

Screw Pumps HPS



**High-pressure cooling
and lubricating . . .**

***Screw pumps for delivery
pressures up to 80 bars***

Technical data

- Delivery rate
 $Q_{\max} = 230 \text{ l/min}$
- Delivery head
 $H_{\max} = 800 \text{ m}$
- Temperature range
 $0 \text{ }^{\circ}\text{C to } +80 \text{ }^{\circ}\text{C}$

Product features

- Screw pump –
three-spindle type, self-priming
- Choice of models to meet the
need –
based on modular principles with
fine gradations in performance
figures
- Long service life –
tough, wear-proof materials
- Easy start-up procedure –
pressure port located above
reservoir plate
- Flexible drive concept –
standard motors used



Screw Pumps HPS



Main applications

- Machine tools – all machining processes – especially with internally cooled tools
- Deep-hole drilling
- Filtration systems, coolant supply installations
- Lubricating and hydraulic units
- Temperature stabilizers
- u.a.

Fluids delivered

Fluids with lubricating properties like

- oil-in-water emulsions containing at least 3 % oil
- cooling and cutting oils

For clean and air-free fluids without abrasive or long-fibered constituents.

Permissible contamination:

- max. grain size: 0.05 mm (50 µm)
- max. solids content: 40 mg/l

Performance range

HPS screw pumps come in various sizes. Their dimensions and delivery rates differ but not their design or the way they work.

A respective pump size can be combined with different motors; graduated output in 10-bar steps is the standard. The pump section combined with the desired motor results in the pump model.

Delivery pressures up to $p_{\max} = 80$ bars

Delivery rates up to $Q_{\max} = 230$ l/min

(The performance data apply to a viscosity $\nu = 1$ mm²/s)

Max. kinematic viscosity 2000 mm²/s.

Designs and types of installation

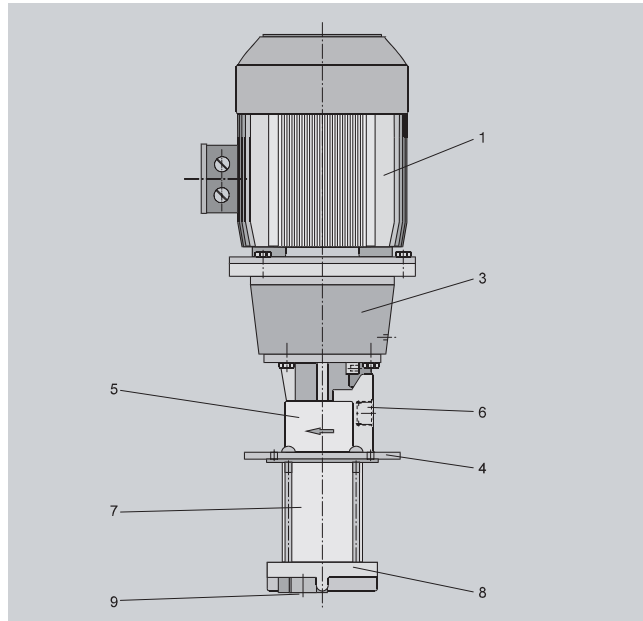
- The HPS, an immersion pump, comes with a 4-hole mounting flange with standard connection dimensions for vertical installation of the reservoir (installation inside the reservoir).
An intake tube can be connected to adapt the immersion depth to the respective reservoir size.
- A brace is attached to the pump support for horizontal installation next to the reservoir (dry installation).
- Intake and pressure port: pipe thread to DIN 3852, part 2.

Shaft seal type

Standard type from factory for installation inside reservoir: radial shaft seal,

Standard type from factory for installation outside reservoir: mechanical seal.

Design and Function



Design of the HPS

Drive **(1)** and pump are connected by a gear coupling installed inside the pump support **(3)**.

The pressure housing **(5)** contains the bearing for the drive spindle and the seals.

The pressure connection **(6)** is located above the connecting flange **(4)** for installation on the reservoir cover.

HPS high-pressure pumps are self-priming positive-displacement pumps.

The fluid is pumped by a spindle assembly inside the screw housing **(7)**. The latter consists of a drive spindle and two screw spindles. As a result of the rotating spindles the fluid moves continuously without pulsation in an axial direction from the intake opening **(9)** in the suction housing **(8)** to the discharge side. The special profile of the thread flanks provides for sealed-off chambers with a minimal reflux of fluid, thereby assuring high efficiency.

Mechanical design

Components	Material
Pump support	aluminum
Spindle housing	gray cast iron 25 with special antifriction coating (high PTFE content)
Pressure housing	gray cast iron 25
Suction housing	gray cast iron 25
Screw spindles	heavy-duty steel, hardened
Rolling bearing	2 RS with permanent lubrication
Radial shaft seal or mechanical seal	PTFE (Teflon) hard metal /hard metal /Viton
Suction and pressure port	pipe thread to DIN 3852, part 2
O-rings	FPM (Viton)

Accessories

Intake tube (Standard for an immersion depth up to 550 mm)	steel
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Screw Pumps HPS



Operating conditions

When choosing a model it should be remembered that the pump's delivery rate is about 20% higher than the system performance required.

Maximum feed pressure:

- with the shaft-seal version: 4 bars,
- with the mechanical-seal version: 10 bars.

Max. geodetic suction head: 4 m

Dry or dead-head operation is not allowed in principle. Since screw pumps are positive-displacement pumps they have to be protected by a pressure-relief valve against overpressure on the system side (also see Accessories).

Electrical design

The drive motors meet VDE regulations as well as European motor standards (DIN EN 60034-1/02.99) and the requirements underlying the CE mark.

Designs in conformity with non-European regulations, e.g. **CSA, UL** or special requirements, e.g. the USA or Japan, are possible.

