The NY Electric Elbow fills the need for a rugged, reliable, and moderately priced externally-powered elbow that can be used by children as well as adults. It has been clinically tested and proven in applications around the world and offers significant benefits, particularly to the bilateral Shoulder Disarticulation or Above Elbow patient.

The electric elbow, available in exo or endoskeletal, is compatible with the Synergetic Prehensor, the Prehension Actuator, and the Michigan Electric Hook. An interchangeable variety of switching systems and myoelectric controls can be used individually or in combination to operate the externally powered components. Commonly available, rechargeable, environmentally safe, Nickel Metal Hydride batteries will power a device for a full day under normal operating conditions.

Fabrication of a complete prosthesis is also available through the Central Fabrication Department of Hosmer Dorrance.
Externally Powered Systems

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5V Remote Battery Pack .............................................................................................................................................. H115
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Wrists with Electrical Connectors ................................................................................................................................ H112
NY Electric Elbow

Features:
- Modular designs of elbow and accessories allow many protheses configurations
- Interchangeable with the E-200 and E-400 style conventional elbows
- Exo or Endoskeletal application
- Compatible with the NY Prehension Actuator, the Michigan Child Electric Hook and the NU-VA Synergetic Prehensor
- Myoelectric or switch controlled
- Free swing at full extension
- Lightweight; extremely quiet
- Low maintenance
- Commonly available rechargeable NiMH batteries operate the elbow for a full day

NY Electric Elbow, Exoskeletal
57431  Exoskeletal Electric Elbow, Medium, Free Swing
57432  Exoskeletal Electric Elbow, Large, Free Swing

NY Electric Elbow, Endoskeletal
57442  Endoskeletal Electric Elbow, Medium, Free Swing
57443  Endoskeletal Electric Elbow, Large, Free Swing
## NY Electric Elbow System Components

### Control Systems

#### Switch Controls
For NY Electric Elbows
- 57412 Two Position Pull Switch, NY
- 71987 Two Position/Two Button Push Switch, OCCC
- 56277 Two Position/Two Button Push Switch, NY
- 71977 Three Function Pull Switch, NY (Not Shown)
- 58243 Switch, On/Off Push Pad

#### Modular Battery Pack
Batteries included
- 56891 5V, Remote Battery Pack
- 56356 5V, Remote Battery Pack, Dual-In-Line
- 54729 5V, Battery Pack in Pouch
- 56776 6V, Endoskeletal Battery Pack
- 61859 7.2V, Li-Ion Battery Pack
  - Includes:
    - A) 61589 Charge Adapter
    - B) 61584 7.2v, Li-Ion Battery

#### Battery Chargers
- 54726 5V Battery Charger, 115V
- 56993 5V or 6V Battery Charger, 115V
- 71617 5V or 6V Battery Charger, 220V (For International Use)
- 60949 Timer for Battery Charger
- 61858 7.2V, Li-Ion Battery Charger Set

### Optional
Please Call Central Fabrication For Information
- 58200 Myo Analyzer Kit
- 57818 Laminating Form for EMG Electrode
- 57820 Laminating Form for Ground Electrode
- 57816 Electrode Button, Low Profile, .09” High
- 57815 Electrode Button, Medium Profile, .19” High
- 57814 Electrode Button, High Profile, .28” High
- 57433 Retrofit Electric Elbow w/Free Swing
NY Electric Elbow Specifications

Power Requirements:
Type: AA NiMH battery cell, 1.3 volts each @ 1200mAh, Alkaline batteries can be used for temporary operation but should never be recharged.

Voltage: 5.2 volts = 4 batteries
6.5 volts = 5 batteries
7.2 volts = New 7.2 Li-Ione battery pack

Charging Rate: Full charge @ rate of 120mA for 10 hours; charging the batteries can be easily done using the charging jack without removing batteries from prosthesis.

Charger: USE ONLY HOSMER RECOMMENDED CHARGERS WITH THESE POWER PACKS. CHARGING CURRENT, VOLTAGE, AND POLARITY MUST MATCH.

