

ATO

Stainless Steel Centrifugal Pump

User Manual



I. Main Applications

Stainless steel sanitary pumps, centrifugal beverage pumps, also known as milk pumps and sanitary beverage pumps, are designed for transferring milk and other similar colloidal liquid food products. The maximum temperature of the pumped medium is 80°C. This pump is a single-suction, fully enclosed centrifugal pump.

This series of pumps is also suitable for transferring various liquid products, including wine, carbonated beverages, soy sauce, vinegar, vegetable oil, pharmaceutical liquids, chemicals, additives, dyes, textile liquids, papermaking materials, and other liquid media. It can also be used together with filtration equipment. All pump components are manufactured from high-quality 1Cr18Ni9Ti stainless steel. The pump body and motor are integrated into one unit. The pump adopts a mechanical seal structure and is equipped with a stainless steel protective cover. It features a simple structure, attractive appearance, compact size, corrosion resistance, convenient operation, no requirement for foundation installation, and easy mobility. During installation, the outlet pipe direction can be adjusted to any angle according to different requirements.

The pump is designed with smooth transition surfaces, a rigid structure, and thick-wall construction. All wetted parts, including the pump body, pump cover, impeller, and other components in contact with the medium, are manufactured from SUS316L or SUS304 stainless steel. The mechanical shaft seal is custom-made using high-quality graphite, silicon carbide, or hard alloy steel materials, significantly improving wear resistance and self-lubricating performance while extending service life. The motor adopts internationally recognized ABB motors, featuring IP55 protection, Class F insulation, and an energy-saving wide-voltage design.

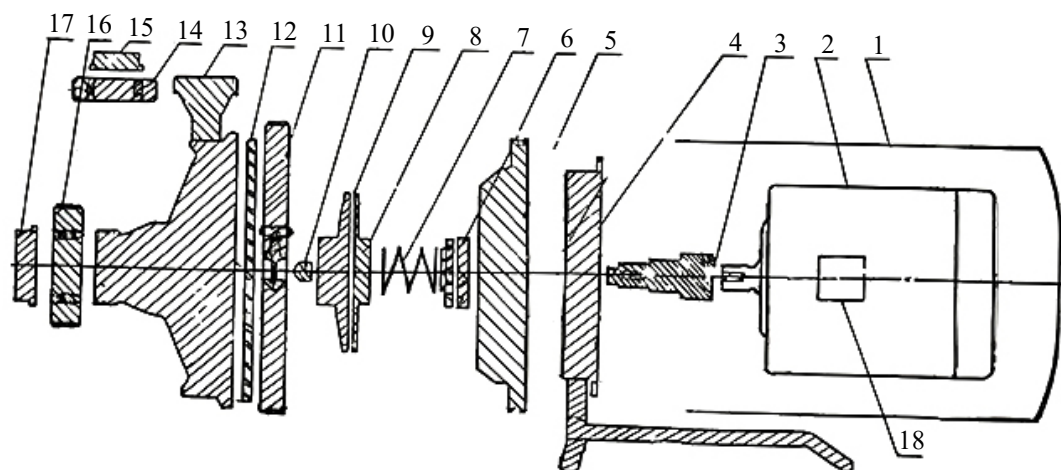
The BAW316L sanitary pump features easy maintenance with an open impeller design, and the components have excellent interchangeability. Only a small number of spare parts are required. A DIN 24960 LIK standard mechanical seal with the same dimensions can be used for all pump models. The entire pump can be cleaned in place without complete disassembly. If necessary, a large clamp can be installed, allowing the pump to be easily disassembled without any tools.

II. Main Technical Specifications

ATO BAW---120, 150, 165, 180 Sanitary Pumps: Also Known as (Beverage Pumps, Milk Pumps, Feed Pumps).

Model	Flow Rate (m ³ /h)	Head (m)	Impeller Diameter (mm)	Inlet/Outlet (mm)	Motor Power (kW)	Weight (kg)
BAW-90	1	12	90	25/25	0.37	25
BAW-120	3	18	120	40/32	0.75	31
BAW-150	5	24	150	50/40	1.5	42
BAW-150	10	24	150	50/40	2.2	45
BAW-150	10	36	150	50/40	3	47
BAW-150	15	36	150	65/50	3	50
BAW-165	20	36	165	65/50	4	55
BAW-170	30	36	170	80/65	5.5	60
BAW-180	40	36	180	80/65	7.5	65

III. BAW Series Stainless Steel Sanitary Pump Structure Diagram



1	Motor outer cover	2	Electric motor
3	Connecting shaft	4	Tripod
5	Inner pump casing	6	Mechanical seal
7	Spring	8	Inner impeller
9	Outer impeller	10	Screw cap

