Przepływ powietrza przez dyszę de Lavala

$$\kappa := 1.4 \qquad R := 286.7 \cdot \frac{J}{kg \cdot K}$$

$$\_m := 2 \cdot \frac{kg}{s} \qquad p_1 := 2 \cdot 10^6 \cdot Pa \qquad v_1 := 0.1 \cdot \frac{m^3}{kg}$$

$$T_1 := \frac{p_1 \cdot v_1}{R} = 697.593\,K$$

$$\beta := \left(\frac{2}{\kappa + 1}\right)^{\frac{\kappa}{\kappa - 1}} = 0.528$$

$$p_{kr} := \beta \cdot p_1 = 1.057 \times 10^6\,Pa$$

$$T_{kr} := \frac{2 \cdot T_1}{\kappa + 1} = 581.328\,K$$

$$v_{kr} := \frac{R \cdot T_{kr}}{p_{kr}} = 0.1577 \frac{m^3}{kg}$$

$$w_{kr} := \sqrt{\kappa \cdot R \cdot T_{kr}} = 483.046 \frac{m}{s}$$

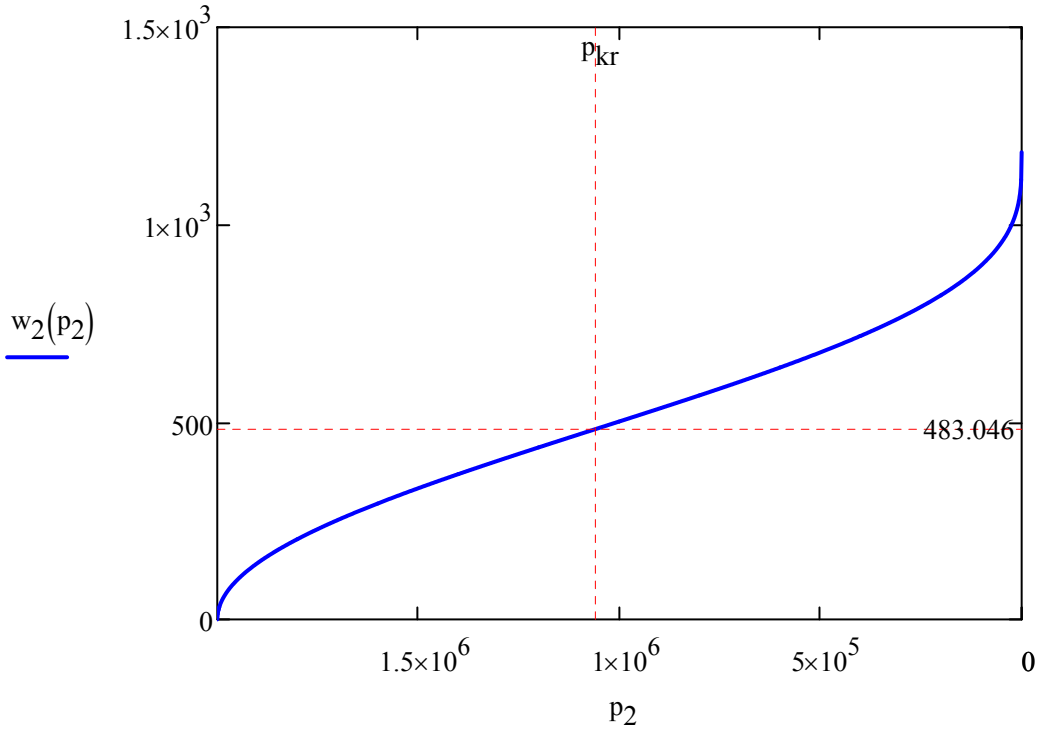
$$A_{kr} := \frac{\_m \cdot v_{kr}}{w_{kr}} = 6.531 \times 10^{-4}\,m^2$$

