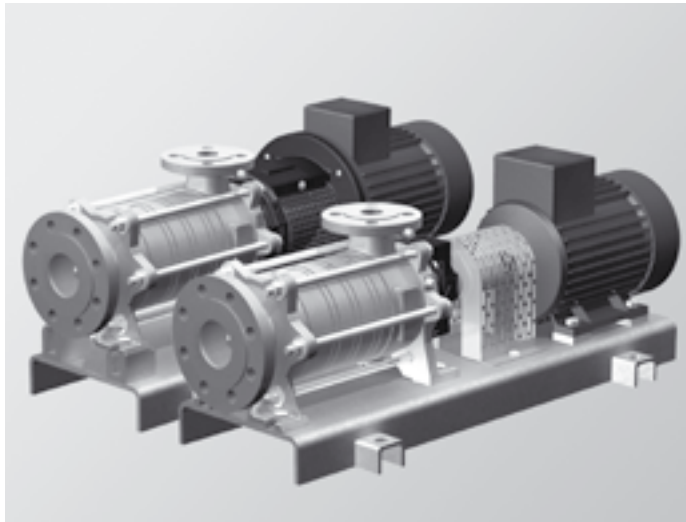
## ASK / ASK-MK

Side channel pumps with NPSH suction stage and mechanical seal or magnetic coupling

### ASK and ASK-MK series

Side channel pumps with NPSH suction stage in modular design

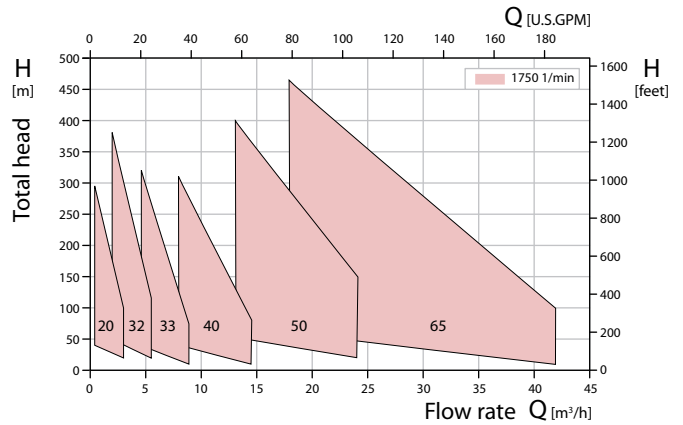
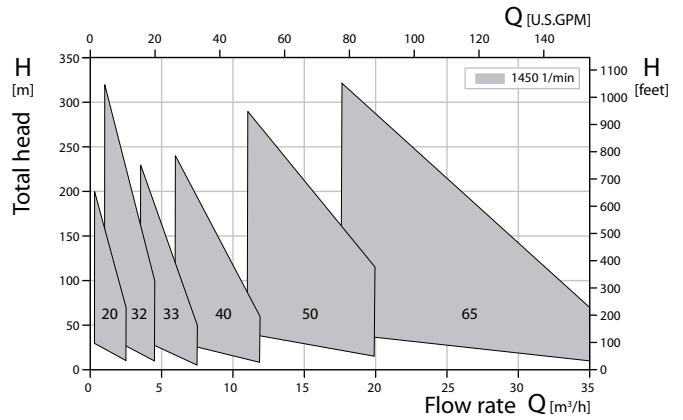
With mechanical seal or magnetic coupling  
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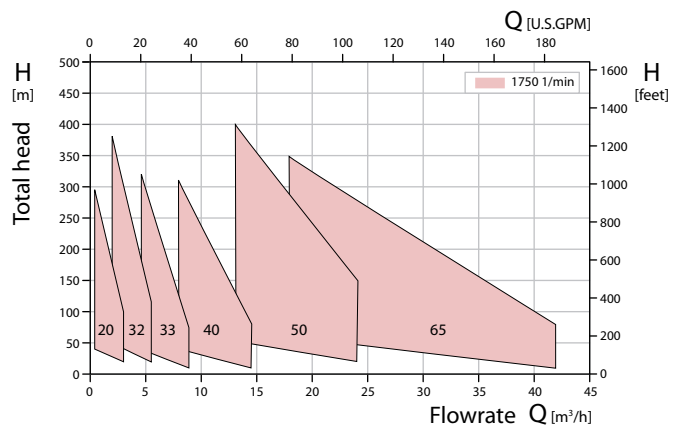
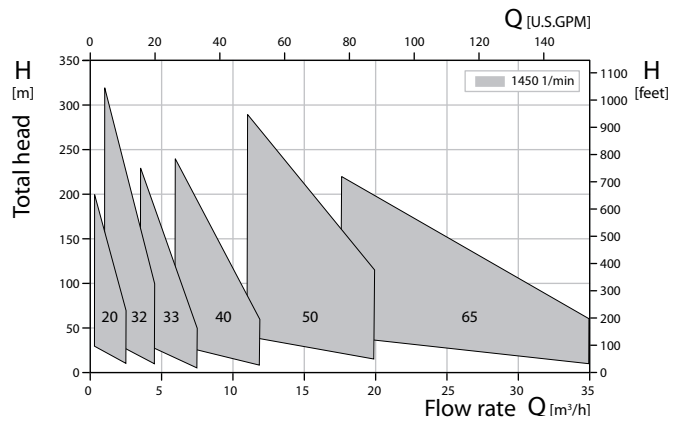
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### Characteristic curves ASK



### Characteristic curves ASK-MK



## Usage

Pumps of the ASK and ASK-MK series are designed for the delivery and re-circulation of liquids at unfavourable suction-side conditions and liquids close to boiling point.

They are suitable for liquids without abrasive contaminations and without solid content.

For example:

- Boiler feed water
- Condensates
- Distillates
- Liquid gas
- Coolants
- Solvents

## Main applications

The pumps are mainly used in the following sectors:

- Basic process engineering
- Chemical industry
- Food, beverages and tobacco industry
- Instrument engineering
- Shipping

## Operating data

### Standard conditions at site

- Relative humidity during continuous operation up to 55%
- Ambient temperature - 20 °C to + 40 °C
- Permissible altitude up to 1000 m above sea level

Deviations from the site conditions specified herein must already be disclosed in the inquiry.

### Operating range

The operating range applicable to the ASK and ASK-MK series is indicated in the individual characteristic curves.

## Pressure and temperature limitations

Pressure and temperature limitations are not subject to any special regulations and default values.

Nominal pressure: PN 40 (580 psi)

Maximum temperature: 180 °C.

Temperatures above 180 °C on request.

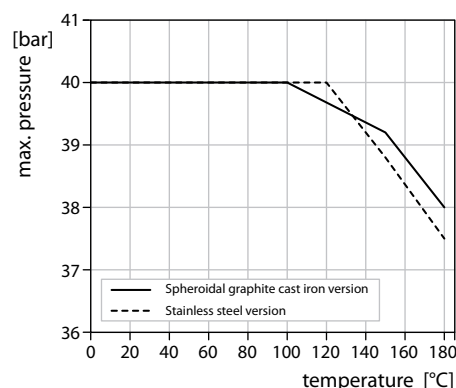


Fig. 1: Maximum operating pressure at operating temperature

The final pump pressure is calculated by adding supply pressure and delivery pressure at minimum delivery rate.

## Design details

Pumps of the ASK series are horizontal, multi-stage, single-entry centrifugal pumps in modular design with axial inlet and radial outlet. They are combined pumps with NPSH suction stage.

### Shaft sealing

Pumps of the ASK series are equipped with mechanical seal in acc. with EN 12756 standard (DIN 24960).

### Materials

Refer to table 3 and 5, page 4 and 5.

## Executions

	ASK	ASK-MK
<b>Deep groove ball bearing</b> lifetime lubricated, in acc. with DIN 625	1	–
<b>Plain bearing</b> liquid-rinsed, carbon	1	–
<b>Plain bearing,</b> liquid-rinsed, SiC/SiC	–	1
<b>Casing seal</b>	Mechanical seal	Magnetic coupling
<b>Rotation direction</b> view from drive to pump	counter-clockwise	
<b>Stages</b>	1 – 8	1 – 8 ASK 65: 1–3

For further design details, refer to the sectional drawings, pages 12 and 13.

## Tests

If required, test certificates in acc. with DIN 55350-18 can be provided for the individual tests, which however, has to be indicated in the order.

### Material tests

The exact scope of the tests (which tests for which parts) as well as the type of certificate (certificate of compliance with the order, factory certificate, inspection certificate) must be specified in the order.

Non-specific material tests do not have any impact on the delivery time of the pump.

If specific material tests are required, the delivery time of the pump depends on the availability of raw materials and will be checked on a case-to-case basis.

Test certificates for specific material tests cannot be provided after the raw materials and/or semi-finished goods have been negotiated.

### Hydrostatic pressure test

The pumps are subject to a pressure test, which corresponds to 1.5 times the permissible pump pressure (refer to Fig. 1). Test at 20 °C, holding time 10 min.

## Type code

Example		ASK 33 03 - 12 - 11 000	ASK 33 03 S 12 - 11 000
Pump type	_____		
Pump size	_____		
Number of stages	_____		
Shaft bearing	_____ (Table 1)		
Mechanical seal	_____ (Table 2)		
Material design	_____ (Table 3)		
Counting number	_____		

Table 1: Shaft bearing code

Code	Ball bearing (number)	Plain bearing (material)
-	1	Active carbon
S	1	SiC

Table 2: Mechanical seal code

Properties ▶	unbalanced, uncooled	balanced, uncooled		balanced, cooled					Component
Maximum operating temperature ▶	140 °C	140 °C		140 °C – 180 °C					
Maximum operating pressure ▶	13 bar / 188 psi	30 bar / 435 psi	40 bar / 580 psi	30 bar / 435 psi	40 bar / 580 psi	Elastomer	Counter ring	Sealing ring	
Code number ▶	10	50	60	70	80	FFKM	SiC	Active carbon	Material
	12	52	62	72	82	EPDM	SiC	Active carbon	
	13	53	63	73	83	FKM	SiC	Active carbon	
	17	-	-	-	-	FKM	SiC	SiC	

Table 2.1: Mechanical seal diameter

Pump size ▶	ASK 20	ASK 32 / 33	ASK 40	ASK 50	ASK 65
Mechanical seal ø [mm] ▶	16	24	28	32	38

Table 3: Material design code

Code number ▶ Component	10 only for ASK 50 and ASK 65	11	30	31	33	50	60
Suction casing	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	1.4581 CrNiMo-cast steel	EN-GJS-400-15 Spheroidal graphite cast iron	1.4581 CrNiMo-cast steel
Discharge casing	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	
Stage	EN-GJL-250 Cast iron	EN-GJL-250 Cast iron	EN-GJL-250 Cast iron	EN-GJL-250 Cast iron	EN-GJL-250 Cast iron	CuSn Bronze	
Shaft seal housing	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	
Impeller	CuZn Brass	CuSn Bronze	1.4408 CrNiMo-cast steel	1.4408 CrNiMo-cast steel	1.4408 CrNiMo-cast steel	CuSn Bronze	1.4408 CrNiMo-cast steel
Impeller / NPSH	EN-GJL-250 Cast iron	EN-GJL-250 Cast iron	EN-GJL-250 Cast iron	EN-GJL-250 Cast iron	EN-GJL-250 Cast iron	EN-GJL-250 Cast iron	
Shaft	1.4122 CrMo-steel	1.4122 CrMo-steel	1.4122 CrMo-steel	1.4122 CrMo-steel	1.4122 CrMo-steel	1.4122 CrMo-steel	1.4571 CrNiMo-steel
Pump frame	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron

EN-GJS-400-15 = EN-JS1030 = GGG-40

EN-GJL-250 = EN-JL1040 = GG-25 = FGL 250

## Type code

Example		ASK 33 03 M 12 - 11 000					
Pump type							
Pump size							
Number of stages							
Magnetic coupling							
Magnetic coupling design	(Table 4)						
Material design	(Table 5)						
Counting number							

Table 4: Magnetic coupling design code

Code number ▶	01	02	03	11	12	13	21	22	23	31	32
▼ Properties											
Type ▶	75/2	75/4	75/6	110/2	110/4	110/6	135/4	135/6	135/8	165/8	165/10
Torque at 20 °C and 1450 1/min - rpm [Nm]	9	21	34	24	53	85	85	128	176	250	315
Power at 1450 1/min - rpm [kW]	0.9	2.1	3.4	2.4	5.3	8.6	8.6	13.0	17.8	25.2	31.8
	[HP]	1.2	2.8	4.6	3.2	7.1	11.5	17.4	23.9	33.8	42.6

Further sizes upon request

Table 5: Material design code

Code number ▶	10 only for ASK 50 and ASK 65	11	30	31	33	50	60
▼ Component							
Suction casing	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	1.4581 CrNiMo-cast steel	EN-GJS-400-15 Spheroidal graphite cast iron	1.4581 CrNiMo-cast steel
Discharge casing					EN-GJS-400-15 Spheroidal graphite cast iron		
Stage	EN-GJL-250 Cast iron	EN-GJL-250 Cast iron	EN-GJL-250 Cast iron	EN-GJL-250 Cast iron	EN-GJL-250 Cast iron	CuSn Bronze	1.4408 CrNiMo-cast steel
Impeller	CuZn Brass	CuSn Bronze	1.4408 CrNiMo-cast steel	1.4408 CrNiMo-cast steel	1.4408 CrNiMo-cast steel		
Impeller / NPSH	EN-GJL-250 Cast iron	EN-GJL-250 Cast iron	EN-GJL-250 Cast iron		EN-GJL-250 Cast iron	EN-GJL-250 Cast iron	
Shaft	1.4122 CrMo-steel	1.4122 CrMo-steel	1.4122 CrMo-steel	1.4122 CrMo-steel	1.4122 CrMo-steel	1.4122 CrMo-steel	1.4571 CrNiMo-steel
Pump frame	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	EN-GJS-400-15 Spheroidal graphite cast iron	1.4581 CrNiMo-cast steel

