



Another Better-Product™ from ...

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The Better-Header™

The Better-Header is a disposable for the roller pump that consists of a pressure relief valve (PRV) connected across pump tubing. The PRV is a tubing with a thin wall section sealed in a rigid housing. The user pressurizes the housing to a desired set pressure (Pset) which compresses the thin section of tubing and creates a normally closed shunt. As long as pump outlet pressure (Po) remains below Pset, the PRV is closed. As pump outlet pressure approaches set pressure, the PRV opens, preventing overpressurization by shunting blood from the outlet to the inlet of the pump.

Advantages of the Better-Header™

1. It limits pump outlet pressure automatically to a safe level.
2. It allows the maximum pressure to be set by user.
3. It is simple to operate and easily primed.
4. It allows a self contained simple method for setting of pump occlusion at any time prior to initiating cardiopulmonary bypass.
5. It allows accurate setting of rollers nonocclusively which leads to reduced hemolysis, reduced spallation, prolonged tubing life, and reduced pump wear.

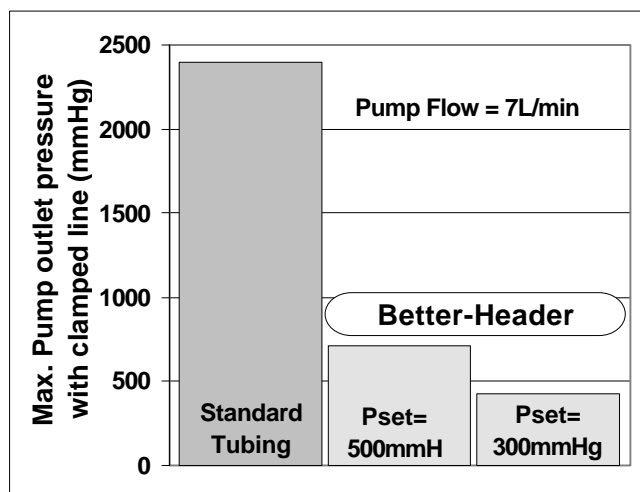
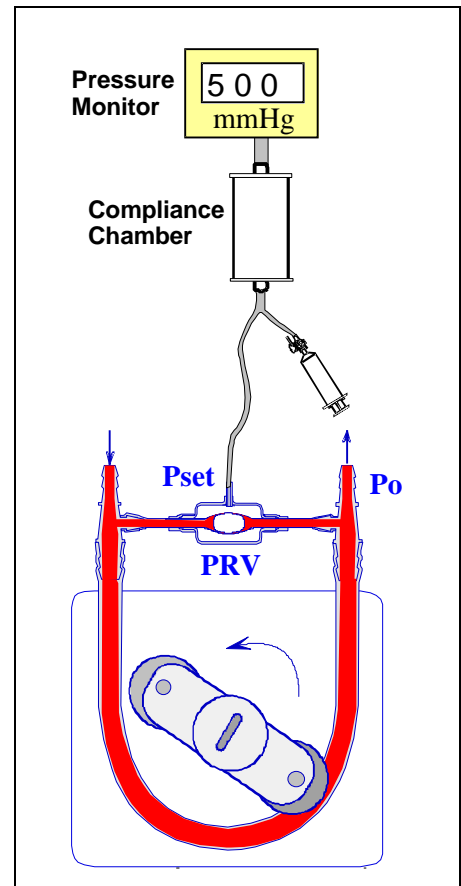
Better-Header™ vs. Centrifugal Pumps

- Both prevent overpressurization at pump outlet
- Better-Header uses standard roller pump - no special console required
- Better-Header eliminates dangerous retrograde flow
- Better-Header can be used to set pumps nonocclusively, resulting in hemolysis equal to or less than that of centrifugal pumps
- Better-Header is considerably less costly

The Better-Header™ Characteristics

Maximum Pump Outlet Pressure

Overpressurization at the pump outlet is a major concern with roller pumps. The Better-Header limits the maximum pump outlet pressure to safe levels. The figure on the right illustrates typical pump outlet pressures that can be reached due to accidental clamping of the arterial line with standard tubing and with the Better-Header at two housing set pressures (Pset = 300 and 500 mmHg).



