

# PRESSURE BOOSTER PUMPS

SH & SJP Series



**SHAKTI**

THE POWER OF INNOVATION, EFFICIENCY & TECHNOLOGY.



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### PRESSURE BOOSTING PUMP 50 HZ

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# SH SERIES

## DESCRIPTION



### INTRODUCTION

The Shakti SH, SHI, SHN pumps are non-self priming, horizontal, multistage centrifugal pumps.



Pumps and motor are integrated in a compact and user friendly design fitted to a base plate making the pumps suitable for installation in compact systems.

SH, SHI, SHN pumps have many incorporate advantage such as those mentioned below.

#### Worldwide usage

- Different voltage and frequency combinations.
- State-of-the-art shaft seal materials (BVEGG) offering these benefits :
  - high wear resistance and long operating times
  - reduced risk of sticking if the liquid contains glycol
  - improved dry-running properties due to the graphite content of the SiC.

#### Electro-coated cast iron parts

- High corrosion resistance.
- Better efficiency because of smooth surfaces.

#### Customized solutions

- Motor adaptation

#### Materials

**SH:** Chambers and all moving parts in contact with the pumped liquid are made of stainless steel. Discharge chamber, suction chamber and base plate are painted non-gloss black.

**SHI, SHN:** Discharge chamber, suction chamber, base plate and all parts in contact with the pumped liquid are made of stainless steel. The pump is CE-marked.

### APPLICATIONS

The SH, SHI, SHN pumps are designed for small domestic and industrial systems.

- Fluid transfer and circulation of liquids within light industry and farming
- Pressure boosting in single-pump and multi pump booster systems
- Domestic water supply
- Cooling systems
- Air-conditioning systems

### TECHNICAL DATA

Flow, Q	-	Max. 14 m <sup>3</sup> / hr
Head, H	-	Max. 58 m
Liquid Temp.	-	0°C to 90°C
Operat. Pres.	-	Max. 10 bar

### PUMPED LIQUIDS

**SH:** Thin, clean, non-aggressive and non-explosive liquids without solid particles or fibers.

**SHI, SHN:** Thin, clean, slightly aggressive and non-explosive liquids without solid particles or fibers.

### OPERATING CONDITIONS

Liquid temperature range: 0 °C to +90 °C  
Max. ambient temperature: +55 °C.

The maximum operating pressure depends on the temperature of the pumped liquid. See the table.

Max. inlet pressure:	1 MPa (10 bar)	0.6 MPa (6 bar)
SH, SHI, SHN 2 SH, SHI, SHN 4	0 °C to +40 °C	+41 °C to +90 °C
SH, SHI, SHN 8 SH, SHI, SHN 12	0 °C to +55 °C	+56 °C to +90 °C

Min. inlet pressure: According to the NPSH curve plus a safety margin of 0.5 m.

Max. inlet pressure: Limited by the max.operating pressure.

## CONSTRUCTION

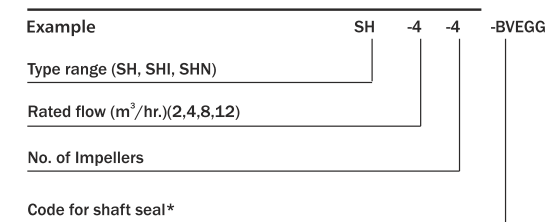
### PUMPS

The SH, SHI, SHN pumps are non-self-priming, horizontal, multistage centrifugal pumps with mechanical shaft seal and through-going pump-motor shaft. The pumps have axial suction port and radial discharge port and are mouted on a base plate. All movable parts in contact with the pumped liquid are made of stainless steel.

EPDM or FKM O-rings are available as standard. See pipe connections in the table.

Max. inlet pressure	1 MPa (10 bar)	0.6 MPa (6 bar)
SH, SHI, SHN 2 SH, SHI, SHN 4	0 °C to +40 °C	+41 °C to +90 °C
SH, SHI, SHN 8 & 12	0 °C to +55 °C	+56 °C to +90 °C

#### TYPE KEY

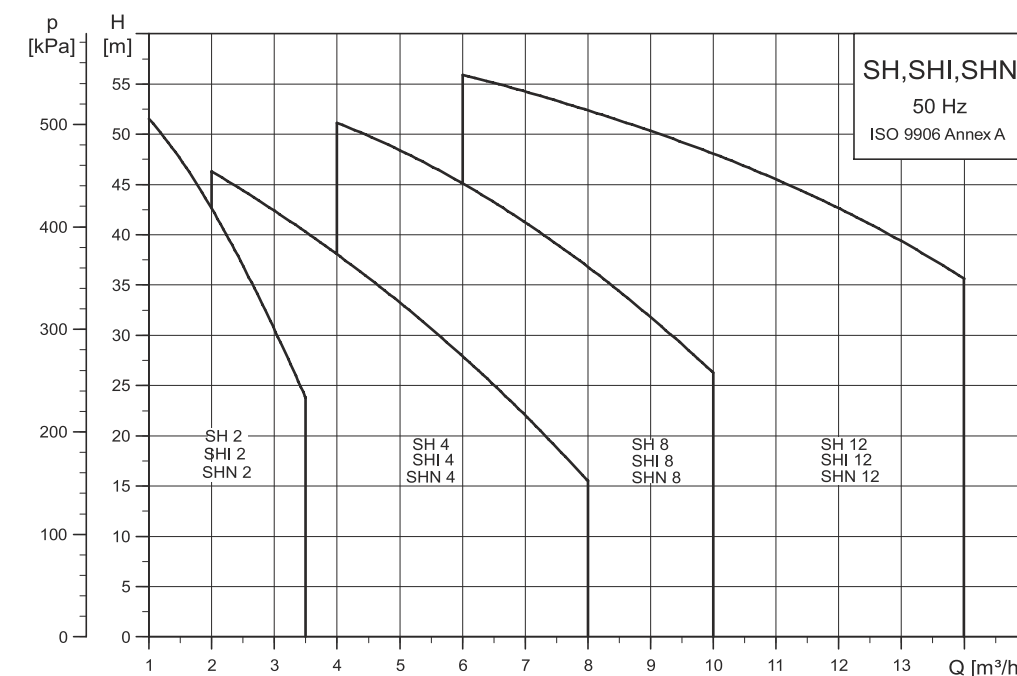


#### Codes for Shaft seal:

B: Carbon, Resin-impregnated	G: AISI SS 316
V: Ceramic ( Aluminium Oxide)	G: AISI SS 316
E: EPDM	* Only available on special order

### PERFORMANCE RANGE

#### SH, SHI, SHN



### MOTOR

The pump is fitted with a TEFC (totally enclosed, fan-cooled), squirrel-cage Shakti motor.

Rated speed	: 50 Hz, 2900 min <sup>-1</sup>
Enclosure class	: IP 55
Insulation class	: H
Standard voltages:	1 x 220-240 V, 50Hz 3 x 220-240/380-415 V, 50 Hz

Voltage tolerance :	±6 %
Sound-pressure level:	≤ 72 dB (A)

The single-phase motors are supplied with a build-in thermal relay to IEC 60034-11: TP 211 (slow overload as well as locked rotor). The motors require no further motor protection.

The three- phase motors do not incorporate thermal protection and therefore require external motor protection in accordance with local regulations.

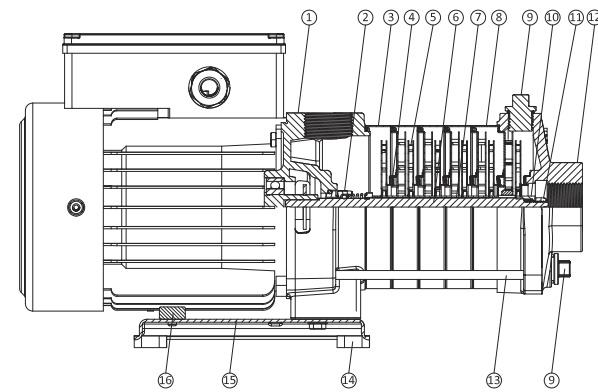
The **sound pressure** level of the pump is lower than the limiting values stated in the EC Council Directive 98/37/EC relating to machinery.

#### Frequency converter operation

Most three-phase motors can be operated with a frequency converter.

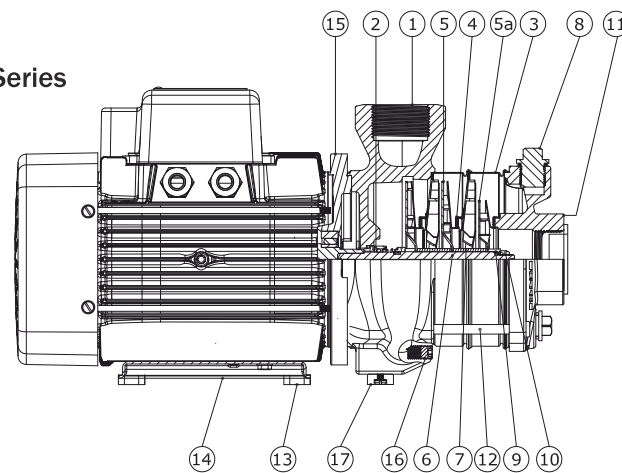
## CONSTRUCTION

SH, SHI & SHN 2 and 4 Series  
Section drawing



Pos No	Description	Pos No	Description
1	Discharge Chamber	9	Plug
2	Mechanical Seal	10	Spline Clamp
3	Chamber Complete	11	Lock Nut
4	Neckring	12	Suction Chamber
5	Impeller	13	Tie Rod
6	Pump Shaft	14	Rubber Pad
7	Spacing Sleeve	15	Base Plate
8	Middle Chamber Complete	16	Rubber Supporter

