

Table 1: Generic commands

Short form	Output	LaTeX command
<b>Definition of mathmode bold symbols</b>		
$\backslash\text{bs}\{a\}$	<b><i>a</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol}\{\#1\}\}\backslash\text{xspace}\}$
$\backslash\text{mt}\{a\}$	<i>a</i>	$\{\backslash\text{ensuremath}\{\{\#1\}\}\backslash\text{xspace}\}$

Table 2: Vector symbols: lowercase English characters

Short form	Output	LaTeX command
$\backslash\text{ba}$	<b><i>a</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } a\}\backslash\text{xspace}\}$
$\backslash\text{bb}$	<b><i>b</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } b\}\backslash\text{xspace}\}$
$\backslash\text{bc}$	<b><i>c</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } c\}\backslash\text{xspace}\}$
$\backslash\text{bd}$	<b><i>d</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } d\}\backslash\text{xspace}\}$
$\backslash\text{be}$	<b><i>e</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } e\}\backslash\text{xspace}\}$
$\backslash\text{bsf}$	<b><i>f</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } f\}\backslash\text{xspace}\}$
$\backslash\text{bg}$	<b><i>g</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } g\}\backslash\text{xspace}\}$
$\backslash\text{bh}$	<b><i>h</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } h\}\backslash\text{xspace}\}$
$\backslash\text{bi}$	<b><i>i</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } i\}\backslash\text{xspace}\}$
$\backslash\text{bj}$	<b><i>j</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } j\}\backslash\text{xspace}\}$
$\backslash\text{bk}$	<b><i>k</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } k\}\backslash\text{xspace}\}$
$\backslash\text{bl}$	<b><i>l</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } l\}\backslash\text{xspace}\}$
$\backslash\text{bm}$	<b><i>m</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } m\}\backslash\text{xspace}\}$
$\backslash\text{bn}$	<b><i>n</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } n\}\backslash\text{xspace}\}$
$\backslash\text{bo}$	<b><i>o</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } o\}\backslash\text{xspace}\}$
$\backslash\text{bp}$	<b><i>p</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } p\}\backslash\text{xspace}\}$
$\backslash\text{bq}$	<b><i>q</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } q\}\backslash\text{xspace}\}$
$\backslash\text{br}$	<b><i>r</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } r\}\backslash\text{xspace}\}$
$\backslash\text{bfs}$	<b><i>s</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } s\}\backslash\text{xspace}\}$
$\backslash\text{bt}$	<b><i>t</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } t\}\backslash\text{xspace}\}$
$\backslash\text{bu}$	<b><i>u</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } u\}\backslash\text{xspace}\}$
$\backslash\text{bv}$	<b><i>v</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } v\}\backslash\text{xspace}\}$
$\backslash\text{bw}$	<b><i>w</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } w\}\backslash\text{xspace}\}$
$\backslash\text{bx}$	<b><i>x</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } x\}\backslash\text{xspace}\}$
$\backslash\text{by}$	<b><i>y</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } y\}\backslash\text{xspace}\}$
$\backslash\text{bz}$	<b><i>z</i></b>	$\{\backslash\text{ensuremath}\{\backslash\text{boldsymbol } z\}\backslash\text{xspace}\}$

Table 3: Matrix symbols: uppercase English characters

Short form	Output	LaTeX command
<code>\bA</code>	<b>A</b>	<code>{\ensuremath{\boldsymbol A}\xspace}</code>
<code>\bB</code>	<b>B</b>	<code>{\ensuremath{\boldsymbol B}\xspace}</code>
<code>\bC</code>	<b>C</b>	<code>{\ensuremath{\boldsymbol C}\xspace}</code>
<code>\bD</code>	<b>D</b>	<code>{\ensuremath{\boldsymbol D}\xspace}</code>
<code>\bE</code>	<b>E</b>	<code>{\ensuremath{\boldsymbol E}\xspace}</code>
<code>\bF</code>	<b>F</b>	<code>{\ensuremath{\boldsymbol F}\xspace}</code>
<code>\bG</code>	<b>G</b>	<code>{\ensuremath{\boldsymbol G}\xspace}</code>
<code>\bH</code>	<b>H</b>	<code>{\ensuremath{\boldsymbol H}\xspace}</code>
<code>\bI</code>	<b>I</b>	<code>{\ensuremath{\boldsymbol I}\xspace}</code>
<code>\bJ</code>	<b>J</b>	<code>{\ensuremath{\boldsymbol J}\xspace}</code>
<code>\bK</code>	<b>K</b>	<code>{\ensuremath{\boldsymbol K}\xspace}</code>
<code>\bL</code>	<b>L</b>	<code>{\ensuremath{\boldsymbol L}\xspace}</code>
<code>\bM</code>	<b>M</b>	<code>{\ensuremath{\boldsymbol M}\xspace}</code>
<code>\bN</code>	<b>N</b>	<code>{\ensuremath{\boldsymbol N}\xspace}</code>
<code>\bO</code>	<b>O</b>	<code>{\ensuremath{\boldsymbol O}\xspace}</code>
<code>\bP</code>	<b>P</b>	<code>{\ensuremath{\boldsymbol P}\xspace}</code>
<code>\bQ</code>	<b>Q</b>	<code>{\ensuremath{\boldsymbol Q}\xspace}</code>
<code>\bR</code>	<b>R</b>	<code>{\ensuremath{\boldsymbol R}\xspace}</code>
<code>\bS</code>	<b>S</b>	<code>{\ensuremath{\boldsymbol S}\xspace}</code>
<code>\bT</code>	<b>T</b>	<code>{\ensuremath{\boldsymbol T}\xspace}</code>
<code>\bU</code>	<b>U</b>	<code>{\ensuremath{\boldsymbol U}\xspace}</code>
<code>\bV</code>	<b>V</b>	<code>{\ensuremath{\boldsymbol V}\xspace}</code>
<code>\bW</code>	<b>W</b>	<code>{\ensuremath{\boldsymbol W}\xspace}</code>
<code>\bX</code>	<b>X</b>	<code>{\ensuremath{\boldsymbol X}\xspace}</code>
<code>\bY</code>	<b>Y</b>	<code>{\ensuremath{\boldsymbol Y}\xspace}</code>
<code>\bZ</code>	<b>Z</b>	<code>{\ensuremath{\boldsymbol Z}\xspace}</code>