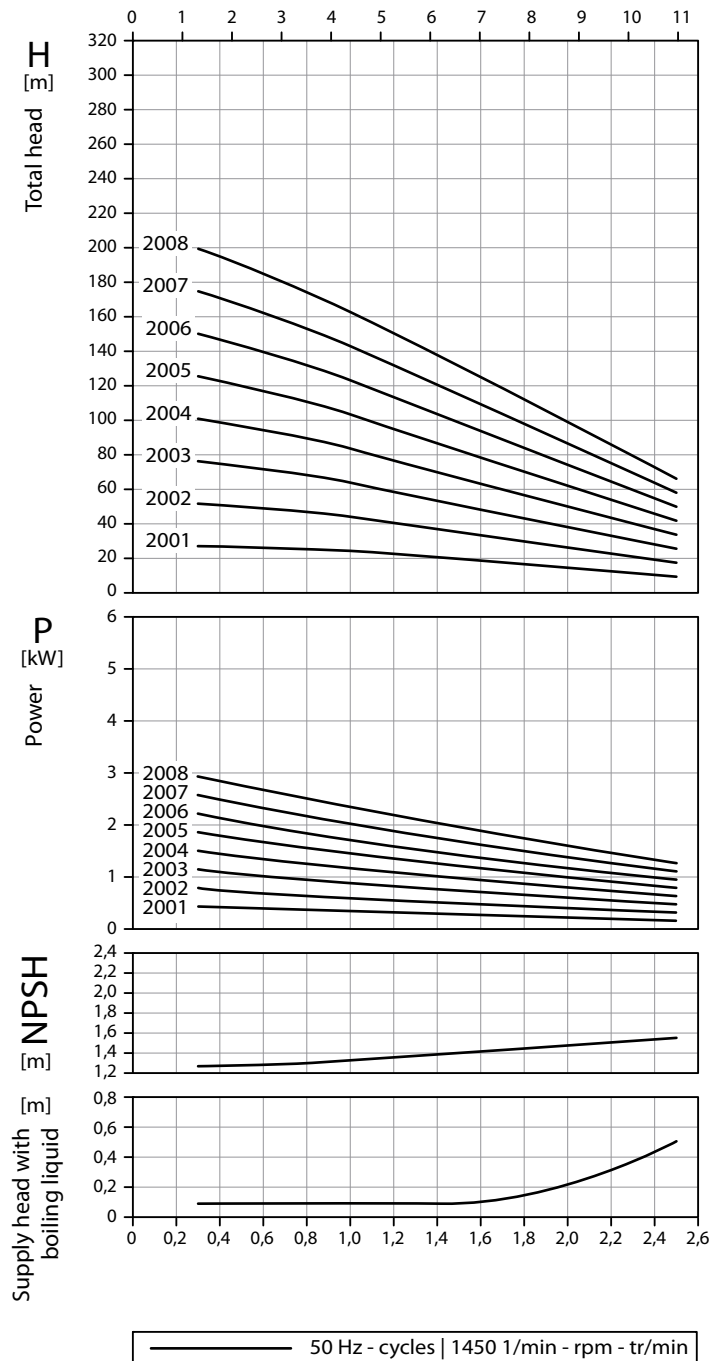
EN-GJS-400-15 = EN-JS1030 = GGG-40

EN-GJL-250 = EN-JL1040 = GG-25 = FGL 250

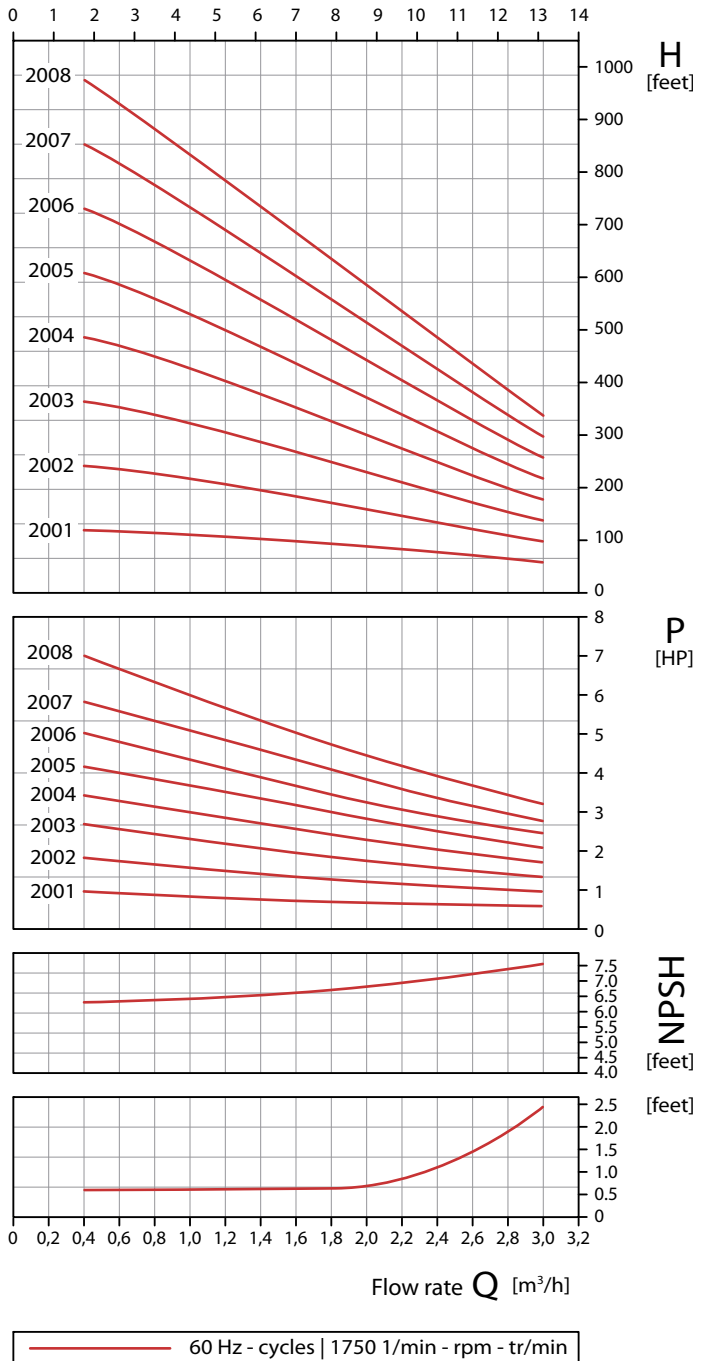
## ASK 20 / ASK 20-MK

Side channel pumps with NPSH suction stage and mechanical seal or magnetic coupling

### Characteristic curves 50 Hz



### Characteristic curves 60 Hz Q [U.S.GPM]



#### Test conditions

The characteristic curves apply to the delivery of water with a temperature of 20 °C at nominal speed.

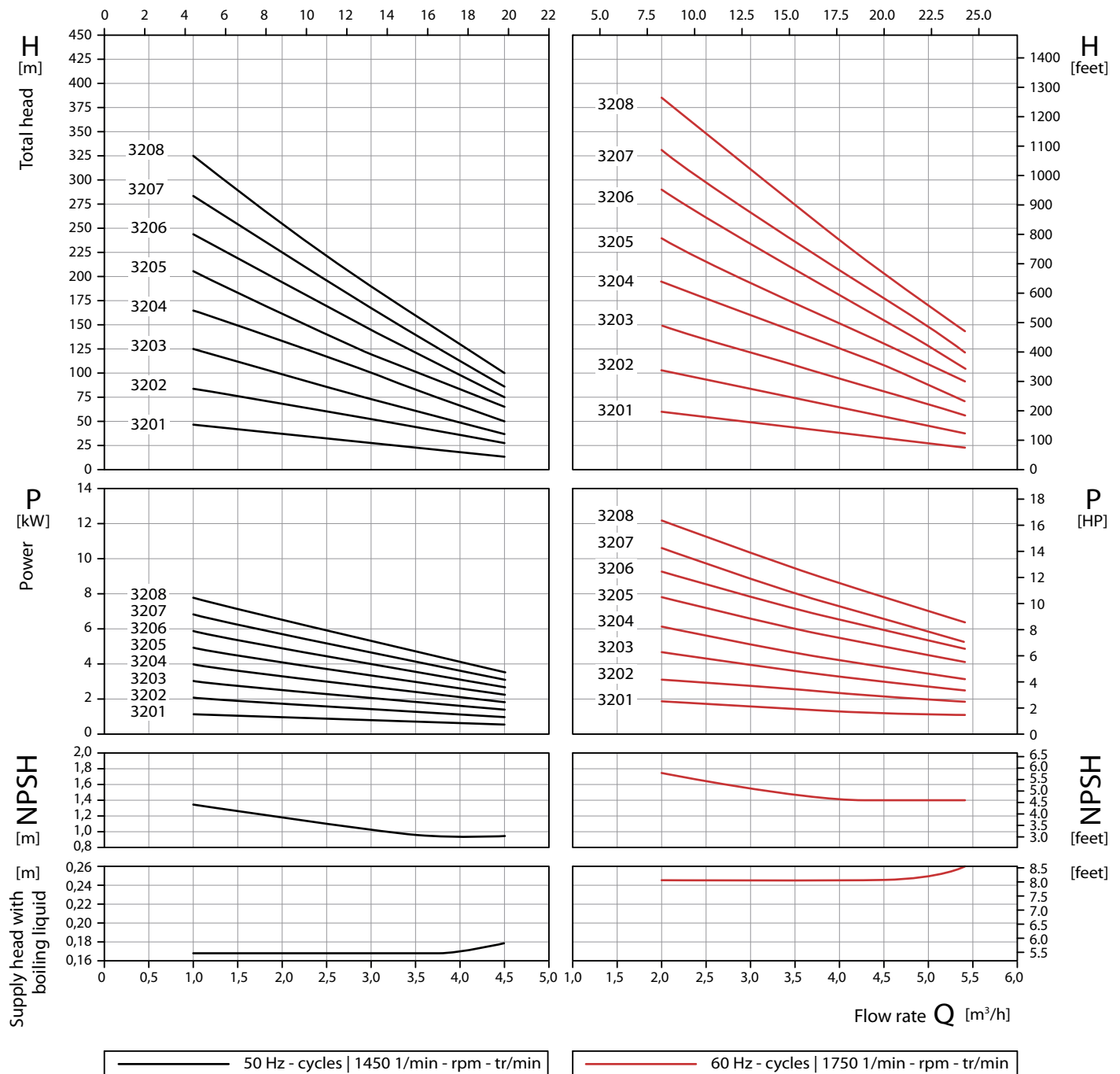
Total head, flow rate and power requirement tolerances are specified in EN ISO 9906. Deviating properties of the media to be pumped affect the characteristic curves.

#### Supply head with boiling liquid

Operation under boiling conditions is subject to a reduced total head. Consultation with Speck Pumpen is recommendable.

Characteristic curves 50 Hz

Characteristic curves 60 Hz  $Q$  [U.S.GPM]



Test conditions

The characteristic curves apply to the delivery of water with a temperature of 20 °C at nominal speed.

Total head, flow rate and power requirement tolerances are specified in EN ISO 9906. Deviating properties of the media to be pumped affect the characteristic curves.

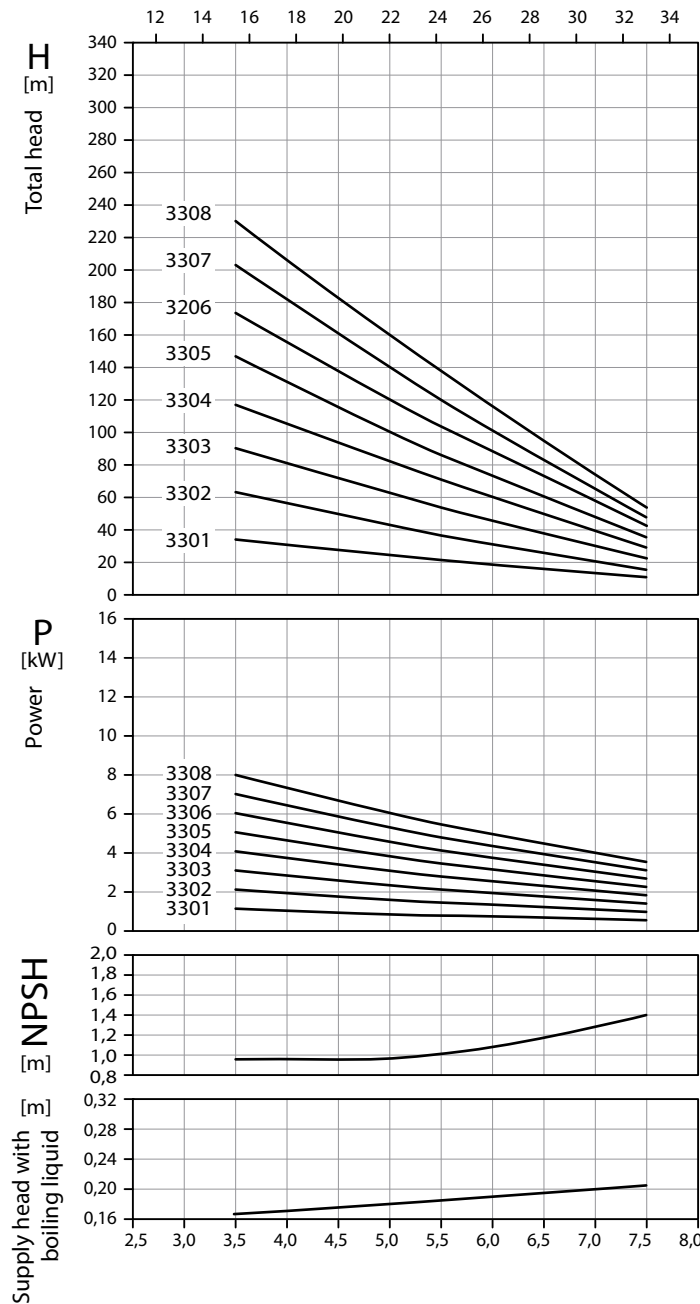
Supply head with boiling liquid

Operation under boiling conditions is subject to a reduced total head. Consultation with Speck Pumpen is recommendable.

## ASK 33 / ASK 33-MK

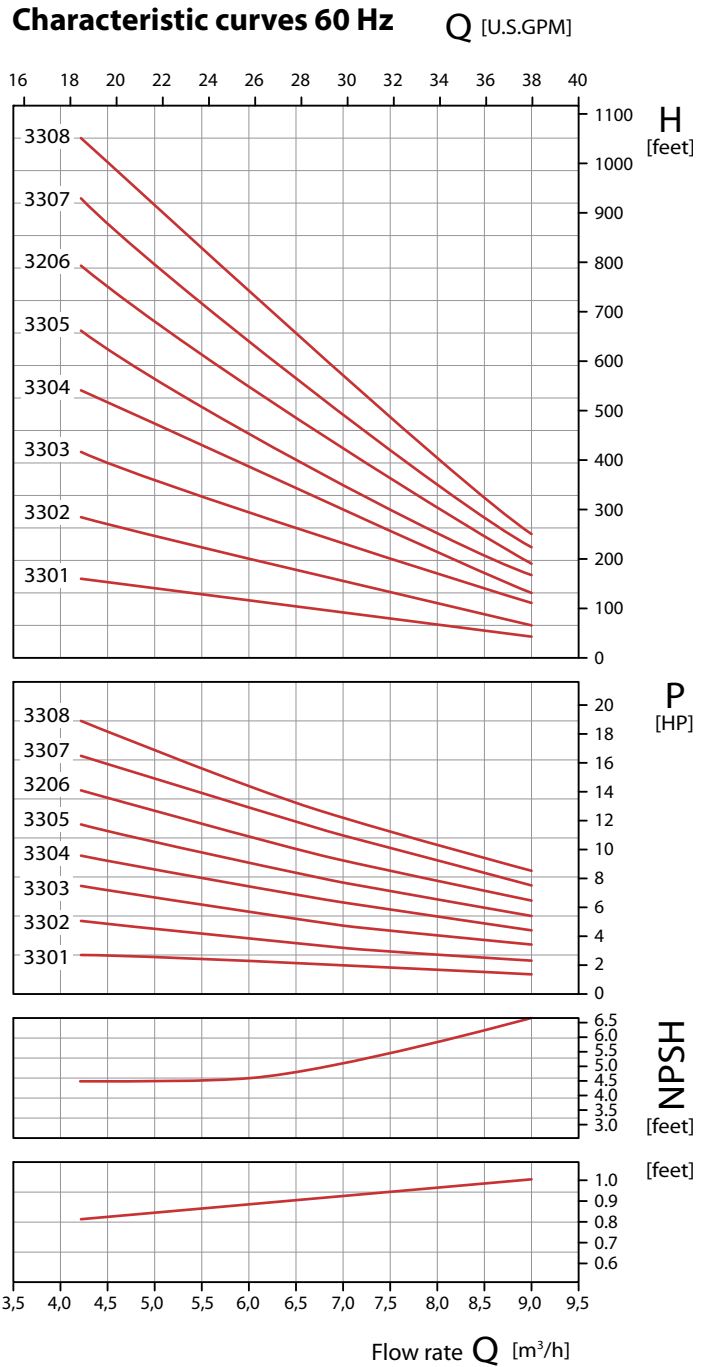
Side channel pumps with NPSH suction stage and mechanical seal or magnetic coupling

### Characteristic curves 50 Hz



— 50 Hz - cycles | 1450 1/min - rpm - tr/min

### Characteristic curves 60 Hz



— 60 Hz - cycles | 1750 1/min - rpm - tr/min

#### Test conditions

The characteristic curves apply to the delivery of water with a temperature of 20 °C at nominal speed.

