

# Contents

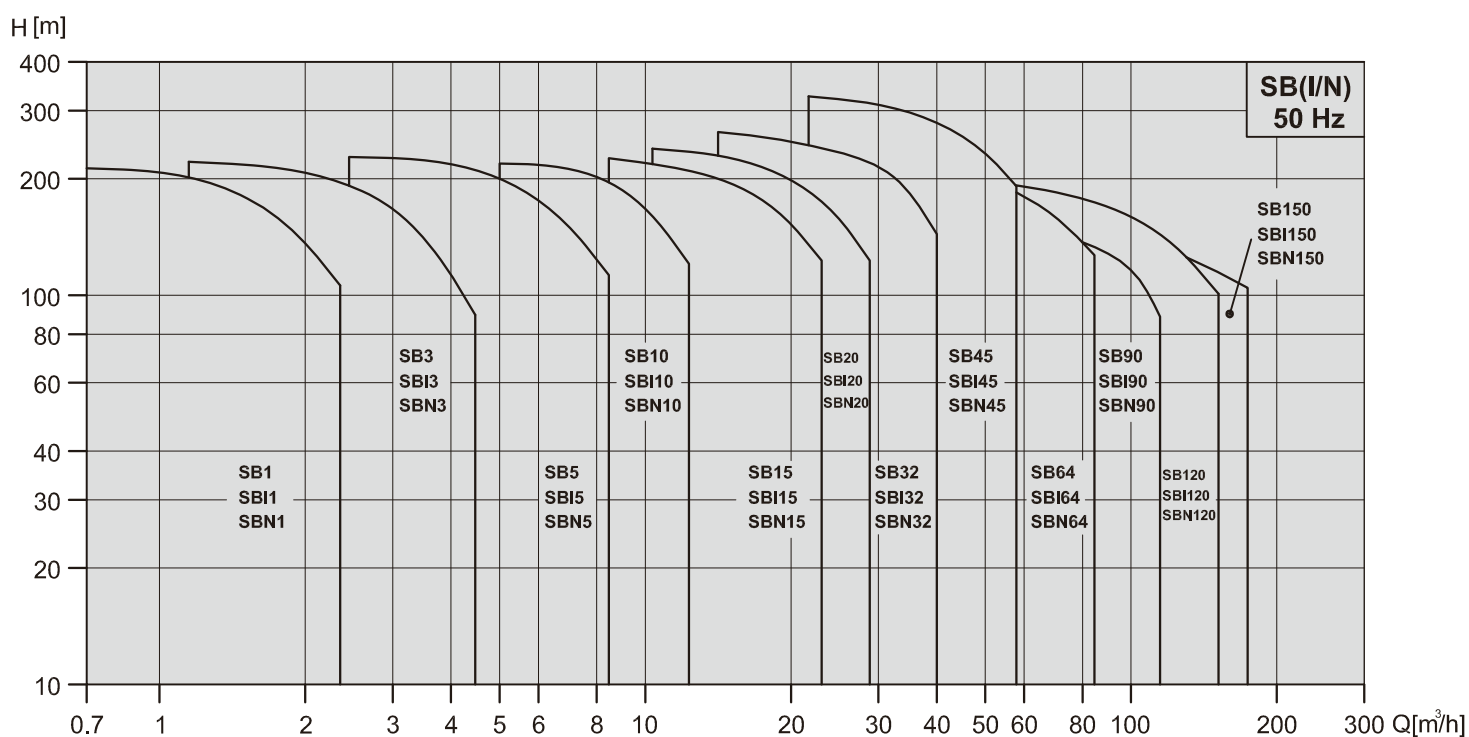
Vertical Multistage Centrifugal In-line Pumps



