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Conoflow

## **Technical Bulletin HPNGV-9**

### **ITT Conoflow HPNGV Series NGV Fuel Pressure Regulator**

#### **Coolant and Flow Considerations**

The expansion of high pressure CNG to low pressure natural gas creates a significant temperature drop. To prevent moisture from freezing inside the regulator and creating a blockage, heated engine coolant must be circulated within the regulator. The regulator is equipped with a coolant circulation bowl (coolant bowl) for this purpose.

Engine coolant must be maintained for at least  $-40^{\circ}\text{C}$  antifreeze protection. If the engine coolant were to freeze in the regulator, for any reason, the coolant containment integrity may be compromised. This compromise could permit the engine coolant to leak from the coolant bowl at the body, and/or the central bolt joint.

Engine coolant must be circulated through the regulator any time natural gas is flowing through the regulator. As the gas expands it cools the materials of the regulator, and can potentially cause temporary or permanent, internal seal leakage if the regulator is not warmed to at least  $-40^{\circ}\text{C}$ .

Furthermore, cold, stagnant coolant in the regulator can allow condensation to collect on the regulator, reducing corrosion resistance time of components and fasteners.

For most vehicles, a coolant flow through the regulator of at least 1 liter per minute at engine idle, and 3 liters per minute at normal driving power, is sufficient to prevent problems associated with chilling or coolant stagnation. Larger vehicles may require greater flows of engine coolant, as their engine gas demands are greater.