Total head, flow rate and power requirement tolerances are specified in EN ISO 9906. Deviating properties of the media to be pumped affect the characteristic curves.

#### Supply head with boiling liquid

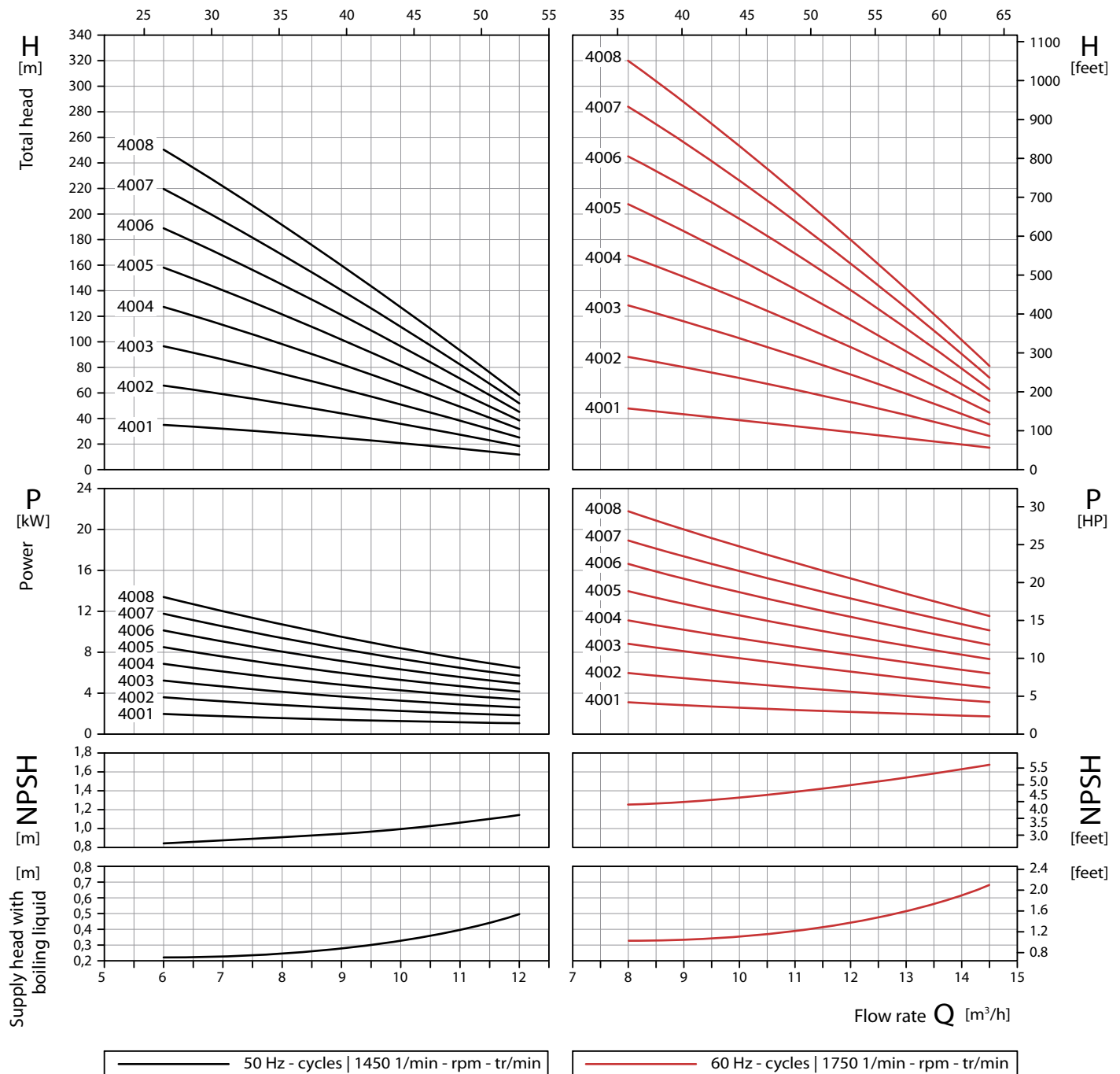
Operation under boiling conditions is subject to a reduced total head. Consultation with Speck Pumpen is recommendable.

Side channel pumps with NPSH suction stage and mechanical seal or magnetic coupling

### Characteristic curves 50 Hz

### Characteristic curves 60 Hz

Q [U.S.GPM]



#### Test conditions

The characteristic curves apply to the delivery of water with a temperature of 20 °C at nominal speed.

Total head, flow rate and power requirement tolerances are specified in EN ISO 9906. Deviating properties of the media to be pumped affect the characteristic curves.

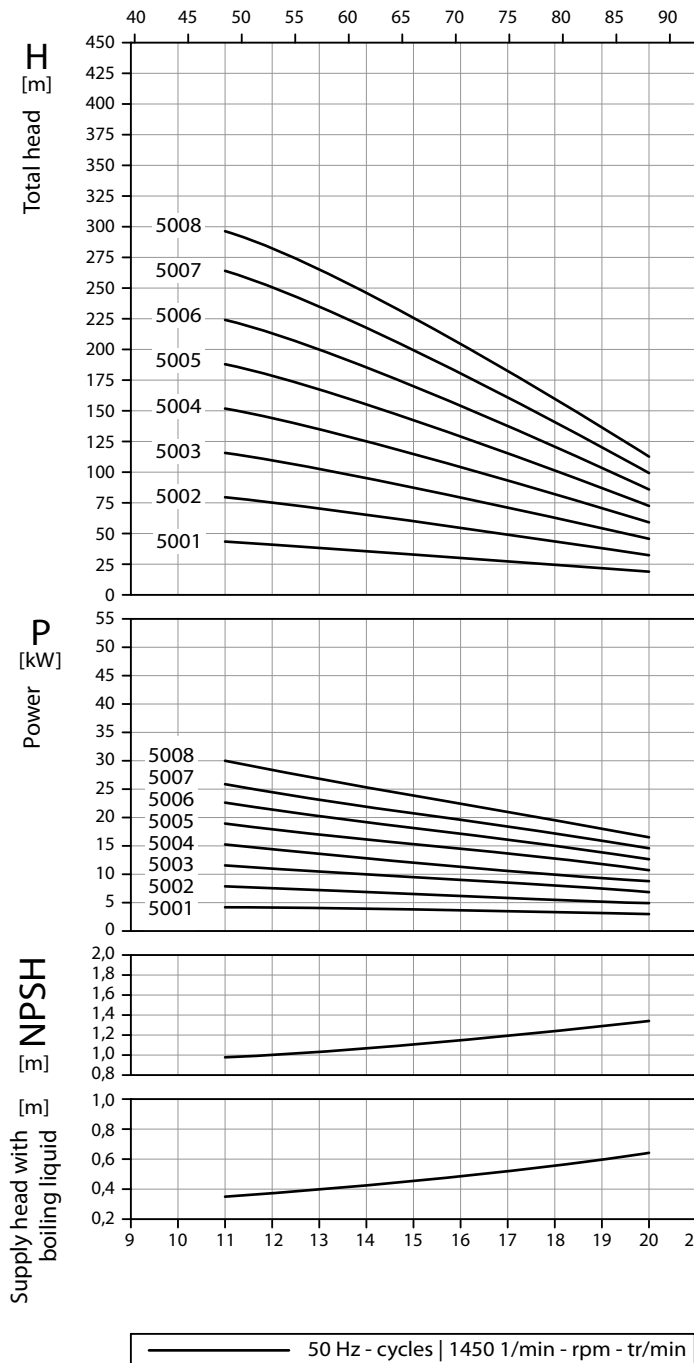
#### Supply head with boiling liquid

Operation under boiling conditions is subject to a reduced total head. Consultation with Speck Pumpen is recommendable.

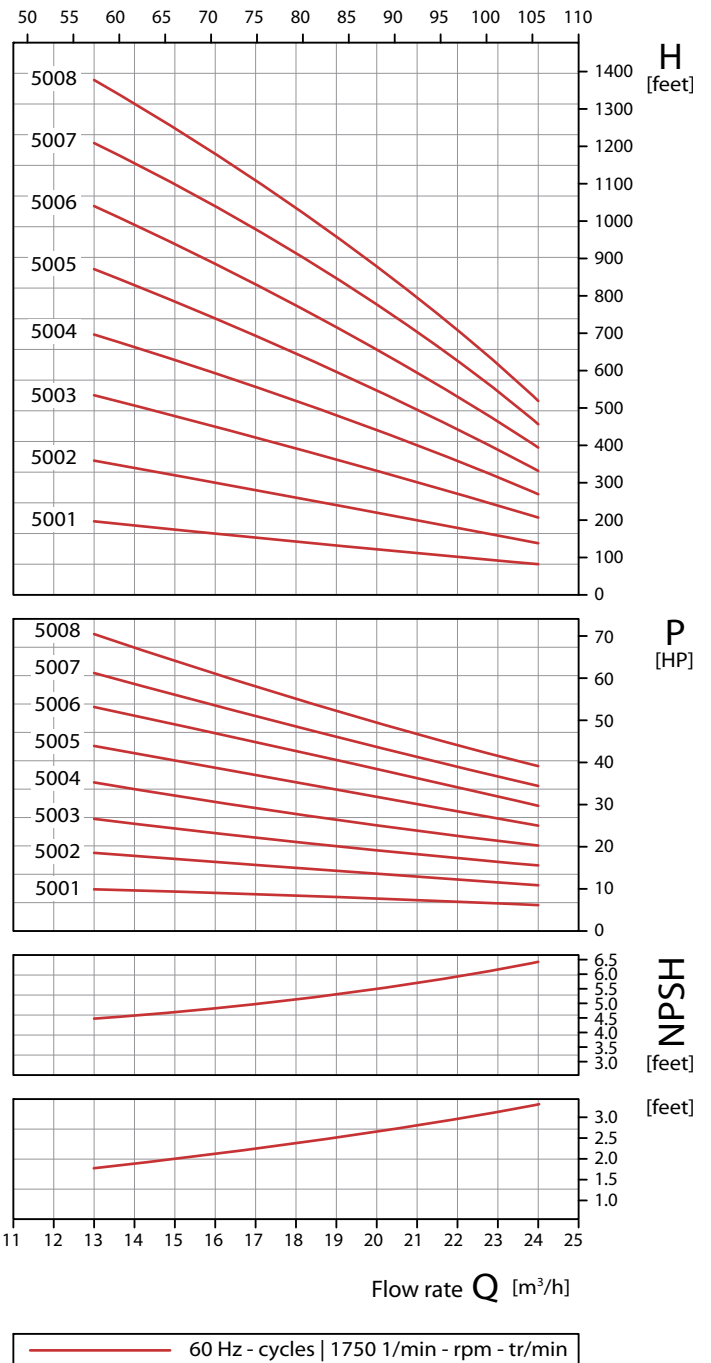
## ASK 50 / ASK 50-MK

Side channel pumps with NPSH suction stage and mechanical seal or magnetic coupling

### Characteristic curves 50 Hz



### Characteristic curves 60 Hz



#### Test conditions

The characteristic curves apply to the delivery of water with a temperature of 20 °C at nominal speed.

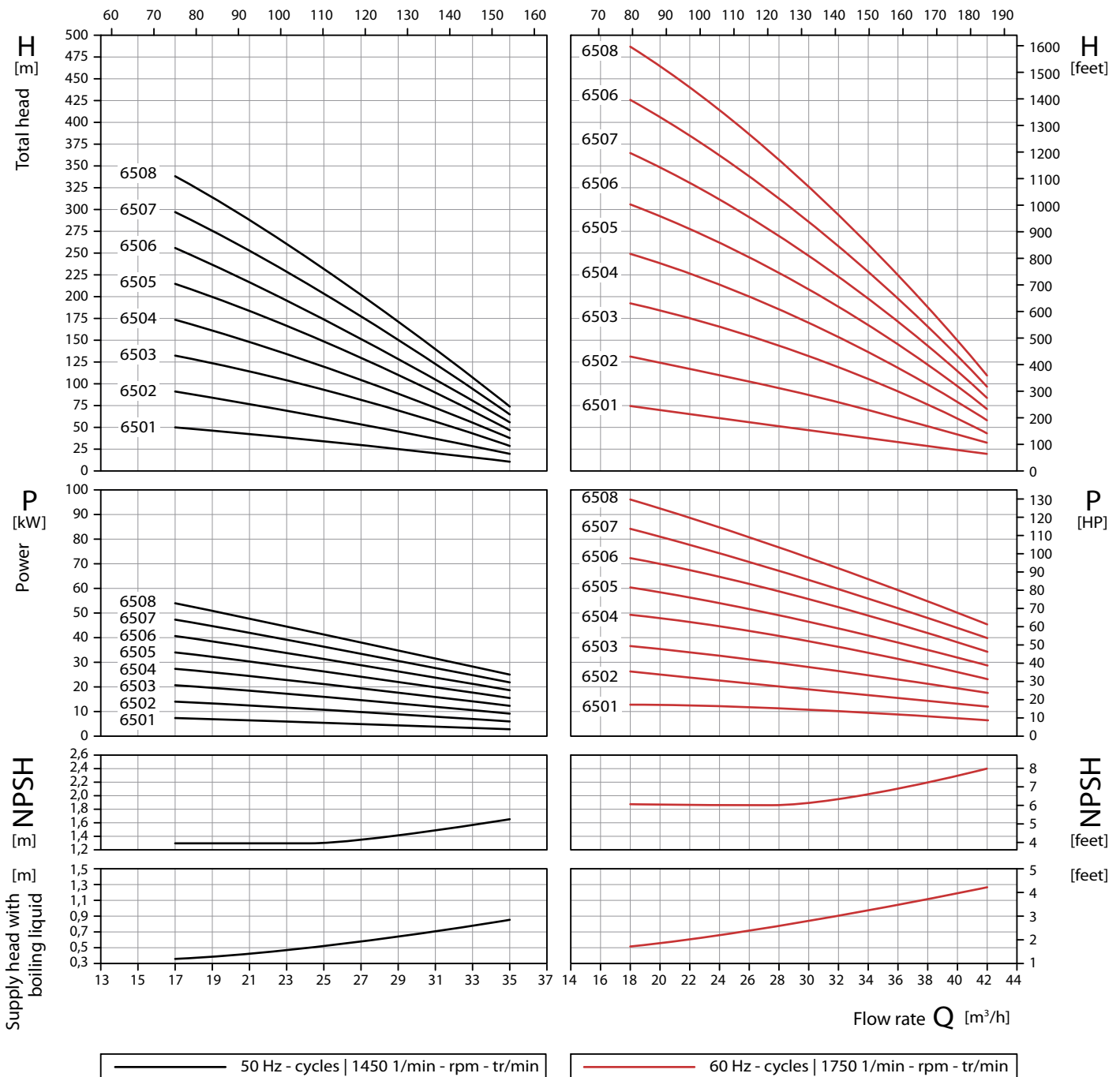
Total head, flow rate and power requirement tolerances are specified in EN ISO 9906. Deviating properties of the media to be pumped affect the characteristic curves.

