Hale Products, Inc. Service Bulletins

Bulletin#: 121 **Revision#:** A **Date:** 12-13-2012

Product Type Covered:

- [x] **Vehicle Mounted Pump**
- [ ] **Portable Pump**
- [ ] **Pump End**
- [ ] **Foam Proportioners**
- [ ] **Valve**
- [ ] **Refueler Pump**
- [ ] **CAFS**
- [ ] **Parts and/or Accessory**

Keywords: MG, MBP, AP, APS, RSD, DSD and CSD Suction Manifold, Anti-Pre-Rotation Vane

Product Covered:

Pump Intake Vane for compact end suction pumps

Problem Statement:

Pump intake plumbing can be critical to smooth and reliable operation. A vane to control the water in the pump intake plumbing can be a critical feature and is recommended on MG, MBP, AP, APS, APMG, RSD, DSD and CSD series pumps. These compact high performance pump models do not contain anti-pre-rotation vanes in the pump inlet. High impeller speeds and lower flows can lead to objectionable vibrations without the proper suction vane installation.

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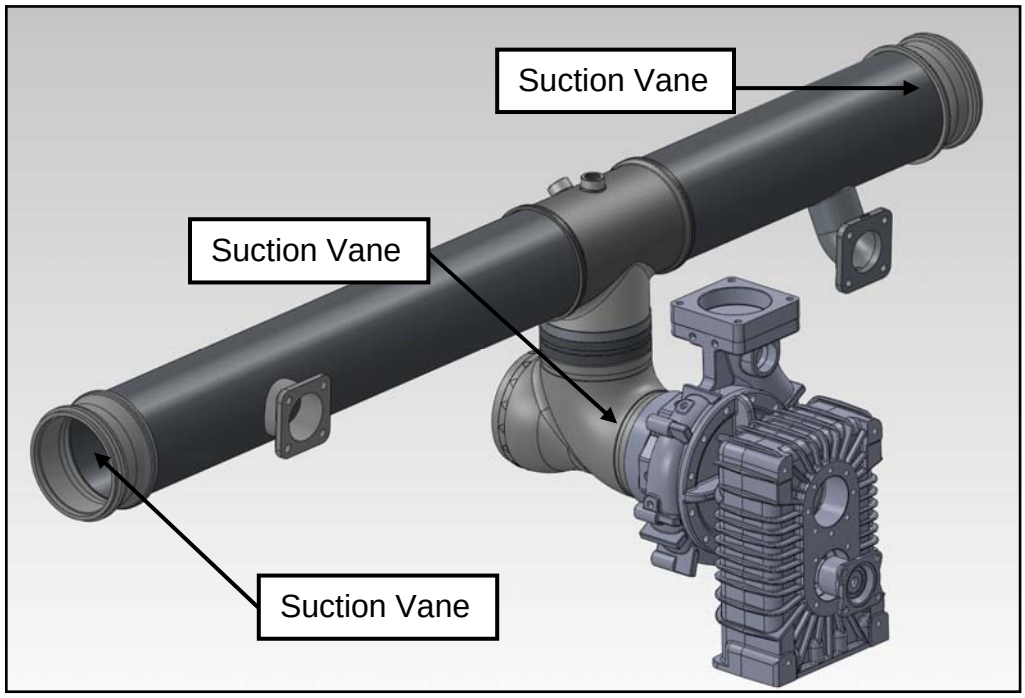
Body of the Bulletin

Recently the MG and MBP pumps have undergone a change to improve the performance of pumps rated at 1000 GPM NFPA. A pre-rotation inducer has been added to all 1000 GPM pump assemblies to improve the pump's lift capabilities and maximum flow, providing reserve performance requested by customers. OEMs should install anti-pre-rotation vanes in the pump suction plumbing for smooth and reliable operation of the pump. This document serves as guidance for this vane installation as well as vane installation for AP, APS, APMG, MBP, MG, RSD, DSD and CSD pumps.

Centrifugal pumps perform better with proper entrance conditions and adequate suction approach shapes to control pre-rotation at the eye of the impeller. Excessive pre-rotation that is present can be transmitted through the pump installation in the form of vibrations. Installation of straight suction vanes in the pump suction manifold can control pre-rotation, and drastically reduce or eliminate resulting vibrations.

For best results, up to three suction vanes should be installed, depending on the suction manifold design. The ideal locations for these vanes are at the NH/NST connections at the inlets of the suction manifold and in the manifold piping close to the pump inlet. Refer to the figure below for clarity on locating the suction vanes (pump shown is a Hale MBP).



The suction vanes should be made from nominal 1/8 inch thick stainless steel and welded in place inside the suction manifold. The vanes near the NH/NST connections should be 3.0-4.0 inches long and should be installed in a vertical position. The vane near the pump inlet should be 2.0-3.0 inches long and sized to fit inside the suction elbow leading to the pump inlet. This vane should be placed within one pipe diameter (6 inches for MBP) of the inducer/impeller. The vane height will vary depending on location and the pipe size used for the suction manifold.

To make pump installation easier, Hale Products offers a Rams Horn style suction manifold for RSD and DSD pumps. This manifold contains an optimized cast-in-place suction vane and smooth waterway transitions developed through extensive testing at Hale. Vanes do not normally need to be added when the suction rams horn option is utilized. Although typically used for 1500 GPM pump installations, this manifold can also be used for installations at lower rated flows to create a configuration similar to what is shown above. The Rams Horn manifold is shown in the figures below.