



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

**Vertical Multistage Centrifugal
In-line Pumps**

60Hz



STAIRS INDUSTRIAL CO., LTD.

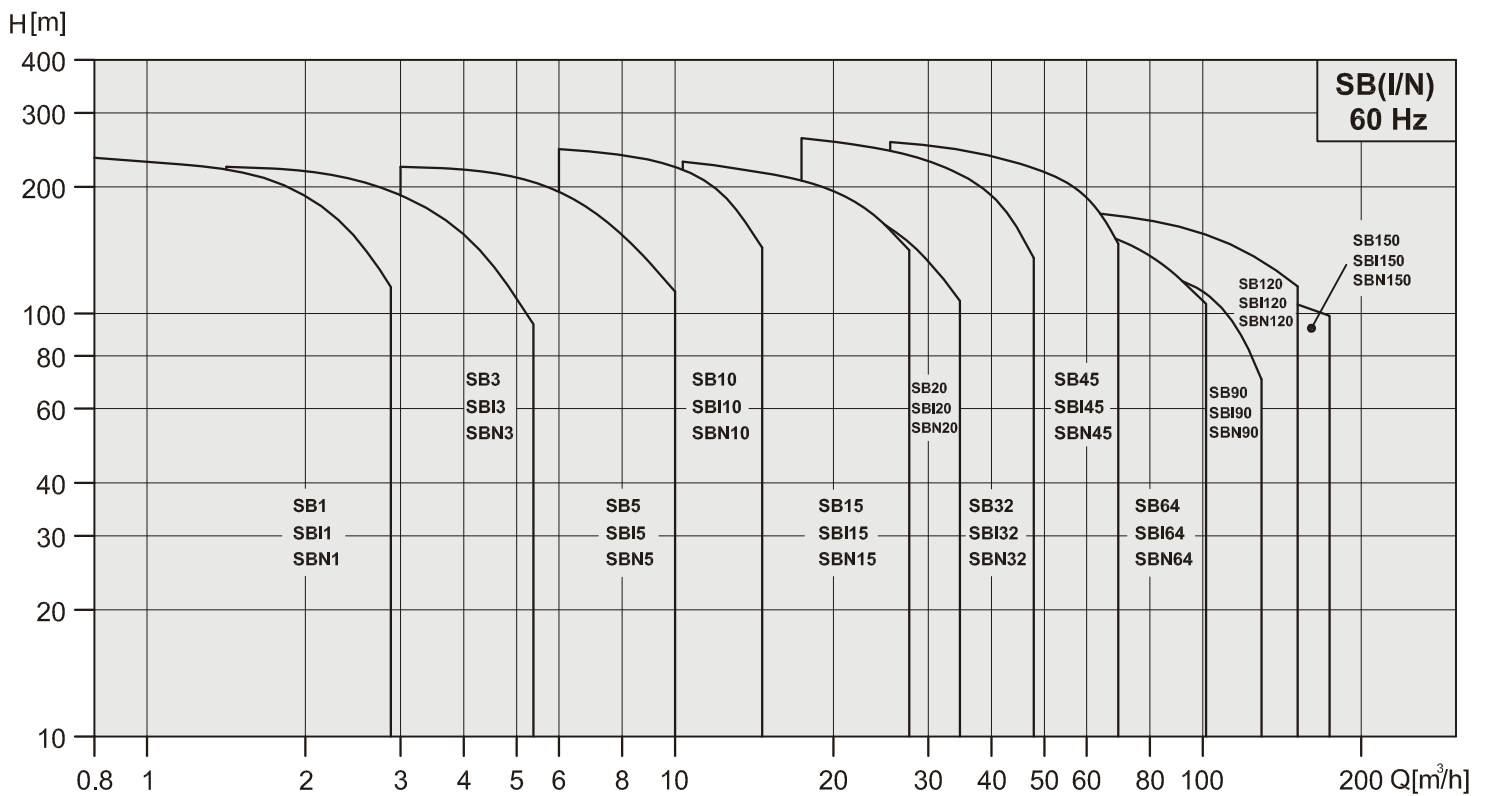
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Vertical Multistage Centrifugal In-line Pumps



