

# infinite

biomedical technologies

## ToughWare Product Ordering Guide



## **ABOUT OUR COMPANIES**

### **INFINITE BIOMEDICAL TECHNOLOGIES (IBT)**

IBT is a tightly focused group of engineers, students, researchers, and sales professionals working together to improve the lives of upper limb amputees through the development and distribution of devices that matter. Working closely with patients and clinicians, we are delivering technology that will make prostheses more dependable, functional, and comfortable.

### **TOUGHWARE PROSTHETICS™**

ToughWare Prosthetics develops and manufactures cutting-edge, affordable prosthetic gear for amputees who need dependable performance. New polymer and alloy materials, state-of-the-art manufacturing processes, and innovative engineering ensure our designs delight users worldwide with robust simplicity, functionality, and longevity in service. We build products that put the user in the driver's seat— they're ready to go anytime, and there are no worries about batteries, calibration, getting them wet, or expensive adjustments and repairs!

### **TOUGH COMPONENTS FOR REAL LIVING**

Our products excel where users need tough, practical options for everyday living—from cooking to laundry, yard work to home repairs, and all the jobs in between. Elegant gowns and tuxedos have a proper place—as do expensive, technologically sophisticated prostheses. For certain activities, however, comfortable work clothes are best, and that's where our products come in. They're not just for work, though—they're also great for recreation and sporting activities where users get wet: waterskiing, snorkeling, or scuba diving anyone?

We purposefully design and test our products to ensure they are technologically and economically appropriate for a wide range of people on the planet, including many who are hard-pressed financially. We've found that creating robust affordable gear is appreciated all around the globe. ToughWare is accomplishing its core mission—improving the lives of less-fortunate men, women, and children worldwide who need affordable prosthetic options that work as hard as they do.

Featured in this guide are ToughWare's Vari-Pinch Prehensor™ (V2P™), Retro Classic Hook™, International Transradial Adjustable Limb™ (ITAL™), and our field-serviceable harnessing system and components.

## **HOW TO PLACE ORDERS**

IBT accepts ToughWare Prosthetics orders by phone, or email. Payment in the forms of cash, check, and credit card are accepted. The company also accepts money by wire for an additional wire fee.

To establish a credit account, please contact IBT. Scanned purchase orders sent by email are preferred whenever possible. Please be sure to include a reference PO number and preferred shipment method. If no shipping method is specified, United Parcel Service (UPS) Ground service will be used by default.

**DIRECT: 610-392-0944**

**EMAIL: [SALES@I-BIOMED.COM](mailto:SALES@I-BIOMED.COM)**

### **NOTE:**

All orders ship FOB origin or Baltimore, Maryland, USA. IBT reserves the right to impose, at its sole discretion, a 20% restocking fee on returned orders, excluding returns for warranty related service or other repairs. Purchase of IBT/ToughWare products constitutes acceptance of these terms.

Next-Day orders must be received by IBT before 2:00 PM EST to ensure product availability and sufficient time to prepare for shipment.

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## EQUILUX VO/VC TERMINAL DEVICE

### A choice of voluntary opening *AND* voluntary closing prehension IN ONE DEVICE!

- » Voluntary opening mode provides approximately 5 lbf tip pinch for secure holding power.
- » Voluntary closing mode enables the user to generate very high tip pinch forces when needed.
- » Availability of both modes lets users match terminal device operation to their specific activity.
- » Mode change is done with a simple release and flip of the actuation lever.
- » No special adapters or modifications needed if changing out from a standard VO hook.
- » Mounts using industry standard ½-20 UNF threaded boss.
- » Units accept standard large ball (9/32-inch) and most small (3/16-inch) control cable terminations.