Degree of protection: IP 55
(DIN EN 60034-5/4.88)

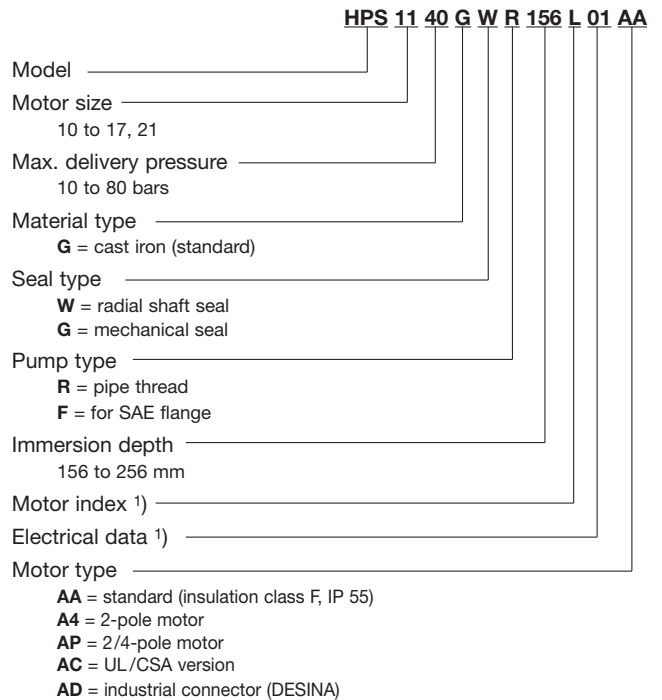
Direction of rotation: clockwise
as viewed from above looking down
on the motor's ventilation side.

Insulation class: F

Ambient temperature: max. 40°C
(DIN EN 60034-1/02.99) at a max. of 1000 m above sea level

Electrical parameters ≤ 4 kW:
230/400 V, 50 Hz
265/460 V, 60 Hz
> 4 kW:
Δ 400 V, 50 Hz
Δ 460 V, 60 Hz
Other mains voltages on request.

Type key



1) The motor data can be extracted from the motor's nameplate.

Accessories

Intake tube

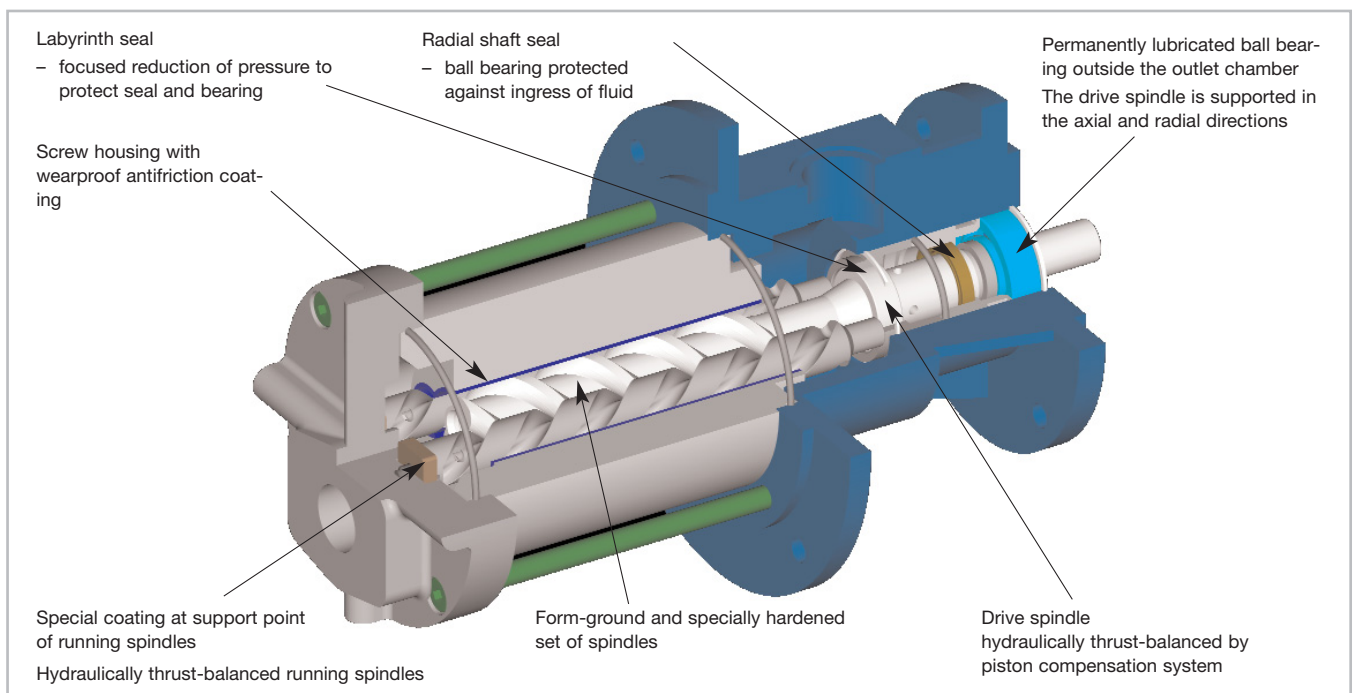
To extend the immersion depth. Factory standard up to an immersion depth of 550 mm.

Pressure relief valve

There are two different types available:

- nonadjustable valves,
- manually adjustable valves.

The choice depends on the pump's performance figures (delivery rate and pressure).