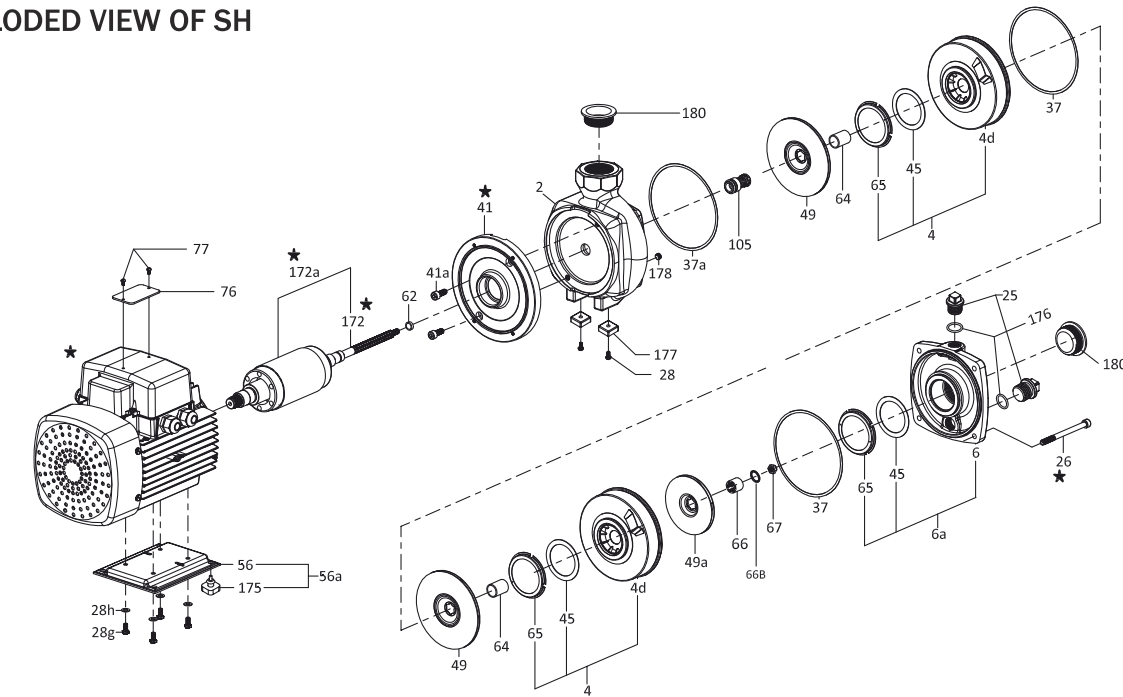
SH, SHI & SHN 8 and 12 Series  
Section drawing



Pos No	Description	Pos No	Description
1	Discharge Chamber	9	Spline Clamp
2	Mechanical Seal	10	Lock Nut
3	Chamber Complete	11	Suction Chamber
4	Neckring	12	Tie Rod
5	Impeller	13	Rubber Pad
5a	Impeller Cutted	14	Base Plate
6	Pump Shaft	15	End Shield
7	Spacing Sleeve	16	Grub Screw
8	Middle Chamber Complete	17	Rubber Pad

## CONSTRUCTION

EXPLODED VIEW OF SH



## MATERIAL OF CONSTRUCTION

POS NO	DESCRIPTION	MATERIAL	SH	SHI	SHN
2	DISCHARGE CHAMBER	CAST IRON / STAINLESS STEEL	CI FG 260	SS AISI 304	SS AISI 316
4e	DIFFUSER CUP	SS AISI 304			
4d	DIFFUSER CUP	SS AISI 304			
4a	MIDDLE CHAMBER ASSEMBLY	-			
4	INTER CHAMBER ASSEMBLY	-			
6a	SUCTION CHAMBER ASSEMBLY	-			
6	SUCTION CHAMBER	CAST IRON / STAINLESS STEEL	CI FG 260	SS AISI 304	SS AISI 316
25	PLUG	STAINLESS STEEL	SS AISI 304	SS AISI 304	SS AISI 316
26	STAY BOLT	STD			
28h	WASHER	STD			
28g	BOLT M6	STD			
28	PAN HEAD SCREW M6	STD			
37	GASKET	TEFLON			
45	NECKRING	PTFE			
47b	CHAMBER BEARING	CERIMAC			
47a	BEARING CARBIDE	TUNGSTAN CARBIDE			
49	IMPELLER	STAINLESS STEEL	SS AISI 304	SS AISI 304	SS AISI 316
56a	BASE PLATE ASSEMBLY	-			
56	BASE PLATE	MS	SS AISI 304	SS AISI 304	SS AISI 304
62	STOPER PIPE	STAINLESS STEEL	SS AISI 304	SS AISI 304	SS AISI 316
64a	SPACING PIPE	STAINLESS STEEL	SS AISI 304	SS AISI 304	SS AISI 316
64	SPACING PIPE	STAINLESS STEEL	SS AISI 304	SS AISI 304	SS AISI 316
65	NECKRING RETAINER	STAINLESS STEEL	SS AISI 304	SS AISI 304	SS AISI 316
66	SPLINE CLAMP	STAINLESS STEEL	SS AISI 304	SS AISI 304	SS AISI 316
66b	NORD LOCK WASHER	STD			
67	NYLON LOCK NUT M8	STD			
76	NAME PLATE	SS AISI 304			
77	RIBIT (NAME PLATE)	STD			
105	MECHANICAL SEAL	BVEGG			
172a	PUMP ROTOR SHAFT ASSEMBLY	EN/10088-3/1.4542			
172	PUMP SHAFT	EN/10088-3/1.4542			
175	RUBBER PAD	NBR			
176	O-RING FOR PLUG	NBR			
179	RUBBER SUPPORTER	NBR			
180	THREADED CAP	PVC			

## CURVE CHARTS

### CURVE CONDITIONS

The guideline below apply to the curves on the following pages.

- Tolerances according to ISO 9906, Annex A
- The **bold** curves state the recommended performance range
- The thin curves are only intended as a guide
- The curves must not be used as guarantee curves
- All curves are based on measurements at:
  - 1 x 230 V, 50 Hz
  - 3 x 400 V, 50 Hz
- When the motor is running at the lowest or highest rated voltage, the pump performance will usually vary by  $\pm 0.5 - 1.0$  m at a given duty point
- Specific minimum performance requirements necessitate individual measurements

- The measurements have been made with airless water at a temperature of  $20\text{ }^{\circ}\text{C}$  ( $\sim 70\text{ }^{\circ}\text{F}$ )
- The conversion between head  $H$  (m) and pressure  $p_3$

### HOW TO READ THE CURVE CHARTS

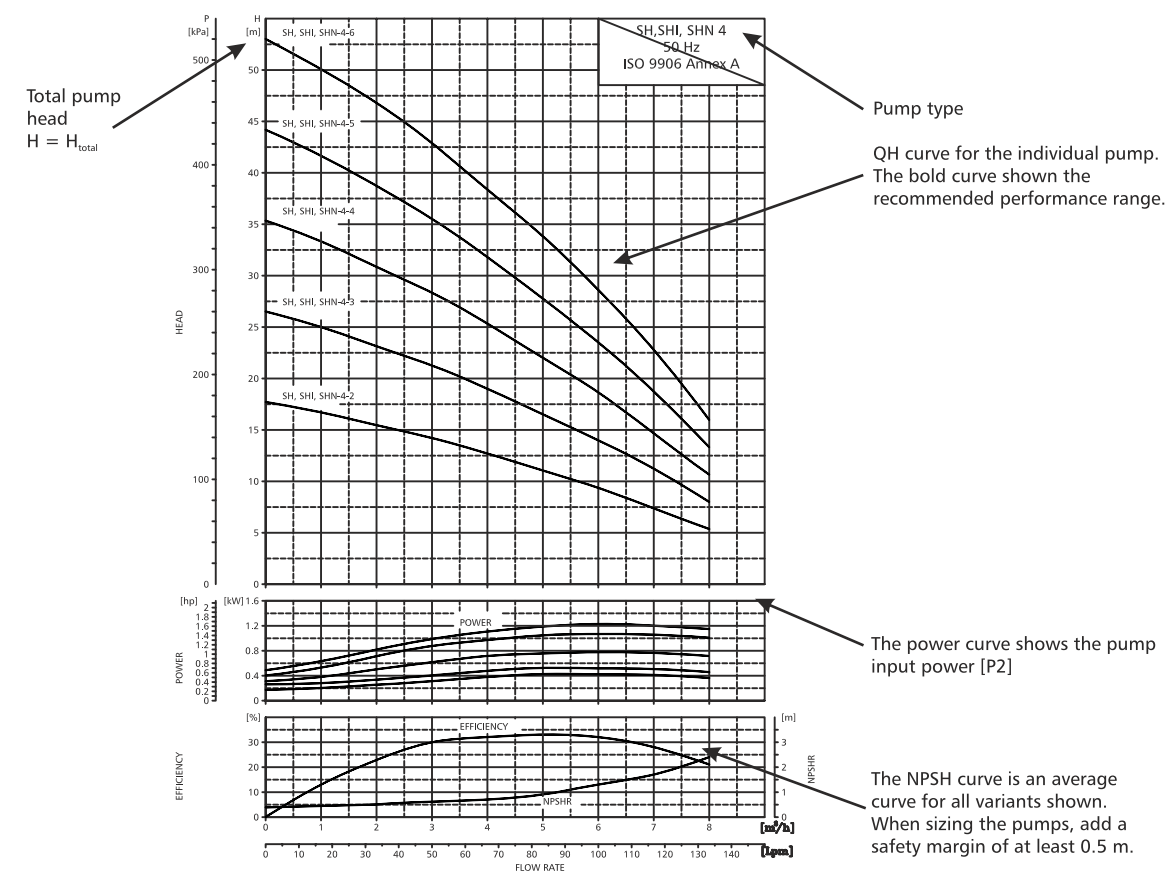
#### Curves

QH : Pump performance at actual speed.

$P_2$  : Pump input power.

