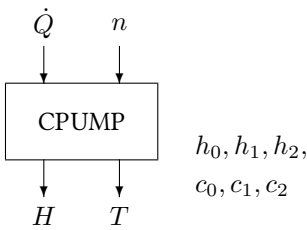


Block CPUMP

The CPUMP block calculates the head and torque of a centrifugal pump.



Name	CPUMP
Function	se0018
Inputs	2
Outputs	2
Parameters	6
Strings	0
Group	S

Inputs

- 1 Flowrate $\dot{Q}$ / $\text{m}^3 \text{h}^{-1}$
- 2 Rotational speed n / s^{-1}

Outputs

- 1 Delivery height H / m
- 1 Torque T / N m

Parameters

- 1 Head coefficient $h_0 > 0$
- 2 Head coefficient $h_1 > 0$
- 3 Head coefficient $h_2 > 0$
- 4 Torque coefficient $c_0 > 0$
- 5 Torque coefficient $c_1 > 0$
- 6 Torque coefficient $c_2 > 0$

Strings

None

Description The delivery height of a centrifugal pump is modeled by

$$H = h_0 n^2 + h_1 n \dot{Q} - h_2 \dot{Q}^2$$

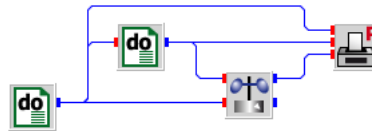
where n the rotational and $\dot{Q}$ is the flowrate. h_0, h_1 , and h_2 are free positive fit parameters.

The torque is calculated by the equation

$$T = c_0 n^2 + c_1 n \dot{Q} - c_2 \dot{Q}^2$$

Again, c_0, c_1 , and c_2 are free positive fit parameters.

cpump.vseit



The flowrate of a centrifugal pump is varied between zero and 14 m³ per hour by a **DO** block. The rotational speed of the pump is varied between 30 and 50 per second in steps of 10 by a second **DO** block.

The delivery height of the pump is plotted as a function of the flowrate by a **PLOTP** block.