Screw Pumps

HPS – Electrical data, dimensions and weights



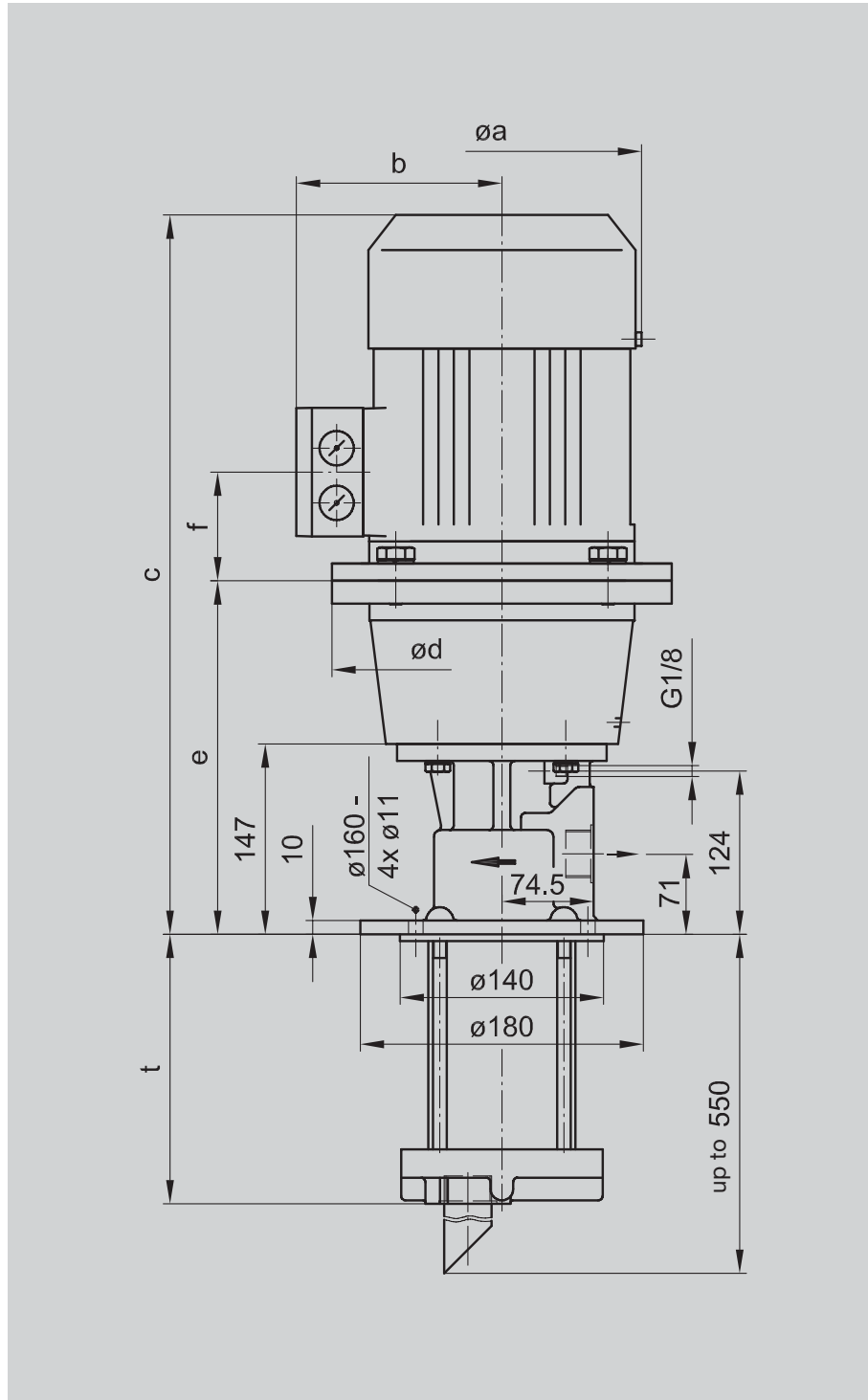
Model	Delivery pressure [bars]	Immersion depth t [mm]	Motor index	Motor size	Rated frequency [Hz]	Rated power [kW]	Rated voltage Δ/Y [V]	Rated current Δ/Y [A]	Rated speed [rpm]	Noise level [dB (A)]	Dimensions [mm]						Weight [kg] ¹⁾
											αa^1	b ¹⁾	c ¹⁾	σd	e	f ¹⁾	
10	10	156	H	80M	50 60	1.1 1.3	230/400 265/460	4.16 / 2.4	2845 3445	56	162	120	490	200	256	64	28.4
	20		J	90S	50 60	1.5 1.75		5.63 / 3.25	2860 3460	60	181	128	538	200	256	72	31.5
	30		K	90L	50 60	2.2 2.55		7.88 / 4.55	2880 3480	60	181	128	538	200	256	72	34.3
	40		L	100L	50 60	3.0 3.45	10.57 / 6.1	2890 3490	62	202	135	580	250	267	102	41.6	
	50		M	112M	50 60	4.0 4.6	13.5 / 7.8	2905 3505	62	227	148	601	250	267	102	48.6	
	70		N	132S	50 60	5.5 6.3	Δ 400 Δ 460	10.3	2925 3525	68	266	167	665	300	291	128	66.2
	80																
11	10	156	J	90S	50 60	1.5 1.75	230/400 265/460	5.63 / 3.25	2860 3460	60	181	128	538	200	256	72	31.8
	20		K	90L	50 60	2.2 2.55		7.88 / 4.55	2880 3480	60	181	128	538	200	256	72	34.6
	30		L	100L	50 60	3.0 3.45		10.57 / 6.1	2890 3490	62	202	135	580	250	267	102	41.9
	40		M	112M	50 60	4.0 4.6	13.5 / 7.8	2905 3505	63	227	148	601	250	167	102	48.9	
	50		N	132S	50 60	5.5 6.3	Δ 400 Δ 460	10.3	2925 3525	68	266	167	665	300	291	128	66.5
	70		O	132S	50 60	7.5 8.6	13.8	2930 3530	68	266	167	665	300	291	128	74.5	
	80																
21	10	156	K	90L	50 60	2.2 2.55	230/400 265/460	7.88 / 4.55	2880 3480	60	181	128	538	200	256	72	34.6
	20		L	100L	50 60	3.0 3.45		10.57 / 6.1	2890 3490	62	202	135	580	250	267	102	41.9
	30		M	112M	50 60	4.0 4.6		13.5 / 7.8	2905 3505	63	227	148	601	250	267	102	48.9
	40		N	132S	50 60	5.5 6.3	Δ 400 Δ 460	10.3	2925 3525	68	266	167	665	300	291	128	66.5
	50		O	132S	50 60	7.5 8.6	13.8	2930 3530	68	266	167	665	300	291	128	76.0	
	70		P	160M	50 60	11.0 12.6	20.0	2940 3540	70	319	197	813	350	335	161	103	
	80																
12	10	188	K	90L	50 60	2.2 2.55	230/400 265/460	7.88 / 4.55	2880 3480	60	181	128	538	200	256	72	36.1
	20		L	100L	50 60	3.0 3.45		10.57 / 6.1	2890 3490	62	202	135	580	250	267	102	43.4
	30		M	112M	50 60	4.0 4.6		13.5 / 7.8	2905 3505	63	227	148	601	250	267	102	50.4
	40		N	132S	50 60	5.5 6.3	Δ 400 Δ 460	10.3	2925 3525	68	266	167	665	300	291	128	68.0
	50		O	132S	50 60	7.5 8.6	13.8	2930 3530	68	266	167	665	300	291	128	76.0	
	70		P	160M	50 60	11.0 12.6	20.0	2940 3540	70	319	197	813	350	335	161	103.3	
	80																
13	10	188	K	90L	50 60	2.2 2.55	230/400 265/460	7.88 / 4.55	2880 3480	60	181	128	538	200	256	72	35.9
	20		M	112M	50 60	4.0 4.6		13.5 / 7.8	2905 3505	63	227	148	601	250	267	102	50.2
	30		N	132S	50 60	5.5 6.3		Δ 400 Δ 460	10.3	2925 3525	68	266	167	665	300	291	128
	40		O	132S	50 60	7.5 8.6	13.8	2930 3530	68	266	167	665	300	291	128	75.8	
	50		P	160M	50 60	11.0 12.6	20.0	2940 3540	70	319	197	813	350	335	161	103.1	
	70		Q	160M	50 60	15.0 17.3	26.5	2940 3540	70	319	197	813	350	335	161	113.9	
	80																