Elbow Torque Under Forearm Load | Lift Time (flexion) 5° - 135° | Current | Free Forearm Swing
--- | --- | --- | ---
0 in-lbs | 1.3 seconds | .36 amps |
15 in-lbs | 2.3 seconds | 1.1 amps |
28 in-lbs | 4.9 seconds | 1.7 amps | 5° - 135° |
30 in-lbs | STALL | 2.0 amps |

Break Away Clutch
18-20 ft-lbs | OVERLOAD | 0 |

NY Electric Elbow Specifications:

- Myoelectric Control: Two EMG sites required, flexion and extension, with ground
- Switch Control: Two function control switch, flexion and extension, push or pull switches
- Weight: Medium elbow (E-200 size) 15.5oz (439g); large elbow (E-400 size) 16oz, (453g)
- Height: Large or medium elbow axis to socket end: 2-1/2" (6.4cm)
- Diameter: Socket interface (turntable) (measurement A): medium elbow, 2-3/8" (6cm); large elbow, 2-13/16" (7.1cm)
- Saddle Width, (measurement B): Medium elbow, 2-1/4" (5.7cm); large elbow, 2-3/8" (6cm)
NY Prehension Actuator (P.A.)

NY Prehension Actuator (P.A.)

- Motor assisted forearm allows patient with limited excursion to more easily operate a variety of terminal devices
- Significantly decreases the amount of excursion required to open the terminal device
- Forearm custom fabricated to your specifications and requirements

Features:
- Switch or myoelectrically controlled
- Manual pronation/supination with adjustable friction allowed from mid-forearm turntable
- Operates for several days on one charge of commonly available AA NiMH batteries
- Power cutoff feature prevents inadvertent draining of power pack
- Low maintenance
- Available in two wrist sizes (1-3/4" and 2") and compatible with all adult elbows

Please supply the following information when ordering the PA:
- Forearm length from elbow axis to end of wrist. Minimum forearm length: 8” (20.32cm)
- Pigment Color (Standard, Kingsley)
- Right or Left Side
- Wrist Style: Use 1-3/4" or 2" Diameter Wrists
- Elbow Style
- Myoelectric or Switch Control
- Power Supply (Modular Battery Pack)
- Charger

NOTE: When ordering a P.A. with Outside Locking Hinges, the laminating straps are not included.

<table>
<thead>
<tr>
<th>Prehension Actuator P/N</th>
<th>Elbow Size</th>
<th>Wrist Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>59165</td>
<td>Medium: E-200</td>
<td>2&quot; (5.08cm)</td>
</tr>
<tr>
<td>59166</td>
<td>Medium: E-200</td>
<td>1-3/4&quot; (4.45cm)</td>
</tr>
<tr>
<td>59167</td>
<td>Medium: NY Electric</td>
<td>2&quot; (5.08cm)</td>
</tr>
<tr>
<td>59168</td>
<td>Medium: NY Electric</td>
<td>1-3/4&quot; (4.45cm)</td>
</tr>
<tr>
<td>59163</td>
<td>Large: NY Electric</td>
<td>2&quot; (5.08cm)</td>
</tr>
<tr>
<td>59164</td>
<td>Large: NY Electric</td>
<td>1-3/4&quot; (4.45cm)</td>
</tr>
<tr>
<td>59319</td>
<td>E-500 or E-5500</td>
<td>Custom Order</td>
</tr>
</tbody>
</table>

P.A. Configurations for Fabrication
- Wrist and elbow saddle must be fabricated into the forearm when a P.A. is ordered
- Any Hosmer 1-3/4" or 2" diameter wrist is suitable
- Select the saddle from Hosmer’s conventional or electric elbows

NY Elbow, Medium 2.25" (5.72cm)
NY Elbow, Large 2.38" (6.05cm)
E-200 Elbow, Medium 2.12" (5.38cm)
E-400 Elbow, Large 2.38" (6.05cm)
NY Prehension Actuator System Components

Myoelectric Control Package

- For NY Prehension Actuator

57791  Myoelectric Control Kit

Includes:
58671  Myoelectric Processor
57804  EMG Electrode Assembly (1 Electrode Included)
57809  Ground Electrode Assembly (1 Electrode Included)
57815  Electrode Button, Medium (3 Buttons Included)
57454  Jumper Connector
54487  Gain Adjustment Tool