Table 4: Greek letters

Short form	Output	LaTeX command
<b>Mathmode lowercase Greek symbols</b>		
<code>\alp</code>	$\alpha$	<code>{\ensuremath{\alpha}\xspace}</code>
<code>\bet</code>	$\beta$	<code>{\ensuremath{\beta}\xspace}</code>
<code>\gm</code>	$\gamma$	<code>{\ensuremath{\gamma}\xspace}</code>

<code>\del</code>	$\delta$	<code>{\ensuremath{\delta}\xspace}</code>
<code>\eps</code>	$\epsilon$	<code>{\ensuremath{\epsilon}\xspace}</code>
<code>\zet</code>	$\zeta$	<code>{\ensuremath{\zeta}\xspace}</code>
<code>\et</code>	$\eta$	<code>{\ensuremath{\eta}\xspace}</code>
<code>\tht</code>	$\theta$	<code>{\ensuremath{\theta}\xspace}</code>
<code>\iot</code>	$\iota$	<code>{\ensuremath{\iota}\xspace}</code>
<code>\kap</code>	$\kappa$	<code>{\ensuremath{\kappa}\xspace}</code>
<code>\lam</code>	$\lambda$	<code>{\ensuremath{\lambda}\xspace}</code>
<code>\mmu</code>	$\mu$	<code>{\ensuremath{\mu}\xspace}</code>
<code>\mnu</code>	$\nu$	<code>{\ensuremath{\nu}\xspace}</code>
<code>\mxi</code>	$\xi$	<code>{\ensuremath{\xi}\xspace}</code>
<code>\mpi</code>	$\pi$	<code>{\ensuremath{\pi}\xspace}</code>
<code>\mrho</code>	$\rho$	<code>{\ensuremath{\rho}\xspace}</code>
<code>\sig</code>	$\sigma$	<code>{\ensuremath{\sigma}\xspace}</code>
<code>\mtau</code>	$\tau$	<code>{\ensuremath{\tau}\xspace}</code>
<code>\ups</code>	$\upsilon$	<code>{\ensuremath{\upsilon}\xspace}</code>
<code>\ph</code>	$\phi$	<code>{\ensuremath{\phi}\xspace}</code>
<code>\mchi</code>	$\chi$	<code>{\ensuremath{\chi}\xspace}</code>
<code>\mpsi</code>	$\psi$	<code>{\ensuremath{\psi}\xspace}</code>
<code>\om</code>	$\omega$	<code>{\ensuremath{\omega}\xspace}</code>
<code>\vth</code>	$\vartheta$	<code>{\ensuremath{\vartheta}\xspace}</code>
<code>\vkap</code>	$\varkappa$	<code>{\ensuremath{\varkappa}\xspace}</code>
<code>\vpi</code>	$\varpi$	<code>{\ensuremath{\varpi}\xspace}</code>
<code>\vrho</code>	$\varrho$	<code>{\ensuremath{\varrho}\xspace}</code>
<code>\vsig</code>	$\varsigma$	<code>{\ensuremath{\varsigma}\xspace}</code>
<code>\vph</code>	$\varphi$	<code>{\ensuremath{\varphi}\xspace}</code>
<code>\veps</code>	$\varepsilon$	<code>{\ensuremath{\varepsilon}\xspace}</code>
<b>Mathmode bold lowercase Greek symbols</b>		
<code>\balp</code>	$\alpha$	<code>{\ensuremath{\boldsymbol{\alpha}}\xspace}</code>
<code>\bbet</code>	$\beta$	<code>{\ensuremath{\boldsymbol{\beta}}\xspace}</code>
<code>\bgamma</code>	$\gamma$	<code>{\ensuremath{\boldsymbol{\gamma}}\xspace}</code>
<code>\bdel</code>	$\delta$	<code>{\ensuremath{\boldsymbol{\delta}}\xspace}</code>