#### Supply head with boiling liquid

Operation under boiling conditions is subject to a reduced total head. Consultation with Speck Pumpen is recommendable.

Characteristic curves 50 Hz

Characteristic curves 60 Hz Q [U.S.GPM]



**Test conditions**

The characteristic curves apply to the delivery of water with a temperature of 20 °C at nominal speed.

Total head, flow rate and power requirement tolerances are specified in EN ISO 9906. Deviating properties of the media to be pumped affect the characteristic curves.

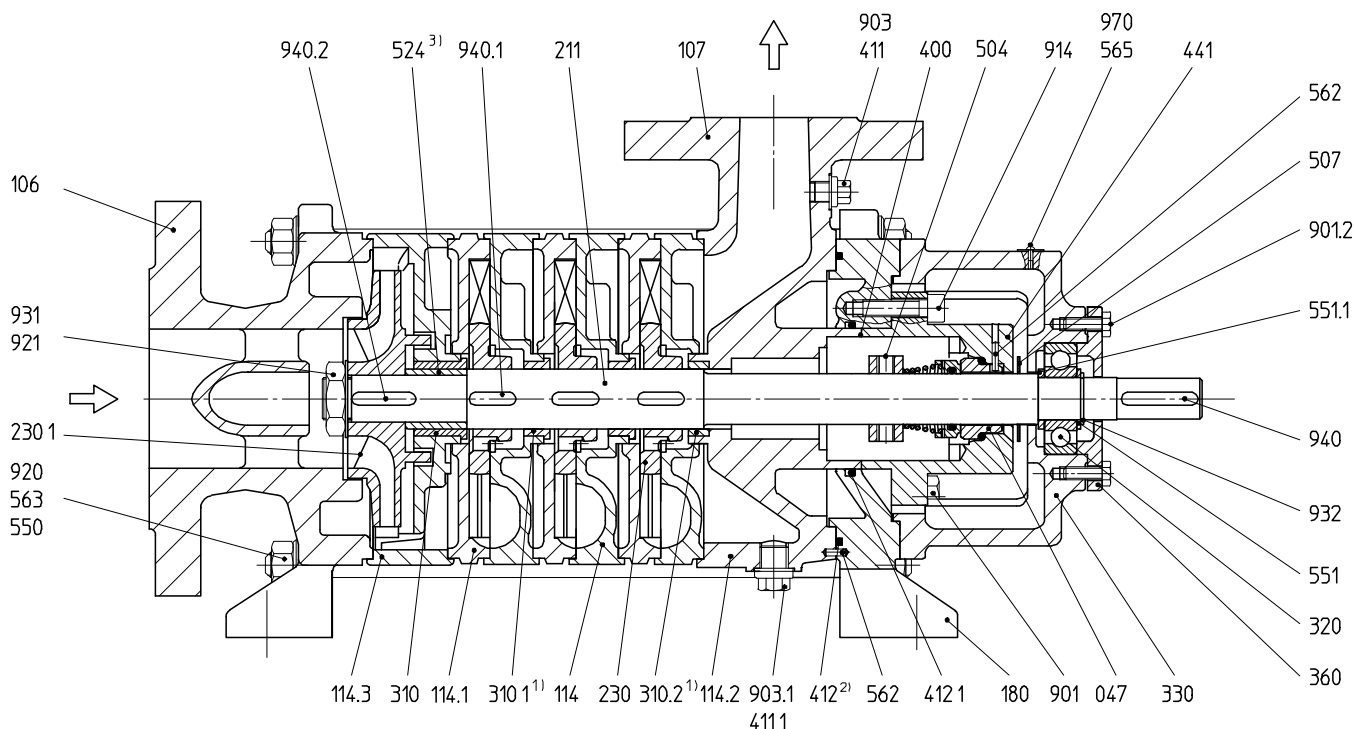
**Supply head with boiling liquid**

Operation under boiling conditions is subject to a reduced total head. Consultation with Speck Pumpen is recommendable.

**Number of stages**

Version	ASK	ASK-MK
Number	1 – 8	1 – 3

## Sectional drawing and parts list



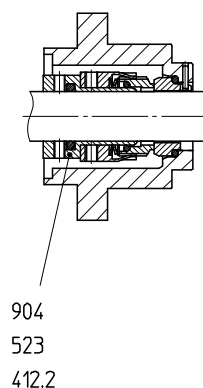
### Version with unbalanced mechanical seal

047	Mechanical seal
106	Suction casing
107	Discharge casing
114	Discharge stage I
114.1	Suction stage
114.2	Discharge stage II
114.3	Stage
180	Pump frame
211	Shaft
230-.1	Impeller
310-.2	Plain bearing
320	Ball bearing
330	Bearing casing
360	Bearing cover
400	Flat gasket
411-.1	Joint ring
412-.1	O-ring
441	Shaft seal housing

504	Spacer ring
507	Splash ring
524	Shaft protection sleeve
550	Disk
551-.1	Spacer disk
562	Parallel pin
563	Casing bolt
565	Rivet
901/.2	Hexagon head cap screw
903-.1	Screwed plug
914	Hexagon socket head cap screw
920	Hexagon nut
921	Shaft nut
931	Lock washer
932	Locking ring
940-.2	Feather key
970	Name plate

### Version with balanced mechanical seal

412.2	O-ring
523	Shaft sleeve
904	Set screw

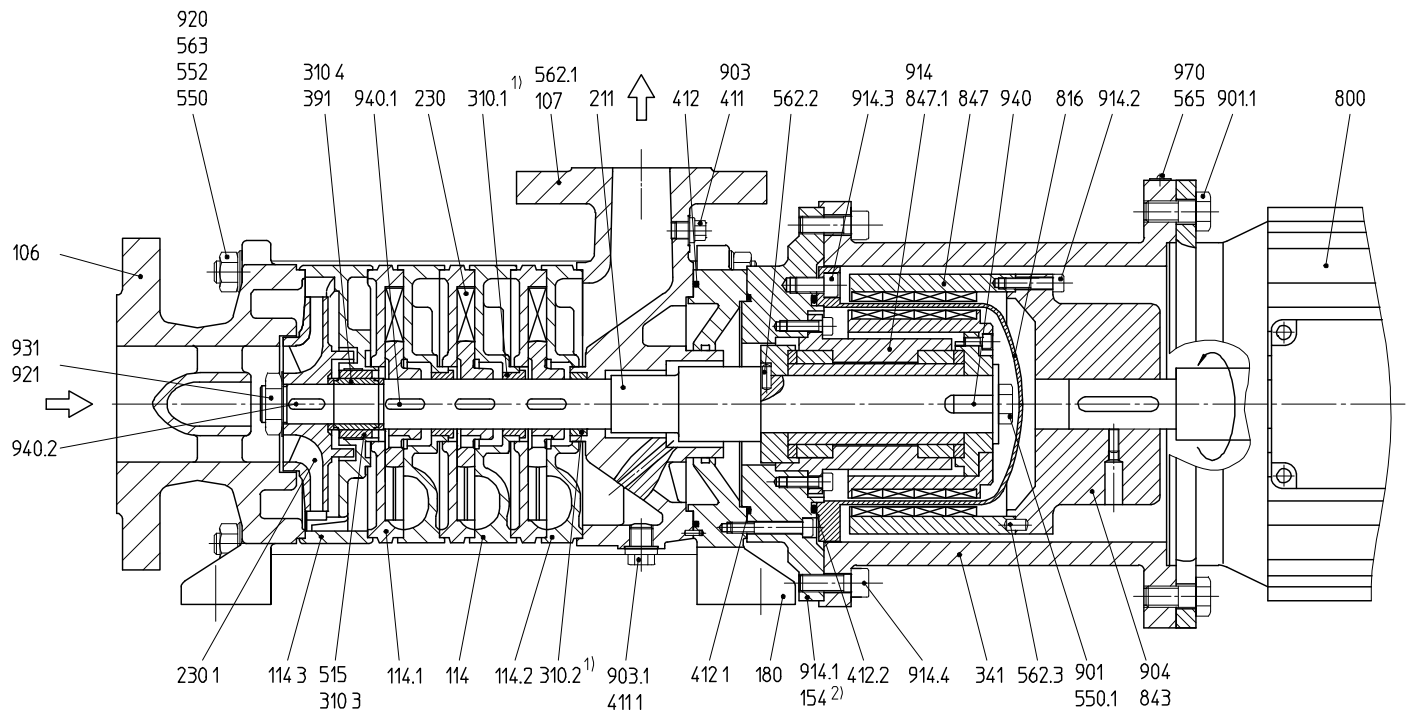


1) **Spheroidal graphite cast iron version:**  
up to 3 stages without plain bearing (310.1)  
from 4 stages with plain bearing (310.1)

**Stainless steel version:**  
discharge stages with plain bearing (310.1)  
discharge casing with plain bearing (310.2)

2) O-ring (412) for cooled version only  
3) Shaft protection sleeve (524) for ASK 40 only

## Sectional drawing and parts list



### Version with magnetic coupling

106	Suction casing
107	Discharge casing
114	Discharge stage I
114.1	Suction stage
114.2	Discharge stage II
114.3	Stage
154	Intermediate flange
180	Pump frame
211	Shaft
230.1	Impeller
310.1-4	Plain bearing
341	Bracket
391	Bearing ring carrier
411-.1	Joint ring
412-.2	O-ring
515	Tolerance ring
550-.1	Disk
552	Locking disk

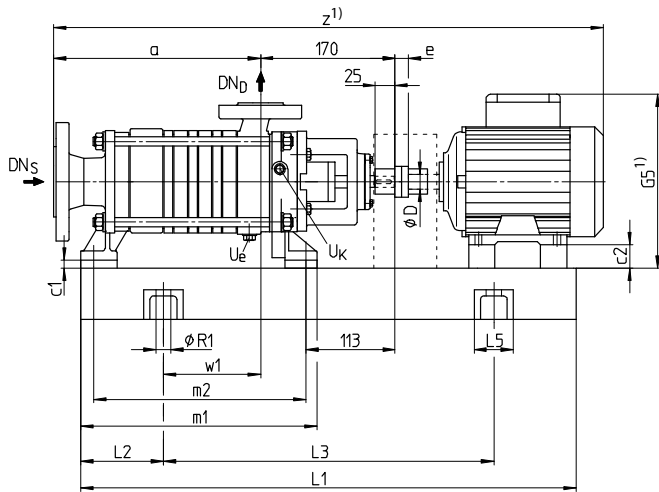
562.1-3	Parallel pin
563	Casing bolt
565	Rivet
800	Motor
816	Separating can
843	Coupling
847	Magnetic coupling
847.1	Magnetic coupling with bearing
901-.1	Hexagon head cap screw
903-.1	Screw plug
904	Set screw
914-.4	Hexagon head cap screw
920	Hexagon nut
921	Shaft nut
931	Lock washer
940-.2	Feather key
970	Name plate

1) **Spheroidal graphite cast iron version:**  
up to 3 stages without plain bearing (310.1)  
from 4 stages with plain bearing (310.1)

**Stainless steel version:**  
discharge stages with plain bearing (310.1)  
discharge casing with plain bearing (310.2)

2) Intermediate flange (154) required for reinforced magnetic coupling

Aggregate dimensions

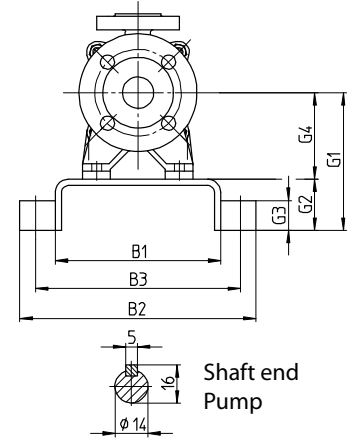
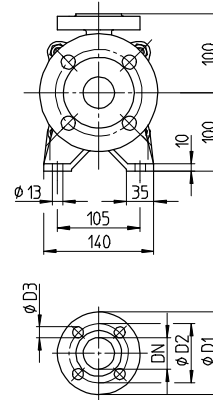


Connections

U <sub>e</sub>	Drainage	G 1/4
U <sub>k</sub>	Cooling	G 1/8

Flanges in acc. with DIN EN 1092 PN 40

	DN	D1	D2	D3
DN <sub>D</sub>	20	105	75	4 x 14
DN <sub>S</sub>	40	150	110	4 x 18



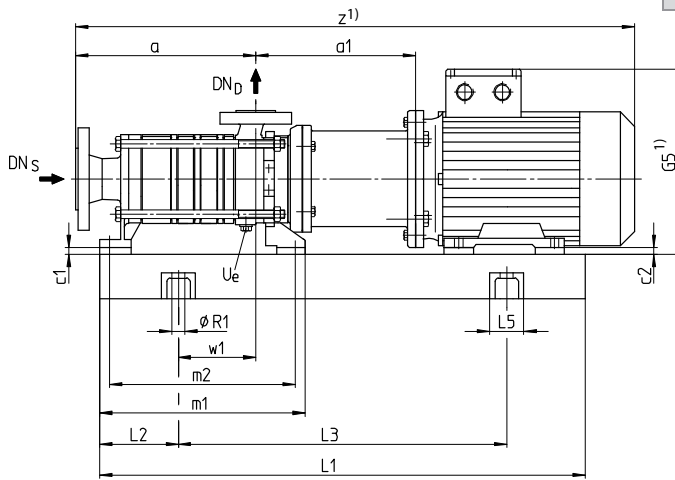
Pump	Motor (50 Hz) <sup>2)</sup>				Weight <sup>3)</sup> (Aggregate)		Aggregate dimensions							
	Frame size	[kW]	[HP]	øD	[kg]	[lbs]	a	c1	c2	e	m1	m2	w1	z <sup>1)</sup>
2001	71	0.37	0.50	14	39	86	195	0	29	16	236	202	55	631
	80	0.55	0.74	19	46	101			20					676
2002	80	0.55	0.74	19	48	106	229	0	20	16	270	236	89	710
	90S	1.1	1.5		24	54			119					10
2003	80	0.75	1.0	19	52	115	263	0	20	16	304	270	123	744
	90S	1.1	1.5	24	59	130			10				745	
	90L	1.5	2.0	24	63	139			10	770				
2004	90S	1.1	1.5	24	61	135	297	0	10	18	338	304	147	779
	90L	1.5	2.0		24	65			143				10	804
	100L	2.2	3.0	28	76	168			0	132			848	
2005	90S	1.1	1.5	24	63	139	331	0	10	18	372	338	181	813
	90L	1.5	2.0		24	71			157				10	838
	100L	2.2	3.0	28	78	172			0	166			882	
2006	90L	1.5	2.0	24	73	161	365	0	10	18	406	372	200	872
	100L	2.2	3.0	28	91	201			0				180	916
	100L	3.0	4.0	28	92	203			0	180			916	
2007	90L	1.5	2.0	24	75	165	399	0	10	18	440	406	214	906
	100L	2.2	3.0	28	93	205			0				950	
	100L	3.0	4.0	28	94	207			0	950				
2008	100L	2.2	3.0	28	95	209	433	0	0	18	474	474	248	984
	100L	3.0	4.0		28	96			212					

