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| Model Name: Load\_lib/200 HP chiller compressor | | |
| Name and affiliation of author or POC:  Ed Corbett, MIT Lincoln Laboratory | Model Symbol: | Accreditation:  Based on 3rd order polynomial model provided by Schweitzer Engineering Laboratory. |
| Date of Publication:  8/17/2016 |
| Version Information:  1.0 |
| Model accessibility (open source, license, …):  HIL Members Only |
| Model Description and Theory of Operation:  This model is a Matlab™ function that represents motor shaft torque as a 3rd order function of motor shaft speed (which corresponds to the speed-dependent load presented to a motor by a reciprocating-type compressor). The function is based on a model provided to MITLL by Schweitzer Engineering Laboratory (SEL). The zeroth order term in the SEL model has been neglected to avoid the possibility of decelerating the motor below zero speed when connected to the compressor load without an AC source applied to the motor. The present model is scaled to provide a 200 HP shaft load at 1800 RPM shaft speed  List of References:   * N/A | | |
| Model Specifications:  1) Matlab function: Tshaft=.118w+.000861\*w^2-3.371e-7\*w^3 (where “w” is speed in RPM and Tshaft is N-m)  Assumptions and Limitations  1) The function is scaled for 200 HP load at 1800 RPM.  2) The function has no zeroth order term to prevent a corner case occurring where motor shaft speed can be driven below zero by the compressor | | |
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| Diagrammatic Representation of Model Internals: | | |
| Model Validation (technique used, evidence): | | |
| Simulation Platform, Solvers:  Matlab 2013a with Simscape. A discrete solver with 100 us time step was used. | | |
| Known Issues: | | |
| Models which use this block:  Energy/HIL/Components/SimulinkOpal/Motor/IM200HP\_Test\_Model\_v2.mdl | | |