

## Bill of materials

Table 1 lists significant items purchased in the construction of the prosthesis testbed.

Component Description	Quantity	Part Number	Supplier
Servomotor (AC, 1.61 kW)	1	BSM90N-175AF	DEW Electric, Inc.
Gearbox (planetary, 5:1)	1	GBSM90-MRP120-5	DEW Electric, Inc.
Flexible shaft coupling	1	R+W BKC/30/32/30	DEW Electric, Inc.
Ball bearing (stainless steel, ABEC-1)	2	4668K15	McMaster-Carr
Motor drive unit	1	MFE460A010B	DEW Electric, Inc.
Real time control unit	1	ACE1103	dSPACE, Inc.
Bowden conduit (coiled steel, HDPE lining)	1	415310-00	Lexco Cable Mfg.
Transmission cable (Vectran, 3mm)	1	155791	West Marine
Universal prosthesis adapter (titanium)	1	FND-227014	Ohio Willow Wood
Series springs (unidirectional E-glass)	2	GC-67-UB	Gordon Composites
Heel spring (unidirectional E-glass)	1	GC-67-UB	Gordon Composites
Needle roller bearings	4	5905K21	McMaster-Carr
Ankle encoder (10 bit, absolute, magnetic)	1	MAE3-A10-250-220-7	US Digital
Small encoder gear (P = 96, N = 10)	1	S1G84Z-096S10	Stock Drive Products
Large encoder gear (P = 96, N = 80)	1	S1066Z-096S080	Stock Drive Products
Sprocket (P = 0.25", N = 11)	1	A 6C 7-25011	Stock Drive Products
Chain (P = 0.25", N = 25)	1	A 6Q 7-H25	Stock Drive Products
Pulley encoder (9 bit, relative, optical)	1	E8P-512-250-D-H-D	US Digital
Limit switch	1	7658K14	McMaster-Carr

**Table 1:** Short description, quantity used, part number, material, and supplier for the significant items purchased in the construction of the prosthesis testbed. Stock materials (e.g. aluminum bars, steel shafts) and minor hardware (e.g. screws, rubber bands) are not included.

## Attached files

*Solidworks CAD Files.zip* includes 3D models of all parts contained in the prosthesis end-effector assembly. 3D modeling was used in the design and manufacturing of the prosthesis, so not all subtle details of the current prototype are included in the model. These details are primarily minor modifications made post-manufacturing as well as strings and rubber bands used for chain tensioning and toe dorsiflexion. Files were created using the 2012 version of SolidWorks and will not be backward compatible with previous versions of the software.

*MATLAB Control Code Files.zip* includes Simulink control diagrams (used for control design and then automatically compiled to C for real time control) as well as MATLAB scripts used in the design of our high-level walking controller and for interpretation of control variables recorded during experiments.