<code>\beps</code>	$\epsilon$	<code>{\ensuremath{\boldsymbol{\epsilon}}\xspace}</code>
<code>\bzeta</code>	$\zeta$	<code>{\ensuremath{\boldsymbol{\zeta}}\xspace}</code>
<code>\bfeta</code>	$\eta$	<code>{\ensuremath{\boldsymbol{\eta}}\xspace}</code>
<code>\bth</code>	$\theta$	<code>{\ensuremath{\boldsymbol{\theta}}\xspace}</code>
<code>\biot</code>	$\iota$	<code>{\ensuremath{\boldsymbol{\iota}}\xspace}</code>
<code>\bkappa</code>	$\kappa$	<code>{\ensuremath{\boldsymbol{\kappa}}\xspace}</code>
<code>\blambda</code>	$\lambda$	<code>{\ensuremath{\boldsymbol{\lambda}}\xspace}</code>
<code>\bmua</code>	$\mu$	<code>{\ensuremath{\boldsymbol{\mu}}\xspace}</code>
<code>\bnu</code>	$\nu$	<code>{\ensuremath{\boldsymbol{\nu}}\xspace}</code>
<code>\bxi</code>	$\xi$	<code>{\ensuremath{\boldsymbol{\xi}}\xspace}</code>
<code>\bpi</code>	$\pi$	<code>{\ensuremath{\boldsymbol{\pi}}\xspace}</code>
<code>\brho</code>	$\rho$	<code>{\ensuremath{\boldsymbol{\rho}}\xspace}</code>
<code>\bsig</code>	$\sigma$	<code>{\ensuremath{\boldsymbol{\sigma}}\xspace}</code>
<code>\btai</code>	$\tau$	<code>{\ensuremath{\boldsymbol{\tau}}\xspace}</code>
<code>\bups</code>	$\upsilon$	<code>{\ensuremath{\boldsymbol{\upsilon}}\xspace}</code>
<code>\bphi</code>	$\phi$	<code>{\ensuremath{\boldsymbol{\phi}}\xspace}</code>
<code>\bchi</code>	$\chi$	<code>{\ensuremath{\boldsymbol{\chi}}\xspace}</code>
<code>\bps</code>	$\psi$	<code>{\ensuremath{\boldsymbol{\psi}}\xspace}</code>
<code>\bom</code>	$\omega$	<code>{\ensuremath{\boldsymbol{\omega}}\xspace}</code>
<code>\bveps</code>	$\varepsilon$	<code>{\ensuremath{\boldsymbol{\varepsilon}}\xspace}</code>
<code>\nvph</code>	$\varphi$	<code>{\ensuremath{\boldsymbol{\varphi}}\xspace}</code>
<code>\bvsig</code>	$\varsigma$	<code>{\ensuremath{\boldsymbol{\varsigma}}\xspace}</code>
<code>\bvrho</code>	$\varrho$	<code>{\ensuremath{\boldsymbol{\varrho}}\xspace}</code>
<code>\bvpi</code>	$\varpi$	<code>{\ensuremath{\boldsymbol{\varpi}}\xspace}</code>

<code>\bvkap</code>	$\varkappa$	<code>{\ensuremath{\boldsymbol{\varkappa}}\xspace}</code>
<code>\bvth</code>	$\vartheta$	<code>{\ensuremath{\boldsymbol{\vartheta}}\xspace}</code>
<b>Mathmode uppercase Greek symbols</b>		
<code>\Gm</code>	$\Gamma$	<code>{\ensuremath{\Gamma}\xspace}</code>
<code>\Del</code>	$\Delta$	<code>{\ensuremath{\Delta}\xspace}</code>
<code>\Th</code>	$\Theta$	<code>{\ensuremath{\Theta}\xspace}</code>
<code>\Lam</code>	$\Lambda$	<code>{\ensuremath{\Lambda}\xspace}</code>
<code>\mXi</code>	$\Xi$	<code>{\ensuremath{\Xi}\xspace}</code>
<code>\mPi</code>	$\Pi$	<code>{\ensuremath{\Pi}\xspace}</code>
<code>\Sig</code>	$\Sigma$	<code>{\ensuremath{\Sigma}\xspace}</code>
<code>\Ups</code>	$\Upsilon$	<code>{\ensuremath{\Upsilon}\xspace}</code>
<code>\Ph</code>	$\Phi$	<code>{\ensuremath{\Phi}\xspace}</code>
<code>\Ps</code>	$\Psi$	<code>{\ensuremath{\Psi}\xspace}</code>
<code>\Om</code>	$\Omega$	<code>{\ensuremath{\Omega}\xspace}</code>
<b>Mathmode bold uppercase Greek symbols</b>		
<code>\bGm</code>	$\boldsymbol{\Gamma}$	<code>{\ensuremath{\boldsymbol{\Gamma}}\xspace}</code>
<code>\bDel</code>	$\boldsymbol{\Delta}$	<code>{\ensuremath{\boldsymbol{\Delta}}\xspace}</code>
<code>\bTh</code>	$\boldsymbol{\Theta}$	<code>{\ensuremath{\boldsymbol{\Theta}}\xspace}</code>
<code>\bLam</code>	$\boldsymbol{\Lambda}$	<code>{\ensuremath{\boldsymbol{\Lambda}}\xspace}</code>
<code>\bXi</code>	$\boldsymbol{\Xi}$	<code>{\ensuremath{\boldsymbol{\Xi}}\xspace}</code>
<code>\bPi</code>	$\boldsymbol{\Pi}$	<code>{\ensuremath{\boldsymbol{\Pi}}\xspace}</code>
<code>\bSig</code>	$\boldsymbol{\Sigma}$	<code>{\ensuremath{\boldsymbol{\Sigma}}\xspace}</code>
<code>\bUps</code>	$\boldsymbol{\Upsilon}$	<code>{\ensuremath{\boldsymbol{\Upsilon}}\xspace}</code>
<code>\bPhi</code>	$\boldsymbol{\Phi}$	<code>{\ensuremath{\boldsymbol{\Phi}}\xspace}</code>
<code>\bPsi</code>	$\boldsymbol{\Psi}$	<code>{\ensuremath{\boldsymbol{\Psi}}\xspace}</code>
<code>\bOm</code>	$\boldsymbol{\Omega}$	<code>{\ensuremath{\boldsymbol{\Omega}}\xspace}</code>

