



**SB,SBI,SBN 1,3,5,10,15,20,32,45,64,90,120,150 series**

**Vertical Multistage Centrifugal  
In-line Pumps**

**50Hz**



**STAIRS INDUSTRIAL CO., LTD.**

<b>page</b>	<b>General data</b>
2	SB, SBI, SBN Performance range at 50Hz
3	Product data
4	Product data
5	Pump, Application
6	Identification Code, Motor
7	Motor data, Mechanical Seal
8	Maximum operating pressure and inlet pressure
9	Construction
10	Construction
11	Construction

<b>page</b>	<b>Performance curves / Technical data</b>
12	SB, SBI, SBN 1
15	SB, SBI, SBN 3
18	SB, SBI, SBN 5
21	SB, SBI, SBN 10
24	SB, SBI, SBN 15
27	SB, SBI, SBN 20
30	SB, SBI, SBN 32
33	SB, SBI, SBN 45
36	SB, SBI, SBN 64
39	SB, SBI, SBN 90
42	SB, SBI, SBN 120
45	SB, SBI, SBN 150
48	Pumped Liquids

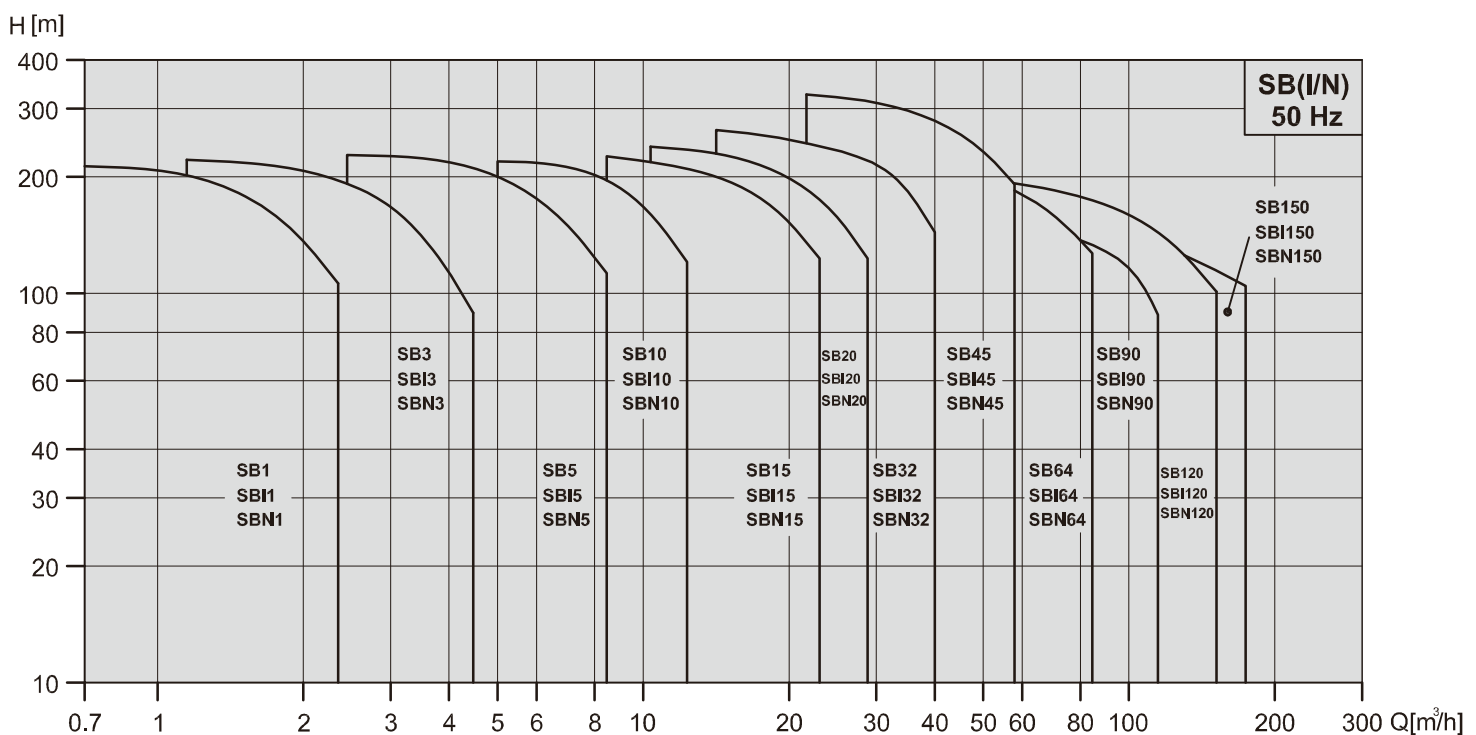
# Contents

Vertical Multistage Centrifugal In-line Pumps



STAIRS PUMPS

## SB, SBI, SBN Series Performance range 50 Hz





### Product data

Range	SB, SBI, SBN					
	1	3	5	10	15	20
50Hz						
Nominal flow〔m³/h〕	1.8	3	5.7	10	17	21
Flow range〔m³/h〕	0.7-2.4	1.2-4.5	2.5-8.5	5-13	8.5-23.5	10.5-29
Max. pressure〔bar〕	21.5	23	24	21.5	23	24.3
Fluid temperature〔℃〕	-15 to +120					
Motor power〔kW〕	0.37-2.2	0.37-3	0.37-5.5	0.37-7.5	1.1-15	1.1-18.5
Version						
SB: Cast iron and stainless steel EN 1.4301/AISI 304	●	●	●	●	●	●
SBI: Stainless steel EN 1.4301/AISI 304	●	●	●	●	●	●
SBN: Stainless steel EN 1.4401/AISI 316	●	●	●	●	●	●
Motor						
Mains connection 1〔V/Hz〕 (Permissible voltage tolerance ± 10%)	220-240 V 50 Hz					
Mains connection 3〔V/Hz〕 (Permissible voltage tolerance ± 10%)	0.37-7.5 kW 220-240/380-415 V 50 Hz From 11 kW 380-415 V 50 Hz					
Insulation class	F					
Enclosure class	IP 55					
Ambient temperature	50° C					
SB Pipe Connection						
Flange	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32	DN 40	DN 50	DN 50
SBI, SBN Pipe Connection						
Flange	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32	DN 40	DN 50	DN 50
Victaulic-connections	R 1¼ DN32	R 1¼ DN 32	R1¼ DN 32	R 2 DN 50	R 2 DN 50	R 2 DN 50
Mechanical Seals						
SiC/SiC	Standard					
Seals						
EPDM	Standard					
Viton						