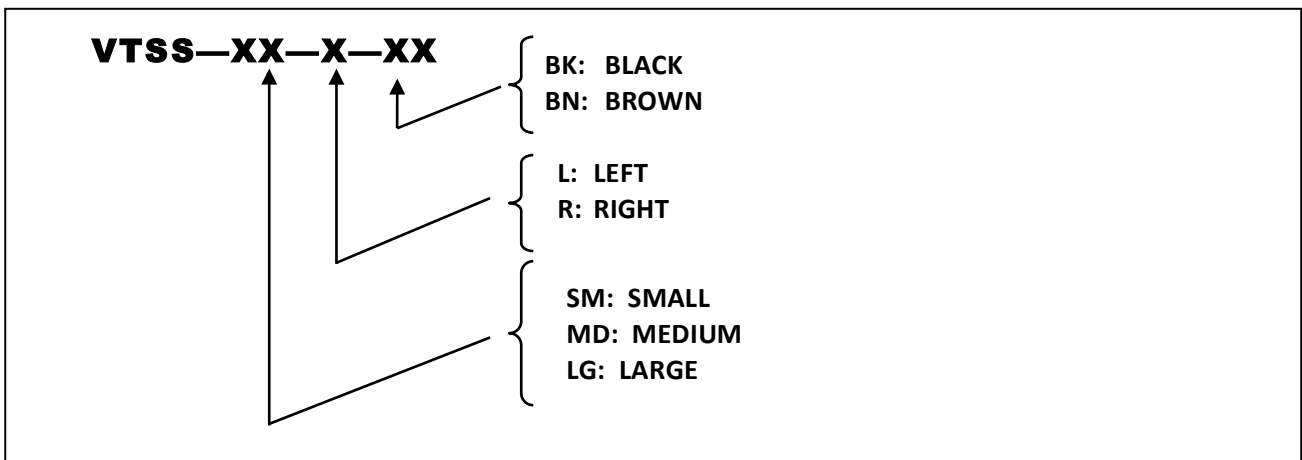
**EQX-X** {  
L: LEFT  
R: RIGHT

Length: 4-7/8" (124 mm)  
*Excluding Boss*  
Width: 3-1/4" (83 mm)  
Height: 3-1/4" (83 mm)  
Weight: 9.5 oz (269 g)

# VENTILATED TRANSRADIAL SPORT SOCKET

## A TOUGH AND COMFORTABLE CHOICE FOR ACTIVITY SPECIFIC NEEDS

- » Lightweight and adjustable design is perfect for use with activity specific terminal devices.
- » Open socket allows airflow and eliminates perspiration build-up.
- » Humeral Suspension Cuff (included) is easily adjusted for comfort .
- » Perfect for use in hot and wet environments.
- » Hole in distal end allows bolt-on mounting of standard ½-20 UNF threaded boss.
- » Please see sizing guide on page 12.



## VARI-PINCH PREHENSOR™ (V2P™)

ToughWare's patented (US Patent 8,052,761) Vari-Pinch Prehensor™, or V2P™, is a state-of-the-art body-powered (BP) voluntary-opening (VO) terminal device (TD) that delivers unparalleled grasp stability and versatility. Adjustable pinch force puts the user in control, so they can match their grip force to the task while reducing physical exertion whenever possible. Lower cable tension improves dexterity, helps prevent sound-side overuse injuries, and reduces wear-and-tear on both the body and equipment. These features are particularly beneficial for bilateral amputees and those who are weakened or otherwise compromised.

- » Compliant surfaces and edges provide excellent grip traction and are easily replaced if worn or soiled.
- » HammerHead™ hook design allows “back-handed” use for greater convenience.
- » Users can adjust pinch force at will to match specific grasping needs and reduce cable tension.
- » Elastic bands can be changed without tools or having to remove the TD.
- » Inexpensive rubber bands can be used if preferred.
- » One-for-one exchangeable with most adult split hook models without requiring harness adjustments.
- » Accepts 9/32” ball terminals standard, or 3/16” with a connector plate option.
- » Attaches to the distal forearm using the industry-standard ½-20 UNF threaded boss.
- » Accepts most commercial quick disconnect (QD) adapters.
- » Removable “thumb” plate assists in holding dining and writing utensils.