Pump	Motor	Aggregate dimensions											Base plate		Coupling		Coupling guard
		Frame size	B1	B2	B3	G1	G2	G3	G4	G5 <sup>1)</sup>	L1	L2	L3	L5	øR1	SN 419	Size
2001	71	210	300	260	165	65	38	100	219	630	105	420	50	19	0/210	19/24	31.681.031-32
	229																
2002	80	210	300	260	165	65	38	100	229	630	105	420	50	19	0/210	19/24	31.681.031-32
	248																
2003	80	210	300	260	165	65	38	100	229	630	105	420	50	19	0/210	19/24	31.681.031-32
	248																
	90S								240								
2004	90S	240	330	290	165	65	38	100	248	710	115	480	50	19	1/240	24/28	31.681.031-02
	90L								248								
	100L								270								
2005	90S	240	330	290	165	65	38	100	248	710	115	480	50	19	1/240	24/28	31.681.031-02
	90L								248								
	100L								270								
2006	90L	270	360	320	165	65	38	100	248	900	150	600	50	19	2/270	24/28	31.681.031-02
	100L								248								
	100L								270								
2007	90L	270	360	320	165	65	38	100	248	900	150	600	50	19	3/270	24/28	31.681.031-02
	100L								248								
	100L								270								
2008	100L	270	360	320	165	65	38	100	255	900	150	600	50	19	3/270	24/28	31.681.031-02
	100L								255								

1) Dimensions depending on motor manufacturer 2) 60 Hz on request 3) Weight depending on material design and version

Side channel pumps with NPSH suction stage and magnetic coupling

Aggregate dimensions

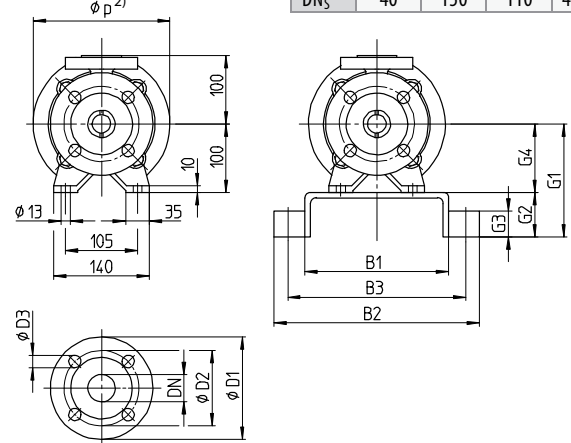


Connections

U <sub>e</sub>	Drainage	G 1/4
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Flanges in acc. with DIN EN 1092 PN 40

	DN	D1	D2	D3
DN <sub>D</sub>	20	105	75	4 x 14
DN <sub>S</sub>	40	150	110	4 x 18

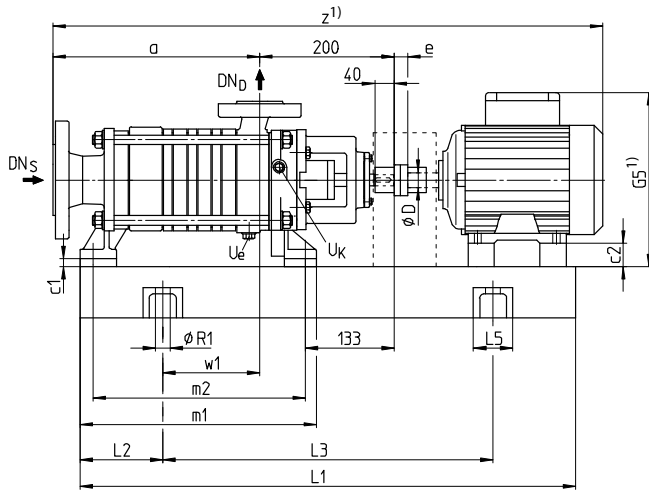


Pump	Motor (50 Hz) <sup>3)</sup>			Weight <sup>4)</sup> (Aggregate)		Aggregate dimensions								
Size	Frame size	[kW]	[HP]	[kg]	[lbs]	a	a1	c1	c2	m1	m2	øp <sup>2)</sup>	w1	z <sup>1)</sup>
2001	71	0.37	0.50	43	95	195	234	0	29	236	202	200	55	649
	80	0.55	0.74	45	99				20					684
2002	80	0.55	0.74	47	104	229	234	0	20	270	236	200	89	718
	90S	1.1	1.5	53	117				10					707
2003	80	0.75	1.0	49	108	263	234	0	20	304	270	200	113	752
	90S	1.1	1.5	54	119				10					741
2004	90L	1.5	2.0	56	123	297	234	0	10	338	304	200	147	775
	100L	2.2	3.0	65	143				0					800
	90S	1.1	1.5	56	123				0					845
2005	90L	1.5	2.0	58	128	331	234	0	10	372	338	200	166	809
	100L	2.2	3.0	66	146				0					834
	90L	1.5	2.0	59	130				10					879
2006	100L	2.2	3.0	68	150	365	245	0	10	406	372	250	180	868
	100L	3.0	4.0	69	152				0					913
	90L	1.5	2.0	60	132				10					902
2007	100L	2.2	3.0	69	152	399	234	0	10	440	406	200	214	902
	100L	3.0	4.0	70	154				0					947
	100L	2.2	3.0	70	154				0					981
2008	100L	3.0	4.0	71	157	433	245	0	0	474	440	250	248	981
	112M	4.0	5.4	77	170				12					998

Pump	Motor	Aggregate dimensions												Base plate	Coupling	
Size	Frame size	B1	B2	B3	G1	G2	G3	G4	G5 <sup>1)</sup>	L1	L2	L3	L5	øR1	SN 419	Diameter
2001	71	210	300	260	165	65	38	100	219	630	105	420	50	19	0/210	75
	229															
2002	80	210	300	260	165	65	38	100	229	630	105	420	50	19	0/210	75
	248															
2003	80	210	300	260	165	65	38	100	229	630	105	420	50	19	0/210	75
	90S								248						1/240	
	90L								248						1/240	
2004	90S	240	330	290	165	65	38	100	248	710	115	480	50	19	1/240	75
	90L								248						1/240	
	100L								255						2/270	
2005	90S	240	330	290	165	65	38	100	248	710	115	480	50	19	1/240	75
	90L								248						1/240	
	100L								255						2/270	
2006	90L	270	360	320	165	65	38	100	248	900	150	600	50	19	2/270	75
	100L								255						3/270	
	100L								248						2/270	
2007	90L	270	360	320	165	65	38	100	248	900	150	600	50	19	3/270	75
	100L								255						3/270	
	100L								248						2/270	
2008	100L	270	360	320	165	65	38	100	255	900	150	600	50	19	3/270	75
	112M								280							

1) Dimensions depending on motor manufacturer 2) Motor flanges partly smaller/bigger than standard 3) 60 Hz on request 4) Weight depending on material and version

Aggregate dimensions

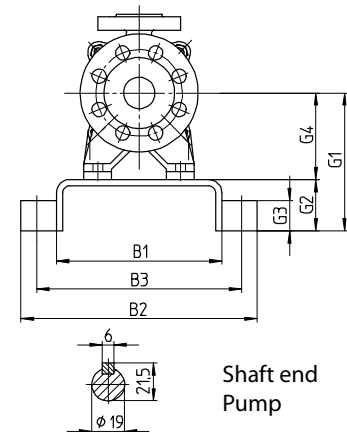
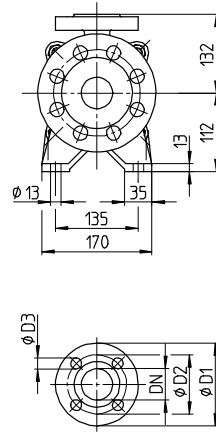


Connections

U <sub>e</sub>	Drainage	G 1/4
U <sub>k</sub>	Cooling	G 1/8

Flanges in acc. with DIN EN 1092 PN 40

	DN	D1	D2	D3
DN <sub>D</sub>	32	140	100	4 x 18
DN <sub>S</sub>	65	185	145	8 x 18

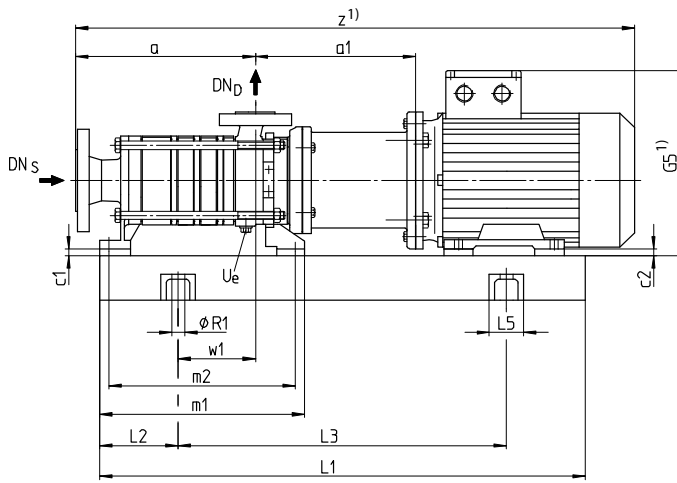


Shaft end Pump

Pump	Motor (50 Hz) <sup>2)</sup>			Weight <sup>3)</sup> (Aggregate)			Aggregate dimensions									
Size	Frame size	[kW]	[HP]	øD	[kg]	[lbs]	a	c1	c2	e	m1	m2	w1	z <sup>1)</sup>		
3201	80	0.75	1.0	19	62	137	213	0	32	16	274	240	72	724		
	90S	1.1	1.5	24	65	143			22					723		
3202	90S	1.1	1.5	24	73	161	253	0	22	16	314	280	102	763		
	90L	1.5	2.0		75	165			12					18	788	
	100L	2.2	3.0	28	82	181			12	18	87	834				
3203	100L	2.2	3.0	28	90	198	293	0	12	18	354	320	127	874		
	100L	3.0	4.0		91	201			94					207		
3204	100L	2.2	3.0	28	95	209	333	0	12	18	394	360	167	914		
	112M	4.0	5.4		124	273			0					147	931	
	100L	3.0	4.0		109	240			12					187	954	
3205	112M	4.0	5.4	28	127	280	373	0	12	18	434	400	187	971		
	132S	5.5	7.4		38	149			329					20	167	1078
	112M	4.0	5.4		28	130			287					0	18	227
3206	132S	5.5	7.4	38	166	366	413	20	0	20	474	440	207	1118		
	132M	7.5	10.1		176	388			0					18	247	1051
	112M	4.0	5.4		28	147			324					0	18	227
3207	132S	5.5	7.4	38	170	375	453	20	0	20	514	480	267	1198		
	132M	7.5	10.1		217	478			20					20	252	1344
	100L	2.2	3.0		28	94			207					0	12	18
3208	132S	5.5	7.4	38	210	463	493	20	0	20	554	520	267	1198		
	132M	7.5	10.1		220	485			20					20	252	1344
	160M	11.0	14.8		42	256			564					48	24	252

Pump	Motor	Aggregate dimensions											Base plate	Coupling	Coupling guard									
Size	Frame size	B1	B2	B3	G1	G2	G3	G4	G5 <sup>1)</sup>	L1	L2	L3	L5	øR1	SN 419	Size	Drawing No.							
3201	80	210	300	260	177	65	38	112	241	630	105	420	50	19	0/210	19/24	31.681.031-03							
	260																							
3202	90S	210	300	260	177	65	38	112	260	710	115	480	50	19	1/210	19/24	31.681.031-03							
	90L								267															
	100L								267									800	130	540	2/240	24/28	31.681.031-04	
3203	100L	240	330	290	177	65	38	112	267	800	130	540	50	19	2/240	24/28	31.681.031-04							
	100L							112																
3204	100L	240	330	290	177	65	38	112	267	800	130	540	50	19	2/240	24/28	31.681.031-04							
	100L							112																
	112M							280										900	150	600	3/270			
3205	100L	240	330	290	177	65	38	112	267	900	150	600	50	19	3/240	24/28	31.681.031-04							
	112M							270										360	320	3/270				
	132S							300										390	350	197	4/300	28/38	31.681.031-07	
	112M							270										360	320	177	3/270	24/28	31.681.031-04	
3206	132S	300	390	350	197	65	38	112	280	900	150	600	50	19	4/300	28/38	31.681.031-07							
	132M							132										320	1000	170	660	4/300	28/38	31.681.031-07
	112M							270										360	320	177	112	280	900	150
3207	132S	300	390	350	197	65	38	112	280	1000	170	660	50	19	4/270	24/28	31.681.031-04							
	132M							132										320	1120	190	740	5/300	28/38	31.681.031-07
	100L							2.2										3.0	28	94	207	0	12	18
3208	132S	300	390	350	197	65	38	132	320	1120	190	740	50	19	5/300	28/38	31.681.031-07							
	132M							220										485	20	20	252	1344		
	160M							11.0										14.8	42	256	564	48	24	252

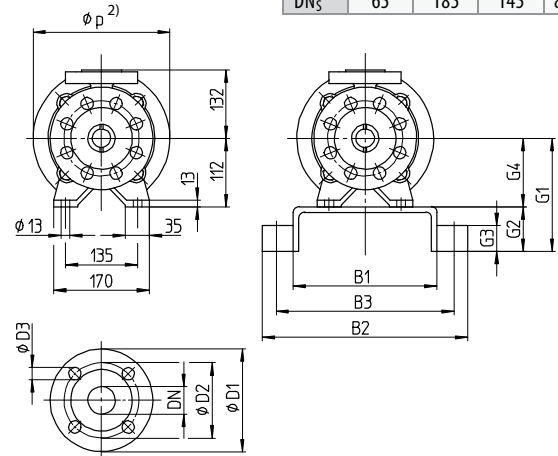
1) Dimensions depending on motor manufacturer 2) 60 Hz on request 3) Weight depending on material design and version

**Side channel pumps with NPSH suction stage and magnetic coupling**
**Aggregate dimensions**

**Connection**

U <sub>e</sub>	Drainage	G 1/4
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**Flanges in acc. with DIN EN 1092 PN 40**

	DN	D1	D2	D3
DN <sub>D</sub>	32	140	100	4 x 18
DN <sub>S</sub>	65	185	145	8 x 18

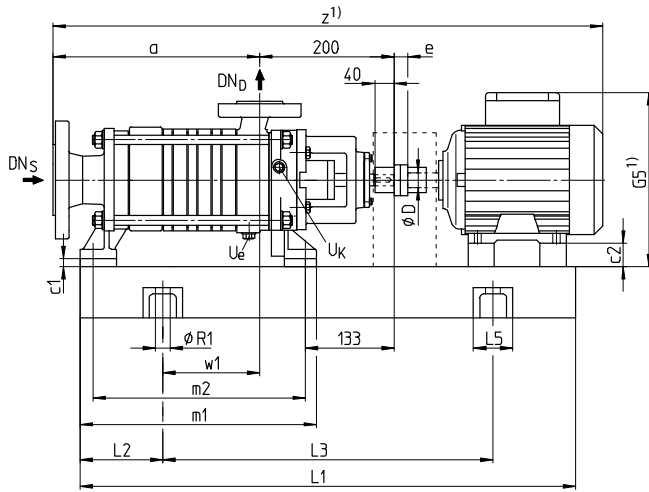


Pump	Motor (50 Hz) <sup>3)</sup>	Weight <sup>4)</sup> (Aggregate)	Aggregate dimensions															
Size	Frame size	[kW]	[HP]	[kg]	[lbs]	a	a1	c1	c2	m1	m2	øp <sup>2)</sup>	w1	z <sup>1)</sup>				
3201	80	0.75	1.0	80	176	213	226	20	52	274	240	200	72	694				
	90S	1.1	1.5	82	181				42					683				
3202	90S	1.1	1.5	84	185	253	226	20	42	314	280	200	102	723				
	90L	1.5	2.0	86	190				32					250	87	748		
	100L	2.2	3.0	91	201											782		
3203	100L	2.2	3.0	93	205	293	226	20	32	354	320	250	127	822				
	100L	3.0	4.0	96	212													
3204	100L	2.2	3.0	99	218	333	299	20	32	394	360	250	147	935				
	100L	3.0	4.0	104	229				20					250	147	952		
	112M	4.0	5.4	114	251													
3205	100L	3.0	4.0	106	234	373	299	20	32	434	400	250	187	975				
	112M	4.0	5.4	112	247				20					250	167	1077		
	132S	5.5	7.4	128	282				45					25	300	207	1177	
	112M	4.0	5.4	114	251				20					20	250	207	1032	
3206	132S	5.5	7.4	130	287	413	299	45	25	474	440	300	207	1117				
	132M	7.5	10.1	143	315				20					20	250	247	1072	
	112M	4.0	5.4	116	256													
3207	132S	5.5	7.4	127	280	453	299	45	25	514	480	300	227	1157				
	132M	7.5	10.1	145	320				20						20	250	247	1072
	112M	4.0	5.4	116	256													
3208	132S	5.5	7.4	134	295	493	299	45	25	554	520	300	267	1197				
	132M	7.5	10.1	147	324													