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:<br>Cast iron and<br>stainless steel EN 1.4301/AISI 304        | ●                                                                 | ●               | ●               | ●            | ●            | ●            |
| SBI:<br>Stainless steel EN 1.4301/AISI 304                        | ●                                                                 | ●               | ●               | ●            | ●            | ●            |
| SBN:<br>Stainless steel EN 1.4401/AISI 316                        | ●                                                                 | ●               | ●               | ●            | ●            | ●            |
| Motor                                                             |                                                                   |                 |                 |              |              |              |
| Mains connection 1〔V/Hz〕<br>(Permissible voltage tolerance ± 10%) | 220-240 V 50 Hz                                                   |                 |                 |              |              |              |
| Mains connection 3〔V/Hz〕<br>(Permissible voltage tolerance ± 10%) | 0.37-7.5 kW 220-240/380-415 V 50 Hz<br>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/<br>DN 32                                                   | DN 25/<br>DN 32 | DN 25/<br>DN 32 | DN 40        | DN 50        | DN 50        |
| SBI, SBN Pipe Connection                                          |                                                                   |                 |                 |              |              |              |
| Flange                                                            | DN 25/<br>DN 32                                                   | DN 25/<br>DN 32 | DN 25/<br>DN 32 | DN 40        | DN 50        | DN 50        |
| Victaulic-connections                                             | R 1¼<br>DN32                                                      | R 1¼<br>DN 32   | R1¼<br>DN 32    | R 2<br>DN 50 | R 2<br>DN 50 | R 2<br>DN 50 |
| Mechanical Seals                                                  |                                                                   |                 |                 |              |              |              |
| SiC/SiC                                                           | Standard                                                          |                 |                 |              |              |              |
| Seals                                                             |                                                                   |                 |                 |              |              |              |
| EPDM                                                              | Standard                                                          |                 |                 |              |              |              |
| Viton                                                             |                                                                   |                 |                 |              |              |              |

\* 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

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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<br>/32/45/64/90 | 120/150  |          |
|                                          |                                | 0.5-60HP | 75-100HP |
| <b>Mechanical Seals</b>                  |                                |          |          |
| S: O-ring seal<br>Cartridge type         | ●                              | ●        |          |
| B: Rubber bellows seal<br>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.

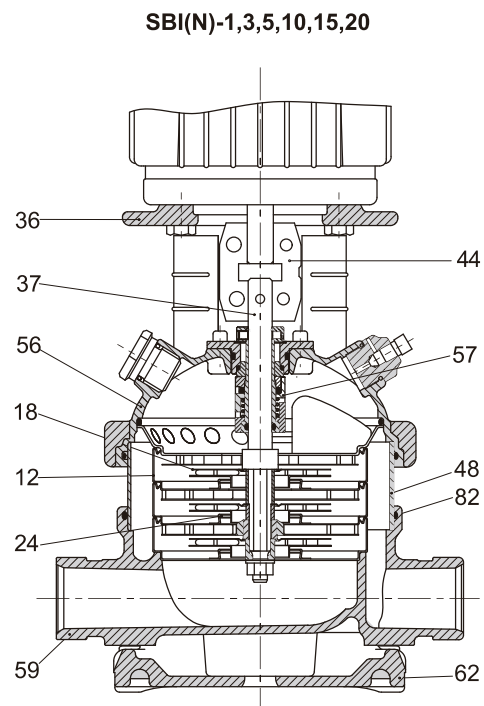
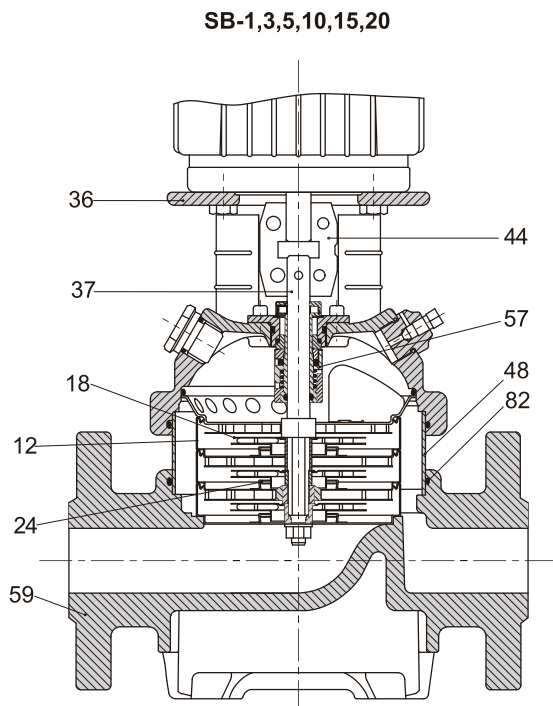
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Vertical Multistage Centrifugal In-line Pumps



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  |                   |             |                    |               |                    |               |