The V2P comes in stainless steel, and high-performance polyamide engineering composite (EMS Grivory®) to suit diverse needs. It is designed for strenuous physical activity, and delivers reliable service in desert, mountain, and coastal environments. The V2P will not jam or corrode when exposed to fine dust or saltwater. Units are supplied from the factory as LEFT or RIGHT for convenience. Grivory units can be ordered in a field-reconfigurable version to permit use on either side as needed.



*ToughWare's patented V2P with HammerHead™ design reduces the need for pre-positioning.*



## STAINLESS STEEL

These units are fabricated from stainless steel and bronze using The ExOne Company's proprietary additive manufacturing process. Custom hook designs are possible for an additional fee. Shown are standard METAL and BLACK units. Finishing options are the same as for the aluminum alloy units. Please contact ToughWare Prosthetics to discuss customization options and lead times. Steel units are supplied as LEFT or RIGHT from the factory and cannot be changed in the field.



### Part Number & Ordering Information

<b>V2P-207-X-XX</b>	BK: BLACK; BN: BROWN; TN: TAN; MT: METAL; CU: CUSTOM (Contact ToughWare for CUSTOM orders.)	Length: 4-7/8" (124 mm) <i>Excluding Boss</i> Width: 3-1/8" (79 mm) Height: 3-1/4" (83 mm) Weight: 13 oz (369 g)
	L: LEFT R: RIGHT	



## EMS GRIVORY®

ToughWare's Grivory® V2P units are fabricated from EMS Grivory® GVH series glass-filled composite resins developed for automotive and aerospace applications. These units are very tough, unaffected by exposure to saltwater or biological fluids, and are fully colored so they hide scuffing and wear well. They are also gentle on car paint and interiors, furniture, and home appliances. Sportsmen tell us they are ideal for use with high-end fishing tackle and firearms. Standard BLACK is shown below.



### Part Number & Ordering Information

<b>V2P—307—X—XX</b>	BK: BLACK BN: BROWN	Length: 4-7/8" (124 mm) <i>Excluding Boss</i> Width: 3-1/8" (79 mm) Height: 3-1/4" (83 mm) Weight: 6 oz (171 g)
L: LEFT R: RIGHT		



## V2P COMPONENTS

### TIP BOOT SET

V2P-BOOT-BK Pair of BLACK food-grade Santoprene® thermoplastic rubber tip boots for the V2P.



### BLACK RUBBER BAND SET

V2P-RBND-BK Package of 25, Size 19, Black UV-Stabilized Latex Rubber Bands.



### ELASTIC BUNGEE RING (BAND REPLACEMENT)

V2P-BNG-BK Replaces multiple rubber bands with a single bungee ring.



### CONNECTOR PLATE

V2P-CPLT-932 Connector plate for standard 9/32" diameter (large) ball cable terminals.

V2P-CPLT-316 Connector plate for standard 3/16" diameter (small) ball cable terminals.



### THUMB PLATE

V2P-TPLT Standard Thumb Plate fits LEFT or RIGHT configured V2P units.

V2P-NTPLT Plate fills space but has no thumb tab, fits LEFT or RIGHT configured V2P units.



### NOTE:

Other V2P components such as screws and pins are available for repair or replacement; please contact ToughWare Prosthetics to discuss your needs or arrange to have your unit refurbished.

## RETRO CLASSIC HOOK™

ToughWare Prosthetics developed its new Retro Classic Hook to replace older terminal devices popular among farmers and ranchers. We've come up with new innovations of our own to create a wholly new design for the 21<sup>st</sup> Century. Units are shipped as LEFT or RIGHT from the factory and cannot be reconfigured in the field.

- » Traditional "hoop" digits work securely with heavy equipment and tractor controls.
- » Aggressive gripping faces and hook contours help when lifting bags and pails or pulling tarps and covers.
- » Cam-action mechanism increases grip force using "ice-tong" action.
- » A robust steel spring replaces troublesome latex bands for reliability.
- » New Twister™ feature lets users set their preferred pinch force by twisting an adjustment knob.
- » Heavy-duty lubricated bronze bushings and stainless steel parts ensure long life and smooth operation.
- » Withstands exposure to water, biological fluids, diesel, and many agricultural chemicals.
- » Accepts standard 9/32" ball cable terminations.
- » Attaches to the distal forearm using the industry-standard ½-20 UNF threaded boss.
- » Accepts most commercial quick disconnect (QD) adapters.