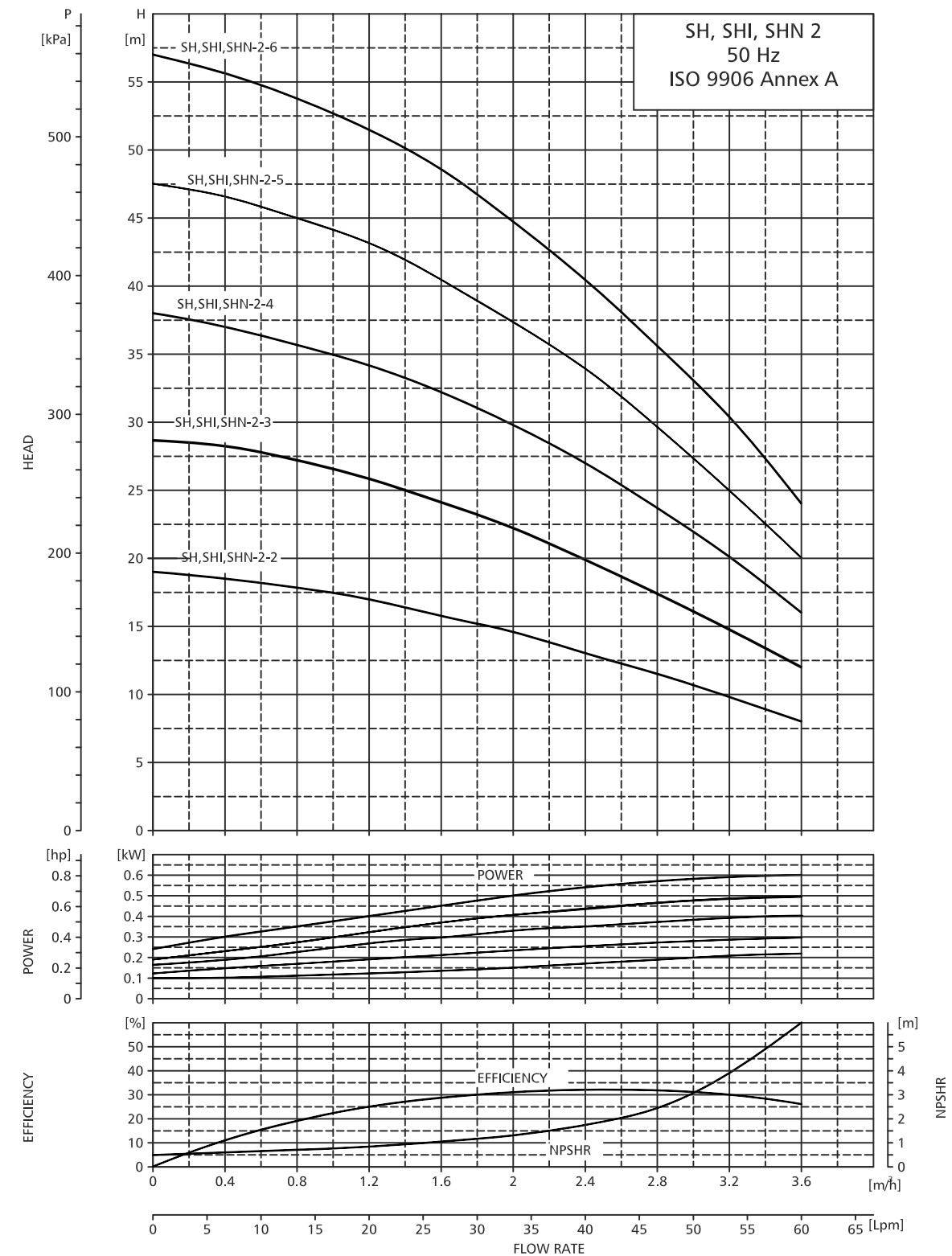
Eta 1 : Total efficiency, i.e. pump with motor, is shown in the curve charts as Eta 1.

NPSH : Average values for all variants shown in chart 1. When sizing, make a safety allowance of at least 0.5 m.



## PRESSURE BOOSTING PUMP 50 Hz - PERFORMANCE CURVE

### SH, SHI, SHN 2



### TECHNICAL DATA

#### PERFORMANCE CHART

Model	kW	HP	Phase	Flow (m³/h)								SUCTION PIPE (Inch)	DELIVERY PIPE (Inch)
				0	0.8	1.6	2.4	2.8	3.2	3.6			
SH, SHI & SHN 2-2	0.37	0.5	1 & 3	0	13	26	40	46	53	60	1	1	
SH, SHI & SHN 2-3	0.37	0.5	1 & 3	19	18	16	13	12	10	8	1	1	
SH, SHI & SHN 2-4	0.37	0.5	1 & 3	29	27	24	20	18	15	12	1	1	
SH, SHI & SHN 2-5	0.55	0.75	1 & 3	38	36	32	24	24	20	16	1	1	
SH, SHI & SHN 2-6	0.55	0.75	1 & 3	48	45	40	33	30	25	20	1	1	
SH, SHI & SHN 2-6	0.55	0.75	1 & 3	57	54	48	41	36	30	24	1	1	

#### DIMENSIONS FOR SH - 2

VOLTAGE (V)	FREQUENCY (Hz)	PUMP TYPE	MAT. CODE	MOTOR TYPE	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	B1 (mm)	B2 (mm)	H (mm)
1 X 220-240	50	SH2-2	9000011675	SMG 71	311	74	64	100	142	124	222
		SH2-3	9000010824	SMG 71	329	92	82	118	142	124	222
		SH2-4	9000010825	SMG 71	347	120	109	136	142	124	222
		SH2-5	9000010826	SMG 71	365	138	127	154	142	124	222
		SH2-6	9000010827	SMG 71	423	144	136	172	142	124	222
		SH2-2	9000014028	SMG 71	311	74	64	100	142	124	222
3 X 220-240 / 380-415	50	SH2-3	9000010833	SMG 71	329	92	82	118	142	124	222
		SH2-4	9000010834	SMG 71	347	120	109	136	142	124	222
		SH2-5	9000010835	SMG 71	365	138	127	154	142	124	222
		SH2-6	9000010836	SMG 71	423	144	136	172	142	124	222

#### DIMENSIONS FOR SHI - 2

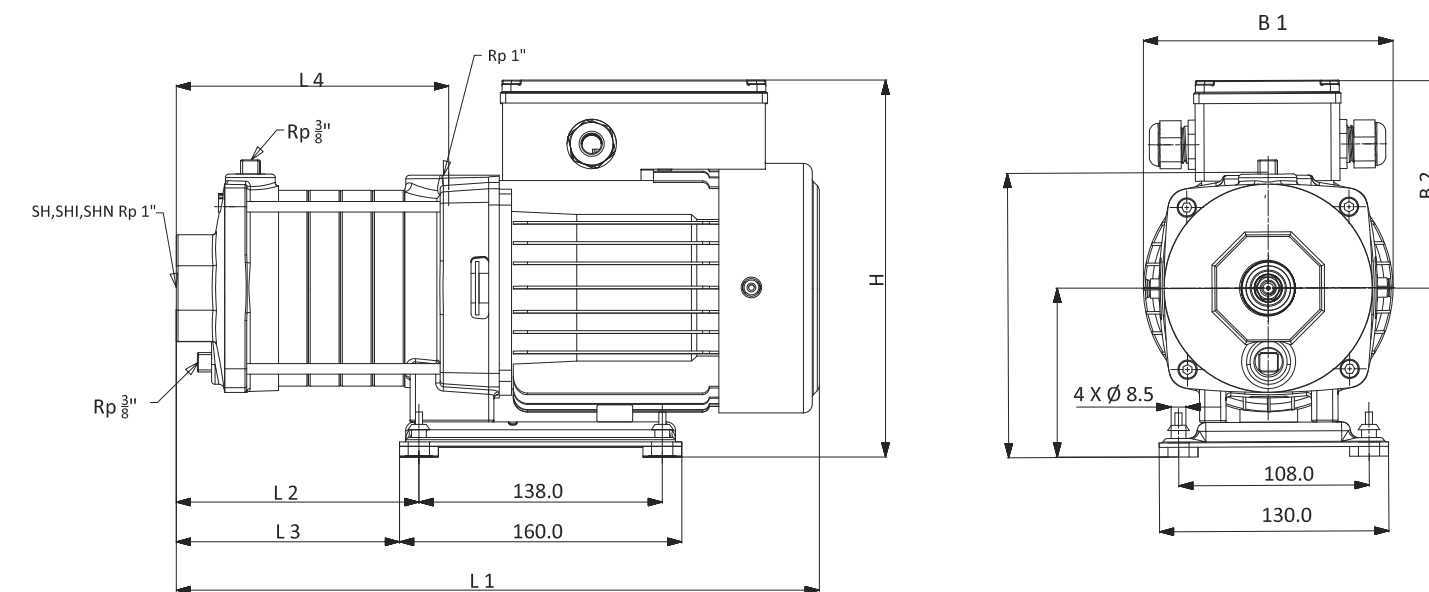
VOLTAGE (V)	FREQUENCY (Hz)	PUMP TYPE	MAT. CODE	MOTOR TYPE	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	B1 (mm)	B2 (mm)	H (mm)
1 X 220-240	50	SHI2-2	9000014029	SMG 71	311	74	64	100	142	124	222
		SHI2-3	9000012693	SMG 71	329	92	82	118	142	124	222
		SHI2-4	9000012695	SMG 71	347	120	109	136	142	124	222
		SHI2-5	9000012697	SMG 71	365	138	127	154	142	124	222
		SHI2-6	9000012699	SMG 71	423	144	136	172	142	124	222
		SHI2-2	9000014030	SMG 71	311	74	64	100	142	124	222
3 X 220-240 / 380-415	50	SHI2-3	9000012694	SMG 71	329	92	82	118	142	124	222
		SHI2-4	9000012696	SMG 71	347	120	109	136	142	124	222
		SHI2-5	9000012698	SMG 71	365	138	127	154	142	124	222
		SHI2-6	9000012700	SMG 71	423	144	136	172	142	124	222