Pump	Motor	Aggregate dimensions												Base plate	Coupling	
Size	Frame size	B1	B2	B3	G1	G2	G3	G4	G5 <sup>1)</sup>	L1	L2	L3	L5	øR1	SN 419	Diameter
3201	80	210	300	260	197	65	38	132	261	630	105	420	50	19	0/210	75
	90S								280							
3202	90S	210	300	260	197	65	38	132	280	710	115	480	50	19	1/210	75
	90L								280							
	100L								287							
3203	100L	240	330	290	197	65	38	132	287	800	130	540	50	19	2/240	75
	100L								287							
3204	100L	240	330	290	197	65	38	132	287	900	150	600	50	19	3/240	110
	100L								287							
	112M								300							
3205	100L	240	330	290	197	65	38	132	287	900	150	600	50	19	3/240	110
	112M								300							
	132S								345							
	132M								345							
3206	112M	270	360	320	197	65	38	132	300	1000	170	660	50	19	4/270	110
	132S								345							
	132M								345							
3207	112M	270	360	320	197	65	38	132	300	1000	170	660	50	19	4/270	110
	132S								345							
	132M								345							
3208	132S	300	390	350	222	65	38	157	345	1120	190	740	50	19	5/300	110
	132M								345							

1) Dimensions depending on motor manufacturer 2) Motor flanges partly smaller/bigger than standard 3) 60 Hz on request 4) Weight depending on material and version

**Aggregate dimensions**

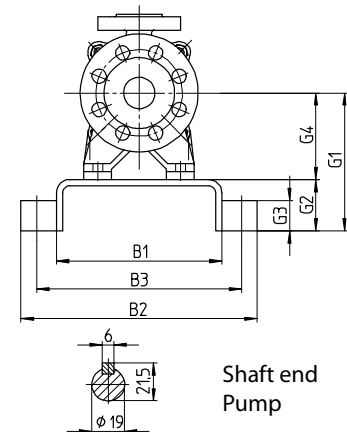
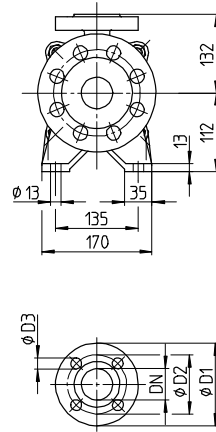


**Connections**

U <sub>e</sub>	Drainage	G 1/4
U <sub>k</sub>	Cooling	G 1/8

**Flanges in acc. with DIN EN 1092 PN 40**

	DN	D1	D2	D3
DN <sub>D</sub>	32	140	100	4 x 18
DN <sub>S</sub>	65	185	145	8 x 18



Shaft end Pump

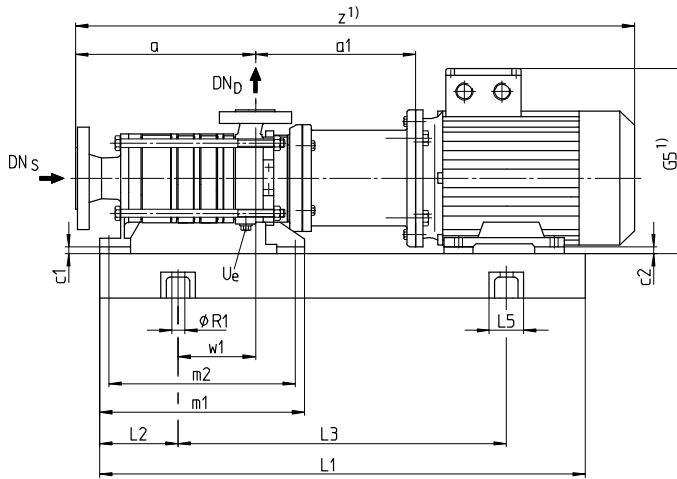
Pump	Motor (50 Hz) <sup>2)</sup>				Weight <sup>3)</sup> (Aggregate)		Aggregate dimensions							
	Frame size	[kW]	[HP]	øD	[kg]	[lbs]	a	c1	c2	e	m1	m2	w1	z <sup>1)</sup>
3301	80	0.75	1.0	19	57	126	213	0	32	16	274	240	72	724
	90S	1.1	1.5	24	65	143			22				723	
	90L	1.5	2.0		72	159			62				748	
3302	90L	1.5	2.0	24	75	165	253	0	22	16	314	280	102	788
	100L	2.2	3.0	28	86	190			12				18	87
3303	100L	2.2	3.0	28	90	198	293	0	12	18	354	320	127	874
	112M	4.0	5.4		120	265			0				107	891
3304	100L	3.0	4.0	28	106	233	333	0	12	18	394	360	167	914
	112M	4.0	5.4		124	273			0				147	1038
	132S	5.5	7.4		38	160			353				20	187
3305	100L	3.0	4.0	28	109	240	373	0	12	18	434	400	167	971
	112M	4.0	5.4		127	280			0				167	1078
	132S	5.5	7.4		38	163			259				20	167
3306	112M	4.0	5.4	28	130	287	413	0	18	18	474	440	227	1011
	132S	5.5	7.4		166	366			0				207	1118
	132M	7.5	10.1		38	176			388				20	207
3307	132S	5.5	7.4	38	170	375	453	20	0	20	514	480	227	1158
	132M	7.5	10.1		180	397			0				227	1011
3308	132S	5.5	7.4	38	173	381	493	20	0	20	554	520	267	1198
	132M	7.5	10.1		183	403			0				267	1198
	160M	11.0	14.8		42	257			567				48	24

Pump	Motor	Aggregate dimensions											Base plate		Coupling		Coupling guard	
		Frame size	B1	B2	B3	G1	G2	G3	G4	G5 <sup>1)</sup>	L1	L2	L3	L5	øR1	SN 419	Size	Drawing No.
3301	80	210	300	260	177	65	38	112	241	630	105	420	50	19	0/210	19/24	31.681.031-03	
	260																	
	260																	
3302	90L	240	330	290	177	65	38	112	260	710	115	480	50	19	1/210	19/24	31.681.031-03	
	267																	
3303	100L	240	330	290	177	65	38	112	267	800	130	540	50	19	2/240	24/28	31.681.031-04	
	267																	
	280																	
3304	100L	270	360	320	177	65	38	112	267	800	130	540	50	19	2/240	24/28	31.681.031-04	
	280																	
	320																	
3305	112M	270	360	320	177	65	38	112	267	900	150	600	50	19	3/270	28/38	31.681.031-07	
	280																	
	320																	
3306	100L	240	330	290	177	65	38	112	267	900	150	600	50	19	3/240	24/28	31.681.031-04	
	280																	
	320																	
3307	132S	300	390	350	197	65	38	132	320	1120	190	740	50	19	5/300	28/38	31.681.031-07	
	320																	
	320																	
3308	132S	300	390	350	197	65	38	132	320	1120	190	740	50	19	5/300	28/38	31.681.031-07	
	320																	
	320																	
160M	11.0	380	490	440	240	80	42	160	410	1250	205	840	65	24	6/380	38/45	31.681.031-13	

1) Dimensions depending on motor manufacturer 2) 60 Hz on request 3) Weight depending on material design and version

Side channel pumps with NPSH suction stage and magnetic coupling

Aggregate dimensions

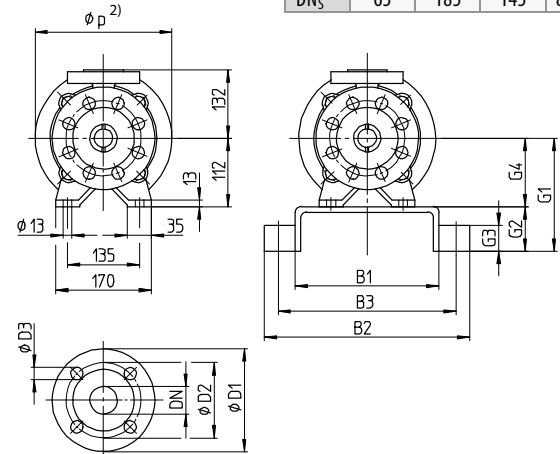


Connection

U <sub>e</sub>	Drainage	G 1/4
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Flanges in acc. with DIN EN 1092 PN 40

	DN	D1	D2	D3
DN <sub>D</sub>	32	140	100	4 x 18
DN <sub>S</sub>	65	185	145	8 x 18



Pump	Motor (50 Hz) <sup>3)</sup>	Weight <sup>4)</sup> (Aggregate)	Aggregate dimensions														
Size	Frame size	[kW]	[HP]	[kg]	[lbs]	a	a1	c1	c2	m1	m2	øp <sup>2)</sup>	w1	z <sup>1)</sup>			
3301	80	0.75	1.0	80	176	213	226	20	52	274	240	200	72	694			
	90S	1.1	1.5	82	181				42					683			
3302	90S	1.1	1.5	84	185	253	226	20	42	314	280	200	102	723			
	90L	1.5	2.0	86	190				32					748			
	100L	2.2	3.0	91	201									250	782		
3303	100L	2.2	3.0	93	205	293	226	20	32	354	320	250	127	822			
	100L	3.0	4.0	96	212												
3304	100L	2.2	3.0	99	218	333	299	20	32	394	360	250	147	935			
	100L	3.0	4.0	104	229				20					952			
	112M	4.0	5.4	114	251									20			
3305	100L	3.0	4.0	106	234	373	299	20	32	434	400	250	187	975			
	112M	4.0	5.4	112	247				20					992			
	132S	5.5	7.4	128	282				45					1077			
3306	112M	4.0	5.4	114	251	413	299	20	20	474	440	250	207	1032			
	132S	5.5	7.4	130	287				45					25	300	207	1117
	132M	7.5	10.1	143	315				25								
	112M	4.0	5.4	116	256				20					20	250	247	1072
3307	132S	5.5	7.4	127	280	453	299	45	25	514	480	300	227	1157			
	132M	7.5	10.1	145	320												
	132S	5.5	7.4	134	295				45					25	554	520	300
3308	132M	7.5	10.1	147	324	493	299	45	25	554	520	300	267	1197			

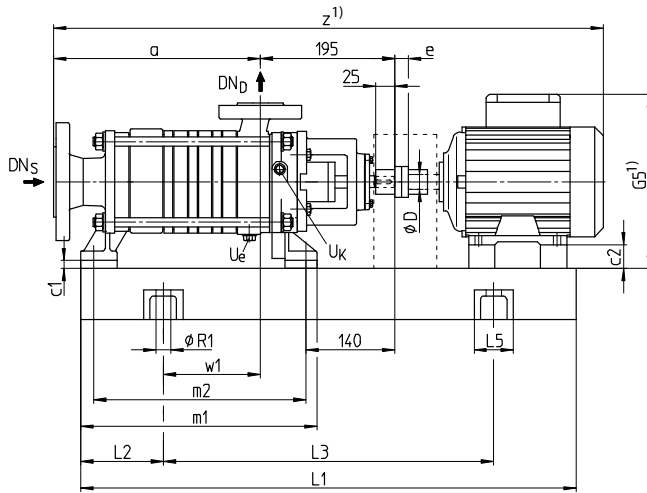
Pump	Motor	Aggregate dimensions												Base plate	Coupling												
Size	Frame size	B1	B2	B3	G1	G2	G3	G4	G5 <sup>1)</sup>	L1	L2	L3	L5	øR1	SN 419	Diameter											
3301	80	210	300	260	197	65	38	132	261	630	105	420	50	19	0/210	75											
	280																										
3302	90S	210	300	260	197	65	38	132	280	710	115	480	50	19	1/210	75											
	90L								287								800	130	540	2/240							
	100L																										
3303	100L	240	330	290	197	65	38	132	287	800	130	540	50	19	2/240	75											
	100L																										
3304	100L	240	330	290	197	65	38	132	287	900	150	600	50	19	3/240	110											
	100L								300								3/270										
	112M																	270	360	320							
3305	100L	240	330	290	197	65	38	132	287	900	150	600	50	19	3/240	110											
	112M								300								3/270										
	132S																	300	390	350	222	157	345	1000	170	660	50
	112M								270								360	320	197								
3306	132S	300	390	350	222	65	38	157	345	1000	170	660	50	19	4/300	110											
	132M																										
	112M								270								360	320	197	132	300	1000	170	660	50	19	4/270
3307	132S	300	390	350	222	65	38	157	345	1120	190	740	50	19	5/300	110											
	132M																										
	132S								300								390	350	222	65	38	157	345	1120	190	740	50
3308	132M	300	390	350	222	65	38	157	345	1120	190	740	50	19	5/300	110											

1) Dimensions depending on motor manufacturer 2) Motor flanges partly smaller/bigger than standard 3) 60 Hz on request 4) Weight depending on material and version

**ASK 40**

Side channel pumps with NPSH suction stage and mechanical seal

**Aggregate dimensions**

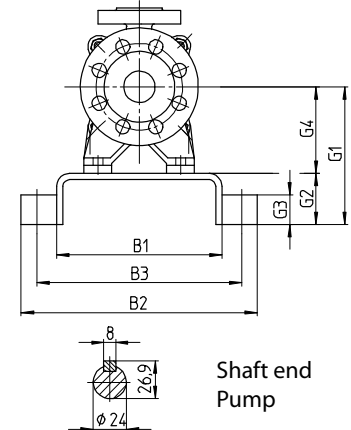
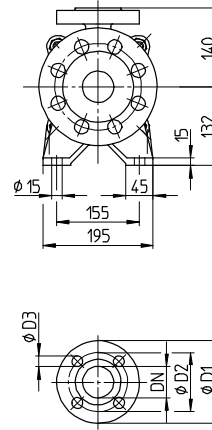