Table 5: Vector/matrix “zero” and half

Short form	Output	LaTeX command
<code>\bzero</code>	<b>0</b>	<code>{\ensuremath{\boldsymbol{0}}\xspace}</code>
<code>\half</code>	$\frac{1}{2}$	<code>{\ensuremath{\frac{1}{2}}\xspace}</code>

Table 6: Spaces symbols

Short form	Output	LaTeX command
<code>\C</code>	$\mathbb{C}$	<code>{\ensuremath{\mathbb{C}}\xspace}</code>
<code>\Cn</code>	$\mathbb{C}^n$	<code>{\ensuremath{\mathbb{C}^n}\xspace}</code>
<code>\D</code>	$\mathbb{D}$	<code>{\ensuremath{\mathbb{D}}\xspace}</code>
<code>\Dn</code>	$\mathbb{D}^n$	<code>{\ensuremath{\mathbb{D}^n}\xspace}</code>
<code>\Re</code>	$\mathbb{R}$	<code>{\ensuremath{\mathbb{R}}\xspace}</code>
<code>\Rn</code>	$\mathbb{R}^n$	<code>{\ensuremath{\mathbb{R}^n}\xspace}</code>
<code>\Ri{a}</code>	$\mathbb{R}^a$	<code>{\ensuremath{\mathbb{R}^{\#1}}\xspace}</code>
<code>\se</code>	$se(3)$	<code>{\ensuremath{se(3)}\xspace}</code>
<code>\ses</code>	$se^*(3)$	<code>{\ensuremath{se^*(3)}\xspace}</code>
<code>\SE</code>	$\mathbb{SE}(3)$	<code>{\ensuremath{\mathbb{SE}(3)}\xspace}</code>
<code>\so</code>	$so(3)$	<code>{\ensuremath{so(3)}\xspace}</code>
<code>\SO</code>	$\mathbb{SO}(3)$	<code>{\ensuremath{\mathbb{SO}(3)}\xspace}</code>
<code>\nul{\mathbf{A}}</code>	$\mathcal{N}(\mathbf{A})$	<code>{\ensuremath{\mathcal{N}(\#1)}\xspace}</code>
<code>\row{\mathbf{A}}</code>	$\mathcal{R}(\mathbf{A})$	<code>{\ensuremath{\mathcal{R}(\#1)}\xspace}</code>
<b>Notations for the configuration space</b>		
<code>\conf</code>	$\mathcal{C}$	<code>{\ensuremath{\mathcal{C}}\xspace}</code>
<code>\dimc</code>	$\dim(\mathcal{C})$	<code>{\ensuremath{\text{dim}(\mathcal{C})}\xspace}</code>

Table 7: Jacobian matrices

Short form	Output	LaTeX command
<b>Constraint Jacobian matrices</b>		
<code>\jetaq</code>	$\mathbf{J}_{\eta q}$	<code>{\ensuremath{\boldsymbol{J}_{\eta q}}\xspace}</code>
<code>\jetath</code>	$\mathbf{J}_{\eta \theta}$	<code>{\ensuremath{\boldsymbol{J}_{\eta \theta}}\xspace}</code>

