TECHNICAL BULLETIN

SEAWATER PLUMBING BEST PRACTICES

PRODUCT ALL SEAKEEPER MODELS

PURPOSE

This Technical Bulletin provides general installation guidance for the Seakeeper Cooling System to ensure adequate, on-demand flow. The on-demand nature of the Seakeeper cooling circuits should only receive seawater flow when the Seakeeper unit commands the seawater pump on through the Seakeeper harness. Unintended seawater flow from the seawater pick-up during the underway operation of the vessel is unacceptable and may cause stresses to internal components. Unintended flow should be mitigated through pump selection by using a diaphragm-style pump or an inlet ball valve. Continuous cooling flow from shared through-hull plumbing, a centralized chiller or cooling system is unacceptable for on-demand Seakeeper models.

BACKGROUND

Seakeeper models with on-demand cooling systems can be identified by a DC SW PUMP IN cable and a DC SW PUMP OUT cable on the Seakeeper wire harness, as seen in Figure 1. The on-demand cooling power supply does not use the AC motor drive supply as in earlier Seakeeper models. Current models (except the Seakeeper 26) use DC power, as seen in the Figure 2 schematic.

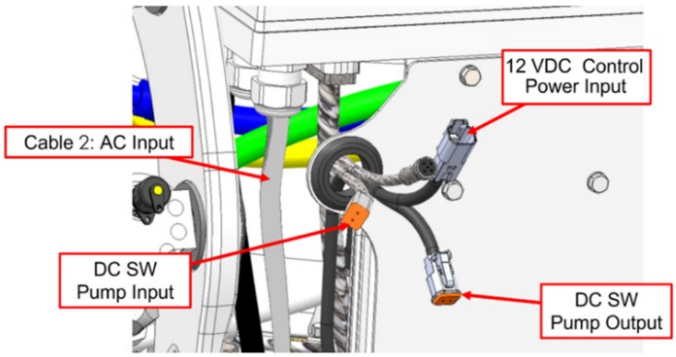

Figure 1: Power cables, including DC seawater pump power cables

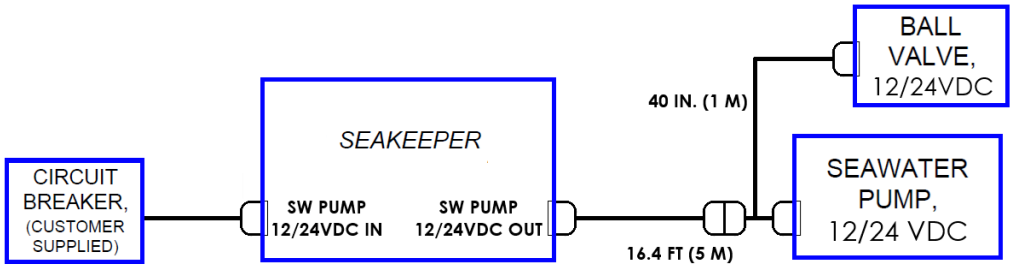

Figure 2: DC Seawater Pump power schematic with optional Y-cable and valve

REFERENCES

- **SWI-139 – Seakeeper Seawater Flow Verification**
- **TB-90969 – Seawater Valve Retrofit Installation**

SEAWATER REQUIREMENTS PER MODEL

Table 1: Ideal Seawater Flow Rates and Power Requirements				
Seakeeper Model	**Required Flow Rate (GPM/LPM)**	**Cooling Water Schematic Dwg #**	**Seawater Pump Power Supply (V, A)**	**Pump Power Cycle**
SEAKEEPER 1	2 – 4 / 7.6 – 15.1	90512	12 VDC, 15A max	On-Demand
SEAKEEPER 2	2 – 6 / 7.6 - 22.7	90490	12 VDC, 15A max	On-Demand
SEAKEEPER 3	2 – 6 / 7.6 - 22.7	90376	12 VDC, 15A max	On-Demand
SEAKEEPER 4/4.5	2.5 – 4 / 9.5 – 15.1	90802	12 VDC, 15A max	On-Demand
SEAKEEPER 5/6	2.5 – 5 / 9.5 – 19	90397	12 VDC, 15A max or 24 VDC, 10A max	On-Demand
SEAKEEPER 9	4 – 8 / 15.1 – 30.3	90251	24 VDC, 10A max	On-Demand
SEAKEEPER 10	4.5 – 6 / 17 – 22.7	90833	24 VDC, 10A max	On-Demand
SEAKEEPER 14	4.5 – 6 / 17 – 22.7	90865	24 VDC, 10A max	On-Demand
SEAKEEPER 18	4 – 8 / 15.1 – 30.3	90540	24 VDC, 10A max	On-Demand
SEAKEEPER 26	4 – 8 / 15.1 – 30.3	90320	220 VAC, 5A max	Continuous
SEAKEEPER 40	13 – 15 / 49 - 57	90711	24 VDC, 20A max	On-Demand