1) Depending on make of motor

Screw Pumps HPS



Model 10 to 13, 21



Screw Pumps

HPS – Electrical data, dimensions and weights



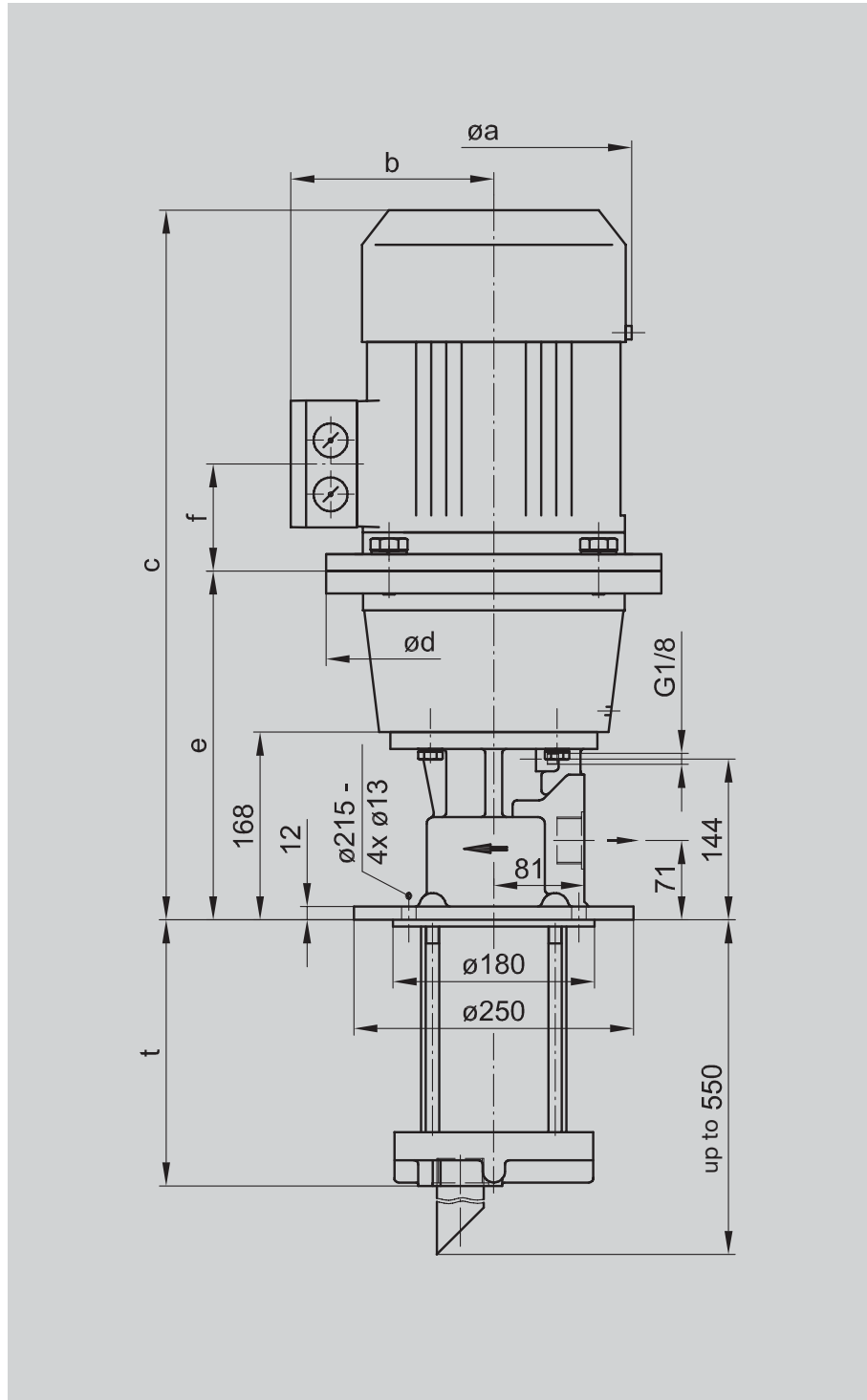
Model	Delivery pressure [bars]	Immersion depth t [mm]	Motor index	Motor size	Rated frequency [Hz]	Rated power [kW]	Rated voltage Δ/Y [V]	Rated current Δ/Y [A]	Rated speed [rpm]	Noise level [dB (A)]	Dimensions [mm]						Weight [kg] ¹⁾		
											σa^1	b ¹⁾	c ¹⁾	σd	e	f ¹⁾			
14	10	212	L	100L	50 60	3.0 3.45	230/400 265/460	10.57 / 6.1	2890 3490	62	202	135	616	250	303	102	61.5		
	20		N	132S	50 60	5.5 6.3			Δ 400 Δ 460	10.3	2925 3525	68	266	167	686	300	312	128	86.2
	30		0	132S	50 60	7.5 8.6				13.8	2930 3530	68	266	167	686	300	312	128	94.2
	40		P	160M	50 60	11.0 12.6				20.0	2940 3540	70	319	197	834	350	356	161	121.4
	50		Q	160M	50 60	15.0 17.3				26.5	2940 3540	70	319	197	834	350	356	161	132.4
	70		R	160L	50 60	18.5 21.3				32.5	2940 3540	70	319	197	834	350	356	161	145.4
	80		S	180M	50 60	22.0 24.5				40.5	2945 3545	70	363	262	915	350	356	157	187.2
15	10	212	N	132S	50 60	5.5 6.3	Δ 400 Δ 460	10.3	2925 3525	68	266	167	686	300	312	128	85.8		
	20		O	132S	50 60	7.5 8.6			13.8	2930 3530	68	266	167	686	300	312	128	93.8	
	30		P	160M	50 60	11.0 12.6			20.0	2940 3540	70	319	197	834	350	356	161	121.0	
	40		Q	160M	50 60	15.0 17.3			26.5	2940 3540	70	319	197	834	350	356	161	132.0	
	50		R	160L	50 60	18.5 21.3			32.5	2940 3540	70	319	197	834	350	356	161	145.0	
	60		S	180M	50 60	22.0 24.5			40.5	2945 3545	70	363	262	915	350	356	157	186.8	
	80		T	200L	50 60	30.0 33.5			54.0	2950 3550	71	402	300	962	400	352	196	251.2	
16	10	256	N	132S	50 60	5.5 6.3	Δ 400 Δ 460	10.3	2925 3525	68	266	167	686	300	312	128	89.8		
	20		P	160M	50 60	11.0 12.6			20.0	2940 3540	70	319	197	834	350	356	161	125.0	
	30		Q	160M	50 60	15.0 17.3			26.5	2940 3540	70	319	197	834	350	356	161	136.0	
	40		R	160L	50 60	18.5 21.3			32.5	2940 3540	70	319	197	834	350	356	161	149.0	
	50		S	180M	50 60	22.0 24.5			40.5	2945 3545	70	363	262	915	350	356	157	190.8	
	70		T	200L	50 60	30.0 33.5			54.0	2950 3550	71	402	300	962	400	352	196	255.2	
	80		U	200L	50 60	37.0 41.5			65.0	2955 3555	71	402	300	962	400	352	196	275.2	
17	10	256	O	132S	50 60	7.5 8.6	Δ 400 Δ 460	13.8	2930 3530	68	266	167	686	300	312	128	98.0		
	20		P	160M	50 60	11.0 12.6			20.0	2940 3540	70	319	197	834	350	356	161	125.2	
	30		Q	160M	50 60	15.0 17.3			26.5	2940 3540	70	319	197	834	350	356	161	136.2	
	40		S	180M	50 60	22.0 24.5			40.5	2945 3545	70	363	262	915	350	356	157	191.0	
	50		T	200L	50 60	30.0 33.5			54.0	2950 3550	71	402	300	962	400	352	196	255.4	
	70		U	200L	50 60	37.0 41.5			65.0	2955 3555	71	402	300	962	400	352	196	275.4	