#### DIMENSIONS FOR SHN - 2

VOLTAGE (V)	FREQUENCY (Hz)	PUMP TYPE	MAT. CODE	MOTOR TYPE	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	B1 (mm)	B2 (mm)	H (mm)
1 X 220-240	50	SHN2-2	9000019445	SMG 71	311	74	64	100	142	124	222
		SHN2-3	9000013267	SMG 71	329	92	82	118	142	124	222
		SHN2-4	9000013269	SMG 71	347	120	109	136	142	124	222
		SHN2-5	9000013271	SMG 71	365	138	127	154	142	124	222
		SHN2-6	9000013273	SMG 71	423	144	136	172	142	124	222
		SHN2-2	9000018771	SMG 71	311	74	64	100	142	124	222
3 X 220-240 / 380-415	50	SHN2-3	9000013268	SMG 71	329	92	82	118	142	124	222
		SHN2-4	9000013270	SMG 71	347	120	109	136	142	124	222
		SHN2-5	9000013272	SMG 71	365	138	127	154	142	124	222
		SHN2-6	9000013274	SMG 71	423	144	136	172	142	124	222

### TECHNICAL DATA

#### Dimensional sketches, SH,SHI,SHN-2



#### WEIGHT

Pump Type	Single Phase			Three Phase		
	Net Weight (kg)	Gross Weight (kg)	Shipping Volume (m³)	Net Weight (kg)	Gross Weight (kg)	Shipping Volume (m³)
SH, SHI, SHN 2-2	9.6	11.4	0.0187	11.1	11.8	0.0187
SH, SHI, SHN 2-3	9.6	11.4	0.0187	10.7	11.6	0.0187
SH, SHI, SHN 2-4	12.3	13.3	0.0187	11	11.7	0.0187
SH, SHI, SHN 2-5	12.3	13.3	0.0236	11.5	12.2	0.0235
SH, SHI, SHN 2-6	12.8	13.8	0.0236	11.8	12.5	0.0235

#### ELECTRICAL DATA

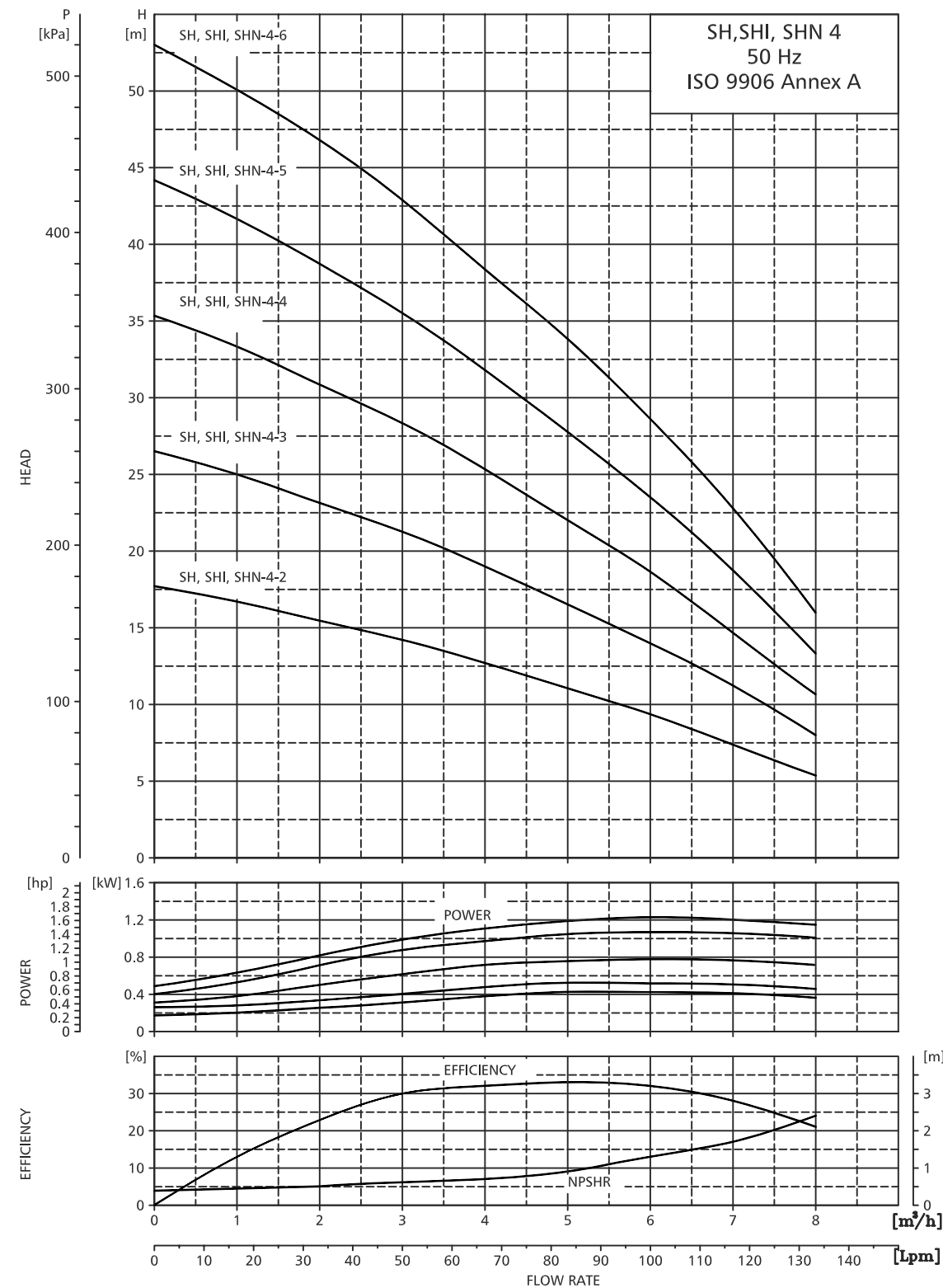
VOLTAGE (V)	Frequency (Hz)	Pump Type	Motor Type	I <sub>1/1</sub> (A)	I <sub>st</sub> (A)	P <sub>1</sub> (W)	P <sub>2</sub> (W)	C (µF/V)
1X200-240	50	SH, SHI, SHN 2-2	SMG 71	3.4	18.0	624	370	15 / 450
		SH, SHI, SHN 2-3	SMG 71	3.4	18.0	624	370	15 / 450
		SH, SHI, SHN 2-4	SMG 71	3.4	18.0	624	370	15 / 450
		SH, SHI, SHN 2-5	SMG 71	4.0	18.0	891	550	15 / 450
		SH, SHI, SHN 2-6	SMG 71	4.0	18.0	891	550	15 / 450
		SH, SHI, SHN 2-2	SMG 71	- / 1.1	9.5 / 5.0	486	370	
3 X 220-240 / 380-415	50	SH, SHI, SHN 2-3	SMG 71	- / 1.1	9.5 / 5.0	486	370	
		SH, SHI, SHN 2-4	SMG 71	- / 1.1	9.5 / 5.0	486	370	
		SH, SHI, SHN 2-5	SMG 71	2.3 / 1.5	11.5 / 6.5	740	550	
		SH, SHI, SHN 2-6	SMG 71	2.3 / 1.5	11.5 / 6.5	740	550	

\* Dual-frequency pump; can be used for both 50 and 60 Hz in the voltage range stated.

## PRESSURE BOOSTING PUMP 50 Hz - PERFORMANCE CURVE

## TECHNICAL DATA

### SH, SHI, SHN 4



### PERFORMANCE CHART

Model	kW	HP	Phase	m³/h LPM	Head (Mtr.)								SUCTION PIPE (inch)	DELIVERY PIPE (inch)
					0	2	4	5	6	7	8			
SH, SHI & SHN 4-2	0.37	0.5	1 & 3	16	15	13	11	9	7	6	1 1/4	1		
SH, SHI & SHN 4-3	0.55	0.75	1 & 3	26	23	19	16	14	11	9	1 1/4	1		
SH, SHI & SHN 4-4	0.75	1	1 & 3	35	31	25	22	18	14	12	1 1/4	1		
SH, SHI & SHN 4-5	1.1	1.5	1 & 3	44	39	32	28	23	18	15	1 1/4	1		
SH, SHI & SHN 4-6	1.1	1.5	1 & 3	53	46	38	33	27	22	18	1 1/4	1		

### DIMENSIONS FOR SH - 4

VOLTAGE (V)	FREQUENCY (Hz)	PUMP TYPE	MAT. CODE	MOTOR TYPE	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	B1 (mm)	B2 (mm)	H (mm)
1 X 200-240	50	SH4-2	9000010828	SMG 71	360	88	77	110	146	115	206
		SH4-3	9000010829	SMG 71	387	115	104	137	146	115	206
		SH4-4	9000010830	SMG 80	414	142	131	164	146	115	206
		SH4-5	9000013466	SMG 80	441	169	158	191	141	135	226
		SH4-6	9000010841	SMG 80	468	196	185	218	141	135	226
		SH4-2	9000010837	SMG 71	360	88	77	110	146	115	206
3 X 220-240 / 380-415	50	SH4-3	9000010838	SMG 71	387	115	104	137	146	115	206
		SH4-4	9000010839	SMG 80	414	142	131	164	146	115	206
		SH4-5	9000010840	SMG 80	441	169	158	191	141	135	226
		SH4-6	9000010832	SMG 80	468	196	185	218	141	135	226