Retro Classic Hook in METAL and in BLACK. Lite, Standard, and Heavy springs available.

### Part Number & Ordering Information

<p><b>RCH—XXX—X—XX</b></p> <p style="margin-left: 20px;">↑     ↑     ↗</p>	<p>{ BK: BLACK MT: METAL</p> <p>{ L: LEFT R: RIGHT</p> <p>{ 050: LITE SPRING 100: STANDARD SPRING 200: HEAVY SPRING</p>	<p>Length: 5" (127 mm) <i>Excluding Boss</i> Width: 1-3/4" (44 mm) Height: 2-7/8" (73 mm) Weight: 11.5 oz (327 g)</p> <p>Boss approximately 5/8" (16 mm) long depending upon pinch force adjustment.</p>
<p><b>RCH—LITE/STND/HVY—SPRING</b></p>		<p>Spring kit for the Retro Classic Hook. Lite, standard, and heavy springs available. Includes bushings.</p>

## INTERNATIONAL TRANSRADIAL ADJUSTABLE LIMB™ (ITAL™)

ITAL is a Jamaican slang term meaning “to live well.” That’s what ToughWare’s International Transradial Adjustable Limb™, or ITAL™, is intended to help people do, worldwide. The ITAL is a complete transradial prosthesis comprising an adjustable humeral suspension cuff, V2P terminal device, Figure-of-nine harness, and cable combined into an off-the-shelf, ready-to-fit package. Three sizes of modular humeral suspensor and forearm sections can be mixed-and-matched as needed to address specific patient needs.

- » Withstands strenuous physical demands of active users.
- » Available in three (3) sizes—Small, Medium, and Large.
- » Adjustable modular design accommodates a wide range of body geometries.
- » In most cases, units can be fit easily and comfortably on patients inside one (1) hour.
- » Operates reliably in desert, mountain, and coastal environments.
- » Patented (US Patent 8,414,658) open-frame design allows for air circulation and sweat drainage for skin health.
- » Open-frame and elbow strap suspension allows tissue movement for comfort and unimpeded ROM.
- » Comfortable and affordable option where less-robust equipment might be damaged or destroyed.
- » Friction wrist arrangement accepts standard ½-20 UNF mounting boss and is adjustable for stiffness.

ITAL units are easily maintained and adjusted using simple hand tools. Intuitive to use, they are biomechanically appropriate for most transradial amputees. Units are supplied from the factory as LEFT or RIGHT for convenience, but can be reconfigured in the field for use on either side as needed. Contact ToughWare for more detailed information on selecting proper sizes based upon patient measurements.



ITALs shown are Large (LG), Medium (MD), and Small (SM), BLACK color. Harnesses not shown. Units are also available in BROWN color.



Adjustable Humeral Suspensor units in Large (LG), Medium (MD), and Small (SM) shown in BLACK color. Units are also available in BROWN.

**Part Number & Ordering Information**

<p><b>ITAL-307-XX-X-XX</b></p>	<p>BK: BLACK BN: BROWN</p> <p>L: LEFT R: RIGHT</p> <p>SM: SMALL MD: MEDIUM LG: LARGE</p>	<p>ITAL units are shipped with Grivory® V2P units included standard. Contact ToughWare to discuss other customization options and combinations.</p>
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<p><b>HSC-XX-XX</b></p>	<p>BK: BLACK BN: BROWN</p> <p>SM: SMALL MD: MEDIUM LG: LARGE</p>	<p>Not just for the ITAL, humeral suspensors can be attached to new appliances crafted by prosthetists to provide off-the-shelf convenience of adjustable supracondylar suspension wherever needed.</p>
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## ITAL COMPONENTS

### 4 PIECE STRAP SET

- ITAL-STP-BK Black Urethane Strap Set
- ITAL-STP-BN Brown Urethane Strap Set



### SWIVEL RETAINER KIT

- ITAL-SRK-BK Swivel Retainer & Clip with Black Cap



### HUMERAL CUFF SUSPENSION STRAP KIT

- HCSC—KIT Includes two (2) adjustable straps, four (4) shoulder washers, four (4) pivot washers, and two (2) screws.