1) Depending on make of motor

Screw Pumps HPS



Model 14 to 17



Screw Pumps

HPS – 2-pole type



Delivery rate Q [l/min] Power curves P [kW]			Viscosity $\nu = 1 \text{ mm}^2/\text{s}$									Viscosity $\nu = 40 \text{ mm}^2/\text{s}$							
Model		Rated frequency	Rated speed	Pressure [bars]								Pressure [bars]							
		[Hz]	[rpm]	10	20	30	40	50	60	70	80	10	20	30	40	50	60	70	80
HPS10	Q	50	2900	21	18	16	13	11	8	5	4	26	25	24	23	22	21	21	20
		60	3500	27	24	21	19	17	14	12	9	31	30	30	29	28	27	26	25
	P	50	2900	0.63	1.10	1.57	2.04	2.52	2.99	3.46	3.93	0.73	1.21	1.69	2.16	2.64	3.12	3.59	4.07
		60	3500	0.78	1.35	1.92	2.49	3.06	3.63	4.20	4.77	0.92	1.49	2.07	2.65	3.23	3.80	4.38	4.96
HPS11	Q	50	2900	31	27	23	19	16	12	9	5	38	36	35	34	33	31	30	29
		60	3500	39	35	31	28	24	21	17	14	46	45	43	42	41	40	39	37
	P	50	2900	0.93	1.62	2.31	3.01	3.70	4.39	5.09	5.78	1.08	1.78	2.48	3.18	3.88	4.58	5.29	5.99
		60	3500	1.15	1.99	2.82	3.66	4.50	5.34	6.18	7.02	1.35	2.20	3.05	3.90	4.74	5.59	6.44	7.29
HPS21	Q	50	2900	44	40	36	32	28	24	20	17	51	50	49	47	46	45	43	42
		60	3500	56	51	47	43	39	36	32	28	63	61	60	59	57	56	55	54
	P	50	2900	1.22	2.15	3.08	4.02	4.95	5.88	6.82	7.75	1.40	2.35	3.29	4.24	5.18	6.12	7.07	8.01
		60	3500	1.51	2.63	3.76	4.89	6.02	7.15	8.28	9.40	1.75	2.90	4.04	5.18	6.32	7.46	8.61	9.75
HPS12	Q	50	2900	53	49	45	41	37	33	29	26	61	59	58	57	55	54	53	51
		60	3500	67	62	58	54	50	47	43	39	74	72	71	69	69	67	66	65
	P	50	2900	1.40	2.49	3.59	4.68	5.77	6.86	7.95	9.04	1.61	2.71	3.82	4.92	6.02	7.13	8.23	9.33
		60	3500	1.73	3.05	4.37	5.69	7.01	8.33	9.65	10.97	2.01	3.34	4.68	6.01	7.35	8.68	10.02	11.35
HPS13	Q	50	2900	70	64	58	53	48	42	37	31	81	78	77	75	73	71	69	67
		60	3500	88	82	76	71	65	60	54	49	98	96	94	92	91	89	87	85
