

Cyber-prostheses hands | 2022

Product catalog



SUPER
Motorica

global.motorica.org

Our Mission

We help people to get new capabilities.

Our Vision

100% of people without hands or arms use affordable and fully functional upper limb prostheses every day to make their lives more comfortable, brighter, and happier.

*born
to be* 
cyborg

SUPER
Motorica



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CYBI

Active Prostheses



The Advantages of the **CYBI**

CYBI Active Prostheses — are modern prosthetic hands that replace outdated traction prostheses.

An active prosthesis allows the user to perform everyday activities: pick up various objects, cook food, hold the door, etc.

CYBI weighs only 250-750 grams, depending on the type and size of the prosthesis. It is comfortable to use all day long.

The user can have a unique design for the prosthesis and pick the colors. For instance have a superhero on the hand or choose a "cosmetic" tone-colored design.

Compatible with touch screens (If Touchscreen Fingertips are selected).

Can be supplemented with additional accessories, thus expanding the prosthesis' functionality.

Controlled by the movement of the amputated limb at the elbow (CYBI Hand) or wrist (CYBI Fingers), which helps to keep the arm muscles active and can prevent muscle atrophy

Manufactured individually using modern 3D-printing technology, which allows receiving a comfortable and functional prosthesis. It also allows taking into account the individual characteristics of the stump, as well as to customize the prosthesis for non-standard cases.

Suitable for adults and children from the age of two.

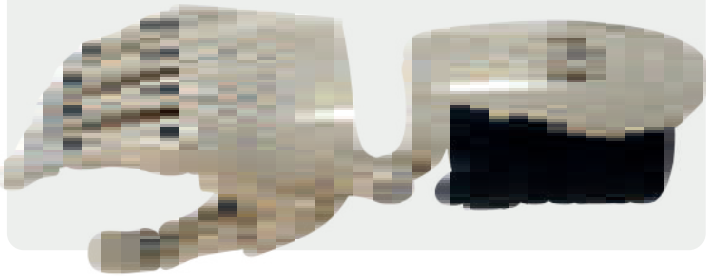
Warranty repair and maintenance of the product for 365 days.



Types of **CYBI** Prosthesis

CYBI Fingers

Controlled by movements of the wrist

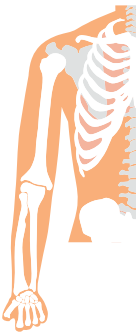


CYBI Hand

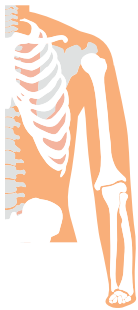
Controlled by movements of the elbow



Levels of Amputation



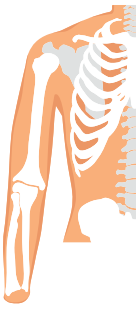
Transmetacarpal level,
partial preservation
of fingers and / or
phalanges



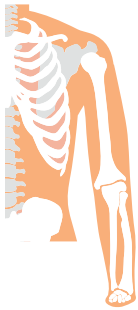
Transcarpal level
hand length FROM 4-5
cm, range of motion
FROM 45°



CYBI Fingers



Wrist
disarticulation

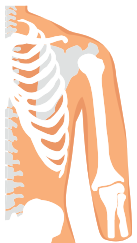


Transcarpal level
hand length FROM 4-5
cm, range of motion
FROM 45°



CYBI Hand – Transcarpal *

* Modification for transcarpal injuries
and wrist disarticulation



Transradial
Forearm level



CYBI Hand

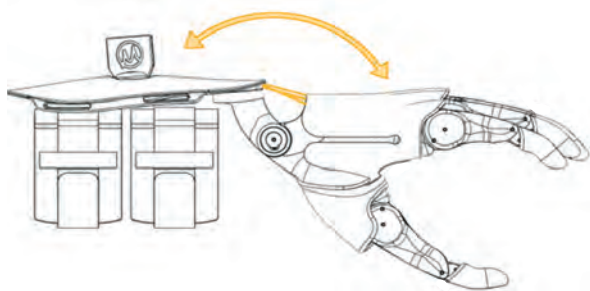
CYBI Fingers



CYBI Fingers Prosthesis Design

- 1 **Silicone fingertips**
- 2 **Fingers** (metal, polyamide)
- 3 **Hand's body** (polyamide)
- 4 **Silicone palm pad**
- 5 **Cables** (polyethylene braided line)
- 6 **Arch** (polyamide)
- 7 **Forearm** (polyamide)
- 8 **Cuff** (cotton, Velcro fabric)
- 9 **Fixator for cable tension adjustment** (polyamide)