<code>\jetaphi</code>	$\boldsymbol{J}_{\eta\phi}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-$ $\{\backslash\mathrm{bfeta}\backslash\mathrm{bphi}\}\}\backslash\mathrm{xspace}\}$
<code>\jetagamma</code>	$\boldsymbol{J}_{\eta\gamma}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-$ $\{\backslash\mathrm{bfeta}\backslash\mathrm{bgamma}\}\}\backslash\mathrm{xspace}\}$
<code>\jetapsi</code>	$\boldsymbol{J}_{\eta\psi}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-$ $\{\backslash\mathrm{bfeta}\backslash\mathrm{bpsi}\}\}\backslash\mathrm{xspace}\}$
<code>\jphith</code>	$\boldsymbol{J}_{\phi\theta}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-$ $\{\backslash\mathrm{bphi}\backslash\mathrm{bth}\}\}\backslash\mathrm{xspace}\}$
<code>\jpsith</code>	$\boldsymbol{J}_{\psi\theta}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-$ $\{\backslash\mathrm{bpsi}\backslash\mathrm{bth}\}\}\backslash\mathrm{xspace}\}$
<code>\jgammath</code>	$\boldsymbol{J}_{\gamma\theta}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-$ $\{\backslash\mathrm{bgamma}\backslash\mathrm{bth}\}\}\backslash\mathrm{xspace}\}$
<code>\Jfth</code>	$\boldsymbol{J}_{f\theta}$	$\{\backslash\mathrm{ensuremath}\{\backslash\mathrm{boldsymbol}\{J\}_-$ $\{f\backslash\mathrm{boldsymbol}\{\backslash\mathrm{theta}\}\}\}\backslash\mathrm{xspace}\}$
<code>\jqth</code>	$\boldsymbol{J}_{q\theta}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{boldsymbol}\{J\}\}_-$ $\{\backslash\mathrm{bq}\backslash\mathrm{bth}\}\}\backslash\mathrm{xspace}\}$
<code>\jpq</code>	$\boldsymbol{J}_{pq}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{boldsymbol}\{J\}\}_-$ $\{\backslash\mathrm{bp}\backslash\mathrm{bq}\}\}\backslash\mathrm{xspace}\}$
<code>\jpcth</code>	$\boldsymbol{J}_{p_c\theta}$	$\{\backslash\mathrm{ensuremath}\{\backslash\mathrm{boldsymbol}\{J\}_-$ $\{\backslash\mathrm{pc}\backslash\mathrm{bth}\}\}\backslash\mathrm{xspace}\}$
<code>\jpcphi</code>	$\boldsymbol{J}_{p_c\phi}$	$\{\backslash\mathrm{ensuremath}\{\backslash\mathrm{boldsymbol}\{J\}_-$ $\{\backslash\mathrm{pc}\backslash\mathrm{bphi}\}\}\backslash\mathrm{xspace}\}$
<code>\jpcq</code>	$\boldsymbol{J}_{p_cq}$	$\{\backslash\mathrm{ensuremath}\{\backslash\mathrm{boldsymbol}\{J\}_-$ $\{\backslash\mathrm{pc}\backslash\mathrm{bq}\}\}\backslash\mathrm{xspace}\}$
<code>\jfth</code>	$\boldsymbol{J}_{f\theta}$	$\{\backslash\mathrm{ensuremath}\{\backslash\mathrm{boldsymbol}\{J\}_-$ $\{\backslash\mathrm{bs}\{f\}\backslash\mathrm{bth}\}\}\backslash\mathrm{xspace}\}$
<code>\jfpsi</code>	$\boldsymbol{J}_{f\psi}$	$\{\backslash\mathrm{ensuremath}\{\backslash\mathrm{boldsymbol}\{J\}_-$ $\{\backslash\mathrm{bs}\{f\}\backslash\mathrm{bpsi}\}\}\backslash\mathrm{xspace}\}$
<code>\jfrts</code>	$\boldsymbol{J}_{fr_{ts}}$	$\{\backslash\mathrm{ensuremath}\{\backslash\mathrm{boldsymbol}\{J\}_-$ $\{\backslash\mathrm{bs}\{f\}\backslash\mathrm{bs}\{r\}_-\{ts\}\}\}\backslash\mathrm{xspace}\}$
<code>\jfpc</code>	$\boldsymbol{J}_{fp_c}$	$\{\backslash\mathrm{ensuremath}\{\backslash\mathrm{boldsymbol}\{J\}_-$ $\{\backslash\mathrm{bs}\{f\}\backslash\mathrm{bp}_-c\}\}\backslash\mathrm{xspace}\}$
<code>\jpth</code>	$\boldsymbol{J}_{p\theta}$	$\{\backslash\mathrm{ensuremath}\{\backslash\mathrm{boldsymbol}\{J\}_-$ $\{\backslash\mathrm{boldsymbol}\{p\backslash\mathrm{theta}\}\}\}\backslash\mathrm{xspace}\}$
<code>\jpphi</code>	$\boldsymbol{J}_{p\phi}$	$\{\backslash\mathrm{ensuremath}\{\backslash\mathrm{boldsymbol}\{J\}_-$ $\{\backslash\mathrm{boldsymbol}\{p\backslash\mathrm{phi}\}\}\}\backslash\mathrm{xspace}\}$