\* Flange standards : Refer to dimensional drawings

# Contents

Vertical Multistage Centrifugal In-line Pumps



STAIRS PUMPS

## Product data

Range	SB, SBI, SBN					
	32	45	64	90	120	150
50Hz						
Nominal flow〔m³/h〕	30	45	64	90	120	150
Flow range〔m³/h〕	15-40	22-58	30-85	45-120	60-160	75-180
Max. pressure〔bar〕	27.5	33	21.8	20	20.4	18.7
Fluid temperature〔℃〕	-15 to +120					
Motor power〔kW〕	1.5-30	3-45	4-45	5.5-45	11-75	11-75
Version						
SB: Cast iron and stainless steel EN 1.4301/AISI 304	●	●	●	●	●	●
SBI: Stainless steel EN 1.4301/AISI 304	●	●	●	●	●	●
SBN: Stainless steel EN 1.4401/AISI 316	●	●	●	●	●	●
Motor						
Mains connection 1〔V/Hz〕 (Permissible voltage tolerance ± 10%)	220-240 V 50 Hz					
Mains connection 3〔V/Hz〕 (Permissible voltage tolerance ± 10%)	0.37-7.5 kW 220-240/380-415 V 50 Hz From 11 kW 380-415 V 50 Hz					
Insulation class	F					
Enclosure class	IP 55					
Ambient temperature	50℃					
SB Pipe Connection						
Flange	DN 65	DN 80	DN100	DN100	DN125	DN125
SBI, SBN Pipe Connection						
Flange	DN 65	DN 80	DN100	DN100	DN125	DN125
Victaulic-connections	N/A	N/A	N/A	N/A	N/A	N/A
Mechanical Seals						
SiC/SiC	Standard					
Seals						
EPDM	Standard				0.37kW-45kW	
Viton					55kW-75kW	

\* Flange standards : Refer to dimensional drawings

### Pump



The SB, SBI and SBN pumps are non-self priming vertical multistage pump of in-line design, flange or with Victaulic coupling with equally sized suction and discharge ports. Stage construction with stainless steel impellers, chambers and pressure casing. Pump stub shaft and motor shaft of the IEC-standards motor are directly close coupled. All pumps are equipped with a cartridge type mechanical seal for easy maintenance.

SB, SBI and SBN pumps have different pump sizes and various numbers of stages to provide the flow and the pressure required.

### Applications

#### WATER SUPPLY AND PRESSURE BOOSTING

Pressure boosting in buildings, hotels, residential complexes  
Pressure booster stations, supply of water networks  
Pressure boosting for industrial water supply

#### IRRIGATION AND AGRICULTURE

Greenhouses  
Sprinkler irrigation  
Field irrigation (flooding)

#### LIGHT INDUSTRY

Washing and cleaning systems  
Car washing facilities  
Fire fighting systems  
Process water systems  
Machine tools (cooling lubricants)

#### WATER TREATMENT

Water softeners and de-mineralization  
Reverse Osmosis systems  
Distillation systems  
Filtration  
Ultra-filtration systems

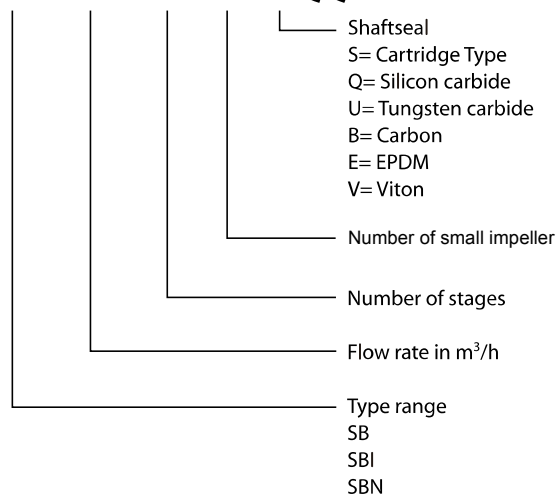
#### HEATING, VENTILATION AND AIR-CONDITIONING

Boilers  
Induction heating  
Heat exchangers  
Refrigerators  
Cooling towers and systems  
Temperature control systems

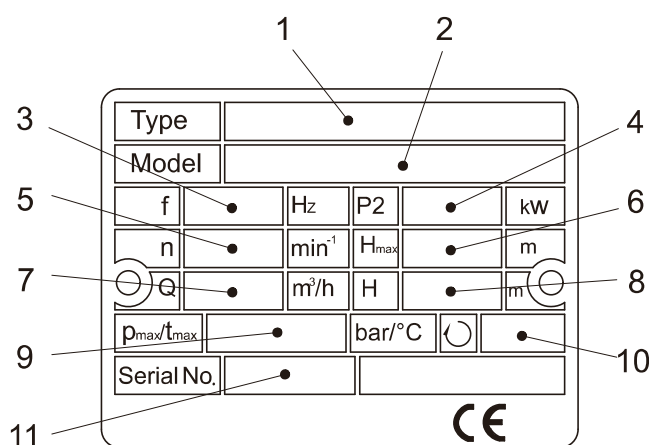


## Identification Code

**SB - 10 - 5 - 1 - S Q Q E**



## Pump nameplate information



1. Pump Type - Seal Type
2. Pump Model
3. Frequency
4. Rated Power
5. Speed
6. Maximum Head
7. Capacity
8. Head Range
9. Maximum Operating Pressure
10. Rotating Direction
11. Serial number