CYBI Fingers: how it works

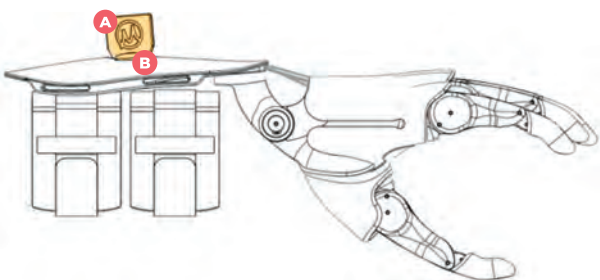


The cables are strung from the fingers to the forearm. The position of the prosthetic fingers is adjusted by moving the hand at the wrist joint:

1. When the wrist bends, the cable tense and fingers form a grip.
2. When the hand is flexed at the wrist, the cables are loosened and the fingers unclench, the grip opens.

The more the wrist is bent (flexed), the more the fingers are clenched (unclenched).

Adjusting the CYBI Fingers



For comfortable use, the CYBI prosthesis allows you to:

- Adjust the sensitivity of the prosthesis so that the prosthetic fingers clench as a result of greater or less hand movement in the wrist.
- Adjust the position of the prosthetic fingers so they were not tightly clenched or excessively open when the hand in the wrist is fully relaxed.

Both adjustments are made with the cable tension adjustment key **A**, which is inserted into a special wheel on forearm **B** and allows you to increase or decrease the cable's tension.

CYBI Fingers Socket

The prosthetic's inner socket is attached to the CYBI Fingers prosthesis with three screws: two screws on the back of the prosthesis **(1 and 2)** and one on the palm **(3)**.

The screws' location is individually adapted to each user to ensure the most comfortable and functional fit of the socket in the prosthesis.



How do you know if a Motorica prosthesis will fit you?

This decision is made by the trauma surgeon together with our team of experienced prosthetists based on photos and videos of the hand.

The QR code provides detailed instructions on how to take the correct photos and videos.

What is needed for design of the prosthesis?

The best way for designing the prostheses is to develop it basing on a prefabricated inner socket or a cast of the affected arm. It helps us to take into account all of the user's individual characteristics and make the prosthesis as comfortable as possible. If it is not possible, the prosthesis can be designed according to an extensive set of measurements of the hand.

Scan QR code to see the detailed instructions on required measurements and how to take them correctly.



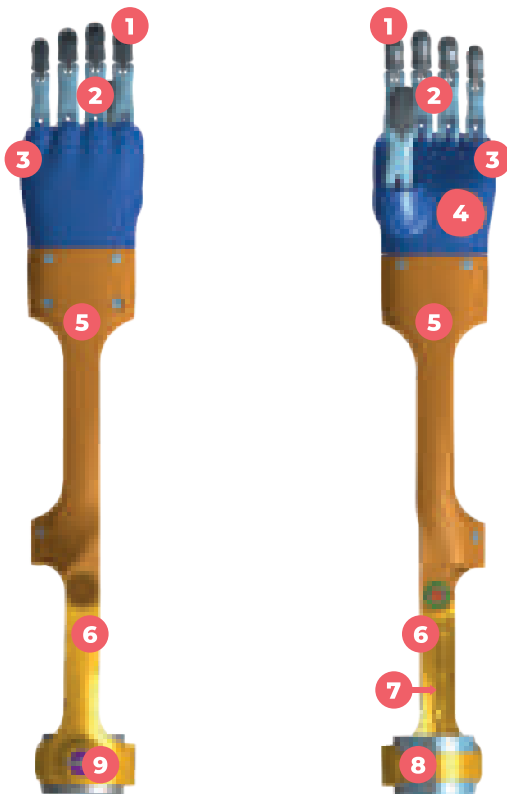
CYBI Hand



Prosthetic Design CYBI Hand

- 1 Silicone fingertips
- 2 Fingers (metal, polyamide)
- 3 Hand's body (polyamide)
- 4 Silicone palm pad
- 5 Rotator (polyamide)
- 6 Forearm (polyamide)
- 7 Shoulder arch (polyamide)
- 8 Cuff (cotton, Velcro fabric)
- 9 Cables (polyethylene braided line)
- 10 Fixator for cable tension adjustment (polyamide)