STAIRS PUMPS

SB, SBI, SBN Series Performance range 60 Hz



Contents

Vertical Multistage Centrifugal In-line Pumps



STAIRS PUMPS

Product data

Range	SB, SBI, SBN					
	1	3	5	10	15	20
60Hz						
Nominal flow [m ³ /h]	1.2	3.6	6	12	18	24
Flow range [m ³ /h]	0.8-2.9	1.5-5.4	3-10	6-15.5	10.5-28	12.5-35
Max. pressure [bar]	23.5	23.3	23	24.5	23.5	20.5
Fluid temperature [°C]	-15 to +120					
Motor power [kW]	0.37-3.0	0.37-4.0	0.55-7.5	0.75-11	1.5-18.5	2.2-18.5
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 3~ [V/Hz] (Permissible voltage tolerance ± 10%)	0.37-1.1 kW 220-255/380-440 V 60 Hz 1.5-7.5 kW 220-277/380-480 V 60 Hz From 11 kW 220/380/440 V 60 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 1 ¹ / ₄ DN 32	R 1 ¹ / ₄ DN 32	R 1 ¹ / ₄ DN 32	R 2 DN50	R 2 DN50	R 2 DN50
Mechanical Seals						
SiC/SiC	Standard					
Seals						
EPDM	Standard					
Viton						

* Flange standards : Refer to dimensional drawings

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Vertical Multistage Centrifugal In-line Pumps



STAIRS PUMPS

Product data

Range	SB, SBI, SBN					
	32	45	64	90	120	150
60Hz						
Nominal flow [m ³ /h]	38	54	77	108	140	180
Flow range [m ³ /h]	18-48	26-70	36-102	54-146	60-160	75-180
Max. pressure [bar]	27	26	17.8	15.9	18.5	15.3
Fluid temperature [°C]	-15 to +120					
Motor power [kW]	2.2-30	5.5-45	7.5-45	11-45	18.5-75	18.5-75
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 3 [~] [V/Hz] (Permissible voltage tolerance ± 10%)	0.37-1.1 kW 220-255/380-440 V 60 Hz 1.5-7.5 kW 220-277/380-480 V 60 Hz From 11 kW 220/380/440 V 60 Hz					
Insulation class	F					
Enclosure class	IP 55					
Ambient temperature	50°C					
SB Pipe Connection						
Flange	DN 65	DN80	DN100	DN100	DN125	DN125
SBI, SBN Pipe Connection						
Flange	DN 65	DN80	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					
Viton						

* Flange standards : Refer to dimensional drawings

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Vertical Multistage Centrifugal In-line Pumps



STAIRS PUMPS

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

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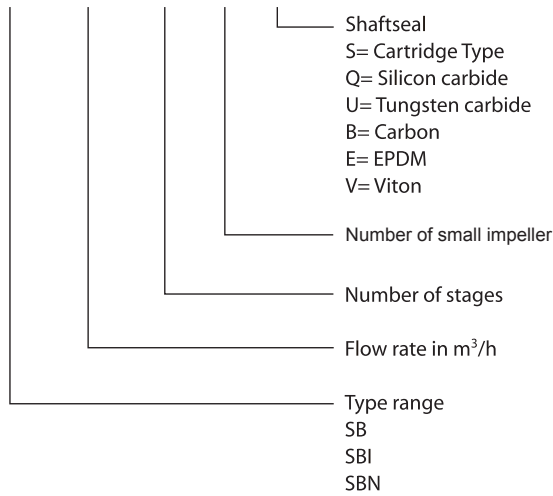
Vertical Multistage Centrifugal In-line Pumps