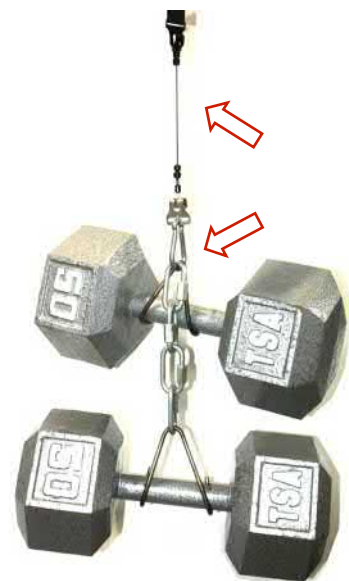
### ITAL SERVICE TOOL KIT

- ITAL-TOOL-KIT Includes tools for fitting and adjusting the ITAL: ¼" & ⅜" Hex Nut Drivers, #1 & #2 Phillips Screwdrivers, 1/16", 5/64", 7/64" Allen Keys, and 3/32" T-Handle Allen Key.

## FIELD-SERVICEABLE HARNESSING COMPONENTS

ToughWare Prosthetics' harness components are designed to be reusable, eliminating the need for specialty swaging and crimping tools and one-shot crimp-style cable termination fittings. These heavy duty components install with simple hand tools and are ideal for field installation and service in regions where access to tools or other equipment is limited. Designed for strength and safety, the harness, hangers, and fittings will not corrode or degrade with exposure to fine dust, sweat, or saltwater. Our fittings connect directly to all V2P units and most standard body-powered split hook terminal devices. Our harness system can be easily detached from the rest of the prosthesis for adjustments, repairs, and laundering.

**HARNESS COMPONENTS ARE FIELD-SERVICEABLE,  
REUSABLE, & DESIGNED FOR HEAVY-DUTY USE!**



## FIGURE-OF-NINE HARNESS (BLACK)

**FONH-BK** ToughWare’s soft-weave webbing makes its Figure-of-Nine harness comfortable for extended use. Detachable harness hanger permits laundering, or keep spares on hand.



## QUICK-DISCONNECT (QD) DETACHABLE HARNESS HANGER

**QD-HH-SS** These stainless steel harness hangers connect to ToughWare’s QD detachable ball terminals.



## QUICK-DISCONNECT (QD) DETACHABLE BALL TERMINAL—SHORT VERSION

**QD-DBS-SS** Made from stainless steel for use with 9/32-inch diameter ball receivers. Includes ToughWare’s innovative strain relief to help prevent cable fray.



## QUICK-DISCONNECT (QD) DETACHABLE BALL TERMINAL—“BENT” VERSION

**QD-DBB-SS** Made from stainless steel for use with 9/32-inch diameter ball receivers. The “bent” neck relieves control cable bending stresses and fatigue for increased service life. Includes ToughWare’s strain relief to help prevent cable fray.



## QUICK-DISCONNECT (QD) KIT

**QD-KIT-SS** Complete kit includes one each: harness hanger, detachable ball terminal short version, and detachable ball terminal bent version.

## CONTROL CABLE SET

**ITAL—CBL—SM** Control cable set for the SMALL ITAL.  
**ITAL—CBL—MD** Control cable set for the MEDIUM ITAL.  
**ITAL—CBL—LG** Control cable set for the LARGE ITAL.