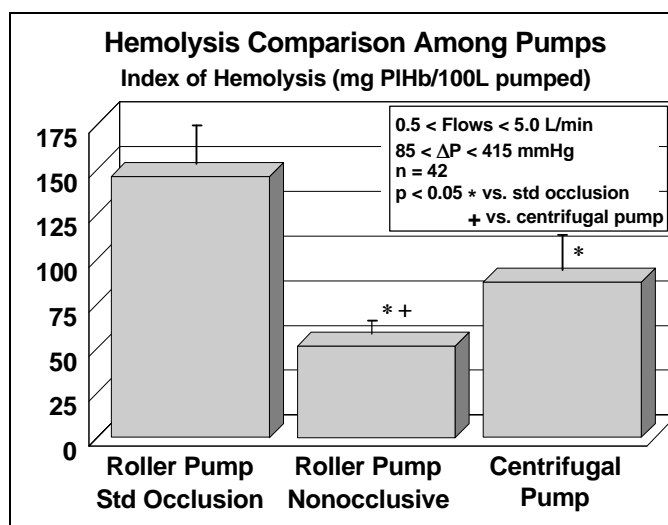
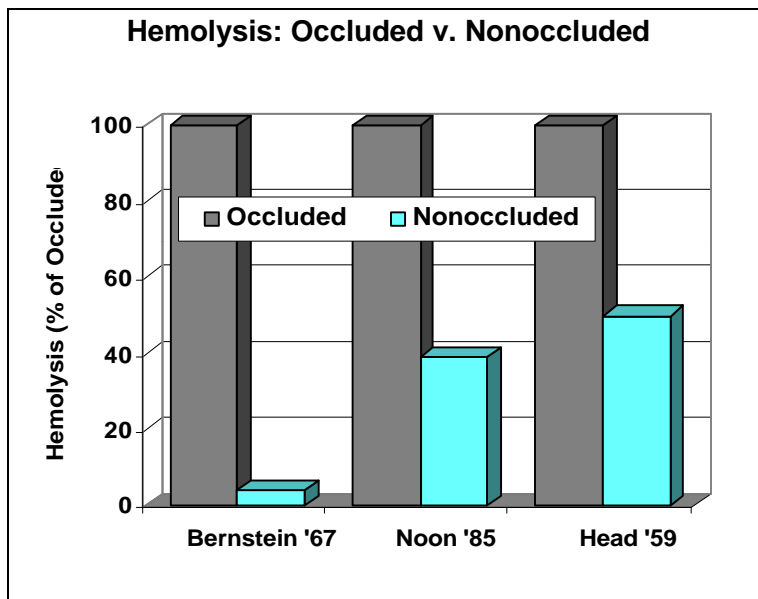
Hemolysis

Previous studies have shown that the BioMedicus pump is less hemolytic than the roller pump set almost occlusively^{1,2}. However, when very nonocclusive roller pumps were compared to roller pumps occluded in the standard manner³⁻⁷ (see top figure), the nonocclusively set roller pumps had significantly lower hemolysis. Test results with the BioMedicus centrifugal pump and with roller pumps using 1/4", 3/8" and 1/2" ID tubing, flows from 0.5 to over 5l/min, and pump outlet pressures from 85 to over 400mmHg are summarized in the bottom figure³. The data shows that the BioMedicus pump caused significantly less hemolysis than the standard occlusion roller pump, while the nonocclusive roller pump caused significantly less hemolysis than *both* the standard occlusion roller pump and the BioMedicus pump.

Though no studies have been conducted directly comparing a nonocclusive roller pump to the Delphin pump, one study has shown that the Delphin pump caused greater hemolysis than a roller pump set to the standard occlusion⁸. Another study has shown that the Delphin pump is, on the average, over 6 times more hemolytic than the BioMedicus pump at three different flows⁹. Therefore, it can be surmised that roller pumps set nonocclusively should be less hemolytic than both the Delphin or the BioMedicus centrifugal pumps.

The Next Step

Please consider this data and the supporting literature on how the Better-Header can provide some of the key benefits of centrifugal pumps at significantly lower cost. Should you need additional information, or have questions, please feel free to call. We would be more than happy to visit your facility to initiate clinical use of the Better-Header.



References

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