

Bond graph element	Constitutive relations
$S_e \xrightarrow{e}$	$e = e(t)$
$S_f \xrightarrow{f}$	$f = f(t)$
$\xrightarrow{e} \xrightarrow{f} C$	General : $q = \Phi_C(e)$ Linear : $q = Ce$
$\xrightarrow{e} \xrightarrow{f} I$	General : $p = \Phi_I(f)$ Linear : $p = If$
$\xrightarrow{e} \xrightarrow{f} R$	General : $e = \Phi_R(f)$ Linear : $e = Rf$
$\xrightarrow{e_1} \xrightarrow{f_1} \mathbf{TF} \xrightarrow{e_2} \xrightarrow{f_2}$	$e_1 = me_2$ $mf_1 = f_2$
$\xrightarrow{e_1} \xrightarrow{f_1} \mathbf{GY} \xrightarrow{e_2} \xrightarrow{f_2}$	$e_1 = f_2r$ $f_1r = e_2$
$\xrightarrow{e_1} \xrightarrow{f_1} \begin{array}{c} \nearrow e_3 \\ \downarrow f_3 \\ 0 \end{array} \xrightarrow{e_2} \xrightarrow{f_2}$	$e_1 = e_2 = e_3$ $f_1 - f_2 - f_3 = 0$
$\xrightarrow{e_1} \xrightarrow{f_1} \begin{array}{c} \nearrow e_3 \\ \downarrow f_3 \\ 1 \end{array} \xrightarrow{e_2} \xrightarrow{f_2}$	$f_1 = f_2 = f_3$ $e_1 - e_2 - e_3 = 0$