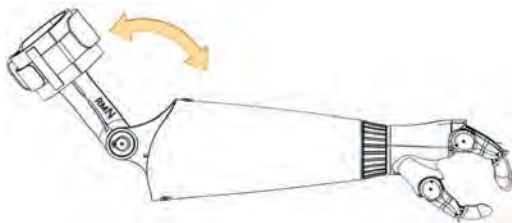
CYBI Hand Transcarpal



Prosthetic Design CYBI Hand Transcarpal

- 1 Silicone fingertips
- 2 Fingers (metal, polyamide)
- 3 Hand's body (polyamide)
- 4 Silicone palm pad
- 5 Forearm (polyamide)
- 6 Arch (polyamide)
- 7 Cables (polyethylene braided line)
- 8 Cuff (cotton, Velcro fabric)
- 9 Fixator for cable tension adjustment (polyamide)

How the CYBI Hand and CYBI Hand Transcarpal work

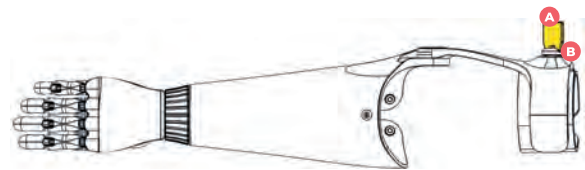


Cables are strung from the fingers to the shoulder. The position of the prosthetic fingers is adjusted by moving the arm at the elbow:

1. When bending the elbow, the cables are tensioned and the prosthetic fingers clench (form a grip);
2. When extending the elbow, the cables are loosened, and the prosthetic fingers unclench (the grip opens).

The more the arm bends (extends) at the elbow, the more the prosthetic fingers are clenched (unclenched).

Adjusting the CYBI Hand and CYBI Hand Transcarpal



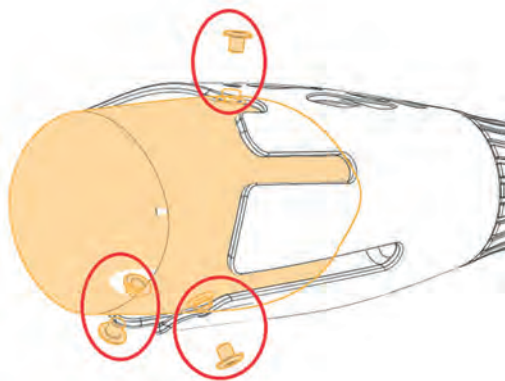
For comfortable use, the CYBI prosthesis allows you to:

- Adjust the sensitivity of the prosthesis so that the prosthetic fingers clench as a result of greater or less elbow motion.
- Adjust prosthetic fingers so that they are not tightly clenched or excessively open when the elbow is fully relaxed.

Both adjustments are made with the cable tension adjustment key **A**, which is fitted to a special wheel on the forearm **B** and allows you to increase or decrease the cable's tension.

CYBI Hand Socket

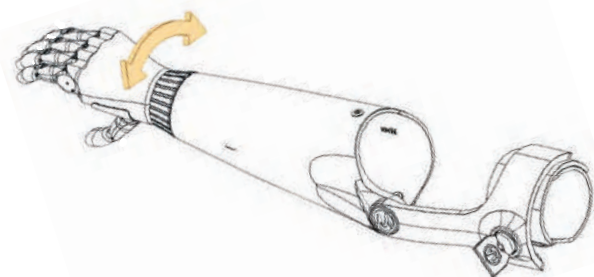
The inner socket is attached to the CYBI prosthetic hand with three screws, as shown in the picture: one screw at the top of the forearm, two more at the bottom.



Up to 180° Rotation of the Prosthetic Hand

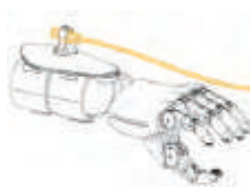
The CYBI Hand allows a passive 180° rotation of the prosthetic hand in relation to the forearm. Rotate the hand to a comfortable position or until you reach a stop position.

Due to the design of the CYBI Hand Transcarpal, there is no rotation of the prosthetic hand for this model.



Functional Accessories for CYBI

Accessories for CYBI Fingers



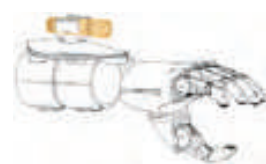
Jumping rope Holder



Universal holder
for pens, cutlery, etc.



