

List of Tables

Table 1.1 Characteristics of different types of hard (first three columns) and soft robots.	2
Table 2.1 General Characteristics of Research hands with application in prosthetics.	12
Table 2.2 General Characteristics of commercial prosthetic hands.	26
Table 3.1 10x10 Stiffness matrix.	48
Table 3.2 18x18 Stiffness matrix.	51
Table 4.1 Properties of natural rubber.	57
Table 4.2 Comparison of Deflection of tube actuators of various geometries at 5 bar internal pressure.	58
Table 4.3 Comparison of max deflection of square-corrugated ABFPA at 5 bar internal pressure of various cross-sectional geometries.	61
Table 4.4 Comparison of maximum tip deflection of triangular-corrugated ABFPA at 4 bar internal pressure of various cross-sectional geometries.	70
Table 4.5 Eccentricity and bending angles of three types of rubber ABFPAs.	88
Table 4.6 Material Properties of Silicone Rubber.	91
Table 4.7 Parameters of AFPA.	91
Table 5.1 Physical Properties of Nitrile Rubber.	95
Table 5.2 Chemical Properties of Nitrile Rubber.	95
Table 5.3 Composition of Nitrile Rubber (Courtesy Elgi Ultra Industries Ltd.)	97
Table 5.4 Physical properties of Silicone Rubber.	99
Table 5.5 Chemical properties of Silicone Rubber.	99
Table 5.6 Physical properties of Nickel 200	100
Table 5.7 Chemical Composition of Nickel 200	100
Table 5.8 Properties of the manufactured AFPA sample.	104
Table 6.1 Parameters of Circular AFPA.	133
Table 6.2 Specifications of the ABFPA.	140
Table A.1 Design data of the AMB.	158
Table A.2 Mesh element type used for Finite Element Analysis.	159
Table A.3 Comparative results with the existing Bourdon Tube Pressure gauge.	163
Table A.4 Various configuration of pressure sensing element.	164