## Motor

- Squirrel cage in short circuit, aluminum casing up to 22 kW, totally enclosed, fan-cooled, 2-pole standard motor.
- Standard supply Stairs motors up to 15 kW. Other motor brands for higher powers.
- Electrical data
  - ⊙ Enclosure class: IP55
  - ⊙ Insulation class: F
  - ⊙ Standard voltages: P2: 0.37-7.5 KW: 3 x 220-240/380-415 V
  - P2: From 11 KW 3 x 380-415 V
- The motors have efficiency values that fall within the range normally referred to as high efficiency.
- Ambient temperature: Max. +50°C

# Contents

Vertical Multistage Centrifugal In-line Pumps



STAIRS PUMPS

## Motor Data

Motor Type				Nominal current in [A]				
HP	kW	Pole	Flange	Frame	3-220V	3-240V	3-380V	3-415V
0.5	0.37	2	B14	71A	1.7	1.9	1.0	1.1
0.75	0.55			71B	2.6	2.9	1.5	1.7
1.0	0.75			80A	3.4	3.4	2.0	2.0
1.5	1.1			80B	4.8	5.0	2.8	2.9
2.0	1.5			90S	6.1	6.2	3.5	3.6
3.0	2.2			90L	9.7	11.1	5.6	6.4
4.0	3.0			100L	11.9	12.1	6.9	7.0
5.5	4.0			112M	15.1	15.2	8.7	8.8
7.5	5.5		B5	132S	18.7	18.0	10.8	10.4
10	7.5			132S	25.5	24.9	14.7	14.4
			B14		3-380V	3-415V	3-660V	3-720V
4.0	3.0			100L	6.8	6.9	3.9	4.0
5.5	4.0			112M	8.7	8.3	5.0	4.8
7.5	5.5		B5	132S	10.9	10.8	6.3	6.2
10	7.5			132S	14.9	14.8	8.6	8.5
15	11			160L	22.2	20.9	12.8	12.1
20	15			160L	30.2	28.4	17.4	16.4
							3-380V	3-660V
15	11			160M			21.0	12.1
20	15			160M			28.4	16.3
25	18.5			160L			34.7	20.0
30	22			180M			41.1	23.7
40	30			200L			55.7	32.1
50	37			200L			68.3	39.3
60	45			225M			82.7	47.6
75	55			250M			100.7	58.0
100	75			280S			136.5	78.6

## Mechanical Seal

Standard Cartridge type mechanical seal made of Silicon Carbide/Silicon Carbide/EPDM or Viton. Based on the type of application, alternative materials are available for the seal and the elastomers. The cartridge type mechanical seal can be replaced in minutes without special tools and without dismantling the pump.



## List of Materials

Q : Silicon carbide	E : EPDM
U : Tungsten carbide	V : Viton
B : Carbon	

## Type of Seal

Seal Type	SB/SBI/SBN		
	1/3/5/10/15/20 /32/45/64/90	120/150	
		0.5-60HP	75-100HP
<b>Mechanical Seals</b>			
S: O-ring seal Cartridge type	●	●	
B: Rubber bellows seal Cartridge type			●
QQ	●	●	●
UU	Optional	Optional	
QB	Optional	Optional	
UB	Optional	Optional	
<b>Seals</b>			
E	●	●	●
V	Optional	Optional	Optional





## Maximum operating and inlet pressures

50Hz

Stages	Maximum Operating Pressure	Stages	Maximum Inlet Pressures
SB, SBI, SBN 1			
2-36	25bar	2-36	10bar
SB, SBI, SBN 3			
2-36	25bar	2-29	10bar
		31-36	15bar
SB, SBI, SBN 5			
2-36	25bar	2-16	10bar
		18-36	15bar
SB, SBI, SBN 10			
1-16	16bar	1-6	8bar
17-22	25bar	7-22	10bar
SB, SBI, SBN 15			
1-10	16bar	1-3	8bar
12-17	25bar	4-17	10bar
SB, SBI, SBN 20			
1-10	16bar	1-3	8bar
12-17	25bar	4-17	10bar
SB, SBI, SBN 32			
(1-1)-7	16bar	(1-1)-4	4bar
(8-2)-14	30bar	(5-2)-10	10bar
		(11-2)-14	15bar
SB, SBI, SBN 45			
(1-1)-5	16bar	(1-1)-2	4bar
(6-2)-11	30bar	(3-2)-5	10bar
(12-2)-(13-2)	33bar	(6-2)-(13-2)	15bar
SB, SBI, SBN 64			
(1-1)-5	16bar	(1-1)-(2-2)	4bar
(6-2)-(8-1)	30bar	(2-1)-(4-2)	10bar
		(4-1)-(8-1)	15bar
SB, SBI, SBN 90			
(1-1) - 4	16bar	(1-1) - 1	4bar
(5-2) - 6	30bar	(2-1) - (3-2)	10bar
		3 - 6	15bar
SB, SBI, SBN 120			
1-7	30bar	1-(2-1)	10bar
		2-(5-1)	15bar
		(6-1)-7	20bar
SB, SBI, SBN 150			
(1-1)-6	30bar	(1-1)-1	10bar
		(2-1)-(4-2)	15bar
		(5-2)-6	20bar

\* Rule to follow : The inlet pressure+ the pressure against a closed valve < Max. Operating pressure.