Angular velocity related		
<code>\jom</code>	$\mathbf{J}_\omega$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-\{\backslash\mathrm{bom}\}\}\backslash\mathrm{xspace}\}$
<code>\jomc{a}</code>	$\mathbf{J}_{\omega_{c_a}}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{boldsymbol}\ J\}_-\{\backslash\mathrm{boldsymbol}\{\backslash\omega\}_-\{c\_ \#1\}\}\}\backslash\mathrm{xspace}\}$
<code>\jomth</code>	$\mathbf{J}_{\omega\theta}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-\{\backslash\mathrm{bom}\backslash\mathrm{bth}\}\}\backslash\mathrm{xspace}\}$
<code>\jomphi</code>	$\mathbf{J}_{\omega\phi}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-\{\backslash\mathrm{bom}\backslash\mathrm{bphi}\}\}\backslash\mathrm{xspace}\}$
<code>\jomeq</code>	$\mathbf{J}_\omega^{eq}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-\{\backslash\mathrm{bom}\}^\wedge\{\mathrm{eq}\}\}\backslash\mathrm{xspace}\}$
<code>\jweq</code>	$\mathbf{J}_w^{eq}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-\{\backslash\mathrm{bs}\{w\}\}^\wedge\{\mathrm{eq}\}\}\backslash\mathrm{xspace}\}$
Linear velocity related		
<code>\jv</code>	$\mathbf{J}_v$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-\{\backslash\mathrm{bs}\ v\}\}\backslash\mathrm{xspace}\}$
<code>\jvp</code>	$\mathbf{J}_{vp}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-\{\{\backslash\mathrm{bs}\ v\}\{\backslash\mathrm{bs}\ p\}\}\}\backslash\mathrm{xspace}\}$
<code>\jvth</code>	$\mathbf{J}_{v\theta}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-\{\backslash\mathrm{bv}\backslash\mathrm{bth}\}\}\backslash\mathrm{xspace}\}$
<code>\jvphi</code>	$\mathbf{J}_{v\phi}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-\{\backslash\mathrm{bv}\backslash\mathrm{bphi}\}\}\backslash\mathrm{xspace}\}$
<code>\jveq</code>	$\mathbf{J}_v^{eq}$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-\{\backslash\mathrm{bv}\}^\wedge\{\mathrm{eq}\}\}\backslash\mathrm{xspace}\}$
<code>\jc</code>	$\mathbf{J}_c$	$\{\backslash\mathrm{ensuremath}\{\{\backslash\mathrm{bs}\ J\}_-\{\backslash\mathrm{bs}\ c\}\}\backslash\mathrm{xspace}\}$
<code>\jvpc{a}</code>	$\mathbf{J}_{vp_{c_a}}$	$\{\backslash\mathrm{ensuremath}\{\backslash\mathrm{boldsymbol}\{J\}_-\{\{\backslash\mathrm{bs}\ v\}\{\backslash\mathrm{bs}\ p\}_-\{c\_ \#1\}\}\}\backslash\mathrm{xspace}\}$
<code>\jcp</code>	$\mathbf{J}_{cp}$	$\{\backslash\mathrm{ensuremath}\{\backslash\mathrm{boldsymbol}\{J\}_-\{\backslash\mathrm{bs}\{c\}\{\backslash\mathrm{bp}\}\}\}\backslash\mathrm{xspace}\}$

Table 8: Kinematics

Short form	Output	LaTeX command
Positions		
<code>\rot{a}{b}</code>	${}_b^a\mathbf{R}$	$\{\backslash\mathrm{ensuremath}\{\{\}^\wedge\{\#1\}_-\{\#2\}\{\backslash\mathrm{boldsymbol}\{R\}\}\}\backslash\mathrm{xspace}\}$
<code>\tran{a}{b}</code>	${}_b^a\mathbf{T}$	$\{\backslash\mathrm{ensuremath}\{\{\}^\wedge\{\#1\}_-\{\#2\}\{\backslash\mathrm{boldsymbol}\{T\}\}\}\backslash\mathrm{xspace}\}$