Switch Controls

- For NY Prehension Actuator

57405  Single Position Pull Switch, NY, For Conventional 1/2" Harness Attachment
53036  Single Position/Single Button Push Switch, NY
71940  Single Position/Single Button Push Switch, OCCC
71977  Three Function Pull Switch, NY, (Not Shown)

NY Prehension Actuator (P.A.) Specifications:

- Myoelectric Control: One EMG site and one ground required
- Switch Control: Single function control, push or pull switch
- Power Supply: AA NiMH rechargeable batteries
- Weight: 1 lb (445g) w/9-1/2" forearm and 2" CAPP Delrin Wrist
- Length: Minimum length for forearm: 8" (20.32cm)
- Cable Travel: Maximum cable travel 1-5/8"
- Pull: 12 lbs. or 3 rubber bands MAXIMUM

Modular Battery Packs

Batteries included
56891  5V Remote Battery Pack
56356  5V Remote Battery Pack, Dual-In-Line
54729  5V Battery Pack in Pouch
56776  6V Endoskeletal Battery Pack
58058  9V Battery, (Requires Wiring Harness 56876)
61859  7.2V, Li-lon Battery Pack

Battery Chargers

54726  5V Battery Charger, 115V (Standard)
56993  5V or 6V Battery Charger, 115V
71617  5V or 6V Battery Charger, 220V (For International Use)
57823  9V Battery Charger
60949  Timer For Battery Charger
61858  7.2V, Li-lon Battery Charger Set
Michigan Electric Hook

- Child size electric hook
- Assists younger patients with limited excursion in operating a terminal device more effectively
- Utilizes a modified 10P or 10X hook

Features:
- Switch or Myoelectric control
- Available as self contained BE prosthesis with Myoelectric control
- May be used in conjunction with the NY Electric Elbow
- Utilizes nitrile rubber or plastisol covered hooks

Michigan Electric Hook, Nitrile rubber Lined Fingers
70790  Michigan Electric Hook, 10X Right
70792  Michigan Electric Hook, 10X Left

Michigan Electric Hook, Plastisol Covered Fingers
70791  Michigan Electric Hook, 10P Right
70793  Michigan Electric Hook, 10P Left

Myoelectric Control Package
57791  Myoelectric Control Kit
Includes: Processor, 1 EMG Electrode, Ground Electrode, Medium Buttons, and Jumper Connector

Switch Controls
Can be used when the Michigan Electric Hook is used alone or in combination with other electric or myoelectric components

NOTE: See System Components for P.A. on page H114
NU-VA Synergetic Prehensor

NU-VA Synergetic Prehensor Terminal Device

- Lightweight, myoelectrically controlled terminal device
- Opens and closes with true proportional speed
- Pinch force up to 25 lbs (11.3 kg)

Features:
- True Proportional Myoelectric control
- Pinch force maximum 25 lbs (11.3kg)
- Quick and easy interchanging of terminal devices with specially designed wrists
- Convenient 9V battery design, operates a full day on an overnight charge
- Low current drain
- Automatic safety breakaway
- Lyre-shaped, nitrile rubber lined fingers

Gray Terminal Device w/ Black palmar and side pad
57840  Synergetic Prehensor, Right, Gray
57841  Synergetic Prehensor, Left, Gray
60983  Synergetic Prehensor, Utah Euro Wrist Conversion, Right, Gray
60984  Synergetic Prehensor, Utah Euro Wrist Conversion, Left, Gray
60981  Synergetic Prehensor, Euro Wrist Hosmer Control, Right, Gray
60982  Synergetic Prehensor, Euro Wrist Hosmer Control, Left, Gray

Beige Terminal Device w/ Black palmar and side pad
57840-S  Synergetic Prehensor, Right, Beige
57841-S  Synergetic Prehensor, Left, Beige
60983-S  Synergetic Prehensor, Utah Euro Wrist Conversion, Right, Beige
60984-S  Synergetic Prehensor, Utah Euro Wrist Conversion, Left, Beige
60981-S  Synergetic Prehensor, Euro Wrist Hosmer Control, Right, Beige
60982-S  Synergetic Prehensor, Euro Wrist Hosmer Control, Left, Beige
NU-VA System Components