Pump selection and cooling system design must meet the following requirements:

- The heat exchanger's maximum system pressure is **20 psi**. Cooling systems, such as ones with high-speed pick-ups that generate excessive pressure underway, must have a means of controlling/limiting system pressure.
- Provide on-demand seawater control that is only activated when commanded by the Seakeeper. Constant seawater flow through a seawater pick-up when underway or from a centralized cooling system is unacceptable.
- Provide cooling flow within the range specified in Table 1 and Seakeeper model-specific Cooling Water Schematics under all running conditions. Verify seawater flow per SWI-139.
- Use a diaphragm-style pump or control valve with a centrifugal-style pump per TB-90969.
- For multiple Seakeeper installations, a dedicated seawater pump and/or control valve be installed per Seakeeper, so that proper cooling can be provided for each unit.

RECOMMENDATIONS

To ensure system longevity and optimal performance, Seakeeper strongly recommends one of the following solutions be implemented:

1. **Self-Sealing Diaphragm Pump**
   Use a **diaphragm-type seawater pump** that:
   - **Prevents backflow** or passive flow when the pump is off.
   - **Only permits flow** during pump operation.
   - This mechanical solution is ideal where electrical controls are limited.

2. **Ball Valve Control**
   Install a **normally closed ball valve** commonly used in centralized cooling systems or a centrifugal-style pump (See Figure 3):

   - Remains **shut when unpowered** (fail-safe).
   - Opens **only when the seawater pump is energized**.
   - [OPTIONAL] Can be manually opened for winterization.

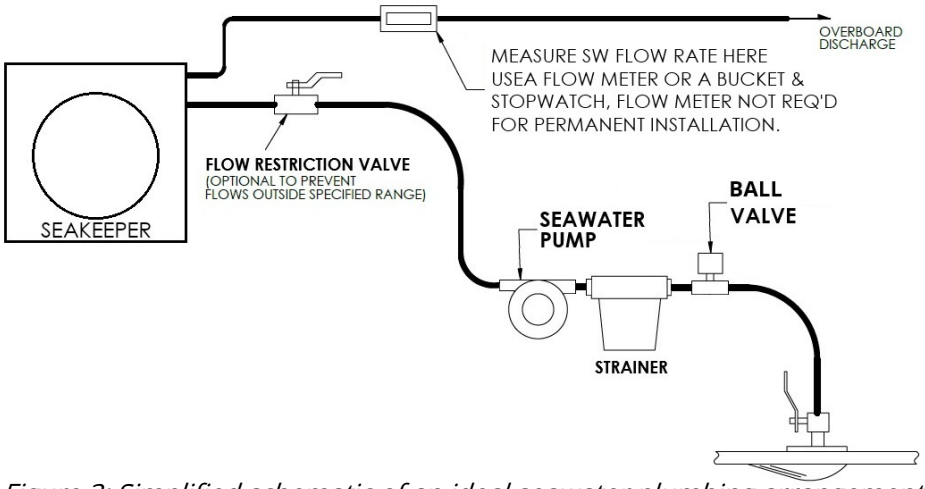

Figure 3: Simplified schematic of an ideal seawater plumbing arrangement

Seakeeper offers optional seawater pumps for all the on-demand cycle Seakeeper models:

- Seakeeper 1 / 2 / 3 / 4/ 4.5 / 6 / 9: P/N 30331 (P/N 90970 Y-cable and valve kit)
- Seakeeper 10 / 14 / 18: P/N 30322 (P/N 90971 Y-cable and valve kit)
- Seakeeper 40: P/N 30628 (pump and valve assembly)

IMPLEMENTATION AND SUPPORT

Installers should evaluate plumbing configurations to ensure they align with the above recommendations. Corrective action should be taken immediately if unintended seawater flow is possible when the system is idle. The Seakeeper Product Support Team is available to provide installation diagrams, recommended components, and guidance on system retrofits.

If you have any questions or require support, please contact the Seakeeper Product Support Team at **support@seakeeper.com** or **emeasupport@seakeeper.com**.