### DIMENSIONS FOR SHI - 4

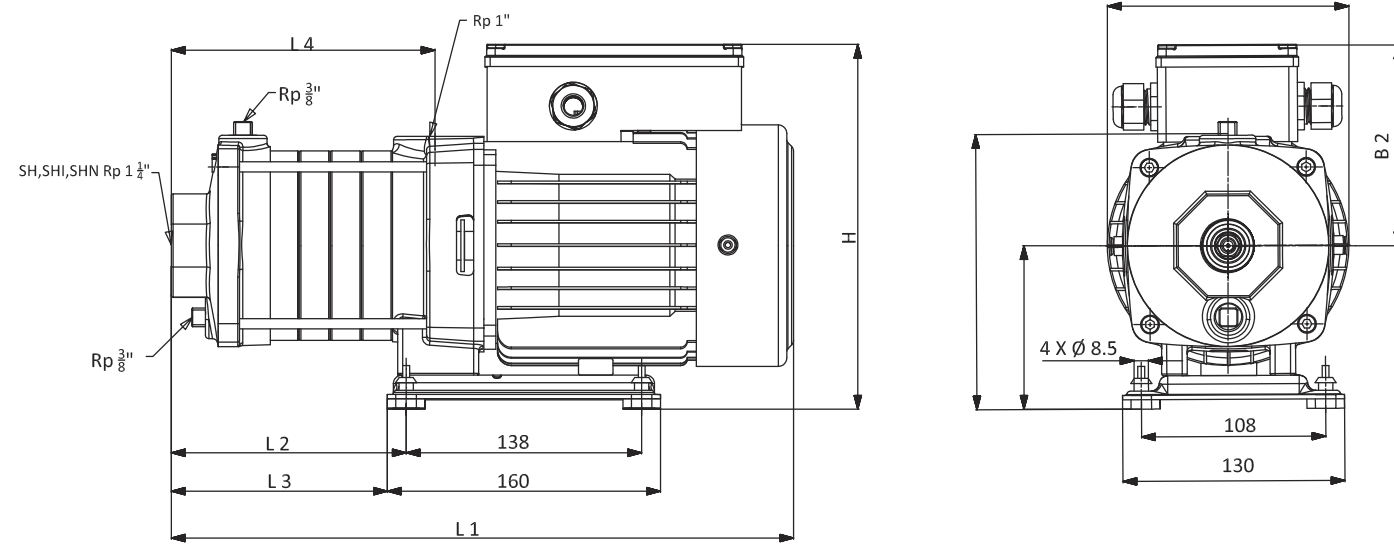
VOLTAGE (V)	FREQUENCY (Hz)	PUMP TYPE	MAT. CODE	MOTOR TYPE	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	B1 (mm)	B2 (mm)	H (mm)
1 X 220-240	50	SHI4-2	9000012701	SMG 71	360	88	77	110	146	115	206
		SHI4-3	9000012703	SMG 71	387	115	104	137	146	115	206
		SHI4-4	9000012705	SMG 80	414	142	131	164	146	115	206
		SHI4-5	9000012707	SMG 80	441	169	158	191	141	135	226
		SHI4-6	9000012709	SMG 80	468	196	185	218	141	135	226
		SHI4-2	9000012702	SMG 71	360	88	77	110	146	115	206
3 X 220-240 / 380-415	50	SHI4-3	9000012704	SMG 71	387	115	104	137	146	115	206
		SHI4-4	9000012706	SMG 80	414	142	131	164	146	115	206
		SHI4-5	9000012708	SMG 80	441	169	158	191	141	135	226
		SHI4-6	9000012710	SMG 80	468	196	185	218	141	135	226

### DIMENSIONS FOR SHN - 4

VOLTAGE (V)	FREQUENCY (Hz)	PUMP TYPE	MAT. CODE	MOTOR TYPE	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	B1 (mm)	B2 (mm)	H (mm)
1 X 220-240	50	SHN4-2	9000013275	SMG 71	360	88	77	110	146	115	206
		SHN4-3	9000013277	SMG 71	387	115	104	137	146	115	206
		SHN4-4	9000013279	SMG 80	414	142	131	164	146	115	206
		SHN4-5	9000013281	SMG 80	441	169	158	191	141	135	226
		SHN4-6	9000013283	SMG 80	468	196	185	218	141	135	226
		SHN4-2	9000013276	SMG 71	360	88	77	110	146	115	206
3 X 220-240 / 380-415	50	SHN4-3	9000013278	SMG 71	387	115	104	137	146	115	206
		SHN4-4	9000018958	SMG 80	414	142	131	164	146	115	206
		SHN4-5	9000013282	SMG 80	441	169	158	191	141	135	226
		SHN4-6	9000013284	SMG 80	468	196	185	218	141	135	226

### TECHNICAL DATA

#### Dimensional sketches, SH,SHI,SHN-4



#### WEIGHT

Pump Type	Single Phase			Three Phase		
	Net Weight(kg)	Gross Weight (kg)	Shipping Volume (m³)	Net Weight (kg)	Gross Weight (kg)	Shipping Volume (m³)
SH,SHI,SHN 4-2	9.5	10.1	0.0187	9.6	10.3	0.0187
SH,SHI,SHN 4-3	10.9	11.6	0.0187	11	11.7	0.0187
SH,SHI,SHN 4-4	15.1	16.1	0.0235	12.5	13.2	0.0235
SH,SHI,SHN 4-5	15.3	16.3	0.0235	14.2	14.9	0.0422
SH,SHI,SHN 4-6	15.7	16.6	0.0235	14.9	16.3	0.0422

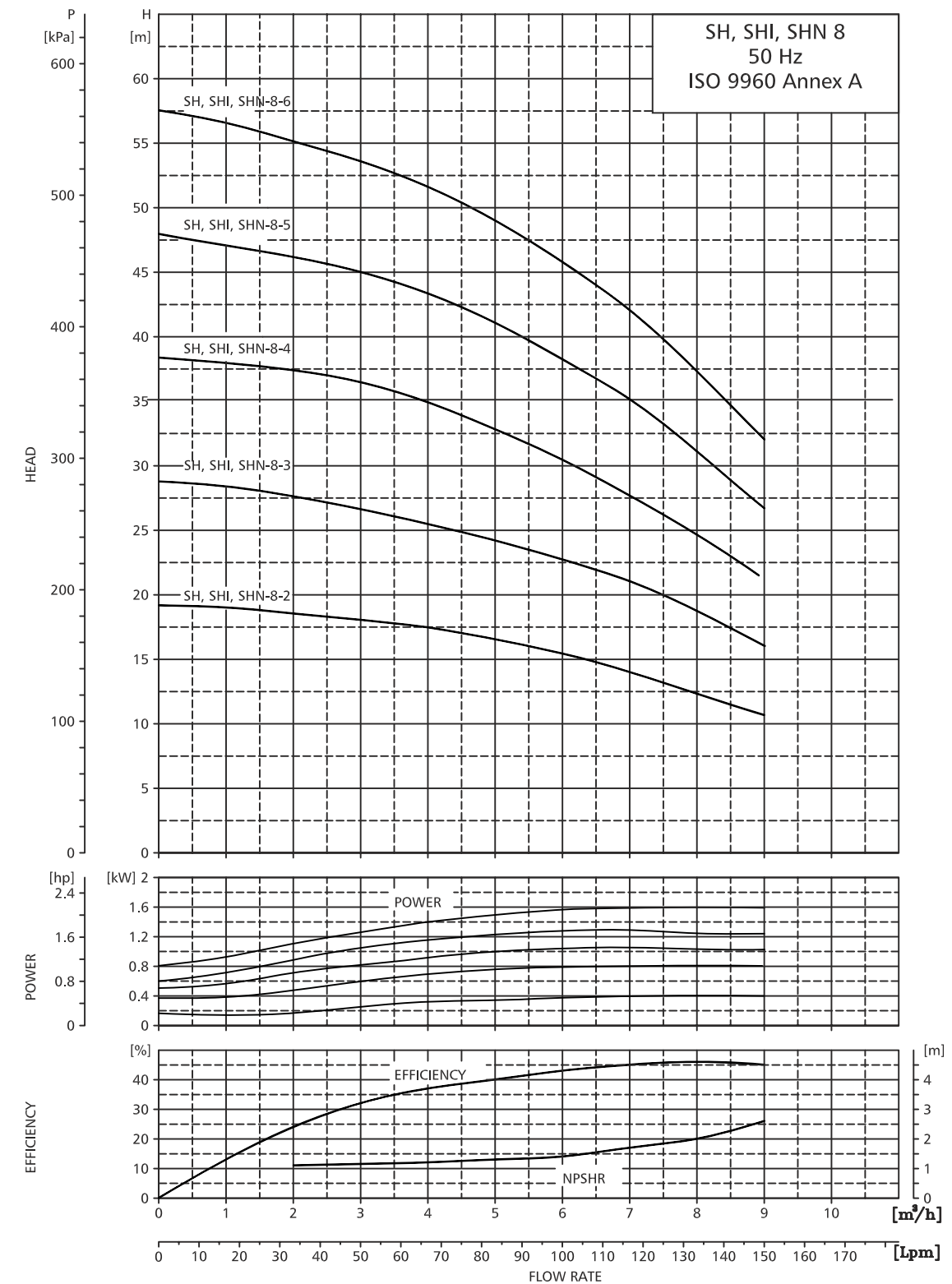
#### ELECTRICAL DATA

VOLTAGE (V)	Frequency (Hz)	Pump Type	Motor Type	I <sub>L1</sub> (A)	I <sub>st</sub> (A)	P <sub>1</sub> (W)	P <sub>2</sub> (W)	C (µF/V)
1X200-240	50	SH,SHI,SHN 4-2	SMG 71	3.4	18.0	624	370	15 / 450
		SH,SHI,SHN 4-3	SMG 71	3.4	18.0	624	370	15 / 450
		SH,SHI,SHN 4-4	SMG 71	3.4	18.0	624	370	15 / 450
		SH,SHI,SHN 4-5	SMG 80	4.0	18.0	891	550	15 / 450
		SH,SHI,SHN 4-6	SMG 80	4.0	18.0	891	550	15 / 450
		SH,SHI,SHN 4-2	SMG 71	- / 1.1	9.5 / 5.0	486	370	
3 X 220-240/ 380-415	50	SH,SHI,SHN 4-3	SMG 71	- / 1.1	9.5 / 5.0	486	370	
		SH,SHI,SHN 4-4	SMG 71	- / 1.1	9.5 / 5.0	486	370	
		SH,SHI,SHN 4-5	SMG 80	2.3 / 1.5	11.5 / 6.5	740	550	
		SH,SHI,SHN 4-6	SMG 80	2.3 / 1.5	11.5 / 6.5	740	550	
		SH,SHI,SHN 4-2	SMG 71	- / 1.1	9.5 / 5.0	486	370	
		SH,SHI,SHN 4-3	SMG 71	- / 1.1	9.5 / 5.0	486	370	

\* Dual-frequency pump; can be used for both 50 and 60 Hz in the voltage range stated.

