Appendix C – Heavy-Duty Hydrogen Vehicle Fueling Accuracy Class

Heavy-Duty Hydrogen Vehicle Fueling Accuracy Class (Table T.2)

Proposed Parameters

- Flow Rate: 12–30 kg/min
- Minimum Measured Quantity (MMQ): 3.0 kg
- Accuracy Class: 7.0
- Acceptance Tolerance: 5.0%
- Maintenance Tolerance: 7.0%

Technical Assessment

This combination is technically defensible provided the tolerances apply only to deliveries at or above the 3 kg MMQ.

Tolerance at Representative Deliveries

Dispensed Mass	Acceptance (5.0%)	Maintenance (7.0%)
3 kg	0.15 kg	0.21 kg
10 kg	0.50 kg	0.70 kg
30 kg	1.50 kg	2.10 kg
60 kg	3.00 kg	4.20 kg

High-Flow Performance

At 30 kg/min the dispenser delivers approximately 0.5 kg/s. A 3 kg MMQ is reached in about 6 seconds, a 30 kg fill requires about 60 seconds, and a 60 kg fill requires about 120 seconds. This supports a 3 kg MMQ because it allows meter stabilization after valve actuation, pressure transients, and flow ramp-up/ramp-down.

Compatibility with Coriolis Meters

The representative Coriolis meter specification (0.8–30 kg/min at ±0.5% accuracy) covers the proposed 12–30 kg/min operating range entirely within its highest-accuracy region. The proposed HB-44 tolerances therefore provide additional margin for complete system effects including installation, density calculation, valve timing, and environmental influences.

Recommended HB-44 Approach

Maintain the existing hydrogen requirements for light-duty vehicle fueling and introduce a separate heavy-duty hydrogen vehicle fueling category with:

- Flow rate: 12–30 kg/min
- MMQ: 3.0 kg maximum
- Accuracy Class: 7.0
- Acceptance tolerance: 5.0%
- Maintenance tolerance: 7.0%

This recognizes the distinct operating characteristics of heavy-duty hydrogen fueling while preserving existing requirements for light-duty dispensers.