	P	50	2900	1.87	3.33	4.78	6.23	7.69	9.14	10.60	12.05	2.15	3.62	5.09	6.56	8.03	9.50	10.97	12.44
		60	3500	2.21	4.07	5.83	7.59	9.35	11.10	12.86	14.62	2.68	4.46	6.24	8.02	9.80	11.58	13.36	15.14
HPS14	Q	50	2900	97	89	82	75	68	61	54	47	111	108	105	103	101	98	96	94
		60	3500	122	113	106	99	92	85	78	71	135	132	130	127	125	123	120	118
	P	50	2900	2.49	4.48	6.47	8.46	10.44	12.43	14.42	16.41	2.82	4.83	6.85	8.86	10.87	12.88	14.89	16.90
		60	3500	3.07	5.47	7.88	10.28	12.69	15.09	17.49	19.90	3.51	5.95	8.38	10.81	13.25	15.68	18.12	20.55
HPS15	Q	50	2900	142	132	123	114	106	97	88	79	159	156	153	150	147	144	141	138
		60	3500	177	167	158	149	140	131	123	114	194	190	187	184	181	178	175	172
	P	50	2900	3.56	6.40	9.24	12.08	14.92	17.76	20.60	23.44	4.03	6.91	9.78	12.65	15.53	18.40	21.27	24.14
		60	3500	4.39	7.82	11.25	14.69	18.12	21.56	24.99	28.43	5.02	8.49	11.97	15.45	18.93	22.40	25.88	29.26
HPS16	Q	50	2900	171	159	149	138	128	117	107	96	191	187	184	180	177	173	170	166
		60	3500	213	201	190	180	169	159	148	138	233	229	225	222	218	215	211	208
	P	50	2900	4.23	7.64	11.06	14.47	17.89	21.30	24.72	28.13	4.77	8.22	11.67	15.13	18.58	22.04	25.49	28.94
		60	3500	5.20	9.33	13.46	17.59	21.72	25.82	29.98	34.11	5.92	10.10	14.28	18.46	22.64	26.82	31.01	35.19
HPS17	Q	50	2900	208	196	186	175	165	154	143	133	228	224	221	217	214	210	207	203
		60	3500	258	245	235	224	214	203	193	182	278	273	270	266	263	259	256	252
	P	50	2900	5.00	9.05	13.09	17.14	21.18	25.23	29.27	33.31	5.64	9.73	13.82	17.91	22.00	26.10	30.19	34.28
		60	3500	6.16	11.05	15.94	20.83	25.72	30.61	35.50	40.39	7.01	11.96	16.91	21.86	26.81	31.77	36.72	41.67

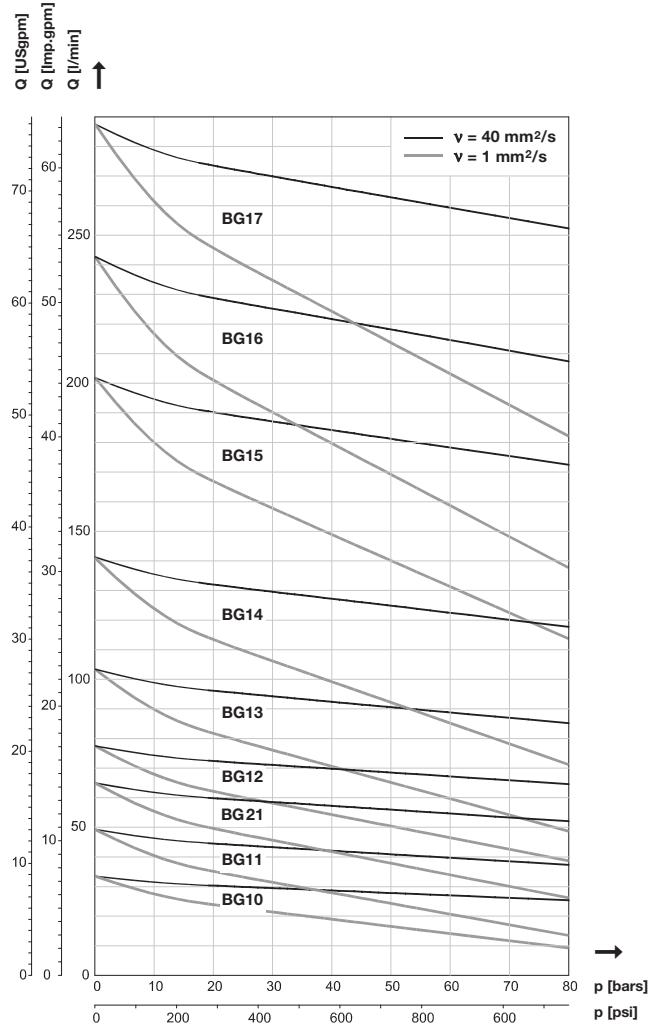
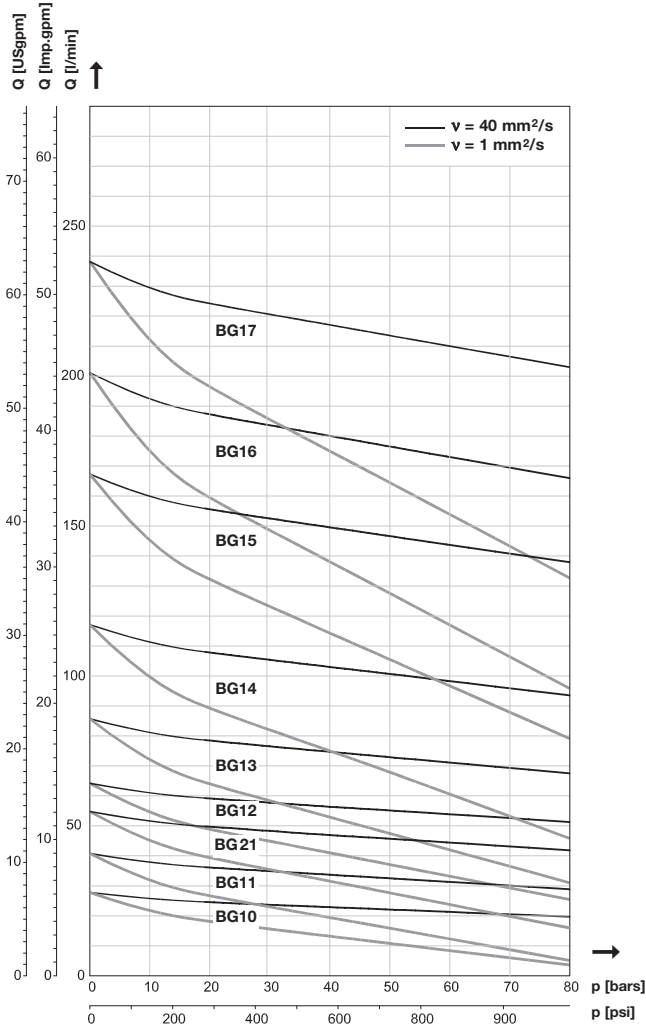
Tolerances = VDMA24284 - II