### PRESSURE BOOSTING PUMP 50 Hz - PERFORMANCE CURVE

#### SH, SHI, SHN 8





### TECHNICAL DATA

#### PERFORMANCE CHART

Model	kW	HP	Phase	m <sup>3</sup> /hr LPM	Head (mtr)									Suction pipe (Inches)	Delivery pipe (Inches)								
					0	4	5	6	7	8	9												
SH,SHI,SHN 8-2	0.55	0.75	1 & 3	19	18	16	15	14	12	11	10	9	8	7	6	5	4	3	2	1	1/2	1 1/4	
SH,SHI,SHN 8-3	0.75	1.0	1 & 3	29	26	24	23	21	18	16	15	14	13	12	11	10	9	8	7	6	5	4	3
SH,SHI,SHN 8-4	1.1	1.5	1 & 3	38	35	33	31	28	24	21	20	19	18	17	16	15	14	13	12	11	10	9	8
SH,SHI,SHN 8-5	1.5	2.0	1 & 3	47	43	41	38	35	31	27	26	25	24	23	22	21	20	19	18	17	16	15	14
SH,SHI,SHN 8-6	1.5	2.0	1 & 3	57	52	48	46	42	37	32	31	30	29	28	27	26	25	24	23	22	21	20	19

#### DIMENSIONS FOR SH - 8

VOLTAGE (V)	FREQUENCY (Hz)	PUMP TYPE	MAT. CODE	MOTOR TYPE	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	B1 (mm)	B2 (mm)
1 X 200-240	50	SH8-2	9000011657	SMG 71	352	56	45	74.5	183	117
		SH8-3	9000011659	SMG 80	385	88.5	77.5	107	183	177
		SH8-4	9000011433	SMG 80	385	88.5	77.5	107	183	177
		SH8-5	9000011660	SMG 90	465	151	228	139.5	189	189
		SH8-6	9000011434	SMG 90	465	151	228	139.5	189	189
		SH8-2	9000011662	SMG 71	352	56	45	74.5	183	117
3 X 220-240 / 380-415	50	SH8-3	9000011663	SMG 80	385	88.5	77.5	107	183	177
		SH8-4	9000014023	SMG 80	385	88.5	77.5	107	183	177
		SH8-5	9000013209	SMG 90	465	151	228	139.5	189	189
		SH8-6	9000011666	SMG 90	465	151	228	139.5	189	189

#### DIMENSIONS FOR SHI - 8

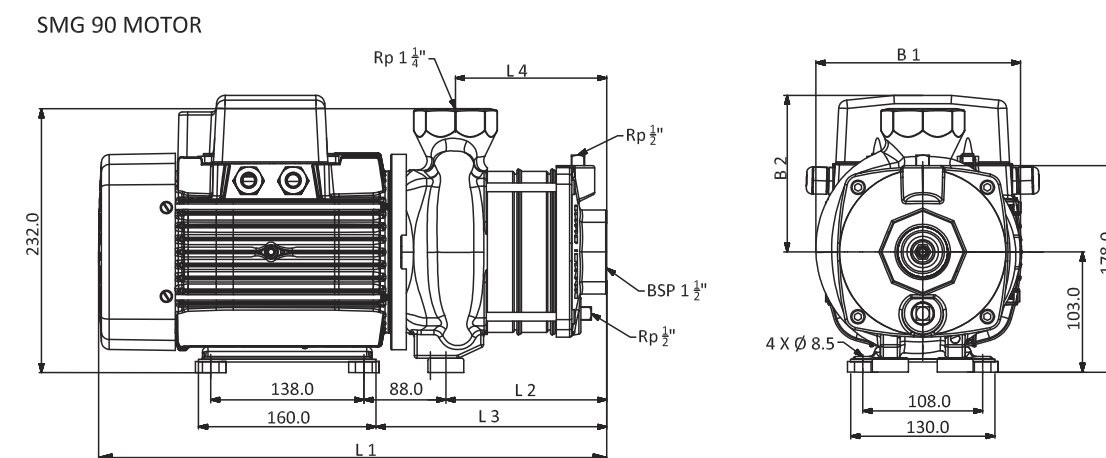
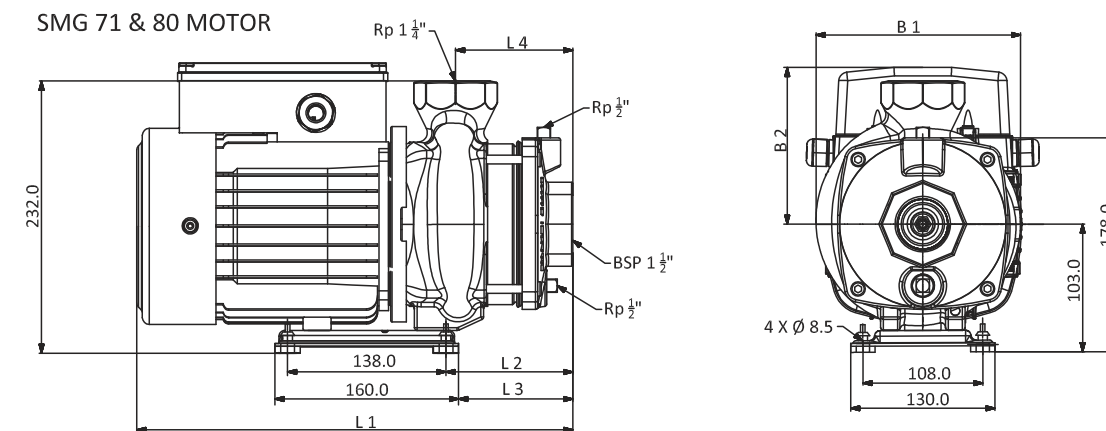
VOLTAGE (V)	FREQUENCY (Hz)	PUMP TYPE	MAT. CODE	MOTOR TYPE	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	B1 (mm)	B2 (mm)
1 X 220-240	50	SHI8-2	9000012711	SMG 71	352	56	45	74.5	183	117
		SHI8-3	9000012713	SMG 80	385	88.5	77.5	107	183	177
		SHI8-4	9000012715	SMG 80	385	88.5	77.5	107	183	177
		SHI8-5	9000012717	SMG 90	465	151	228	139.5	189	189
		SHI8-6	9000012719	SMG 90	465	151	228	139.5	189	189
		SHI8-2	9000012712	SMG 71	352	56	45	74.5	183	117
3 X 220-240 / 380-415	50	SHI8-3	9000012714	SMG 80	385	88.5	77.5	107	183	177
		SHI8-4	9000012716	SMG 80	385	88.5	77.5	107	183	177
		SHI8-5	9000012718	SMG 90	465	151	228	139.5	189	189
		SHI8-6	9000012720	SMG 90	465	151	228	139.5	189	189

#### DIMENSIONS FOR SHN - 8

VOLTAGE (V)	FREQUENCY (Hz)	PUMP TYPE	MAT. CODE	MOTOR TYPE	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	B1 (mm)	B2 (mm)
1 X 220-240	50	SHN8-2	9000013285	SMG 71	352	56	45	74.5	183	117
		SHN8-3	9000013287	SMG 80	385	88.5	77.5	107	183	177
		SHN8-4	9000013289	SMG 80	385	88.5	77.5	107	183	177
		SHN8-5	9000013291	SMG 90	465	151	228	139.5	189	189
		SHN8-6	9000013293	SMG 90	465	151	228	139.5	189	189
		SHN8-2	9000013286	SMG 71	352	56	45	74.5	183	117
3 X 220-240 / 380-415	50	SHN8-3	9000013288	SMG 80	385	88.5	77.5	107	183	177
		SHN8-4	9000013290	SMG 80	385	88.5	77.5	107	183	177
		SHN8-5	9000013292	SMG 90	465	151	228	139.5	189	189
		SHN8-6	9000013294	SMG 90	465	151	228	139.5	189	189

### TECHNICAL DATA

#### Dimensional sketches, SH,SHI,SHN -8



#### WEIGHT

Pump Type	Single Phase			Three Phase		
	Net Weight (kg)	Gross Weight (kg)	Shipping Volume (m <sup>3</sup> )	Net Weight (kg)	Gross Weight (kg)	Shipping Volume (m <sup>3</sup> )
SH,SHI,SHN 8-2	15	17	0.0422	15	17	0.0422
SH,SHI,SHN 8-3	17	19	0.0422	17	19	0.0422
SH,SHI,SHN 8-4	19	21	0.0422	19	21	0.0422
SH,SHI,SHN 8-5	28.8	31.6	0.0422	20	22	0.0422
SH,SHI,SHN 8-6	28.8	31.6	0.0422	25	27	0.0422

#### ELECTRICAL DATA

VOLTAGE (V)	Frequency (Hz)	Pump Type	Motor Type	I <sub>l1</sub> (A)	I <sub>st</sub> (A)	P <sub>1</sub> (W)	P <sub>2</sub> (W)	C (µF/V)
1X200-240	50	SH,SHI,SHN 8-2	SMG 71	4.0	18.0	890	550	15 / 450
		SH,SHI,SHN 8-3	SMG 80	5.6	36.0	1080	750	25 / 450
		SH,SHI,SHN 8-4	SMG 80	7.4	36.0	1570	1100	25 / 450
		SH,SHI,SHN 8-5	SMG 90	9.8	50.0	2140	1500	50 / 450
		SH,SHI,SHN 8-6	SMG 90	9.8	50.0	2140	1500	50 / 450
		SH,SHI,SHN 8-2	SMG 71	2.3 / 1.3	11.5 / 6.5	710	550	
3 X 220-240 / 380-415	50	SH,SHI,SHN 8-3	SMG 80	3.0 / 1.8	15.0 / 9.0	980	750	
		SH,SHI,SHN 8-4	SMG 80	4.6 / 2.6	23.0 / 13.0	1500	1100	
		SH,SHI,SHN 8-5	SMG 80	6.2 / 3.4	31.0 / 17.0	1800	1500	
		SH,SHI,SHN 8-6	SMG 90	6.2 / 3.4	31.0 / 17.0	1800	1500	