<code>\frm{a}</code>	$\{a\}$	$\{\mathrm{\{#1\}}\xspace$
<code>\pc</code>	$\boldsymbol{p}_c$	$\{\mathrm{\boldsymbol{p}}_c\}\xspace$
<code>\pci{a}</code>	$\boldsymbol{p}_{c_a}$	$\{\mathrm{\boldsymbol{p}}_c\}_{\mathrm{\{#1\}}}\xspace$
<b>Velocities</b>		
<code>\vp</code>	$\boldsymbol{v}_p$	$\{\mathrm{\boldsymbol{v}}_p\}\xspace$
<code>\vpc{a}</code>	$\boldsymbol{v}_{p_{c_a}}$	$\{\mathrm{\boldsymbol{v}}_p\}_{c_{\mathrm{\{#1\}}}}\xspace$
<b>Derivatives</b>		
<code>\xd</code>	$\dot{x}$	$\{\mathrm{\dot{x}}\}\xspace$
<code>\xdd</code>	$\ddot{x}$	$\{\mathrm{\ddot{x}}\}\xspace$
<code>\bqd</code>	$\dot{\boldsymbol{q}}$	$\{\mathrm{\dot{\boldsymbol{q}}}\}\xspace$
<code>\bqdd</code>	$\ddot{\boldsymbol{q}}$	$\{\mathrm{\ddot{\boldsymbol{q}}}\}\xspace$
<code>\pcd</code>	$\dot{\boldsymbol{p}}_c$	$\{\mathrm{\dot{\boldsymbol{p}}}_c\}\xspace$
<code>\thd</code>	$\dot{\theta}$	$\{\mathrm{\dot{\theta}}\}\xspace$
<code>\bthd</code>	$\dot{\boldsymbol{\theta}}$	$\{\mathrm{\dot{\boldsymbol{\theta}}}\}\xspace$
<code>\bthdd</code>	$\ddot{\boldsymbol{\theta}}$	$\{\mathrm{\ddot{\boldsymbol{\theta}}}\}\xspace$
<code>\alphad</code>	$\dot{\alpha}$	$\{\mathrm{\dot{\alpha}}\}\xspace$
<code>\psid</code>	$\dot{\psi}$	$\{\mathrm{\dot{\psi}}\}\xspace$
<code>\psidd</code>	$\ddot{\psi}$	$\{\mathrm{\ddot{\psi}}\}\xspace$
<code>\phid</code>	$\dot{\phi}$	$\{\mathrm{\dot{\phi}}\}\xspace$
<code>\bPhid</code>	$\dot{\boldsymbol{\Phi}}$	$\{\mathrm{\dot{\boldsymbol{\Phi}}}\}\xspace$
<code>\bphid</code>	$\dot{\boldsymbol{\phi}}$	$\{\mathrm{\dot{\boldsymbol{\phi}}}\}\xspace$
<code>\bpsid</code>	$\dot{\boldsymbol{\psi}}$	$\{\mathrm{\dot{\boldsymbol{\psi}}}\}\xspace$
<code>\bphidr</code>	$\dot{\boldsymbol{\phi}}^r$	$\{\mathrm{\dot{\boldsymbol{\phi}}}^r\}\xspace$
<code>\bphidn</code>	$\dot{\boldsymbol{\phi}}^n$	$\{\mathrm{\dot{\boldsymbol{\phi}}}^n\}\xspace$

Table 9: Dynamics

Short form	Output	LaTeX command
<code>\bMth</code>	$\mathbf{M}_\theta$	<code>{\ensuremath{\boldsymbol{M}_\theta}}</code>
<code>\bCth</code>	$\mathbf{C}_\theta$	<code>{\ensuremath{\boldsymbol{C}_\theta}}</code>
<code>\bGth</code>	$\mathbf{G}_\theta$	<code>{\ensuremath{\boldsymbol{G}_\theta}}</code>
<code>\bin</code>	$\mathbf{I}_n$	<code>{\ensuremath{\boldsymbol{I}_n}}</code>
<code>\Ith</code>	$I(\theta)$	<code>{\ensuremath{I(\theta)}}</code>
<code>\bKp</code>	$\mathbf{K}_p$	<code>{\ensuremath{\boldsymbol{K}_p}}</code>
<code>\bKv</code>	$\mathbf{K}_v$	<code>{\ensuremath{\boldsymbol{K}_v}}</code>
<code>\bQc</code>	$\mathbf{Q}^c$	<code>{\ensuremath{\boldsymbol{Q}^c}}</code>
<code>\Pnc</code>	$P^{\text{nc}}$	<code>{\ensuremath{P^{\text{nc}}}}</code>
<code>\bQnca</code>	$\mathbf{Q}_a^{\text{nc}}$	<code>{\ensuremath{\boldsymbol{Q}_a^{\text{nc}}}}</code>
<code>\bQnc</code>	$\mathbf{Q}^{\text{nc}}$	<code>{\ensuremath{\boldsymbol{Q}^{\text{nc}}}}</code>
<code>\bQncr</code>	$\mathcal{Q}$	<code>{\ensuremath{\boldsymbol{\mathcal{Q}}}}</code>

Table 10: Manipulators

Short form	Output	LaTeX command
<code>\rrs</code>	3- <u>RRS</u>	<code>{\ensuremath{3-\underline{R}RS}}</code>
<code>\rps</code>	3-R <u>PS</u>	<code>{\ensuremath{3-R\underline{P}S}}</code>
<code>\upu</code>	3-U <u>P</u> U	<code>{\ensuremath{3-U\underline{P}U}}</code>
<code>\rrr</code>	3- <u>RRR</u>	<code>{\ensuremath{3-\underline{R}RR}}</code>
<code>\rpr</code>	3-R <u>P</u> R	<code>{\ensuremath{3-R\underline{P}R}}</code>

<code>\upsl</code>	6- <u>UPS</u>	$\{\backslash ensuremath\{6\}-$ $U\backslash underline\{P\}S\backslash xspace\}$
<code>\map</code>	MaPaMan	$\{\backslash mbox\{MaPaMan\}\backslash xspace\}$
<code>\mapI</code>	MaPaMan-I	$\{\backslash mbox\{MaPaMan-I\}\backslash xspace\}$
<code>\mapII</code>	MaPaMan-II	$\{\backslash mbox\{MaPaMan-II\}\backslash xspace\}$