**Connections**

U <sub>e</sub>	Drainage	G 1/4
U <sub>k</sub>	Cooling	G 1/8

**Flanges in acc. with DIN EN 1092 PN 40**

	DN	D1	D2	D3
DN <sub>D</sub>	40	150	110	4 x 18
DN <sub>S</sub>	80	200	160	8 x 18



Shaft end Pump

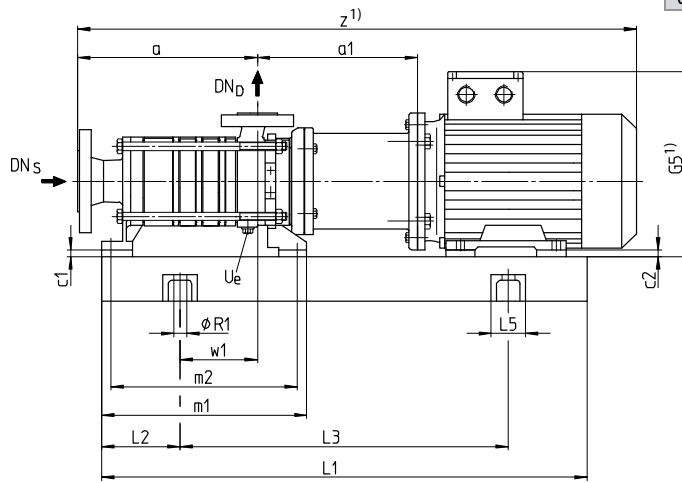
Pump Size	Motor (50 Hz) <sup>2)</sup>				Weight <sup>3)</sup> (Aggregate)		Aggregate dimensions							
	Frame size	[kW]	[HP]	øD	[kg]	[lbs]	a	c1	c2	e	m1	m2	w1	z <sup>1)</sup>
4001	90L	1.5	2.0	24	82	181	268	0	42	16	303	269	107	798
	100L	2.2	3.0		92	203			32	18			92	844
4002	100L	2.2	3.0	28	99	218	323	0	32	18	358	324	147	899
	112M	4.0	5.4		129	284			20				916	
4003	112M	4.0	5.4	28	135	298	378	0	20	18	413	379	182	971
	132S	5.5	7.4		171	377			0	20			1078	
4004	132S	5.5	7.4	38	177	390	433	0	0	20	468	434	217	1133
	132M	7.5	10.1		187	412								
4005	132S	5.5	7.4	38	183	403	488	0	20		523	489	272	1188
	160M	11.0	14.8		193	426			24				1334	
4006	132M	7.5	10.1	38	198	437	543	0	20	578	544	307	1243	
	160M	11.0	14.8		272	600		28	24			292	1389	
4007	132M	7.5	10.1	38	204	450	598	0	20	633	599	347	1298	
	160M	11.0	14.8		278	613		28	24			322	1444	
4008	160L	15.0	20.1	42	352	776	653	28	0	24	688	654	377	1499
	160M	11.0	14.8		284	626								

Pump Size	Motor Frame size	Aggregate dimensions										Base plate		Coupling	Coupling guard		
		B1	B2	B3	G1	G2	G3	G4	G5 <sup>1)</sup>	L1	L2	L3	L5	øR1	SN 419	Size	Drawing No.
4001	90L	210	300	260	197	65	38	132	280	710	115	480	50	19	1/210	24/28	31.681.031-05
	100L	240	330	290					287	800	130	540			2/240		31.681.031-06
4002	100L	240	330	290	197	65	38	132	287	800	130	540	50	19	2/240	24/28	31.681.031-06
	112M								300						2/270		
4003	112M	270	360	320	197	65	38	132	300	900	150	600	50	19	3/270	24/28	31.681.031-06
	132S	300	390	350					320						3/300	28/38	31.681.031-07
4004	132S	300	390	350	197	65	38	132	320	1000	170	660	50	19	4/300	28/38	31.681.031-07
	132M								320								
4005	132S	300	390	350	197	65	38	132	320	1000	170	660	50	19	4/300	28/38	31.681.031-07
	160M								410						5/300		
4006	160M	380	490	440	240	80	42	160	410	1120	190	740	65	24	5/380	38/45	31.681.031-13
	132M	300	390	350	197	65	38	132	320	1120	190	740	50	19	5/300	28/38	31.681.031-07
4007	160M	380	490	440	240	80	42	160	410	1250	205	840	65	24	6/380	38/45	31.681.031-13
	132M	300	390	350	197	65	38	132	320	1250	205	840	50	19	6/300	28/38	31.681.031-07
4008	160M	380	490	440	240	80	42	160	410	1400	230	940	65	24	7/380	38/45	31.681.031-13
	160L																

1) Dimensions depending on motor manufacturer 2) 60 Hz on request 3) Weight depending on material design and version

Side channel pumps with NPSH suction stage and magnetic coupling

Aggregate dimensions

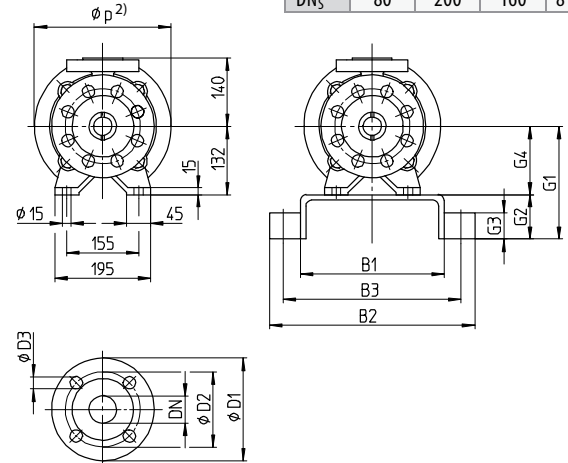


Connection

U <sub>e</sub>	Drainage	G 1/4
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Flanges in acc. with DIN EN 1092 PN 40

	DN	D1	D2	D3
DN <sub>b</sub>	40	150	110	4 x 18
DN <sub>s</sub>	80	200	160	8 x 18



Pump	Motor (50 Hz) <sup>3)</sup>	Weight <sup>4)</sup> (Aggregate)		Aggregate dimensions										
Size	Frame size	[kW]	[HP]	[kg]	[lbs]	a	a1	c1	c2	m1	m2	øp <sup>2)</sup>	w1	z <sup>1)</sup>
4001	90L	1.5	2.0	75	165	268	250	0	42	303	269	250	107	787
	100L	2.2	3.0	79	174				32				92	821
4002	100L	2.2	3.0	82	181	323	250	0	32	358	324	250	147	876
	112M	4.0	5.4	85	187				20					893
4003	112M	4.0	5.4	88	194	378	250	0	20	413	379	250	182	948
	132S	5.5	7.4	104	229				0					1033
4004	132S	5.5	7.4	112	247	433	365	28	28	468	434	300	197	1203
	132M	7.5	10.1	125	276				0					252
4005	132S	5.5	7.4	113	249	488	365	28	28	523	489	300	252	1258
	160M	11.0	14.8	157	346				0					237
4006	132M	7.5	10.1	126	278	543	365	28	28	578	544	300	292	1313
	160M	11.0	14.8	160	353				0					1425
4007	132M	7.5	10.1	129	284	598	365	28	28	633	599	300	347	1368
	160M	11.0	14.8	163	359				0					322
4008	160L	15.0	20.1	180	397	653	365	28	0	688	654	300	377	1535
	160M	11.0	14.8	168	370									0

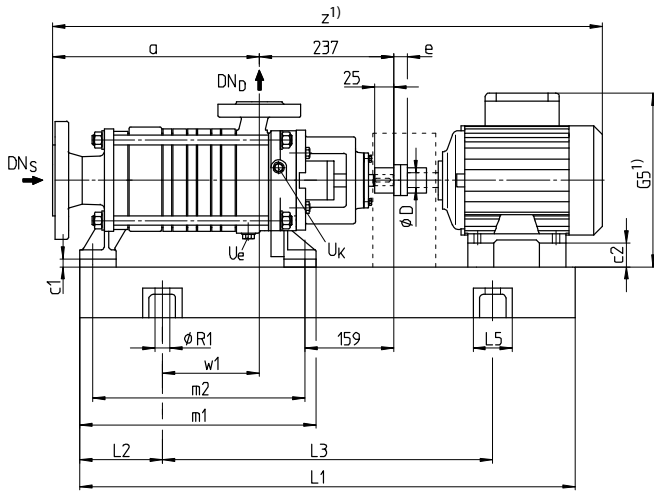
Pump	Motor	Aggregate dimensions												Base plate	Coupling	
Size	Frame size	B1	B2	B3	G1	G2	G3	G4	G5 <sup>1)</sup>	L1	L2	L3	L5	øR1	SN 419	Diameter
4001	90L	210	300	260	197	65	38	132	280	710	115	480	50	19	1/210	110
	100L	240	330	290					287						2/240	
4002	100L	240	330	290	197	65	38	132	287	800	130	540	50	19	2/240	110
	112M								300						2/270	
4003	112M	270	360	320	197	65	38	132	300	900	150	600	50	19	3/270	110
	132S	300	390	350					320						3/300	
4004	132S	300	390	350	225	65	38	160	348	1120	190	740	50	19	5/300	135
	132M								348							
4005	132S	300	390	350	225	65	38	160	348	1120	190	740	50	19	5/300	135
	160M								410							
4006	132M	300	390	350	225	65	38	160	348	1250	205	840	50	19	6/300	135
	160M	380	490	440					240						80	
4007	132M	300	390	350	225	65	38	160	348	1250	205	840	50	19	6/300	135
	160M	380	490	440					240						80	
4008	160M	380	490	440	240	80	42	160	410	1400	230	940	65	24	7/380	135
	160L								410							

1) Dimensions depending on motor manufacturer 2) Motor flanges partly smaller/bigger than standard 3) 60 Hz on request 4) Weight depending on material and version

**ASK 50**

Side channel pumps with NPSH suction stage and mechanical seal

**Aggregate dimensions**

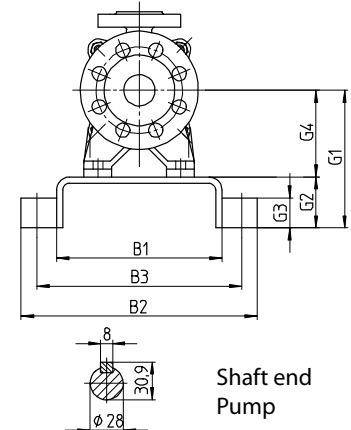
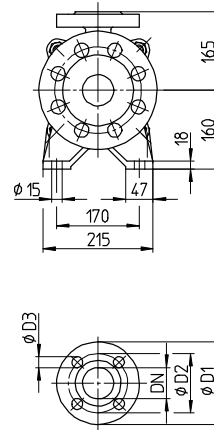


**Connections**

U <sub>e</sub>	Drainage	G 1/4
U <sub>k</sub>	Cooling	G 1/8

**Flanges in acc. with DIN EN 1092 PN 40**

	DN	D1	D2	D3
DN <sub>D</sub>	50	165	125	4 x 18
DN <sub>S</sub>	100	235	190	8 x 22



Shaft end Pump

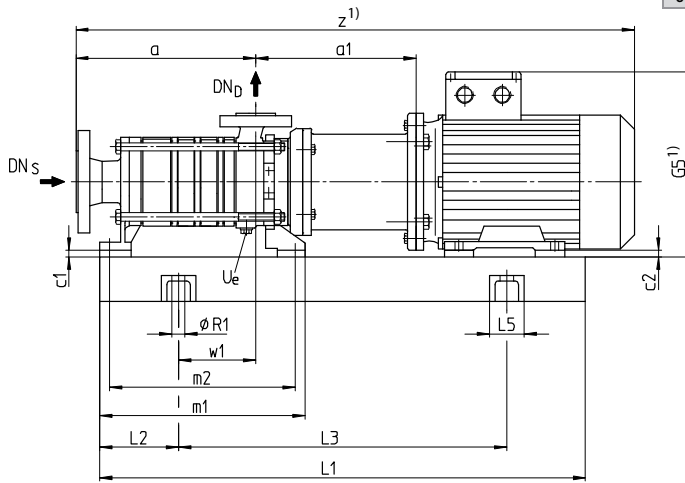
Pump	Motor (50 Hz) <sup>2)</sup>				Weight <sup>3)</sup> (Aggregate)		Aggregate dimensions							
	Size	Frame size	[kW]	[HP]	øD	[kg]	[lbs]	a	c1	c2	e	m1	m2	w1
5001	100L	3.0	4.0	28	124	273	305	0	60	18	369	331	129	923
	112M	4.0	5.4		159	351			48					940
	132S	5.5	7.4	38	178	392			28	109				1047
5002	132S	5.5	7.4	38	188	415	380	0	28	20	444	406	164	1122
	132M	7.5	10.1		198	437			0					24
	160M	11.0	14.8	42	272	600			0	24				219
5003	132M	7.5	10.1	38	208	459	455	0	28	20	519	481	219	1343
	160M	11.0	14.8		282	622			0					24
	160L	15.0	20.1	42	356	785			0	24				279
5004	160M	11.0	14.8	42	292	644	530	0	0	24	594	556	279	1418
	160L	15.0	20.1		367	809			0					
5005	160L	15.0	20.1	42	378	833	605	20	0	26	669	631	329	1493
	180M	18.5	24.8		399	880			0					26
	180L	22.0	29.5	48	419	924			0	26				1556
5006	160L	15.0	20.1	42	388	855	680	20	0	24	744	706	404	1568
	180M	18.5	24.8		48	409			902					26
	180L	22.0	29.5	48	429	946			26	1631				
	200L	30.0	40.2	55	511	1127			28	1683				
5007	180M	18.5	24.8	48	419	924	755	20	0	26	819	781	439	1668
	180L	22.0	29.5		439	968			26					1706
	200L	30.0	40.2	55	521	1149			28	1758				
5008	180L	22.0	29.5	48	450	992	830	20	0	26	894	856	514	1781
	200L	30.0	40.2		55	532			1173					28

Pump	Motor	Aggregate dimensions										Base plate		Coupling	Coupling guard			
		Size	Frame size	B1	B2	B3	G1	G2	G3	G4	G5 <sup>1)</sup>	L1	L2	L3	L5	øR1	SN 419	Size
5001	100L	270	360	320	225	65	38	160	315	800	130	240	50	19	19	2/270	24/28	31.681.031-20
	328																	
	348																	
5002	132S	300	390	350	225	65	38	160	348	1000	170	660	50	19	4/300	28/38	31.681.031-11	
	410																	
	410																	
5003	132M	380	490	440	240	80	42	160	410	1120	190	740	65	24	5/380	38/45	31.681.031-13	
	348																	
	410																	
5004	160M	380	490	440	240	80	42	160	410	1250	205	840	65	24	6/380	38/45	31.681.031-13	
	410																	
5005	160L	380	490	440	240	80	42	160	410	1400	230	940	65	24	7/380	38/45	31.681.031-13	
	410																	
	410																	
5006	180M	430	540	490	260	80	42	180	494	1400	230	940	65	24	7/430	42/55	31.681.031-16	
	410																	
	410																	
	410																	
5007	180L	480	610	550	300	100	42	200	514	1600	270	1060	65	24	8/480	48/60	31.681.031-19	
	410																	
	410																	
5008	200L	480	610	550	300	100	42	200	514	1600	270	1060	65	28	8/480	48/60	31.681.031-19	
	410																	
	410																	

1) Dimensions depending on motor manufacturer 2) 60 Hz on request 3) Weight depending on material design and version

Side channel pumps with NPSH suction stage and magnetic coupling

Aggregate dimensions

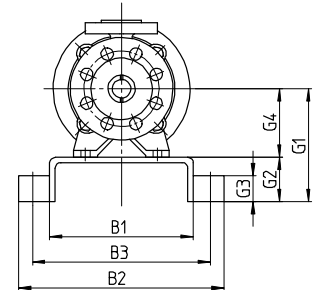
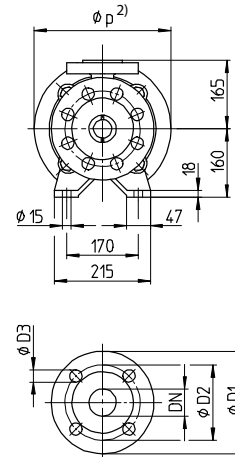


Connection

U <sub>e</sub>	Drainage	G 1/4
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Flanges in acc. with DIN EN 1092 PN 40