Screw Pumps HPS – 2-pole type



Performance data for 50 Hz

Performance data for 60 Hz



Screw Pumps

HPS – 4-pole type



Delivery rate Q [l/min] Power curves P [kW]			Viscosity $\nu = 1 \text{ mm}^2/\text{s}$									Viscosity $\nu = 40 \text{ mm}^2/\text{s}$									
Model		Rated frequency	Rated speed	Pressure [bars]									Pressure [bars]								
		[Hz]	[rpm]	10	20	30	40	50	60	70	80	10	20	30	40	50	60	70	80		
HPS10	Q	50	1450	7	4	2	–	–	–	–	–	12	11	10	9	8	7	7	6		
		60	1750	10	7	5	2	–	–	–	–	15	14	13	12	11	10	10	9		
	P	50	1450	0.29	0.52	0.76	0.99	1.23	1.46	1.70	1.93	0.33	0.56	0.80	1.04	1.27	1.51	1.75	1.98		
		60	1750	0.36	0.64	0.92	1.21	1.49	1.77	2.06	2.34	0.41	0.69	0.98	1.26	1.55	1.84	2.12	2.41		
HPS11	Q	50	1450	10	6	3	–	–	–	–	–	17	16	15	13	12	11	10	9		
		60	1750	15	10	7	3	–	–	–	–	21	20	19	18	16	15	14	13		
	P	50	1450	0.43	0.77	1.12	1.46	1.81	2.15	2.50	2.84	0.48	0.83	1.18	1.52	1.87	2.22	2.57	2.91		
		60	1750	0.53	0.94	1.36	1.78	2.19	2.61	3.03	3.44	0.60	1.02	1.44	1.86	2.28	2.70	3.12	3.54		
HPS21	Q	50	1450	17	12	8	4	1	–	–	–	24	22	21	20	19	17	16	15		
		60	1750	22	18	14	10	6	2	–	–	30	28	27	26	24	23	22	20		
	P	50	1450	0.56	1.03	1.49	1.96	2.42	2.88	3.35	3.81	0.63	1.10	1.57	2.03	2.50	2.97	3.44	3.91		
		60	1750	0.69	1.25	1.82	2.38	2.94	3.50	4.06	4.62	0.78	1.35	1.91	2.48	3.04	3.61	4.18	4.74		
HPS12	Q	50	1450	21	17	13	9	5	1	–	–	29	27	26	24	23	22	21	19		
		60	1750	28	23	19	16	12	8	4	–	35	34	32	31	30	28	27	26		
	P	50	1450	0.65	1.20	1.74	2.28	2.82	3.37	3.91	4.45	0.73	1.27	1.82	2.37	2.91	3.46	4.01	4.55		
		60	1750	0.80	1.46	2.11	2.77	3.42	4.08	4.74	5.39	0.90	1.56	2.22	2.88	3.54	4.21	4.87	5.53		
HPS13	Q	50	1450	27	21	16	10	5	–	–	–	38	36	34	32	30	28	26	24		
		60	1750	36	30	24	19	14	8	3	–	47	44	43	41	39	37	35	33		
	P	50	1450	0.87	1.59	2.32	3.04	3.76	4.49	5.21	5.93	0.97	1.70	2.43	3.16	3.88	4.61	5.34	6.07		
		60	1750	1.07	1.94	2.82	3.69	4.57	5.44	6.31	7.19	1.20	2.08	2.96	3.84	4.73	5.61	6.49	7.37		
HPS14	Q	50	1450	39	31	23	16	9	2	–	–	52	49	47	45	42	40	37	35		
		60	1750	51	43	36	29	22	15	8	–	64	61	59	57	54	52	50	47		
	P	50	1450	1.17	2.16	3.14	4.13	5.12	6.11	7.10	8.09	1.28	2.28	3.28	4.27	5.27	6.27	7.27	8.26		
		60	1750	1.43	2.63	3.82	5.02	6.21	7.40	8.60	9.79	1.59	2.79	4.00	5.20	6.41	7.61	8.82	10.03		
HPS15	Q	50	1450	59	48	40	31	22	13	4	–	75	72	69	66	63	60	57	54		
		60	1750	76	66	57	48	39	30	22	13	93	89	86	83	80	77	74	71		
	P	50	1450	1.67	3.08	4.49	5.90	7.32	8.73	10.14	11.55	1.83	3.26	4.68	6.11	7.53	8.95	10.38	11.80		
		60	1750	2.04	3.75	5.46	7.16	8.87	10.58	12.29	13.99	2.27	3.99	5.71	7.43	9.16	10.88	12.60	14.32		
HPS16	Q	50	1450	71	59	48	38	27	17	6	–	91	87	83	80	76	73	69	65		
		60	1750	92	79	69	58	48	37	27	16	111	107	104	100	97	93	90	86		
	P	50	1450	1.98	3.68	5.38	7.08	8.78	10.48	12.18	13.87	2.18	3.89	5.60	7.31	9.02	10.74	12.45	14.16		
		60	1750	2.34	4.48	6.54	8.59	10.64	12.69	14.75	16.80	2.69	4.76	6.83	8.90	10.97	13.04	15.11	17.18		
HPS17	Q	50	1450	89	77	66	56	45	35	24	14	109	105	102	98	94	91	87	84		
		60	1750	114	102	91	81	70	60	49	38	134	130	126	123	119	116	112	109		
	P	50	1450	2.35	4.36	6.37	8.38	10.40	12.41	14.42	16.43	2.58	4.60	6.63	8.66	10.69	12.71	14.74	16.77		
		60	1750	2.88	5.31	7.74	10.17	12.60	15.03	17.46	19.89	3.18	5.63	8.08	10.54	12.99	15.44	17.89	20.35		

