3.4 Drain pump

3.4.1 Drain pump basics

The BLDC (Brushless DC) 9-vane drain pump has variable speed and direction. The power control module controls pump speed and direction, detects end of draining and blocked rotor and corrects locked rotor conditions.

Fig. 15: Drain pump detail

1 Cable guide
2 Lock (latch)
3 Impeller
4 Seal

- The dishwasher won't run if the drain pump is disconnected or disabled.
- The drain pump is best accessed from the front, but can be accessed by pulling out the dishwasher and placing it on its back (except for zeolite dishwashers).

Resistances as follows:

- 1 – 2: 130 Ω (@ 68 ºF)
- 2 – 3: 130 Ω (@ 68 ºF)
- 3 – 1: 130 Ω (@ 68 ºF)

Ratings: 3-pole BLDC, 54 VAC, 55 Hz, 2500 – 3500 RPM, 0.15 - 0.25 A, 10 – 25 W, class F insulation, 9-vane impeller.

3.4.2 Drain pump operation

The impeller draws water from the sump and pumps it through the drain check valve into the drain hose.

While water is being pumped, the BLDC (Brushless DC) motor senses the pump status based on the current (amp) draw of the motor windings:

- No water (idle – not pumping)
- No pressure build-up (missing pump cover)
- Pump blockage
- Blocked or kinked drain hose

Drain pump diagnostics:

- If there is too little water in the sump, pumping is stopped.
- If there is no drain pump cover in the sump, water pressure cannot build up and the pump cannot pump. An error code is stored in memory.
- The motor senses if the pump is blocked. Using brief, intermittent bursts, the pump tries several times to loosen the blockage.
- If draining is disrupted by a blockage or kink in the drain hose, draining is stopped and an error code is stored in memory.

3.4.3 Solving installation issues

Often improper installations, not drain pump issues, cause dishwashers to not drain properly:

- Must have drain hoses with high loops (min. 33" high) or drains with air gaps.
- To avoid damaging drain hoses, place high loops inside cabinets near customer drain connections, not next to dishwasher tubs.
- Drain hoses are 92" long and can be up to 150" long (with [SGZ1010UC] / service # [00663105]) extension.
- Make sure drain hoses aren't too long.
- Make sure drain hoses aren't kinked.
- Make sure drain hoses are pointed toward customer drains and are supported by dishwasher base straps.

3.4.3.1 Cavitating

Cavitating can occur in pumps of all types when impellers spin faster from low inlet / outlet pressure, creating air pockets around impellers.

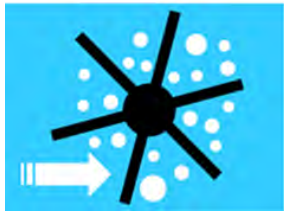

Fig. 16: Cavitating

Cavitating pumps can be noisy. Air gaps / high loops keep water contacting pump outlets, preventing air pockets from forming.