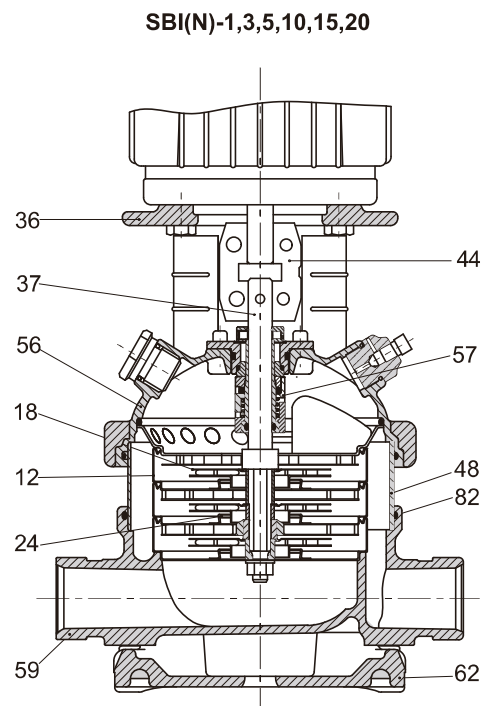
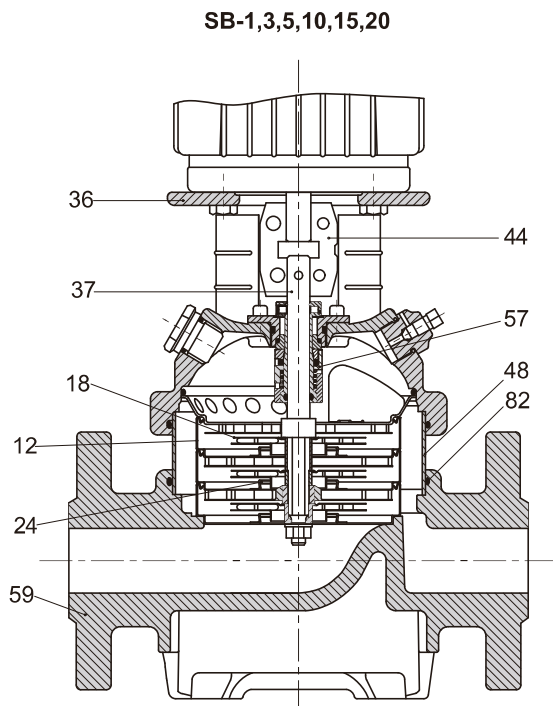
# Contents

Vertical Multistage Centrifugal In-line Pumps



STAIRS PUMPS

## Construction



## CONSTRUCTION

Pos.	Name	Material	SB 1,3,5,10,15,20		SBI 1,3,5,10,15,20		SBN 1,3,5,10,15,20	
			Standard		Standard		Standard	
			Europe	USA	Europe	USA	Europe	USA
36	Pump head	Cast Iron	EN-GJL-200	ASTM 25B	EN-GJS-450-10	ASTM 65-45-12	EN-GJS-450-10	ASTM 65-45-12
56	Pump head cover	Stainless steel	N/A		1.4301	AISI 304	1.4401	AISI 316
18	Impeller	Stainless steel	1.4301	AISI 304	1.4301	AISI 304	1.4401	AISI 316
37	Shaft	Stainless steel	1.4057	AISI 431	1.4057	AISI 431	1.4401	AISI 316
48	Outer Sleeve	Stainless steel	1.4301	AISI 304	1.4301	AISI 304	1.4401	AISI 316
82	O-ring for outer sleeve	EPDM						
12	Chamber	Stainless steel	1.4301	AISI 304	1.4301	AISI 304	1.4401	AISI 316
24	Neck ring	PTFE						
59	Base	Cast Iron	EN-GJL-200	ASTM 25B	N/A			
	Base	Stainless steel	N/A		1.4301	AISI 304	1.4401	AISI 316
62	Base plate	Cast Iron	N/A		EN-GJL-200	ASTM 25B	EN-GJL-200	ASTM 25B
44	Coupling	Fe-Cu-C	SINT C11	MPIF FC0525	SINT C11	MPIF FC0525	SINT C11	MPIF FC0525
57	Mechanical seal	Cartridge type						