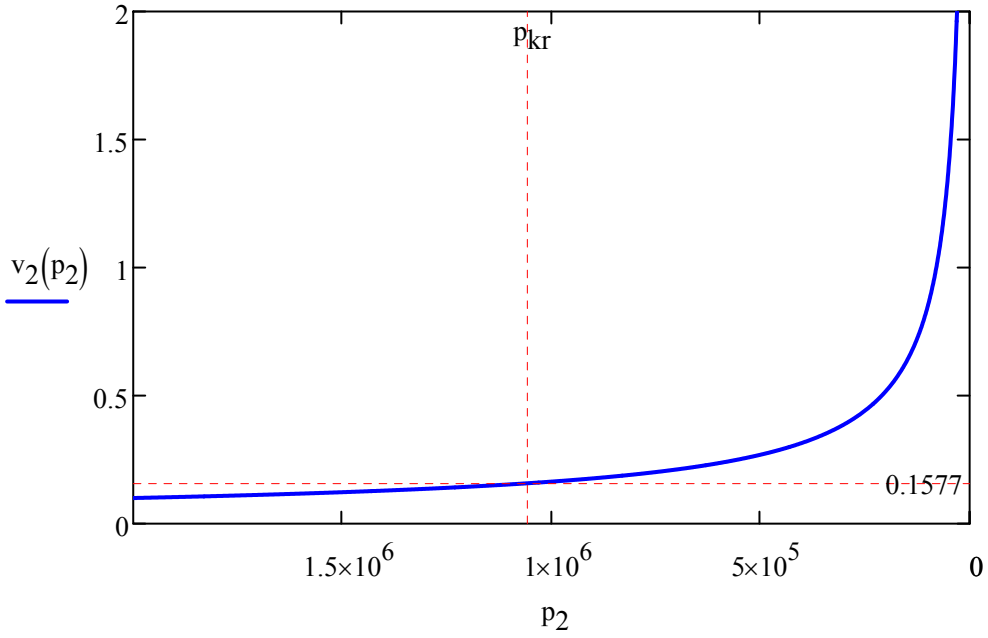
$$v_2(p_2) := v_1 \cdot \left(\frac{p_1}{p_2}\right)^{\frac{1}{\kappa}}$$

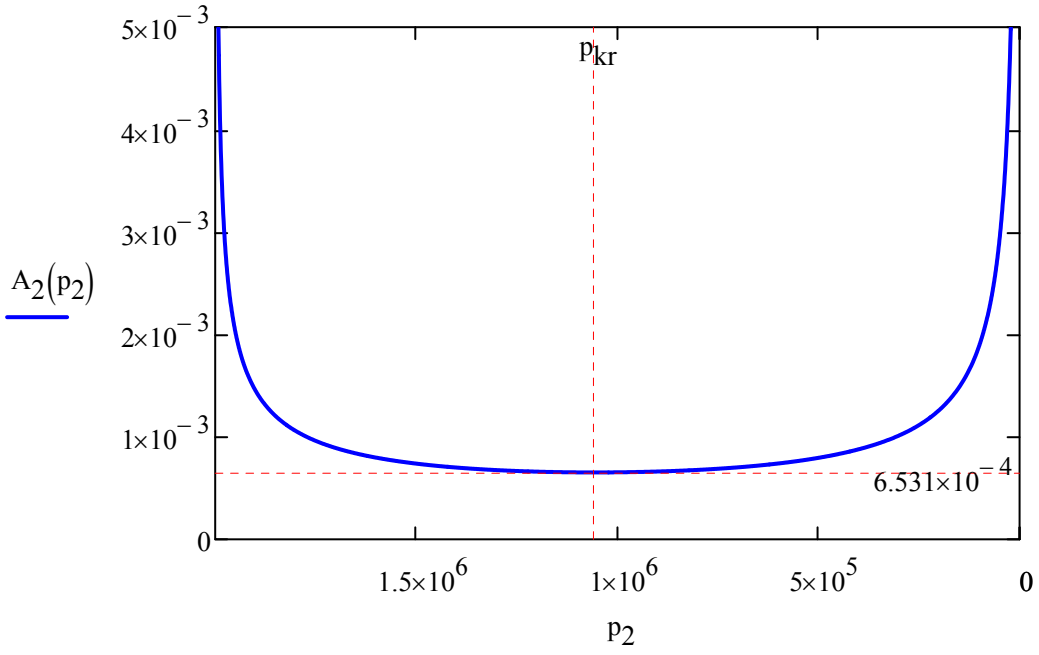
$$w_2(p_2) := \sqrt{\frac{2 \cdot \kappa}{\kappa - 1} \cdot p_1 \cdot v_1 \cdot \left[1 - \left(\frac{p_2}{p_1}\right)^{\frac{\kappa - 1}{\kappa}}\right]}$$

$$A_2(p_2) := \frac{\_m \cdot v_2(p_2)}{w_2(p_2)}$$

$$p_2 := 0 \cdot Pa, 1000 \cdot Pa .. p_1$$






$A_2(p_2)$
5×10^{-3}
4×10^{-3}
3×10^{-3}
2×10^{-3}
1×10^{-3}
0
p_{kr}
6.531×10^{-4}
1.5×10^{6}
1×10^{6}
5×10^{5}
0
p_2