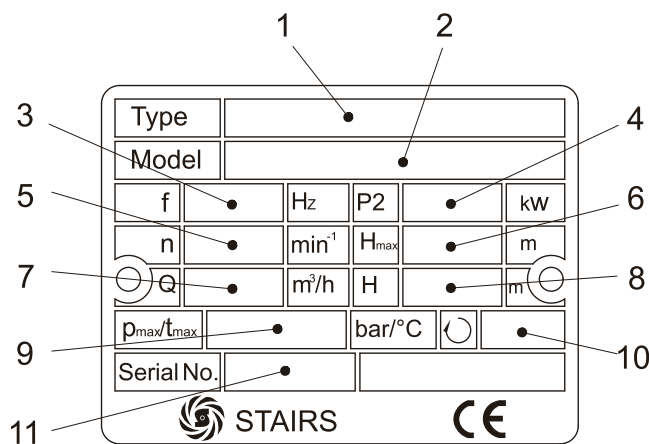
STAIRS PUMPS

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: 0.37-1.1 kW 3 x 220-255/380-440 V
 P2: 1.5-7.5 kW 3 x 220-277/380-480 V
 P2: From 11 kW 3 x 220/380/440 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	3-255V	3-380V	3-440V	
0.5	0.37	2	B14	71A	1.7	1.7	1.0	1.0	
0.75	0.55			71B	2.4	2.4	1.4	1.4	
1.0	0.75			80A	3.1	3.1	1.8	1.8	
1.5	1.1			80B	4.5	4.2	2.6	2.4	
						3-220V	3-277V	3-380V	3-480V
2.0	1.5			90S	5.7	5.4	3.3	3.1	
3.0	2.2			90L	8.7	9.7	5.0	5.6	
4.0	3.0			100L	11.2	10.5	6.5	6.1	
5.5	4.0			112M	14.2	13.0	8.2	7.5	
7.5	5.5			132S	18.5	15.8	10.7	9.1	
10	7.5		B5	132S	24.7	21.6	14.3	12.5	
15	11			160L	37.6	32.5	21.7	18.8	
20	15			160L	52.1	51.4	30.1	29.7	
						3-380V	3-480V	3-660V	3-830V
4.0	3.0		B14	100L	6.5	6.1	3.8	3.5	
5.5	4.0			112M	8.4	7.2	4.8	4.2	
7.5	5.5		B5	132S	10.7	9.4	6.2	5.4	
10	7.5			132S	14.4	12.8	8.3	7.4	
15	11			160L	22.8	25.0	13.2	14.4	
20	15			160L	29.8	28.1	17.2	16.2	
					3-220V	3-380V	3-660V		
15	11	160M			36.0	20.8	12.0		
20	15	160M			49.0	28.4	16.3		
25	18.5	160L			59.9	34.7	20.0		
30	22	180M			71.3	41.3	23.8		
40	30	200L			96.5	55.8	32.2		
50	37	200L		118.1	68.4	39.4			
60	45	225M		142.7	82.6	47.6			
75	55	250M		174.4	101.0	58.1			
100	75	280S		236.3	136.8	78.8			

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
Mechanical Seals			
S: O-ring seal Cartridge type	●	●	
B: Rubber bellows seal Cartridge type			●
QQ	●	●	●
UU	Optional	Optional	
QB	Optional	Optional	
UB	Optional	Optional	
Seals			
E	●	●	●
V	Optional	Optional	Optional

Contents

Vertical Multistage Centrifugal In-line Pumps



STAIRS PUMPS

Maximum operating and inlet pressures

60Hz

Stages	Maximum Operating Pressure	Stages	Maximum Inlet Pressures
SB, SBI, SBN 1			
2-27	25bar	2-25	10bar
		27	15bar
SB, SBI, SBN 3			
2-25	25bar	2-15	10bar
		17-25	15bar
SB, SBI, SBN 5			
2-24	25bar	2-9	10bar
		10-24	15bar
SB, SBI, SBN 10			
1-10	16bar	1-5	8bar
12-17	25bar	6-17	10bar
SB, SBI, SBN 15			
1-8	16bar	1-2	8bar
9-12	25bar	3-12	10bar
SB, SBI, SBN 20			
1-7	16bar	1	8bar
8-10	25bar	2-10	10bar
SB, SBI, SBN 32			
(1-1)-5	16bar	(1-1)-(2)	4bar
(6-2)-(10-2)	30bar	(3-2)-(6)	10bar
	30bar	(7-2)-(10-2)	15bar
SB, SBI, SBN 45			
(1-1)-4	16bar	(1-1)-1	4bar
(5-2)-7	30bar	(2-2)-3	10bar
		(4-2)-7	15bar
SB, SBI, SBN 64			
(1-1)-3	16bar	(1-1)	4bar
(4-2)-(5-2)	30bar	1-(2-1)	10bar
		2-(5-2)	15bar
SB, SBI, SBN 90			
(1-1)-3	16 bar	(1-1) - (2-2)	10bar
(4-2)	30 bar	(2-1) - (4-2)	15bar
SB, SBI, SBN 120			
1-(5-2)	30 bar	1	10bar
		(2-2)-(3-1)	15bar
		3-(5-2)	20bar
SB, SBI, SBN 150			
(1-1)-(4-2)	30 bar	(1-1)	10bar
		1-2	15bar
		(3-2)-(4-2)	20bar