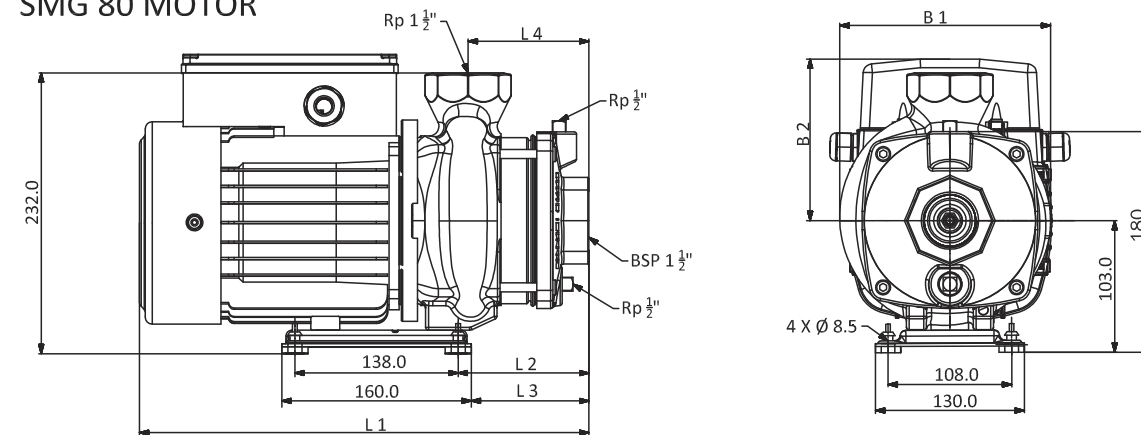
\* Dual-frequency pump; can be used for both 50 and 60 Hz in the voltage range stated.



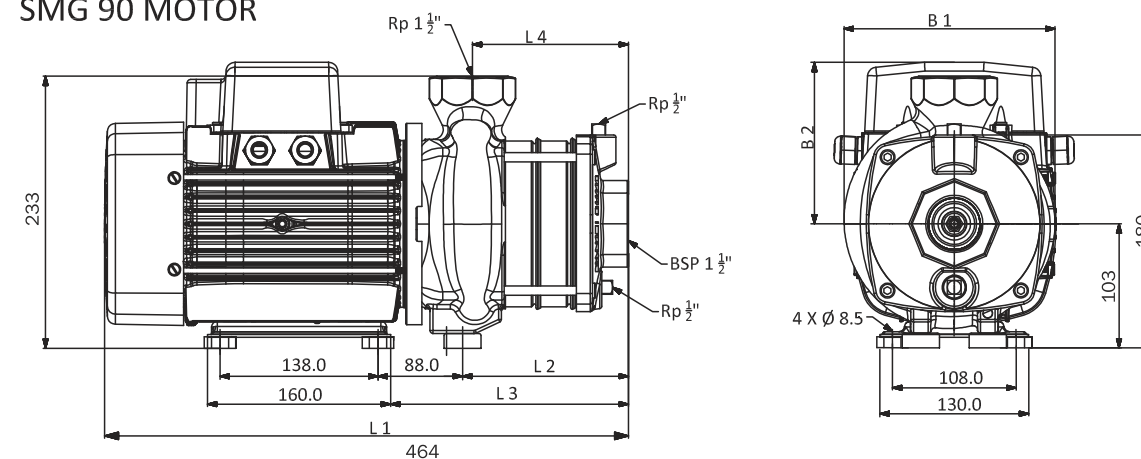
## TECHNICAL DATA

### Dimensional sketches, SH,SHI,SHN -12

#### SMG 80 MOTOR



#### SMG 90 MOTOR



#### WEIGHT

Pump Type	Single Phase			Three Phase		
	Net Weight (kg)	Gross Weight (kg)	Shipping Volume (m <sup>3</sup> )	Net Weight (kg)	Gross Weight (kg)	Shipping Volume (m <sup>3</sup> )
SH,SHI,SHN 12-2	17	19	0.0422	17	19	0.0422
SH,SHI,SHN 12-3	19	21	0.0422	19	21	0.0422
SH,SHI,SHN 12-4	26	28	0.0422	24	26	0.0422
SH,SHI,SHN 12-5	27	29	0.0422	27	29	0.0422
SH,SHI,SHN 12-6	28.5	30.7	-	28.2	30.5	0.0422

#### ELECTRICAL DATA

VOLTAGE (V)	Frequency (Hz)	Pump Type	Motor Type	I <sub>1/1</sub> (A)	I <sub>st</sub> (A)	P <sub>1</sub> (W)	P <sub>2</sub> (W)	C (µF/V)
1 X 220-240	50	SH,SHI,SHN 12-2	SMG 80	5.6	36	1080	750	25 / 450
		SH,SHI,SHN 12-3	SMG 80	7.4	36	1570	1100	25 / 450
		SH,SHI,SHN 12-4	SMG 90	9.8	50	2140	1500	50 / 450
		SH,SHI,SHN 12-5	SMG 90	13.4	50	3000	2200	50 / 450
		SH,SHI,SHN 12-6	SMG 90	13.4	50	8000	2200	50 / 450
		3 X 220-240 / 380-415	50	SH,SHI,SHN 12-2	SMG 80	3.0 / 1.8	15.0 / 9.0	980
SH,SHI,SHN 12-3	SMG 80			4.6 / 2.6	23.0 / 13.0	1500	1100	
SH,SHI,SHN 12-4	SMG 90			6.2 / 3.4	31.0 / 17.0	1800	1500	
SH,SHI,SHN 12-5	SMG 90			8.3 / 4.8	41.5 / 24.0	2715	2200	
SH,SHI,SHN 12-6	SMG 90			8.3 / 4.8	41.5 / 24.0	2715	2200	

\* Dual-frequency pump; can be used for both 50 and 60 Hz in the voltage range stated.

## ACCESSORIES

### PRESSURE TANK

Shakti pressure tanks is constructed of a virgin polypropylene liner combined with an FDA approved high-grade butyl diaphragm. This is held against the wall of the tank with a steel clench ring. The brass air valve, sealed by a threaded o-ring valve cap, prevents air leaks. Water enters the tank through a patented stainless steel water connection. The diaphragm and liner are both reinforced in specific wear areas for longer life.

All internal parts including the air valve are rounded to prevent piercing of the diaphragm in extreme conditions.

The water connection uniquely provides a dual water/air seal ensuring a complete leak free and maintenance free pressure vessel.

On the exterior the almond colored two-part polyurethane paint finish over an epoxy undercoating provides hundreds of hours of UV and salt spray protection.



\*Supplies from GWS

### APPLICATIONS

- Booster systems
- Thermal expansion
- Irrigation systems
- Hydraulic hammer arresting

### FEATURES

- Single diaphragm design
- Virgin polypropylene liner
- Two part polyurethane, epoxy primed paint finish
- Leak free o-ring sealed air valve cap
- Comprehensive testing
- No maintenance



### PRESSURE SWITCH

Danfoss switch provide automatic limit protection or manual reset limit protection for pressure systems. Can be used with steam, air, and gaseous and liquid media. The pressure switches are fitted with single-pole changeover switch (SPDT). The position of the switch depends on the setting of the pressure switch and the pressure in the connector.

### FEATURES

- Small dimensions Space-saving
- Easy to install in panels
- Shock and impact resistant
- Ultra-short bounce time. Limits wear to an absolute minimum and increases reliability
- Snap action electrical contacts minimize chatter, bounce, and wear, and ensure long term electrical and mechanical reliability
- Electrical connection from front of the unit.

### OTHER COMPONENT



## PUMP LIQUIDS

### PUMP LIQUIDS

Thin, non-explosive fluids, not containing solid particles or fibers. The fluids must not chemically attack the pump materials.

When pumping fluids with a density and/or viscosity higher than those of water, oversized motors must be used, if required.

Whether a pump is suitable for a particular fluid depends on a number of factors of which the most important are the chloride content, pH value, temperature and content of chemicals and oils.

Please note that aggressive fluids (for instance seawater and some acids) may attack or dissolve the protective oxide film of the stainless steel and thus cause corrosion.

### LIST OF PUMPED LIQUIDS

A number of typical fluids are listed below.

Other pump version may be applicable, but those stated in the list are considered to be the best choices.

The table is intended as a general guide only and cannot replace actual testing of the pumped fluids and pump materials under specific working conditions.

S. NO.	PUMP LIQUID	SH	SHI, SHN	INFORMATION	NOTES
<b>A</b>	<b>WATER</b>				
1	Boiler Feed Water	BVEGG	BVEGG	Max. Temp. 90 °C suitably +	
2	Condensate	BVEGG	BVEGG	Max. Temp. 140 °C suitably +	
3	Cooling & cutting Lubricants	BVEGG	BVEGG	-	a
4	Ground water	BVEGG	BVEGG	<300 PPM Chloride	
5	Demineralised Water	-	BVEGG	Max. Temp. 90 °C suitably +	
6	District Heating Water	BVEGG	BVEGG	Max. Temp. 90 °C suitably +	
7	Oil - containing water	BVEGG	BVEGG	suitably	
8	Softened Water	BVEGG	BVEGG	Max. Temp. 90 °C suitably +	
9	Swimming Pool Water ,chlorinated	BVEGG	BVEGG	Max. Temp. 40 °C suitably ++ Max. 5 PPM Chlorine	
<b>B</b>	<b>FUELS</b>				
1	Diesel Oil	BVEGG	BVEGG	suitably	d
2	Jet Fuel	BVEGG	BVEGG	suitably	d
3	Kerosene	BVEGG	BVEGG	-	d
4	Petrol	BVEGG	BVEGG	suitably	d
5	Biodiesel	BVEGG	BVEGG	-	d
6	Naptha	BVEGG	BVEGG	-	d
<b>C</b>	<b>MINERAL OILS</b>				
1	Crude Oil	BVEGG	BVEGG	suitably	a,b,c
2	Mineral Lubricating Oil	BVEGG	BVEGG	-	b,d
3	Mineral Motor Oil	BVEGG	BVEGG	suitably	b,d

The list should, however, be applied with some caution as factors such as concentration of the pumped fluid, fluid temperature or pressure may affect the chemical resistance of a specific pump version.