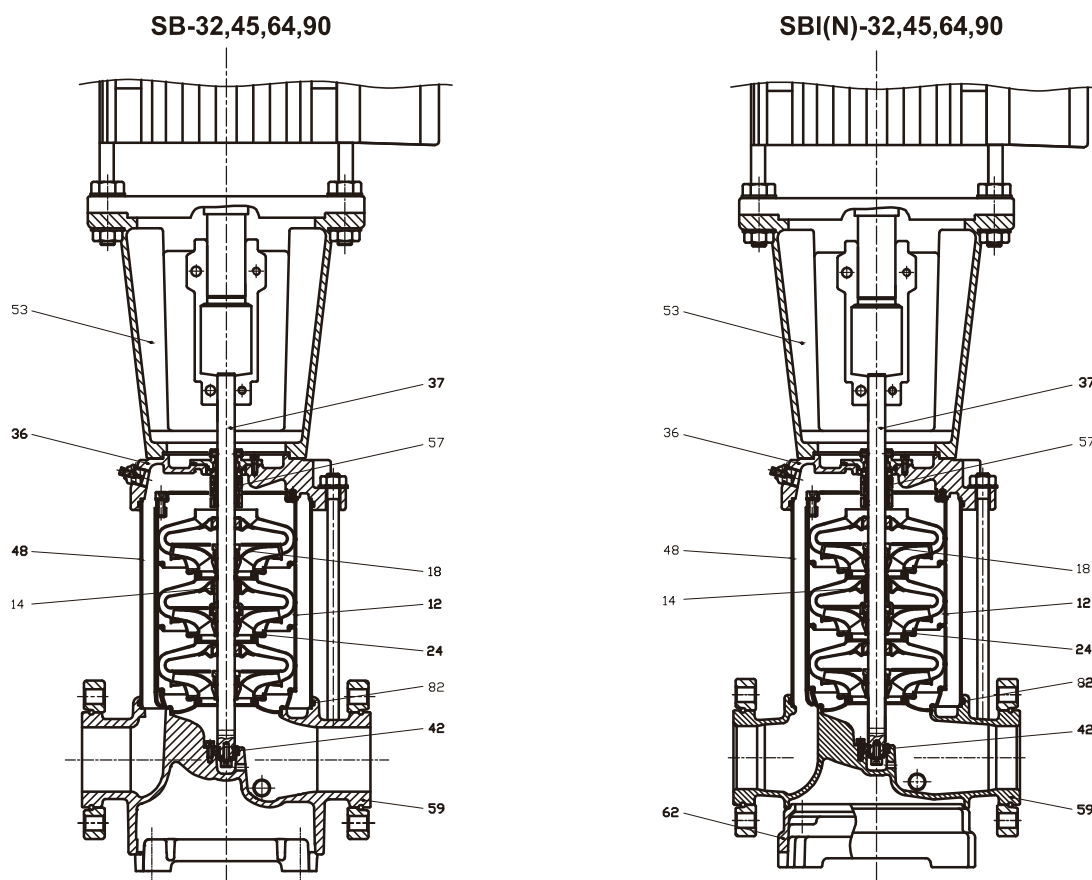
# Contents

Vertical Multistage Centrifugal In-line Pumps



STAIRS PUMPS

## Construction



## CONSTRUCTION

Pos.	Name	Material	SB 32, 45, 64, 90		SBI 32, 45, 64, 90		SBN 32, 45, 64, 90	
			Standard		Standard		Standard	
			Europe	USA	Europe	USA	Europe	USA
36	Pump head	Cast Iron	EN-GJL-250	ASTM 35B				
		Stainless steel			1.4301	AISI 304	1.4401	AISI 316
53	Motor Bracket	Cast Iron	EN-GJL-250	ASTM 35B	EN-GJL-250	ASTM 35B	EN-GJL-250	ASTM 35B
18	Impeller	Stainless steel	1.4301	AISI 304	1.4301	AISI 304	1.4401	AISI 316
37	Shaft	Stainless steel	1.4057	AISI 431	1.4057	AISI 431	1.4401	AISI 316
48	Outer Sleeve	Stainless steel	1.4301	AISI 304	1.4301	AISI 304	1.4401	AISI 316
82	O-ring for outer sleeve	EPDM						
12	Chamber	Stainless steel	1.4301	AISI 304	1.4301	AISI 304	1.4401	AISI 316
24	Neck ring	Carbon Fiber + POB + PTFE						
59	Base	Cast Iron	EN-GJL-250	ASTM 35B	N/A			
	Base	Stainless steel	N/A		1.4301	AISI 304	1.4401	AISI 316
62	Base plate	Cast Iron	N/A		EN-GJL-250	ASTM 35B	EN-GJL-250	ASTM 35B
57	Mechanical seal	Cartridge type						
14	Bearing ring		Bronze				POB+Graphite+PTFE	
42	Bottom bearing ring	Tungsten carbide/ Tungsten carbide						