Myoelectric Control Processor Assembly

59860  Myoelectric Processor Assembly Package

Includes:
59850  Myo Processor, On/Off Switch and Charging Jack
57804  EMG Electrode Assembly, (2 Electrodes Included)
57809  Ground Electrode Assembly (1 Electrode Included)
57815  Electrode Buttons, Medium, (5 Buttons Included)
58058  9 Volt Rechargeable Ni-Cad Battery
57823  9 Volt Battery Charger
54487  Gain Adjustment Tool

Wrists with Electrical Connectors

• For NU-VA Synergetic Prehensor

58052  WE-500N Style
58708  WE-500N Style w/Laminating Ring
58713  FD 2", Friction Disconnect
58704  FM-100 Style w/Laminating Ring

Fabrication

• Call Our Central Fabrication Department For Information

58250  BE Prosthesis Fabrication, Using Synergetic Prehensor.

Options

60152  Processor and Electrodes Only, (No Charger)
57818  Laminating Form, For EMG Electrode
57820  Laminating Form, For Ground Electrode
59854  Laminating Form, For Prehensor Processor

Electrode Buttons

57814  High Profile, .28” High
57815  Medium Profile, .19” High
57816  Low Profile, .09” High
NU-VA Synergetic Prehensor Specifications

NU-VA Synergetic Prehensor Specifications:

- Proportional Myoelectric Control: Two EMG sites, one to open, one to close and a ground electrode
- Weight: 13.23oz (375g) – Synergetic Prehensor only
- Length: 7-3/32” (180mm), from surface of wrist to top of hook tynes
- Power Supply: 9V rechargeable ni-cad battery. Use only compatible 9V battery charger, 57823, supplied w/ Myoelectric Processor Assembly
- Quiescent Current Drain: 25 micro amps
- Safety Breakaway: 30 lbs. at finger tips
- Pinch Force: 0-25 lbs based on 9V constant power supply. May vary due to patient EMG or condition of battery
- Cycles: 1,300 cycles (more than one full day’s normal use) tested on one full charge of ni-cad 9V rechargeable battery. One cycle is defined as full open to full close w/5 lbs pinch force and back to full open. These are relative figures which may vary.
Controls for Electric Components

Prehension Actuator or Michigan Hook Myoelectric Control

- 57791 Myoelectric Control Kit for One EMG Site, Single Site/Single Function EMG and Ground Electrodes. Interfaces w/ Prehension Actuator or Michigan Electric Hook.

NY Electric Elbow Switch Controls

- 71987 Two Function/Two Button Push Switch, OCCC Two Function, Extension and Flexion, Internally Mounted
- 56277 Two Function/Two Button Push Switch, NY Two Functions, Extension and Flexion, Externally Mounted
- 57412 Two Function Pull Switch, NY Operates Extension and Flexion From Conventional 1/2" Harness Attachment
- 71977 3 Function Pull Switch, NY Activate Three Functions From One Control Switch: Elbow Extension and Flexion and Operation of P.A. or Michigan Hook.

Prehension Actuator or Michigan Hook Switch Controls

- 71940 Single Button Push Switch, OCCC Single Function, Internally Mounted
- 53036 Single Button Push Switch, NY Single Function, Externally Mounted
- 57405 Single Function Pull Switch, NY Conventional 1/2" Harness Attachment

Controls for Electric Components

- Simple plug-in modules
- Either myoelectric or switch control
- Modular design enables prosthetist to customize an electric system and interchange controls for the best possible application
Power Supplies and Chargers

5V Remote Battery Pack

- Small size is ideal for mounting this pack distal to the socket or directly above the elbow turntable.

56891  5V Remote Battery Pack (4 AA NiMH Batteries)

5V Battery Pack w/Batteries

- Most commonly used for cosmetic build-ups when space is not available within the socket walls.

54729  5V Battery Pack w/Batteries, Case, Pouch (4 AA NiMH Batteries)

Dual-in-Line 5V Remote Battery Pack

- The long, narrow configuration of this battery pack allows it to be placed within the socket walls when space above the elbow turntable is not sufficient.

56356  5V Remote Battery Pack, Dual-in-Line (4 AA NiMH Batteries)

6V Modular Battery Pack

- Because of its circular design, this battery pack is easily placed and supported on the modular pylon.

