Given:
A 100 L container contains 4 kg of R-134a at a pressure of 160 kPa.

Required:
Determine the temperature, the quality, and the enthalpy of the refrigerant.

Solution:
The total volume and mass, and the pressure are defined as

$$V_{tot} := 100 \text{ L} = 0.1 \text{ m}^3 \qquad m_{tot} := 4 \text{ kg} \qquad P_1 := 160 \text{ kPa}$$

The specific volume at the state point is found by

$$v_1 := \frac{V_{tot}}{m_{tot}} = 0.025 \frac{\text{m}^3}{\text{kg}}$$

Going to Table A-12 @ $P := P_1 = 160 \text{ kPa}$ shows

$$T_{sat} := (-15.60) \degree\text{C} \qquad v_f := 0.0007437 \frac{\text{m}^3}{\text{kg}} \qquad v_g := 0.12348 \frac{\text{m}^3}{\text{kg}}$$

$$h_f := 31.21 \frac{\text{kJ}}{\text{kg}} \qquad h_g := 241.11 \frac{\text{kJ}}{\text{kg}}$$

Since $\left(v_f < v_1 \right) < v_g$, the state point occurs in the two-phase region. Thus the temperature at the state point is the saturation temperature or

$$\boxed{T_1 := T_{sat} = -15.6 \degree\text{C}}$$

The quality may be found by using the state point specific volume and the v and v values found from the table. This is shown below.

$$\boxed{x_1 := \frac{v_1 - v_f}{v_g - v_f} = 0.1976}$$

The specific enthalpy at the state point is found by

$$h_1 := h_f + x_1 \cdot \left(h_g - h_f \right) = 72.6924 \frac{\text{kJ}}{\text{kg}}$$

The enthalpy at the state point is then

$$\boxed{H_1 := m_{tot} \cdot h_1 = 290.8 \text{ kJ}}$$