Touchscreen Fingertips



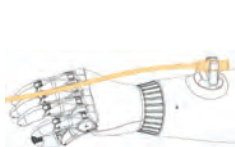
Flashlight Holder



Smartphone Holder

Attention: the touchscreen fingertips are mounted on the index and middle fingers of the prosthesis and can only be BLACK, regardless of the color of the prosthesis and fingertips selected.

Accessories for CYBI Hand



Jumping rope Holder



Universal holder
for pens, cutlery, etc.



Touchscreen Fingertips



Flashlight Holder



Smartphone Holder

Attention: the touchscreen fingertips are mounted on the index and middle fingers of the prosthesis and can only be BLACK, regardless of the color of the prosthesis and fingertips selected.

Accessories for all types of CYBI prostheses

These accessories are used independently of the prosthesis.



Children's Smart Watch



Xiaomi MI Band

Touchscreen Fingertips

Expand the functionality of your CYBI by adding Touchscreen Fingertips to be able to use the touchscreen displays of smartphones and other gadgets.

Touchscreen Fingertips are put on the prosthesis instead of one or more usual fingertips. They allow you to use your prosthesis to control any touchscreen display, including your smartphone, smartwatch or laptop's touchpad.

Please note that the **color of the Touchscreen Fingertips will always be black** (due to the nature of the material they are made of).

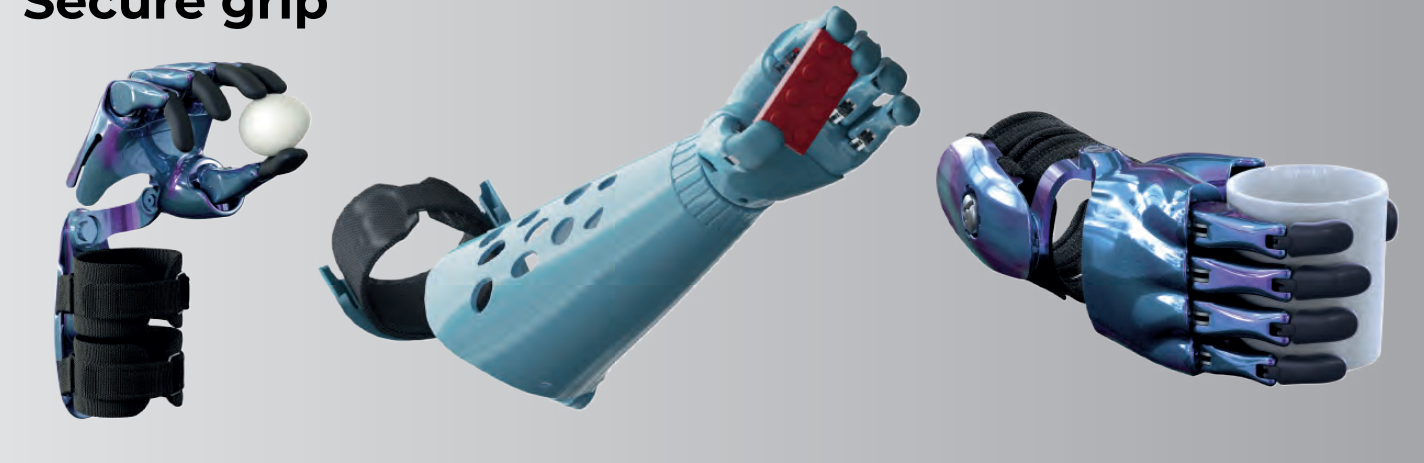
Keep this in mind when choosing the design of your future prosthesis.



CYBI Features



Secure grip



How else can CYBI prosthesis make life easier?

We created a video to explain and show in detail what else you can do with CYBI prosthesis and how it simplifies everyday life.

Scan the QR code and follow the link to watch!



CYBI Customized Design

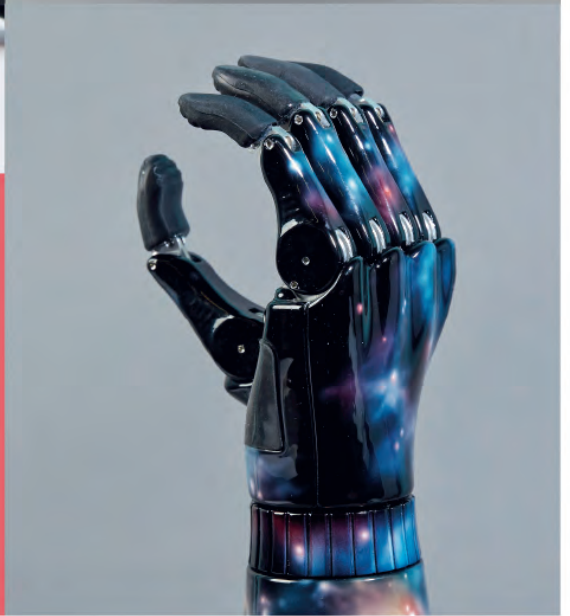
For all CYBI prostheses, we offer designs of the user's choice: from bright or gentle colors from a basic palette, to unusual effects or a completely customized design handmade by our in-house artists.