56776  6V Modular Battery Pack, Endoskeletal (5 AA NiMH Batteries)
Power Supplies and Chargers

**Li-Ion Battery System**

- Small size is ideal for mounting this pack distal to the socket or directly above the elbow turntable
- Includes charger AC + DC adapter and battery

61583  7.2 Li-Ion Battery System

**Replacement Batteries**

54737  Battery, 1.25V Rechargeable NiMH, For Use In 5V or 6V Battery Packs
58058  Battery, 9V Rechargeable Ni-Cad, For Use w/Synergetic Prehensor
61584  Battery, 7.2V Li-Ion, For Use w/ NY Electric Elbow

**Power Supplies/Chargers for Switch or Myoelectric Systems**

- Commonly available rechargeable Nickel Metal Hydride batteries will power a device for a full day under normal operating conditions
- Nickel Metal Hydride (NiMH) batteries are environmentally safe

Note: Alkaline batteries can be substituted temporarily when normal recharging is not possible

**Battery Chargers**

54726  5V Battery Charger, 115V, Designed for Hosmer 5V Modular Battery Pack
56993  6V Battery Charger, 115V, Designed for Hosmer 6V Modular Battery Pack
71617  5 or 6V Battery Charger, 220V, For International Use, or Where 220 Voltage is Customary
57823  9V Battery Charger, 115V, Specifically Designed for the NU-VA Synergetic Prehensor
61585  7.2 Li-Ion Battery Charger, Specifically Designed for the Li-Ion Power System
60949  Timer for Battery Charger
Myoelectric and Electric Accessories

**Myoelectric Accessories**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>57804</td>
<td>EMG Electrode Assembly</td>
</tr>
<tr>
<td>57809</td>
<td>Ground Electrode Assembly</td>
</tr>
<tr>
<td>57814</td>
<td>Button, Electrode, High Profile</td>
</tr>
<tr>
<td>57815</td>
<td>Button, Electrode, Medium Profile</td>
</tr>
<tr>
<td>57816</td>
<td>Button, Electrode, Low Profile</td>
</tr>
<tr>
<td>57818</td>
<td>Laminating Form, EMG Electrode</td>
</tr>
<tr>
<td>57820</td>
<td>Laminating Form, Ground Electrode</td>
</tr>
</tbody>
</table>

**Electric Accessories**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>70409</td>
<td>Forearm Jumper Cable</td>
</tr>
<tr>
<td>70409</td>
<td>Specialized Cable Required When Using the PA or Michigan Electric Hook in Conjunction w/Electric Elbow</td>
</tr>
<tr>
<td>58247</td>
<td>On/Off Push Button Switch Cable Assembly</td>
</tr>
<tr>
<td>71625</td>
<td>European Plug Adaptor Kit</td>
</tr>
<tr>
<td>57454</td>
<td>Jumper Connector, for Use w/Myo P.A.</td>
</tr>
<tr>
<td>54735</td>
<td>3 Pin Connector, Female</td>
</tr>
<tr>
<td>54736</td>
<td>3 Pin Connector, Male</td>
</tr>
<tr>
<td>71975</td>
<td>5 Pin Connector, Female</td>
</tr>
<tr>
<td>56224</td>
<td>5 Pin Connector, Male</td>
</tr>
<tr>
<td>58196</td>
<td>Shipping Plug, Prevents Activation During Shipping</td>
</tr>
<tr>
<td>54737</td>
<td>Battery, 1.25v Rechargeable Ni-Cad</td>
</tr>
</tbody>
</table>

**MyoLab II Analyzer**

- Superior training and fitting aid for myoelectric prostheses
- Readings register immediately without using electrode gel
- Biofeedback reduces learning curve for the patient
- Verify electrode placement inside the socket while patient is wearing the prosthesis
- Ideal as a diagnostic aid and for muscle strengthening or relaxation training

**MyoLab 11 Features:**

- Two independent channels
- Locate EMG site on muscle groups for myoelectrode placement
- Allows patient to develop separation of signals through visual feedback
- Compact 7.5” x 4” x 1.2” (19cm x 10cm x 3cm)
- Weights 2 lbs., (445g)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>61040</td>
<td>Myolab II w/Adaptor</td>
</tr>
<tr>
<td>61039</td>
<td>Myolab II</td>
</tr>
<tr>
<td>61038</td>
<td>Adaptor for Hosmer Myo System</td>
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</table>