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

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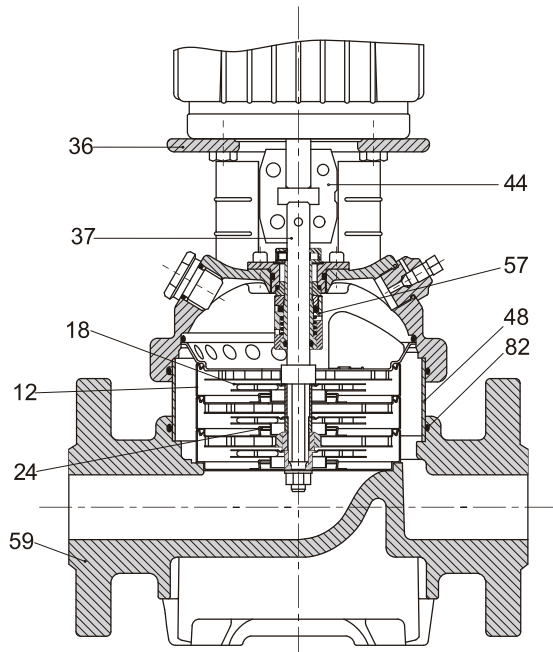
Vertical Multistage Centrifugal In-line Pumps



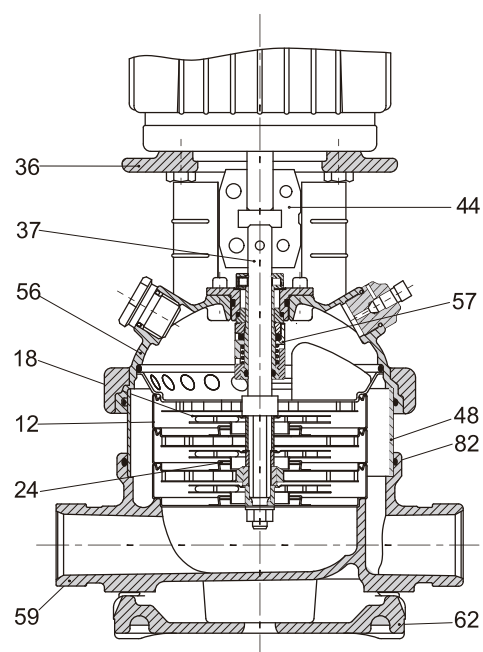
STAIRS PUMPS

Construction

SB-1,3,5,10,15,20



SBI(N)-1,3,5,10,15,20



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						