We can also paint a pattern or symbols on the hand of any CYBI prosthesis as desired and make cut-outs on the CYBI Forearm prosthesis.

It is important for us to take into account the user's wishes as much as possible and involve even the youngest CYBI users in the development of the prosthesis, because the CYBI prosthesis is a modern personal accessory for adults and a favorite toy for the young ones that will delight them every day.

Skin-tone colors or bright colors from a basic palette





INDY, MANIFESTO *Bionic Hands*



The advantages of **INDY** and **MANIFESTO**

Bionic prostheses **handle many everyday tasks:** dressing up, cooking food, picking up and carrying small and large objects, riding a bicycle, typing on the keyboard and smartphone, and many others.

The powerful grip of the prosthesis **allows holding heavy objects that weigh up to 10 kg.**

The high battery capacity provides 1-3 days of use of the prosthesis, depending on the intensity and conditions of use.

Bionic prostheses **have a built-in Bluetooth module, version 5.0.**

With the Motorica Start mobile app, you can set your own gestures (for MANIFESTO prostheses), switch to prosthetic control mode from the app, without muscles' activity, monitor muscles' activity statuses and record your muscles' EMG activities while adjusting gesture and grip options.

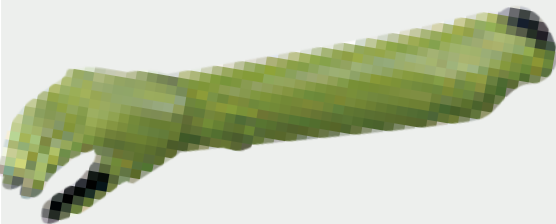
The bionic prostheses' rotator allows a 360° change of the hand's position in relation to the forearm, which allows finding the position that is most comfortable for you when using the prosthesis in various situations.

INDY and MANIFESTO prostheses **are suitable for teenagers and adults.**



Types of **INDY** and **MANIFESTO**

INDY Hand



Microprocessor-controlled hand prosthesis

MANIFESTO Hand




MANIFESTO Fingers



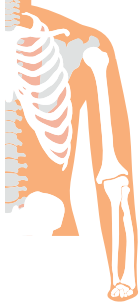
Microprocessor controlled hand and fingers prostheses

Levels of amputation

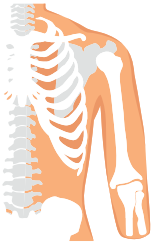
In the case of a long residual limb, including a disarticulation at the wrist joint or the presence of a rudiment of the hand, a consultation with a Motorica specialist is necessary to determine whether this type of prosthesis can be used.



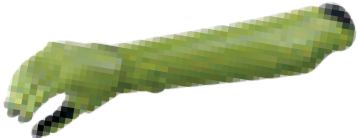
Wrist disarticulation




Transcarpal level
hand length UP TO 4-5 cm,
range of motion LESS THAN 45°



Forearm level




INDY Hand

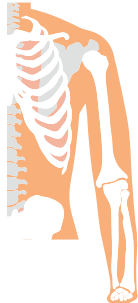


MANIFESTO Hand

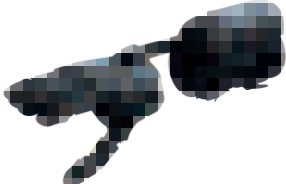
In the case of a transcarpal level of injury and injury with partial preservation of fingers or phalanges, a consultation with a Motorica specialist is necessary to determine whether this type of prosthesis can be used.



Transmetacarpal level,
partial preservation
of fingers and / or
phalanges



Transcarpal level
hand length FROM 4-5 cm,
range of motion FROM 45°



MANIFESTO Fingers

INDY Hand: Microprocessor-Controlled prosthesis

INDY Hand Key Features

- Open hand width:** up to 100 mm.
- Ability to lift weights:** up to 10 kg.
- Moisture protection:** IP54.
- Warranty:** 1 year for the entire INDY kit depending on the type of the injury.
- Rotator option:** quick disconnection and 360 degree rotation.
- Materials:** stainless steel, aluminum, polyamide.
- Prosthesis weight:** 240 to 390 grams (hand without socket).
- Touchscreen Fingertips** in the basic prosthesis configuration.
- Appearance:** designer plastic body or cosmetic shell.