## RUBBER GROMMETS

**RBG—PKG** Package of six (6) rubber grommets.





## ITAL AND VTSS SIZING GUIDE

### SMALL

**Upper Arm Circumference<sup>(1)</sup>**  
7.0 > 9.0 in. / 17.8 > 22.9 cm  
**Forearm Length<sup>(2)</sup>**  
Greater than 3.0 in. / 7.6 cm  
**Forearm Width<sup>(3)</sup>**  
2.3 > 2.8 in. / 5.8 > 7.1 cm  
**ITAL Prosthesis Total Weight**  
1.4 lbs. / 635 g

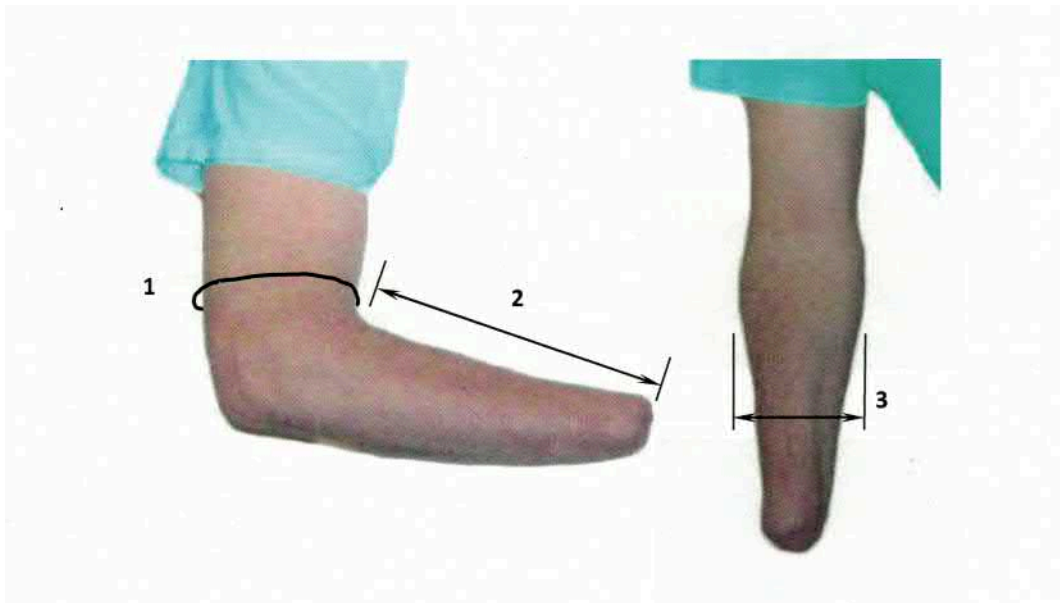
### MEDIUM

**Upper Arm Circumference<sup>(1)</sup>**  
8.0 > 10.5 in. / 20.3 > 26.7 cm  
**Forearm Length<sup>(2)</sup>**  
Greater than 3.0 in. / 7.6 cm  
**Forearm Width<sup>(3)</sup>**  
2.5 > 3.0 in. / 6.4 > 7.6 cm  
**ITAL Prosthesis Total Weight**  
1.8 lbs. / 817 g

### LARGE

**Upper Arm Circumference<sup>(1)</sup>**  
9.0 > 12.0 in. / 22.9 > 30.5 cm  
**Forearm Length<sup>(2)</sup>**  
Greater than 3.0 in. / 7.6 cm  
**Forearm Width<sup>(3)</sup>**  
2.8 > 3.5 in. / 7.1 > 8.9 cm  
**ITAL Prosthesis Total Weight**  
1.9 lbs. / 862 g

- » Arm circumference should be measured just above the elbow.
- » To ensure adequate leverage, amputees should have at least 3 in / 7.5 cm of residual limb below the elbow.
- » All ITAL and VTSS prostheses are shipped from the factory pre-configured for left or right side placement.



## NOTICE

ToughWare Prosthetics is a legally registered trade name of Invisible Hand Enterprises, LLC.

ToughWare Prosthetics reserves the right to change or discontinue products at any time without notification.

Santoprene® is a registered trademark of Advanced Elastomer Systems, L.P.

EMS Grivory® is a registered trademark of EMS-CHEMIE HOLDING AG, Switzerland.

