

Technical Bulletin

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Cancels: NA

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Subject: **ZERO HYSTERESIS QUICK RELEASE VALVE**

Bendix Commercial Vehicle Systems changed all QR-1, QR-N2, and QR-1C quick release valves having a maximum differential of 1 PSI (TMC I.D. QRV-010) to be zero hysteresis (TMC I.D. QRV-000). All valves having a differential greater than the 1 PSI maximum were not impacted by this change. This change was implemented on 10-15-97 as a product improvement for both service and park brake systems. Bendix and other industry groups recommend that the pressure at all axles of a combination be within 2 PSI for control line pressures of 10-40 PSI (Ref: BW-1555). This pressure balance promotes brake balance provided other factors such a brake type, friction formulation, tires, etc. are sized properly per the gross axle weight regulations (GAWR).

SAE J1859 defines hysteresis as the difference in the increasing and decreasing input pressure for a given output (delivery) pressure. Conventional quick release valves with hysteresis can have a differential (difference between inlet and outlet pressure) as high as 20 PSI on release. The zero hysteresis enables the output pressure to be equal for both increasing and decreasing pressures. This improves the pneumatic brake balance on release and enables the recommendations for pneumatic brake balance to be met.

The quick release valves manufactured by Bendix are flow sensitive devices that require a certain flow rate to provide quick exhausting of air pressure. Because of the nature of its operation, line sizes and delivery volume are critical to rapid exhausting of the delivery pressure.

Bendix recommends 3/8" tubing (outside diameter) minimum for Supply, Balance and Delivery lines for these Quick Release Valves. If smaller line sizes are to be used, or if the venting of supply pressure is restricted by other components, BCVS recommends that the zero hysteresis type quick release valves **not be used** to ensure proper quick release function.

Bendix has released the following quick release valve part numbers with a 1 PSI maximum differential for use with smaller line sizes and unique application. These are **not** zero hysteresis quick release valves.

Part Number	Model	Port Size (NPT)			
		Supply	Delivery	Balance	Exhaust
5009069	QR-1C	3/8	3/8	1/4	--
5008064	QR-1C	1/4	3/8	1/4	--
5009070	QR-1C	1/4	1/4	1/4	--
5009071	QR-1	3/8	1/4	--	--
5009009	QR-1	3/8	3/8	--	3/8
5009073	QRN-2	3/8	3/8	--	--