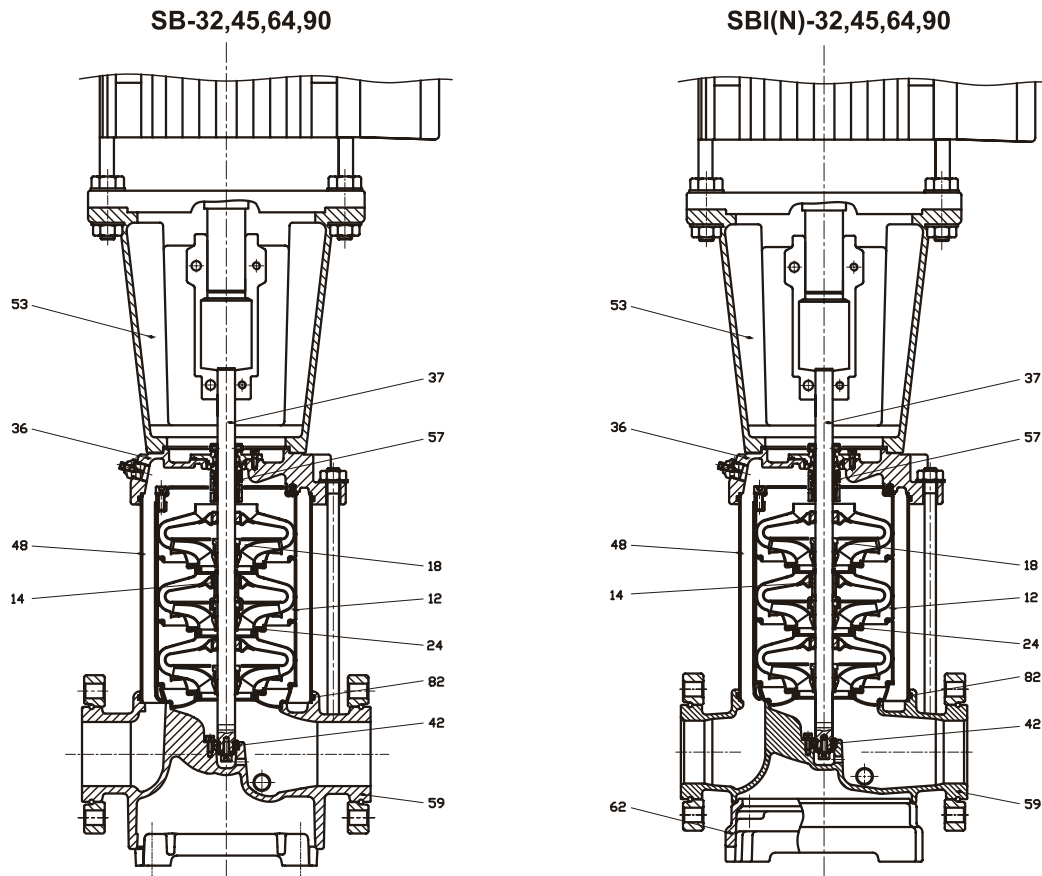
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Vertical Multistage Centrifugal In-line Pumps



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						

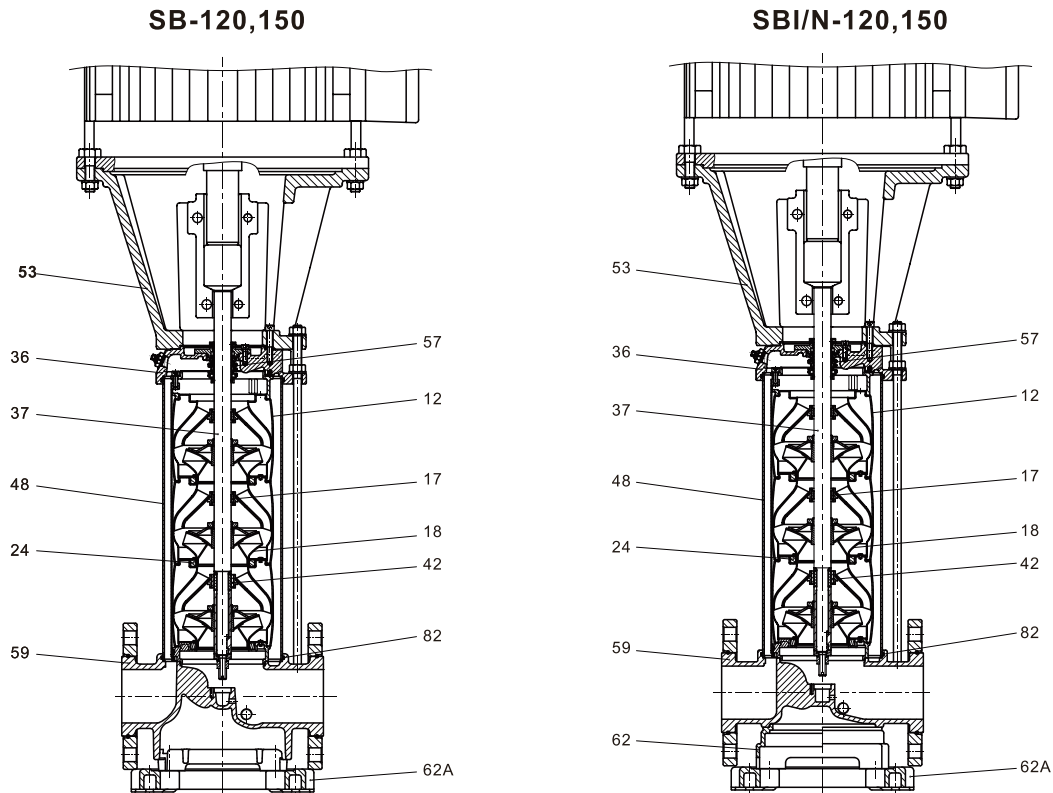
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Vertical Multistage Centrifugal In-line Pumps



