

# SAA0187

## Sistemas Aeronáuticos de Acionamento

### Modelagem em Hopsan parte 2

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- Esta aula trata de comando de múltiplos atuadores, de diferentes formas
  - Uso de válvulas de alívio
  - Uso de válvulas restritoras
  - Uso de controle por sinais lógicos

- Modelo 1:

Pump ( $d = 15\text{cm}^3/\text{rev}$  |  $n = 2300\text{ RPM}$ )

4/2 directional valve

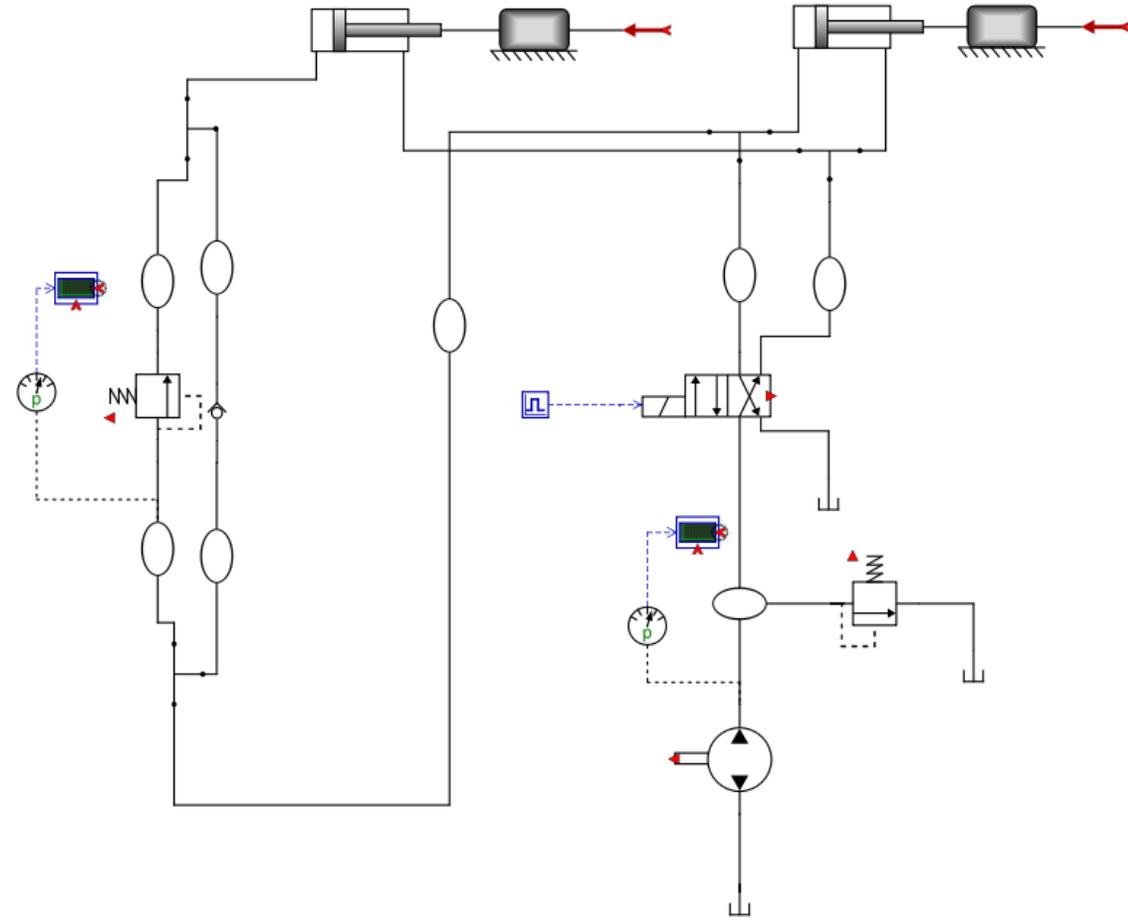
Double action cylinder actuator ( $A_1 = 10\text{cm}^2$  |  $A_2 = 8\text{cm}^2$  |  $s = 50\text{cm}$ )

Mineral oil ( $\rho = 870\text{ kg/m}^3$  |  $\beta = 1.8\text{e}9\text{ Pa}$ )

Mass ( $100\text{kg}$  |  $F_s = 250\text{N}$  |  $F_d = 200\text{N}$ )

Pressure Relief Valve [pump] ( $P = 3300\text{ psi}$ )

Pressure Relief Valve [cylinder] ( $P = 1000\text{ psi}$ )



- Modelo 2:

Pump ( $d = 10\text{cm}^3/\text{rev}$  |  $n = 2300$  RPM)

4/2 directional valve

Double action cylinder actuator ( $A_1 = 10\text{cm}^2$  |  $A_2 = 8\text{cm}^2$  |  $s = 100\text{cm}$ )

Mineral oil ( $\rho = 870$  kg/m<sup>3</sup> |  $\beta = 1.8\text{e}9$  Pa)

Mass [Door] (100kg |  $F_s = 250\text{N}$  |  $F_d = 200\text{N}$ )

Mass [Landing Gear] (2000kg |  $F_s = 500\text{N}$  |  $F_d = 400\text{N}$ )

Pressure Relief Valve [pump] ( $P = 3300$  psi)

Pressure Relief Valve [cylinder] ( $P = 2900$  psi)

Flow Control Valve ( $K_c = 1\text{e}-10$ )

Accumulator ( $V_0 = 2$  L)