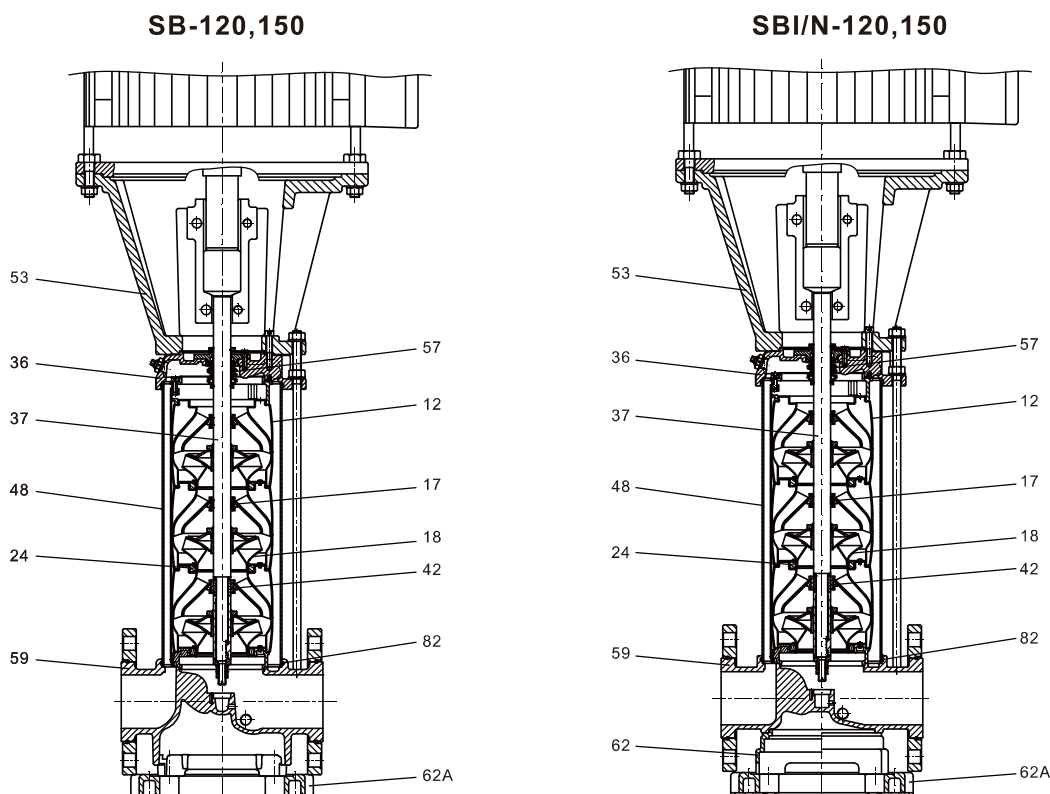
# Contents

Vertical Multistage Centrifugal In-line Pumps



STAIRS PUMPS

## Construction



## CONSTRUCTION

Pos.	Name	Material	SB 120, 150		SBI 120, 150		SBN 120, 150	
			Standard		Standard		Standard	
			Europe	USA	Europe	USA	Europe	USA
36	Pump head	Cast Iron	EN-GJL-250	ASTM 35B	N/A			
		Stainless steel	N/A		1.4301	AISI 304	1.4401	AISI 316
53	Motor bracket (15HP~60HP)	Cast Iron	EN-GJL-250	ASTM 35B	EN-GJL-250	ASTM 35B	EN-GJL-250	ASTM 35B
	Motor bracket (75HP~100HP)	Cast Iron	EN-GJS-450-10	ASTM 65-45-12	EN-GJS-450-10	ASTM 65-45-12	EN-GJS-450-10	ASTM 65-45-12
17	bearing ring	PTFE						
18	Impeller	Stainless steel	1.4301	AISI 304	1.4301	AISI 304	1.4401	AISI 316
37	Shaft	Stainless steel	1.4057	AISI 431	1.4057	AISI 431	1.4401	AISI 316
48	Outer sleeve	Stainless steel	1.4301	AISI 304	1.4301	AISI 304	1.4401	AISI 316
82	O-ring for outer sleeve	EPDM						
12	Chamber	Stainless steel	1.4301	AISI 304	1.4301	AISI 304	1.4401	AISI 316
24	Neck ring	PTFE						
59	Base	Cast Iron	EN-GJL-250	ASTM 35B	N/A			
		Stainless steel	N/A		1.4301	AISI 304	1.4401	AISI 316
62	Base plate	Cast Iron	N/A		EN-GJS-450-10	ASTM 65-45-12	EN-GJS-450-10	ASTM 65-45-12
62A	Base plate	Cast Iron	EN-GJS-450-10	ASTM 65-45-12	EN-GJS-450-10	ASTM 65-45-12	EN-GJS-450-10	ASTM 65-45-12
57	Mechanical seal	Cartridge type						
42	Bottom bearing ring	SiC / SiC						