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						

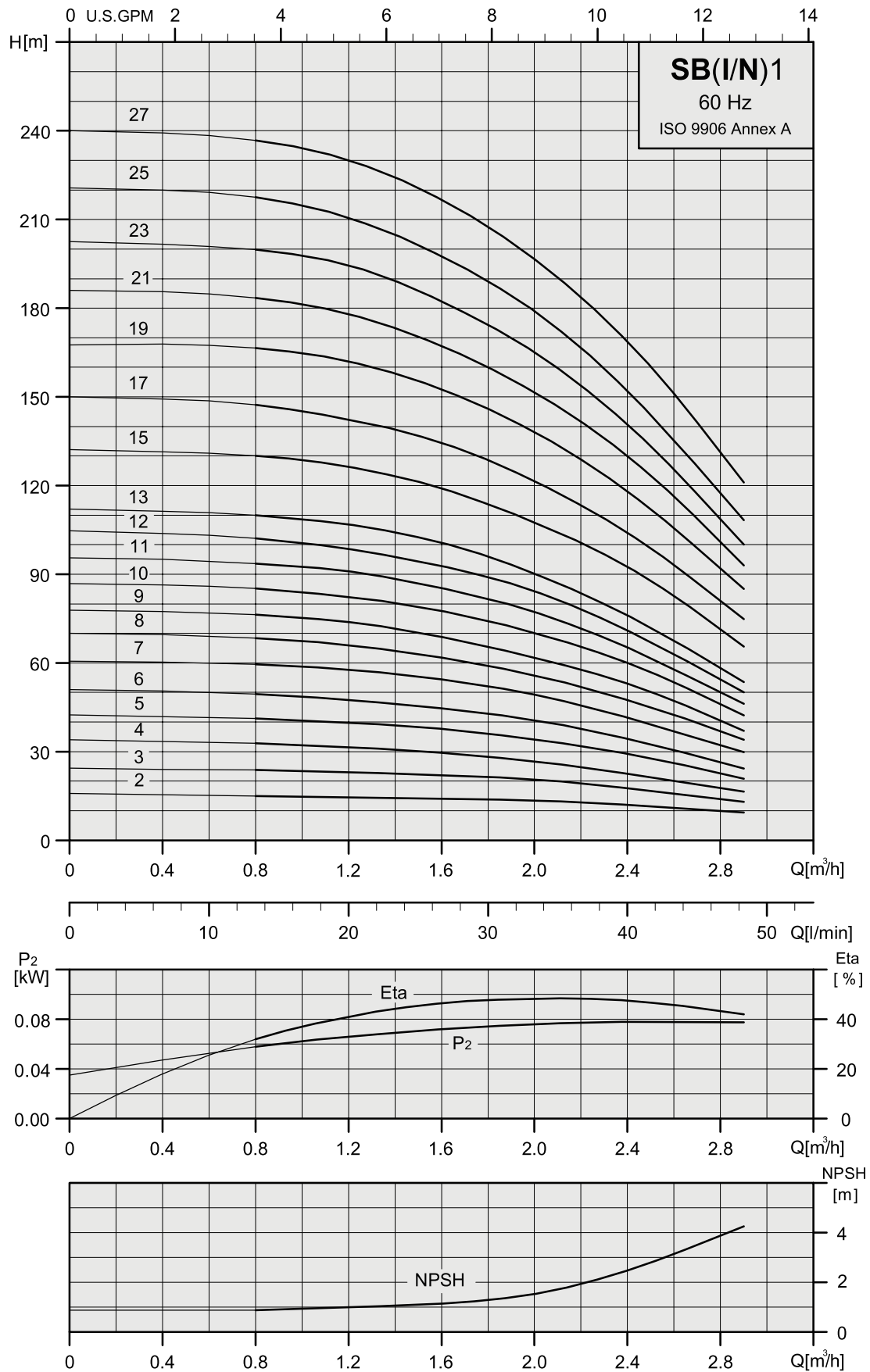
Technical data

Vertical Multistage Centrifugal In-line Pumps



STAIRS PUMPS

SB, SBI, SBN 1



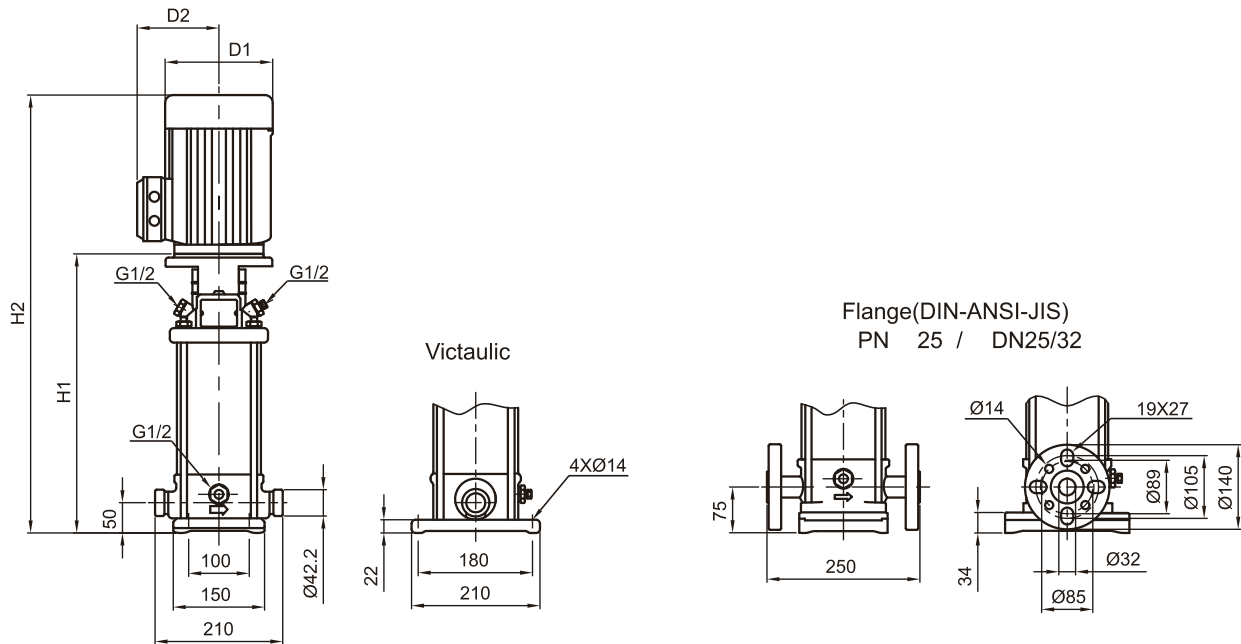
Technical data

Vertical Multistage Centrifugal In-line Pumps



STAIRS PUMPS

Dimensions and weights – SBI,SBN 1



Pump type	Motor	SBI , SBN								
		Dimension [mm]						Net weight [kg]		
		P ₂ [kW]	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	0.55	293	488	318	513	141	115	20.6	21.5	
SBI,SBN1-6	0.55	311	506	336	531	141	115	20.9	21.9	
SBI,SBN1-7	0.75	335	570	360	595	141	115	23.3	24.2	
SBI,SBN1-8	0.75	353	588	378	613	141	115	23.7	24.6	
SBI,SBN1-9	0.75	371	606	396	631	141	115	24.0	25.0	
SBI,SBN1-10	1.1	389	624	414	649	141	115	25.5	26.5	
SBI,SBN1-11	1.1	407	642	432	667	141	115	25.9	26.9	
SBI,SBN1-12	1.1	425	660	450	685	141	115	26.3	27.2	
SBI,SBN1-13	1.1	443	678	468	703	141	115	26.7	27.6	
SBI,SBN1-15	1.5	495	786	520	811	177	141	36.1	37.1	
SBI,SBN1-17	1.5	531	822	556	847	177	141	36.9	37.8	
SBI,SBN1-19	2.2	567	858	592	883	177	141	40.4	41.3	
SBI,SBN1-21	2.2	603	894	628	919	177	141	41.2	42.1	
SBI,SBN1-23	2.2	639	930	664	955	177	141	41.9	42.9	
SBI,SBN1-25	2.2	675	966	700	991	177	141	42.6	43.6	
SBI,SBN1-27	3	716	1032	741	1057	197	147	50.5	51.5	



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