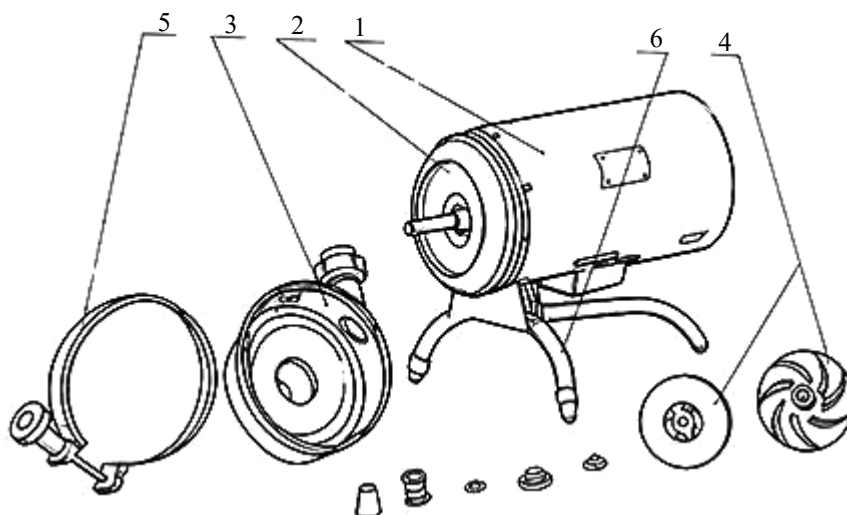
11	Pump head clamp	12	Rubber sealed loop
13	Outer pump head	14	Outlet nut
15	Outlet connector	16	Inlet nut
17	Import connector	18	Cable

IV. Structure and Operating Principle

The stainless steel sanitary pump and centrifugal beverage pump consist of the following main components: (1) motor, (2) pump casing (I), (3) pump casing (II), (4) impeller, (5) clamping ring, and (6) support feet.

The motor and pump casing (I) are connected by bolts and a bracket. The support feet can be moved freely without the need for fixed fastening. The pump casing (I) and pump casing (II) are matched together without permanent fixing, allowing the outlet pipe direction to be installed at any angle according to different requirements. The impeller is manufactured from 316L stainless steel. Its design prevents bacterial accumulation and allows convenient disassembly and cleaning.

The rotating components include a 3Cr13 stainless steel connecting shaft installed on the fully enclosed motor shaft. A mechanical seal structure consisting of stainless steel springs, rubber gaskets, and carbon graphite components is used to prevent liquid leakage.



1	Motor	2	Pump Casing (I)
3	Pump Casing (II)	4	Impeller
5	Clamping Ring	6	Support Frame

V. Operation and Maintenance

The stainless steel sanitary pump and centrifugal beverage pump can have the outlet connection adjusted to any angle according to different requirements. Before operation, check whether the rotation direction of the shaft is correct, whether the inlet and outlet pipe connection nuts are properly tightened, and whether the sealing ring between the pump casings is correctly installed. Before use, the pump should be sterilized with steam to ensure food hygiene.

To avoid the need for pump priming when the installation position is higher than the suction liquid level, the pump installation position must be lower than the liquid surface. After operation, the pump chamber should be disassembled and cleaned immediately to prevent material adhesion and corrosion. During cleaning, hot water can be circulated through the pump first, then the pump should be disassembled. Use a brush to clean all parts that come into contact with the medium. After cleaning, reinstall all components in the correct sequence.

A small hole is provided on the pump casing flange. If liquid leaks from this hole, it indicates leakage at the shaft seal. Stop operation immediately and inspect the fit between the shaft and shaft hole as well as the mechanical seal assembly. If severe wear is found, replace the worn components. After grinding and proper adjustment, the pump can be put back into operation.

VI. Installation, Operation, and Precautions

First, connect the inlet port with a pipe and ensure there is no air leakage. Place the inlet pipe into the liquid tank and securely seal the lower connection. Then fill the pump with liquid through the outlet port. After the pump is completely filled, connect and tighten the outlet pipe. The pump can supply liquid when the motor starts running.

1. When connecting the power supply, pay attention to the motor rotation direction. The motor must rotate in the correct direction. Reverse rotation will prevent the pump from suctioning liquid.
2. Before operation, the inlet pipe and pump chamber must be completely filled with liquid before starting the pump. Otherwise, the pump will run under vacuum suction conditions and may fail to deliver the medium properly.
3. The suction inlet pipe should use rubber or plastic flexible hoses that cannot be easily flattened by the pump suction force. Hard pipes may be used for fixed installations.

For the inlet connection, first connect a short pipe to the union fitting using the expansion pipe method, then connect the appropriate rubber hose. The outlet connection should be installed in the same way. To achieve the required head performance, do not enlarge or reduce the pipe diameter inside the connection sleeve.