

Name	Bond-graph Symbol	Causal relations
Effort source	$S_e \longrightarrow \rfloor$	$e(t) = \textit{given}$
Flow source	$S_f \rfloor \longrightarrow$	$f(t) = \textit{given}$
Resistance	$\rfloor \longrightarrow R$	$e = \Phi_R(f)$
	$\longrightarrow \rfloor R$	$f = \Phi^{-1}_R(e)$
Capacitance	$\rfloor \longrightarrow C$	$e = \Phi_C^{-1}(\int f dt)$
	$\longrightarrow \rfloor C$	$f = \frac{d}{dt}[\Phi_C(e)]$
Inertia	$\longrightarrow \rfloor I$	$f = \Phi_I^{-1}(\int e dt)$
	$\rfloor \longrightarrow I$	$e = \frac{d}{dt}[\Phi_I(f)]$
Transformer	$\xrightarrow{1} TF \xrightarrow{2}$	$e_1 = m e_2$ $f_2 = m f_1$
	$\xrightarrow{1} \rfloor TF \rfloor \xrightarrow{2}$	$e_2 = (1/m) e_1$ $f_1 = (1/m) f_2$
Gyrator	$\xrightarrow{1} GY \xrightarrow{2} \rfloor$	$e_1 = r f_2$ $e_2 = r f_1$
	$\xrightarrow{1} \rfloor GY \xrightarrow{2}$	$f_1 = (1/r) e_2$ $f_2 = (1/r) e_1$
0-junction	$\xrightarrow{1} \rfloor 0 \xleftarrow{2} \rfloor$ $\uparrow 3$	$e_2 = e_1$ $e_3 = e_1$ $f_1 = -(f_2 + f_3)$
I-junction	$\xrightarrow{1} \rfloor 1 \rfloor \xrightarrow{2}$ $\uparrow 3$	$f_2 = f_1$ $f_3 = f_1$ $e_1 = -(e_2 + e_3)$