Safety precautions must be made when pumping dangerous fluids.

### Notes

a	May contain additives or impurities which can cause shaft seal problems.
b	The density and viscosity may differ from those of water. Consider this when calculating motor and pump performance.
c	In order to avoid corrosion, the fluid must be free of oxygen, flammable or combustible fluid.
d	safety precautions must be considered to ensure safe handling of flammable fluids. Handling the fluid above the flashpoint and/or boiling point will require the greatest restrictions. A seal-less pump may be required. Contact Shakti.
e	Risk of crystallization/precipitation on the shaft seal.
f	If oil residues are present, EPDM cannot be used.

## PUMP LIQUIDS

S. NO.	PUMP LIQUID	SH	SHI, SHN	INFORMATION	NOTES
<b>D</b>	<b>COOLANTS</b>				
1	Ethylene Glycol	BVEGG	BVEGG	suitably	a , b
2	Glycerine (Glycerol)	BVEGG	BVEGG	Max. Temp. 80 °C Max. Conc. 50 % suitably ±	a , b
3	Hydrocarbon Based Collent	BVEGG	BVEGG	-	b , d
4	Potassium Acetate (Inhabited)	BVEGG	BVEGG	-	a , b, c, e
5	Potassium Formate (Inhabited)	BVEGG	BVEGG	-	a , b, c, e
6	Propylene Glycol	BVEGG	BVEGG	suitably	a , b
<b>E</b>	<b>SYNTHETIC OILS</b>				
1	Synthetic Lubricating oil	BVEGG	BVEGG		b,d
2	Synthetic Motor oil	BVEGG	BVEGG		b,d
3	Silicon Oil	BVEGG	BVEGG	Max. Temp. 90 °C Max. Conc. 100 % suitably +	b
<b>F</b>	<b>CLEANING</b>				
1	Alkaline Degreasing Agent	BVEGG	BVEGG		a,f
2	Soap (Salt of fatty Acids)	BVEGG	BVEGG		a
<b>G</b>	<b>VEGETABLE OILS</b>				
1	Corn Oil	BVEGG	BVEGG	suitably	a , b
2	Olive Oil	BVEGG	BVEGG	suitably	a , b
3	Peanut Oil	BVEGG	BVEGG	suitably	a , b
4	Rape-Seed Oil	BVEGG	BVEGG	suitably	a , b
5	Soya oil	BVEGG	BVEGG	suitably	a , b
<b>H</b>	<b>OXIDANTS</b>				
1	Hydrogen Peroxide		BVEGG	Max. Temp. 20 °C Max. Conc. 30 % suitably ++	
<b>I</b>	<b>SALTS</b>				
1	Ammonium bicarbonate	BVEGG	BVEGG	Max. Temp. 60 °C Max. Conc. 20 % suitably +	b
2	Potassium Bicarbonate	BVEGG	BVEGG		b
3	Sodium Carbonate	BVEGG	BVEGG	Max. Temp. 80 °C Max. Conc. 20 % suitably +	b,e
4	Potassium Permanganete		BVEGG	suitably	
5	Sodium Nitrate	BVEGG	BVEGG	Max. Temp. 80 °C Max. Conc. 40 % suitably +	b
6	Sodium Nitrite	BVEGG	BVEGG	Max. Temp. 90 °C Max. Conc. 30 % suitably +	b
7	Sodium Phospate (mono)		BVEGG	suitably	b
8	Sodium Phospate (di)	BVEGG	BVEGG		b
9	Sodium Phospate (tri)	BVEGG	BVEGG		b,e
10	Sodium Sulphate		BVEGG	suitably	b,e
11	Sodium Sulphite	BVEGG	BVEGG	Max. Temp. 80 °C Max. Conc. 20 % suitably +	b,e
<b>J</b>	<b>ACIDS</b>				
1	Acetic acid		BVEGG	suitably ±	
2	Citric Acid		BVEGG	suitably ±	
3	Nitric Acid		BVEGG	suitably ±	b
4	Phosphoric Acid		BVEGG	suitably ±	a
<b>K</b>	<b>ALKALIS</b>				
1	Ammonium hydroxide	BVEGG	BVEGG	suitably	
2	Calcium hydroxide	BVEGG	BVEGG	suitably	a
3	Potassium hydroxide	BVEGG	BVEGG	suitably	b,e
5	Sodium hydroxide	BVEGG	BVEGG	suitably	b,e

# SJP SERIES

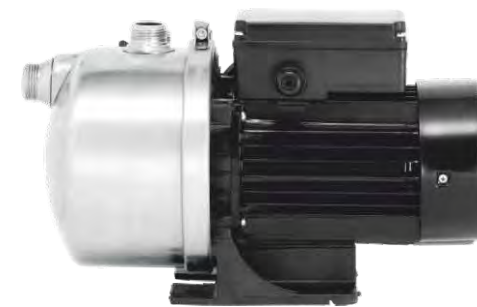
## DESCRIPTION

### FEATURES

- Self-Priming Pump.
- Stable operation even in case of air pockets in the liquid.
- Built-in ejector, fitted with an ejector valve or a plug having two different setting possibilities (open and close) for maximum discharge, maximum efficiency etc.
- Easy installation.
- Dynamically balanced rotating parts to ensure minimum vibration during running.
- Replaceable wearing parts and hence longer life.
- Easy maintenance and spares availability.
- Automatic start/stop when equipped with Press control.
- Booster sets for small-scale water supply.
- Low Noise Level.

### APPLICATIONS

- Wide variety of water supply & transfer duties in home.
- Used for agriculture, horticulture.
- Used for small scale service Industries.
- Gardening and hobby activities.



### MATERIAL OF CONSTRUCTION

Part Name	Material
Motor Stool with Base Plate	Composite
Pump Sleeve	Stainless Steel
Impeller	Stainless Steel
Shaft	Stainless Steel 304
Ejector	Composite
Clamps	Stainless Steel 304
O-Rings	NBR Rubber
Seal Ring	PPE Composite
Bearing Plate	Stainless Steel 304

### TECHNICAL DATA

- Discharge - Up to 63 LPM
- Head - Up to 30 m.
- Ratings - 1.0 HP
- Operating Pressure - Up to 6 bar
- Liquid Temp. - 0°C to +40°C
- Ambient Temp. - Maximum +40°C
- Suction Lift - Maximum 8 M. including suction pipe Pressure loss at a liquid temp. of +20°C

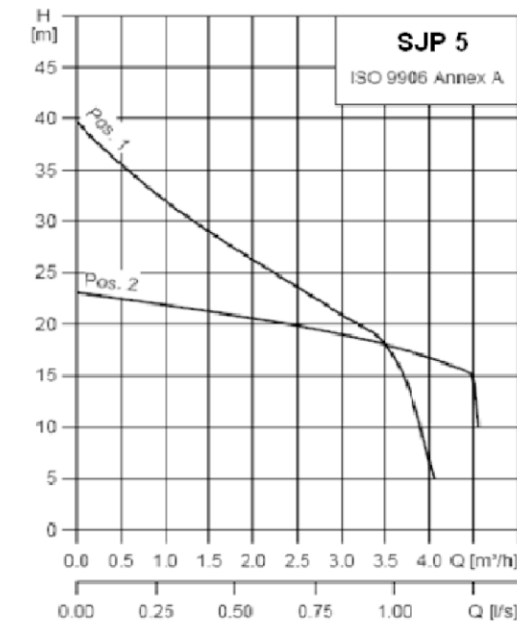
### PERFORMANCE CHART SJP

Approximate performance of "Self Priming Pump (SJP)" series 2 pole induction motor at rated voltage 50HZ, Single Phase and three phase A.C power supply.

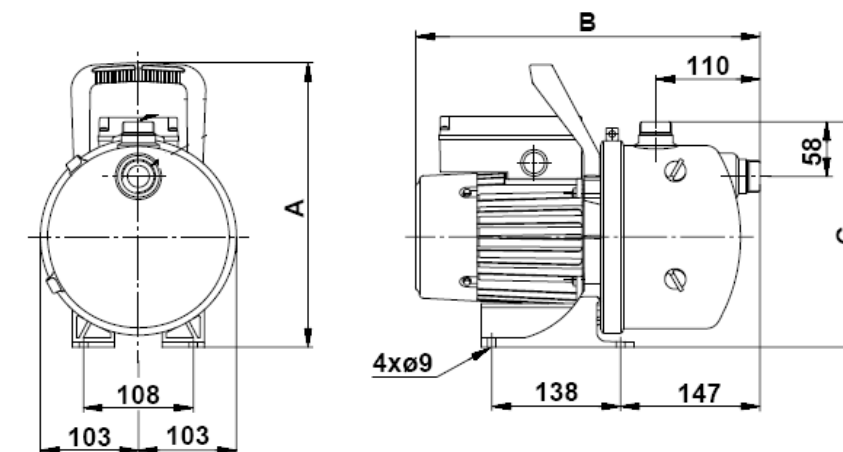
SR.NO.	MODEL	HP	TANK SIZE (l)	VALVE POSITION	CONNECTION (RP)	TOTAL HEAD IN METERS					
						40	30	25	20	15	10
						DISCHARGE IN LPM					
1	SJP 5	1.00	18,24,50	1	1	0	21	38	54	62	63

## PERFORMANCE CURVE / TECHNICAL DATA

### SJP 5 PERFORMANCE CURVE



### SJP TECHNICAL DATA



Pump type	Dimensions (mm)		
	A	B	C
SJP 5	298	412	234

### CAUTIONS:-

- These Pumps are designed for pumping water and thin non-aggressive liquids, not containing solid particles or fiber.
- If the pump has been used for dirty liquids e.g., pool water, it must be flushed with clean water immediately after use.
- The pump must not be used for inflammable liquids like diesel, petrol or similar liquids.