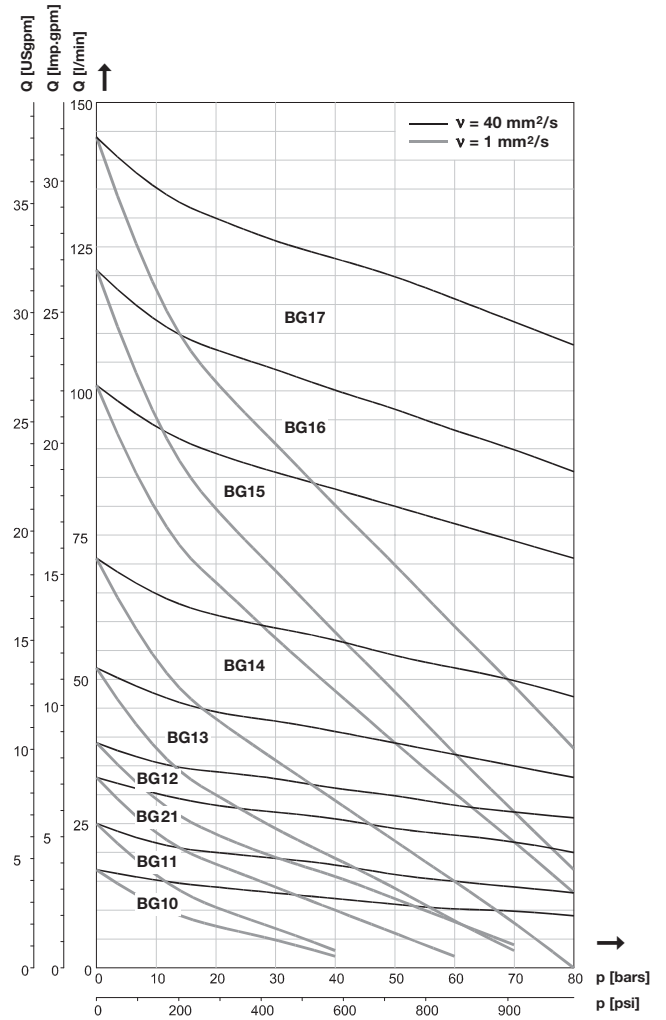
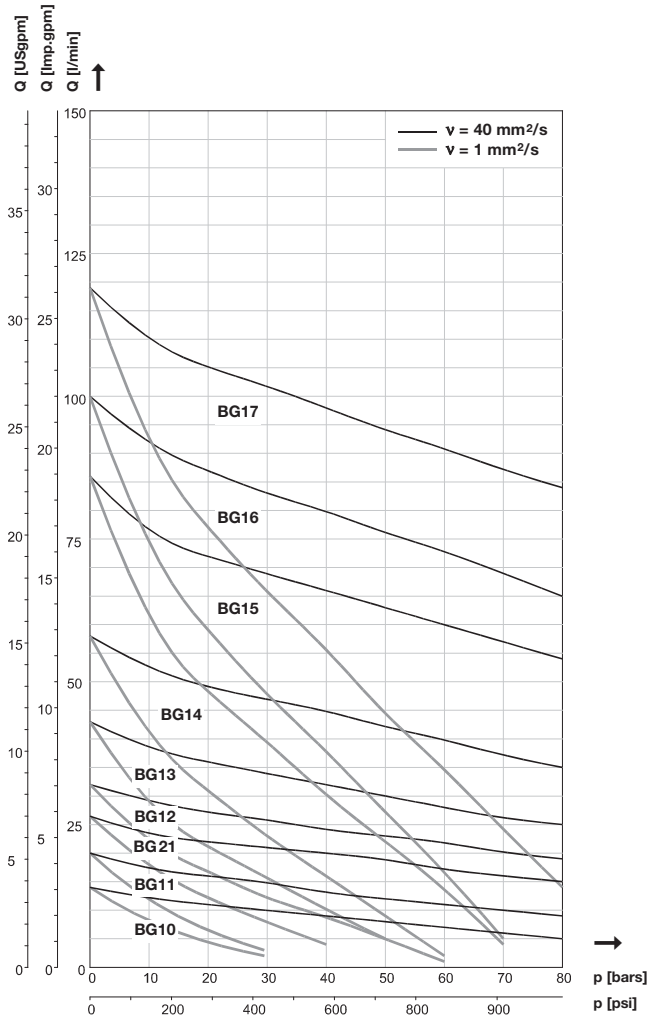
Tolerances = VDMA24284 - II

Screw Pumps HPS – 4-pole type



Performance data for 50 Hz

Performance data for 60 Hz



Screw Pumps HPS



Please note:

All equipment may only be installed and/or assembled by qualified personnel.

Observe existing safety regulations.

To avoid errors please consult our operating instructions.

Spandau Pumps and Motors:

- Immersion pumps
 - High-pressure pumps
 - Electric motors to DIN EN 60034, to UL or CSA regulations
 - Block pumps
 - Inline pumps
 - Screw pumps
- Pump models of metal or plastic, flameproof pumps



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