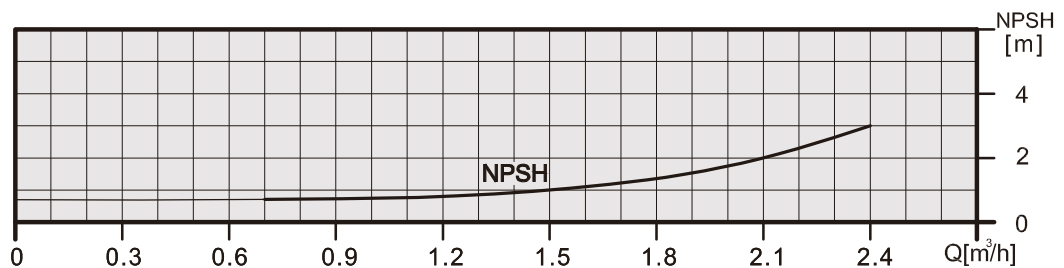
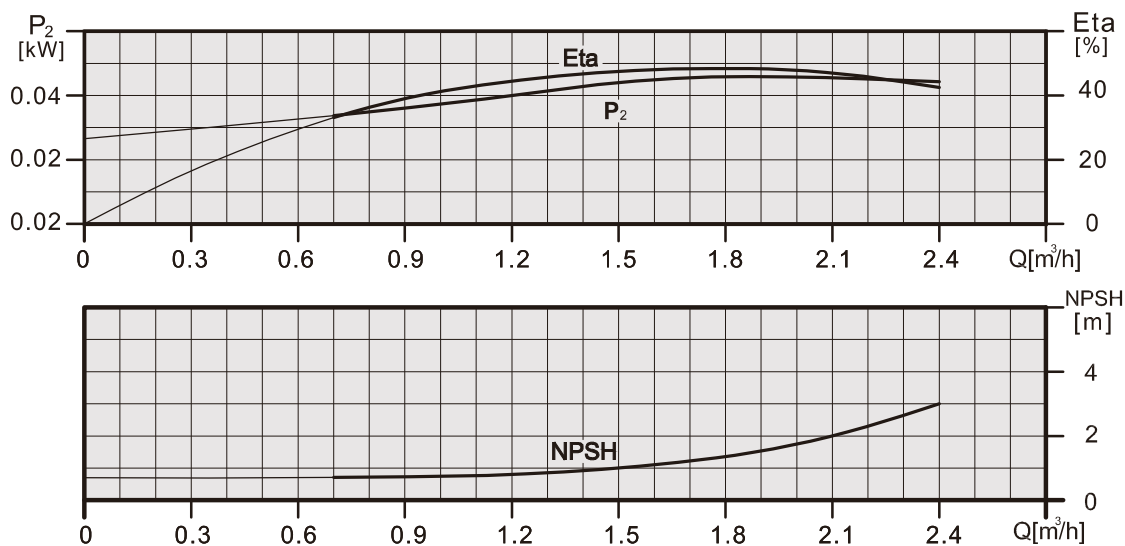
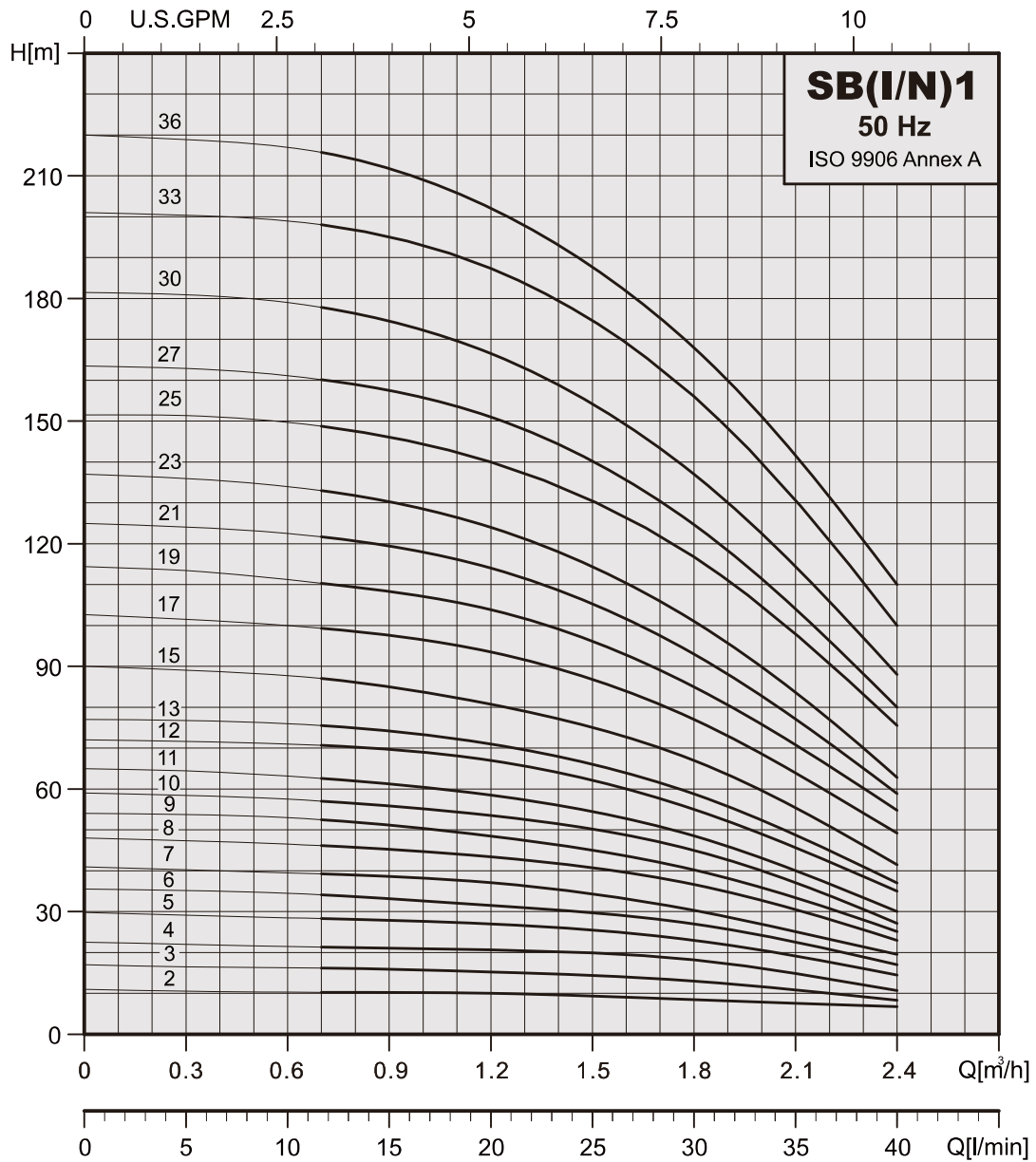
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Vertical Multistage Centrifugal In-line Pumps