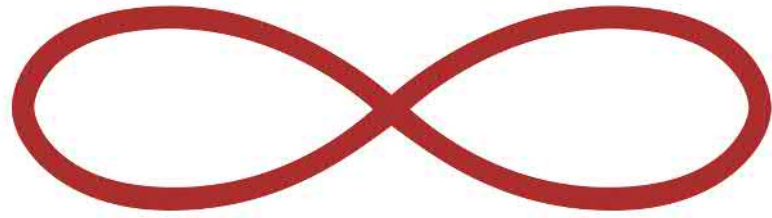
## LIMITED WARRANTY

Invisible Hand Enterprises, LLC DBA ToughWare Prosthetics ("Company") warrants to the original owner-user that the purchased products will be free from defects in material or workmanship. This warranty and the implied warranties of merchantability and fitness for a particular purpose are limited to twelve (12) months from the date of purchase, whether or not actual use begins on that date, or twelve (12) months from date of shipment by Company, whichever occurs last. Some states may not allow limitations on how long implied warranties last, so the limitation of implied warranties may be limited in its applicability to you.

## LIMITATIONS AND EXCLUSIONS

Company's obligations under this warranty and the sole remedy for its breach are limited to repair, at its facility, of any part or parts of its products which are defective; or, in Company's sole discretion, replacement of such product. Notification shall be made to Company for all returns using one of the following means: correspondence by mail to ToughWare Prosthetics, PO Box 350055, Westminster, Colorado 80035-0055; email to [Brad@toughwareprx.com](mailto:Brad@toughwareprx.com); or call 303-635-1619. Company shall subsequently provide notification of the address to mail the defective product, postage pre-paid, for service or repairs. Repaired or replacement parts will be return shipped by the Company.

1. The warranty provided herein covers any defects in materials or workmanship, charges for labor or other costs incurred in the troubleshooting, repair, removal, service or handling of parts or complete products.
2. The warranty provided herein shall be void and of no effect in the event that (a) the product has been subjected to misuse, neglect, accident, improper or inadequate maintenance, corrosive environments [e.g. acids, alkalis, oxidizers]; (b) unauthorized modifications are made to the product; or (c) the product is not installed or operated in compliance with the Company's printed instructions.
3. All claims under the warranty provided herein must be made within ninety (90) days from the date of discovery of the defect. Failure to notify the Company of a warranted defect within ninety (90) days of its discovery voids the Company's obligations hereunder.
4. The warranty provided herein is for repair or replacement only. The Company shall not be liable for any loss, cost, damage, or expense of any kind arising out of a breach of the warranty. Further, The Company shall not be liable for any incidental, consequential, exemplary, special, or punitive damages, nor for any loss of revenue, profit or use, arising out of a breach of this warranty or in connection with the sale, maintenance, use, operation, or repair of any Company product. In no event will the Company be liable for any amount greater than the purchase price of a defective product. The disclaimers of liability included in this paragraph shall remain in effect and shall continue to be enforceable in the event that any remedy herein shall fail of its essential purpose. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.
6. **THIS WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY FOR THE COMPANY'S PRODUCTS, THIS CATALOG, OR THE CONTENT HEREIN, AND IS IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES. THE COMPANY SPECIFICALLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING BUT NOT LIMITED TO ALL IMPLIED WARRANTIES OF MERCHANTABILITY, IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE EXCEPT AS STATED ABOVE, ACCURACY OF PRODUCT DESCRIPTIONS, AND THOSE ARISING BY STATUTE OR BY LAW, OR FROM A COURSE OF DEALING OR TRADE USAGE, IN CONNECTION WITH THE BUYER'S PURCHASE OF ANY COMPANY PRODUCT. SOME STATES DO NOT ALLOW THE DISCLAIMER OF IMPLIED WARRANTIES, SO THIS WARRANTY MAY BE LIMITED IN ITS APPLICABILITY TO YOU.**
7. No person or entity is authorized to bind the Company to any other warranty, obligation, or liability for any Company product. Purchase or use of a Company product for which this warranty is issued shall constitute acceptance of the terms hereof.
8. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.



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