	DN	D1	D2	D3
DN <sub>D</sub>	50	165	125	4 x 18
DN <sub>S</sub>	100	235	190	8 x 22

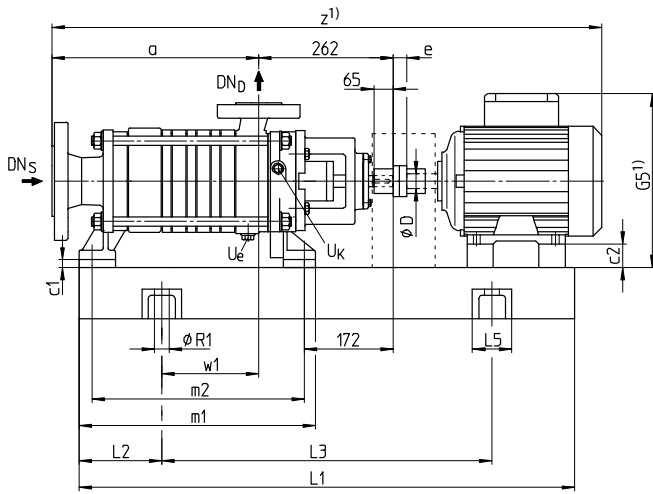


Pump	Motor (50 Hz) <sup>3)</sup>	Weight <sup>4)</sup> (Aggregate)	Aggregate dimensions											
Size	Frame size	[kW]	[HP]	[kg]	[lbs]	a	a1	c1	c2	m1	m2	ø p <sup>2)</sup>	w1	z <sup>1)</sup>
5001	100L	3.0	4.0	129	284	305	302	0	60	369	331	300	129	910
	112M	4.0	5.4	135	298				48					927
	132S	5.5	7.4	151	333				28					1012
5002	132S	5.5	7.4	156	344	380	302	0	28	444	406	300	184	1087
	132M	7.5	10.1	169	373				0					1199
	160M	11.0	14.8	198	437				0					164
5003	132M	7.5	10.1	174	384	455	302	0	28	519	481	300	219	1162
	160M	11.0	14.8	212	467				0					1274
	160L	15.0	20.1	227	500				0					
5004	160M	11.0	14.8	222	489	530	390	30	30	594	556	350	279	1437
	160L	15.0	20.1	237	522				30					
5005	160L	15.0	20.1	245	540	605	390	30	30	669	631	350	329	1512
	180M	18.5	24.8	300	661				10					1535
	180L	22.0	29.5	310	683				10					1573
5006	160L	15.0	20.1	247	545	680	390	30	30	744	706	350	404	1587
	180M	18.5	24.8	305	672				10					1610
	180L	22.0	29.5	315	694				10					1648
	200L	30.0	40.2	375	827				0					364
5007	180M	18.5	24.8	318	701	755	390	30	10	819	781	350	439	1685
	180L	22.0	29.5	320	705				40					1723
	200L	30.0	40.2	380	838				40					1773
5008	180L	22.0	29.5	325	716	830	390	30	10	894	856	350	514	1798
	200L	30.0	40.2	385	849				40					484

Pump	Motor	Aggregate dimensions											Base plate	Coupling		
Size	Frame size	B1	B2	B3	G1	G2	G3	G4	G5 <sup>1)</sup>	L1	L2	L3	L5	ø R1	SN 419	Diameter
5001	100L	270	360	320	225	65	38	160	315	800	130	540	50	19	2/270	135
	112M								328							
	132S								348							
5002	132S	300	390	350	225	65	38	160	348	900	150	600	50	19	3/300	135
	132M								410							
	160M								410							
5003	132M	300	390	350	225	65	38	160	348	1120	190	740	50	19	5/300	135
	160M								410							
	160L								410							
5004	160M	380	490	440	270	80	42	190	440	1250	205	840	65	24	6/380	135
	160L								440							
5005	160L	380	490	440	270	80	42	190	440	1400	230	940	65	24	7/380	135
	180M								504							
	180L								504							
5006	160L	380	490	440	270	80	42	190	440	1400	230	940	65	24	7/380	135
	180M								504							
	180L								504							
	200L								200							
5007	180M	430	540	490	270	80	42	190	504	1600	270	1060	65	24	8/430	165
	180L								504							
	200L								200							
5008	180L	430	540	490	270	80	42	190	504	1600	270	1060	65	24	8/430	165
	200L								200							

1) Dimensions depending on motor manufacturer 2) Motor flanges partly smaller/bigger than standard 3) 60 Hz on request 4) Weight depending on material and version

Aggregate dimensions

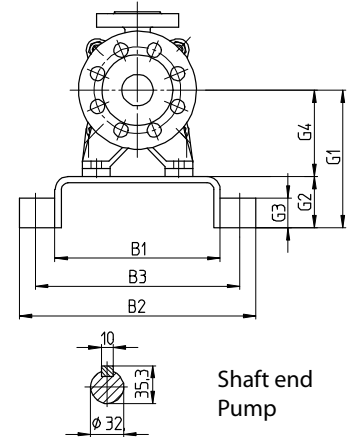
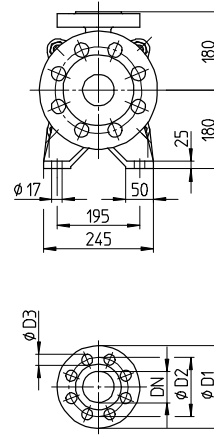


Connections

U <sub>e</sub>	Drainage	G 1/4
U <sub>k</sub>	Cooling	G 1/8

Flanges in acc. with DIN EN 1092 PN 40

	DN	D1	D2	D3
DN <sub>D</sub>	65	185	145	8 x 18
DN <sub>S</sub>	100	235	190	8 x 22



Shaft end Pump

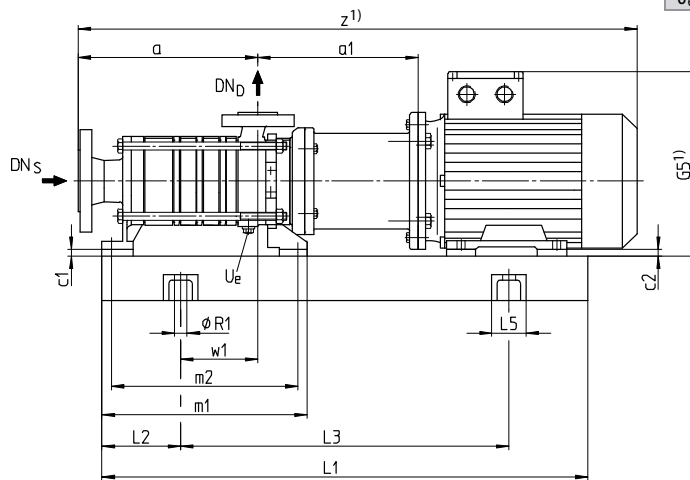
Pump	Motor (50 Hz) <sup>2)</sup>				Weight <sup>3)</sup> (Aggregate)		Aggregate dimensions								
	Size	Frame size	[kW]	[HP]	øD	[kg]	[lbs]	a	c1	c2	e	m1	m2	w1	z <sup>1)</sup>
6501	132S	5.5	7.4	38	198	437	338	0	48	20	412	374	112	1105	
	132M	7.5	10.1		208	459									
6502	160M	11.0	14.8	42	294	648	428	0	20	24	502	464	170	1341	
	160L	15.0	20.1		369	814									
6503	180M	18.5	24.8	48	403	888	518	0	0	26	592	554	235	1456	
	180L	22.0	29.5		423	933								1863	
6504	180L	22.0	29.5	48	435	959	608	0	0	26	682	644	325	1584	
	200L	30.0	40.2	55	517	1140				20				28	285
6505	200L	30.0	40.2	55	530	1168	698	20	0	28	772	734	375	1726	
	225S	37.0	49.6	60	600	1323								45	1863
6506	200L	30.0	40.2	55	542	1195	788	20	0	28	862	824	435	1816	
	225S	37.0	49.6	60	612	1349								45	1953
	225M	45.0	60.3	60	677	1492								1953	
6507	200L	30.0	40.2	55	556	1226	878	20	0	28	952	914	525	1906	
	225S	37.0	49.6	60	625	1377								45	2043
	225M	45.0	60.3	60	690	1521								70	2060
	250M	55.0	73.8	65	792	1746								30	2060
6508	225S	37.0	49.6	60	637	1404	968	45	0	28	1042	1004	595	2133	
	225M	45.0	60.3	60	702	1548								70	2150
	250M	55.0	73.8	65	804	1773								30	2150

Pump	Motor	Aggregate dimensions											Base plate		Coupling	Coupling guard		
		Size	Frame size	B1	B2	B3	G1	G2	G3	G4	G5 <sup>1)</sup>	L1	L2	L3	L5	øR1	SN 419	Size
6501	132S	300	390	350	245	65	38	180	368	368	1000	170	660	50	19	4/300	28/38	31.681.031-15
	132M																	
6502	160M	380	490	440	260	80	42	180	430	430	1250	205	840	65	24	6/380	38/45	31.681.031-17
	160L																	
6503	180M	430	540	490	260	80	42	180	494	494	1400	230	940	65	24	7/430	42/55	31.681.031-17
	180L																	
6504	180L	480	610	550	300	100	42	180	514	494	1400	230	940	65	24	7/430	42/55	31.681.031-17
	200L																	
6505	200L	480	610	550	300	100	42	200	514	514	1600	270	1060	65	28	8/480	48/60	31.681.031-19
	225S																	
6506	200L	480	610	550	300	100	42	200	514	514	1800	300	1200	65	28	9/480	48/60	31.681.031-19
	225S																	
6507	200L	480	610	550	300	100	42	200	514	514	1800	300	1200	65	28	9/480	48/60	31.681.031-19
	225S																	
6508	225S	530	660	600	325	100	42	225	563	611	1900	320	1260	65	28	10/600	55/70	31.681.031-22
	225M																	
6508	225S	600	730	670	350	100	42	250	611	611	1900	320	1260	65	28	10/600	55/70	31.681.031-22
	250M																	

1) Dimensions depending on motor manufacturer 2) 60 Hz on request 3) Weight depending on material design and version

Side channel pumps with NPSH suction stage and magnetic coupling

Aggregate dimensions

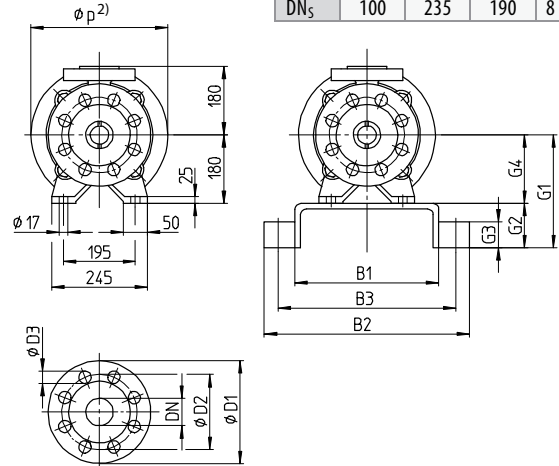


Connection

U <sub>e</sub>	Drainage	G 1/4
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Flanges in acc. with DIN EN 1092 PN 40

	DN	D1	D2	D3
DN <sub>D</sub>	65	185	145	8 x 18
DN <sub>S</sub>	100	235	190	8 x 22



Pump	Motor (50 Hz) <sup>3)</sup>		Weight <sup>4)</sup> (Aggregate)		Aggregate dimensions									
	Size	Frame size	[kW]	[HP]	[kg]	[lbs]	a	a1	c1	c2	m1	m2	øp <sup>2)</sup>	w1
6501	132S	5.5	7.4	190	419	338	350	0	48	412	374	350	115	1093
	132M	7.5	10.1	202	445									
6502	160M	11.0	14.8	240	529	428	350	0	20	502	464	350	185	1295
	160L	15.0	20.1	255	562									
6503	180M	18.5	24.8	313	690	518	350	0	0	592	554	350	235	1408
	180L	22.0	29.5	323	712									1446

Pump	Motor	Aggregate dimensions												Base plate		Coupling
		Size	Frame size	B1	B2	B3	G1	G2	G3	G4	G5 <sup>1)</sup>	L1	L2	L3	L5	øR1
6501	132S	300	390	350	245	65	38	180	368	1000	170	660	50	19	4/300	135
	132M	300	390	350	245	65	38	180	368	1000	170	660	50	19	4/300	135
6502	160M	380	490	440	260	80	42	180	430	1120	190	740	65	24	5/380	135
	160L	380	490	440	260	80	42	180	430	1120	190	740	65	24	5/380	135
6503	180M	430	540	490	260	80	42	180	494	1400	230	940	65	24	7/430	165
	180L	430	540	490	260	80	42	180	494	1400	230	940	65	24	7/430	165

1) Dimensions depending on motor manufacturer 2) Motor flanges partly smaller/bigger than standard 3) 60 Hz on request 4) Weight depending on material and version

## Technical and physical references

### Vapour pressure $p_D$ of various liquids

Temperatur	Ethan	Acetone	Ammonia	Ethyl alcohol	n-Butane	i-Butane	Aniline	Ether	Formic acid	Ethanoic acid	n-Propane	Methyl alcohol	Sulfur dioxide	Carbon disulfide	Toluol	Water
t [°C]	Vapour pressure $p_D$ in [bar]															
-40	7.776		0.0718		0.179			0.0255			1.115		0.2157			
-30	10.65	0.0149	1.195		0.294	0.483		0.05			1.672		0.3805	0.0335		
-20	14.23	0.0293	1.902		0.469	0.748		0.0883			2.423		0.6355	0.0609		
-10	18.59	0.0516	2.909		0.691	1.103		0.15			3.405		1.014	0.1047		
0	23.75	0.0856	4.294	0.0159	1.039	1.613		2.247		0.0044	4.684	0.0381	1.554	0.1697		0.00611
10	30.16	0.1542	6.149	0.0306	1.5	2.201		0.389	0.0245	0.0085	6.339	0.0699	2.302	0.2648	0.017	0.01227
20	37.75	0.246	8.572	0.0568	2.069	3.119		0.589	0.0419	0.0156	8.334	0.1227	3.305	0.3996	0.0298	0.02337
30	47.07	0.377	11.67	0.1008	2.824	4.232		0.864	0.0688	0.0275	10.807	0.2068	4.618	0.5848	0.0489	0.04241
40		0.562	15.54	0.1722	3.765	5.609		1.228	0.1097	0.0464	13.739	0.336	6.303	0.8306	0.0784	0.07375
50		0.817	20.33	0.2836	4.98	7.257	0.00319	1.702	0.1696	0.0754	17.269	0.5283	8.417	1.1466	0.121	0.12335
60		1.118		0.4519	6.37	9.267	0.0075	2.306	0.2549	0.1186	20.89	0.8095		1.549	0.1863	0.1992
70		1.55		0.6979	8.14	11.719	0.0139	3.061	0.3733	0.1812	25.79	1.1954			0.2689	0.3116
80		2.08		1.047	10.198		0.0239	3.991	0.533	0.269	31.38	1.7298		2.6998	0.3818	0.4736
90		2.76		1.531	12.55		0.0389	5.121	0.7439	0.3915	36.579	2.445			0.5369	0.7011
100		3.599		2.184	15.396		0.0609	6.478	1.0159	0.556		3.384		4.333	0.7354	1.0133
120		5.89		4.159	21.77		0.0922	9.992		1.059		6.131		4.999	1.267	1.9854
140		9.149		29.52			0.1327	14.768		1.885				10.399	2.2457	3.614

### Atmospheric pressure depending on sea level

Height over sea level	[m]	0	100	200	300	500	700	1000	1500	2000
Atmospheric pressure	[mbar]	1033	1020	1008	997	973	950	920	860	810

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