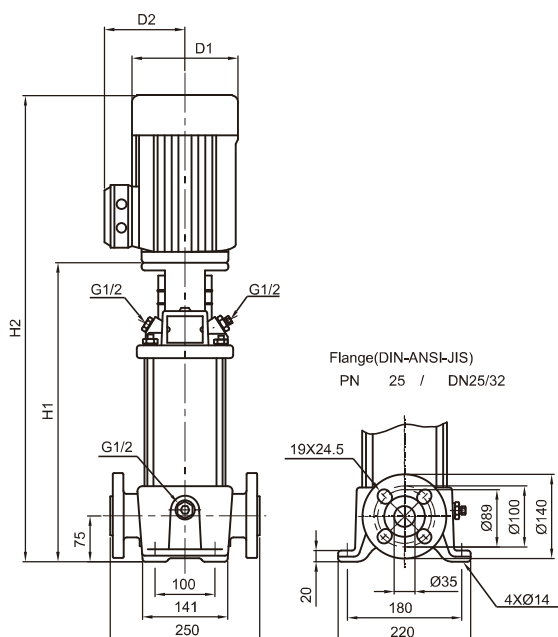


STAIRS PUMPS

## SB, SBI, SBN 1

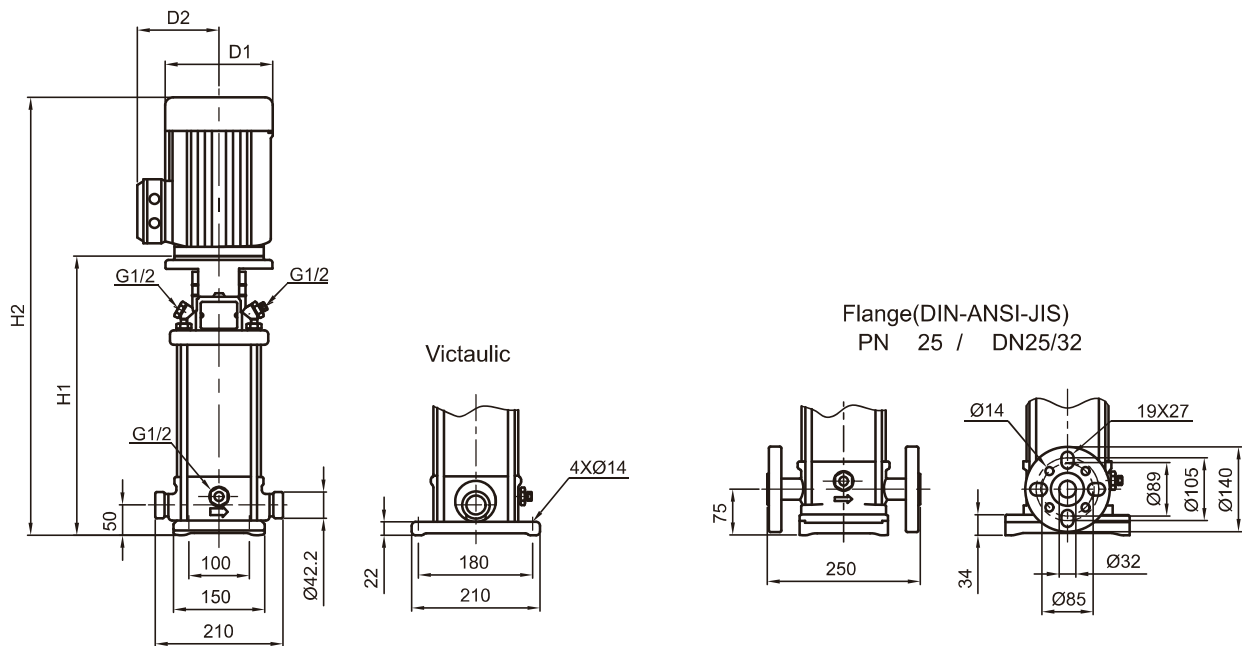


## Dimensions and weights – SB 1



Pump type	Motor	SB				
		Dimension[mm]				Net weight [kg]
	P <sub>2</sub>	DIN flange		D1	D2	
	[kW]	H1	H2			
SB1-2	0.37	279	474	141	115	23.4
SB1-3	0.37	279	474	141	115	23.4
SB1-4	0.37	297	492	141	115	23.8
SB1-5	0.37	315	510	141	115	24.2
SB1-6	0.37	333	528	141	115	24.5
SB1-7	0.37	351	546	141	115	24.9
SB1-8	0.55	369	564	141	115	25.8
SB1-9	0.55	387	582	141	115	26.1
SB1-10	0.55	405	600	141	115	26.5
SB1-11	0.55	423	618	141	115	26.9
SB1-12	0.75	447	682	141	115	29.4
SB1-13	0.75	465	700	141	115	29.8
SB1-15	0.75	501	736	141	115	30.5
SB1-17	1.1	537	772	141	115	32.3
SB1-19	1.1	573	808	141	115	33.1
SB1-21	1.1	609	844	141	115	33.8
SB1-23	1.1	645	880	141	115	34.6
SB1-25	1.5	697	988	177	141	44.0
SB1-27	1.5	733	1024	177	141	44.8
SB1-30	1.5	787	1078	177	141	45.9
SB1-33	2.2	841	1132	177	141	49.9
SB1-36	2.2	895	1186	177	141	51.0

## Dimensions and weights – SBI, SBN 1



Pump type	Motor	SBI , SBN							
		Dimension [mm]						Net weight [kg]	
	P <sub>2</sub>	Victaulic		DIN flange		D1	D2	Victaulic	DIN flange
		H1	H2	H1	H2				
SBI,SBN1-2	0.37	257	452	282	477	141	115	19.3	20.2
SBI,SBN1-3	0.37	257	452	282	477	141	115	19.3	20.3
SBI,SBN1-4	0.37	275	470	300	495	141	115	19.7	20.6
SBI,SBN1-5	0.37	293	488	318	513	141	115	20.1	21.0
SBI,SBN1-6	0.37	311	506	336	531	141	115	20.4	21.4
SBI,SBN1-7	0.37	329	524	354	549	141	115	20.8	21.7
SBI,SBN1-8	0.55	347	542	372	567	141	115	21.7	22.6
SBI,SBN1-9	0.55	365	560	390	585	141	115	22.0	23.0
SBI,SBN1-10	0.55	383	578	408	603	141	115	22.4	23.3
SBI,SBN1-11	0.55	401	596	426	621	141	115	22.8	23.7
SBI,SBN1-12	0.75	425	660	450	685	141	115	25.2	26.1
SBI,SBN1-13	0.75	443	678	468	703	141	115	25.6	26.5
SBI,SBN1-15	0.75	479	714	504	739	141	115	26.3	27.2
SBI,SBN1-17	1.1	515	750	540	775	141	115	28.1	29.1
SBI,SBN1-19	1.1	551	786	576	811	141	115	28.8	29.8
SBI,SBN1-21	1.1	587	822	612	847	141	115	29.6	30.6
SBI,SBN1-23	1.1	623	858	648	883	141	115	30.4	31.3
SBI,SBN1-25	1.5	675	966	700	991	177	141	39.8	40.8
SBI,SBN1-27	1.5	711	1002	736	1027	177	141	40.6	41.5
SBI,SBN1-30	1.5	765	1056	790	1081	177	141	41.7	42.6
SBI,SBN1-33	2.2	819	1110	844	1135	177	141	45.6	46.6
SBI,SBN1-36	2.2	873	1164	898	1189	177	141	46.7	47.7