Table 11: Math Symbols

Short form	Output	LaTeX command
<code>\iff</code>	$\mathit{iff}$	$\{\backslash ensuremath\{\backslash mathit\{iff\}\}\backslash xspace\}$
<code>\imply</code>	$\Rightarrow$	$\{\backslash ensuremath\{\backslash Rightarrow \ ;\}\backslash xspace\}$
<code>\QED</code>	■	$\{\backslash ensuremath\{\backslash rule[0pt]\{1.5ex\}\{1.5ex\}\}\backslash xspace\}$
<code>\proof</code>	<i>Proof:</i>	$\{\backslash noindent\backslash hspace\{2em\}\{\backslash em\ Proof:$ $\}\backslash xspace\}$
<code>\define</code>	$\triangleq$	$\{\backslash ensuremath\{\backslash stackrel\{\Delta\}\{=\}\}\backslash xspace\}$
<code>\elim{a}</code>	$\xrightarrow{a}$	$\{\backslash ensuremath\{\backslash stackrel\{\times\}$ $\#1\}\{\backslash longrightarrow\}\}\backslash xspace\}$
<b>Operations</b>		
<code>\adj</code>	adj	$\{\backslash text\{adj\}\backslash xspace\}$
<code>\trace</code>	tr	$\{\backslash text\{tr\}\backslash xspace\}$
<b>Norm</b>		
<code>\norm{a}</code>	$\ a\ $	$\{\backslash ensuremath\{\backslash #1 \}\backslash xspace\}$
<code>\normd{a}</code>	$\ a\ _d$	$\{\backslash ensuremath\{\backslash #1 _d\}\backslash xspace\}$
<b>Partial derivative</b>		
<code>\pd{a}{b}</code>	$\frac{\partial a}{\partial b}$	$\{\backslash ensuremath\{\backslash frac\{\partial \ #1\}\{\partial \$ $\#2\}\}\backslash xspace\}$
<code>\dpd{a}{b}</code>	$\frac{\partial a}{\partial b}$	$\{\backslash ensuremath\{\backslash dfrac\{\partial \ #1\}\{\partial \$ $\#2\}\}\backslash xspace\}$
<b>Total derivative</b>		
<code>\td{a}{b}</code>	$\frac{da}{db}$	$\{\backslash ensuremath\{\backslash frac\{\text{d}\$ $\#1\}\{\text{d} \ #2\backslash hfill\}\}\backslash xspace\}$
<code>\dtotder{a}{b}</code>	$\frac{da}{db}$	$\{\backslash ensuremath\{\backslash dfrac\{\text{d}\$ $\#1\}\{\text{d} \ #2\backslash hfill\}\}\backslash xspace\}$
<b>Partial second derivative</b>		

<code>\pdd{a}{b}</code>	$\frac{\partial^2 a}{\partial b^2}$	<code>{\ensuremath{\frac{\partial^2}{\partial^2}}\xspace}</code>
<b>Total second derivative</b>		
<code>\tdd{a}{b}</code>	$\frac{d^2 a}{db^2}$	<code>{\ensuremath{\frac{\textrm{d}^2}{\textrm{d}^2}\hfill}\xspace}</code>
<code>\dsecd{a}{b}</code>	$\frac{d^2 a}{db^2}$	<code>{\ensuremath{\dfrac{\textrm{d}^2}{\textrm{d}^2}\hfill}\xspace}</code>
<b>Scalar tripple product</b>		
<code>\trip{a}{b}{c}</code>	$[a, b, c]$	<code>{\ensuremath{\left[\#1, \#2, \#3\right]}\xspace}</code>
<b>Rank symbol</b>		
<code>\rank{a}</code>	$\text{rank}(a)$	<code>{\ensuremath{\mathrm{rank}}\left(\#1\right)}\xspace}</code>

Table 12: Generic words

Short form	Output	LaTeX command
<code>\dof</code>	degree-of-freedom	<code>{degree-of-freedom\xspace}</code>
<code>\dofs</code>	degrees-of-freedom	<code>{degrees-of-freedom\xspace}</code>
<code>\rb</code>	rigid-body	<code>{rigid-body\xspace}</code>
<code>\rbm</code>	rigid-body motion	<code>{rigid-body motion\xspace}</code>
<code>\asf</code>	actuator-space formulation	<code>{actuator-space formulation\xspace}</code>
<code>\csf</code>	configuration-space formulation	<code>{configuration-space formulation\xspace}</code>
<code>\ith</code>	$i$ th	<code>{\ensuremath{i}\text{th}}\xspace}</code>

Table 13: References

Short form	Output	LaTeX command
<code>\mref{a}</code>	??	<code>{\ref{\#1}\xspace}</code>
<code>\mcite{a}</code>	[?]	<code>{\cite{\#1}\xspace}</code>
<code>\mlabel{a}</code>		<code>{\label{\#1}\xspace}</code>