INDY Hand Full Technical Data

Standard Size		S	M	L	XL
Parameter	Unit				
Palm width	mm	68	72	78	84
Girth	mm	187	200	210	215
Length from the end of the socket to the tip of the 3rd finger	mm	130	135	140	145
Opening width	mm	88	94	98	100
Maximum grip force at the fingertips	kfm	7	9	9	9
Maximum weight of portable items	kg	10	10	10	10
Grip speed	mm/s	80	90	90	90
Dust and moisture protection class	IP	54			
Operating voltage	V	6			
Battery capacity	mA*h	1200 / 3500			
Number of grips on a full charge	times	800 / 1200			
Operating temperature range	C	+5...+35			
Full charge time	h	5-6			
Hand module weight (without shell)	gram	240	290	300	310
Design Hand module weight	gram	330	360	375	390

MANIFESTO Hand: Microprocessor-Controlled Prosthesis

MANIFESTO Hand Key Features

- Number of individual gestures:** 8.
- Open hand width:** up to 132 mm.
- Lifting capacity:** up to 15 kg.
- Battery life:** from 5 hours.
- Moisture protection:** IP52.
- Warranty:** from 1 year for the entire MANIFESTO kit depending on the type of the injury.
- Rotator option:** quick disconnection and 360 degree rotation.
- Materials:** stainless steel, aluminum, polyamide.
- Weight of the prosthesis:** from 500 to 560 grams (hand without socket).
- Touchscreen Fingertips** in the basic prosthesis configuration.
- Appearance:** designer plastic body and customized socket geometry.



MANIFESTO Hand Full Technical Data

Типоразмер		S	M	L
Параметр	ед.изм			
Palm width	mm	75	83	90
Girth	mm	196	215	232
Length from the end of the socket to the tip of the 3rd finger	mm	174	181	186
Opening width	mm	120	126	132
Maximum grip force (pinch)	kfm	1.5	1.5	1.5
Maximum weight of portable items	kg	15	15	15
Grip speed	mm/s	55	55	55
Dust and moisture protection class	IP	52	52	52
Operating voltage	V	7.4		
Battery capacity	mA*h	3500		
Number of grips on a full charge	times	1000		
Operating temperature range	C	+5...+35		
Full charge time	h	5-6		
Hand module weight (without shell)	gram	500	520	560

MANIFESTO Fingers: Microprocessor-Controlled Prosthesis

MANIFESTO Fingers Key Features

- Number of individual gestures:** 8.
- Open hand width:** up to 152 mm.
- Lifting capacity:** up to 2 kg.
- Battery life:** from 5 hours.
- Moisture protection:** IP55.
- Warranty:** 2 years for the entire MANIFESTO kit depending on the type of the injury.
- Materials:** stainless steel, aluminum, polyamide.
- Weight of the prosthesis:** from 700 grams.
- Touchscreen Fingertips** in the basic prosthesis configuration.
- Appearance:** designer plastic body and customized socket geometry.



MANIFESTO Fingers Full Technical Data

Типоразмер				
Параметр	ед.изм	S	M	L
Opening width	mm	145	148	152
Maximum grip force	kfm	1	1	1
Maximum weight of portable items	kg	2	2	2
Grip speed	mm/s	55	55	55
Dust and moisture protection class	IP	54	54	54
Operating voltage	V	7.4		
Battery capacity	mA*h	1440		
Number of grips on a full charge	times	1500		
Operating temperature range	C	+5...+35		
Full charge time	h	4		
Hand module weight	gram	от 700	от 700	от 700

The shoulder prosthesis with microprocessor control **ELBOW**

ELBOW is one of the bionic prosthetic assistive devices. It can be a combination of INDY hand module or MANIFESTO Hand.

The product has a mechanical drive in the ulnaris joint, which helps to bend the prosthesis in the elbow and fix it at certain levels.

ELBOW

Key features

Description: a shoulder prosthesis with an external energy source, it has an electromechanical hand and a custom-made composite sleeve made of laminated plastic mold. With ErgoArm®plus elbow or shoulder joint (sickle joint) with adjustable friction force. The joint is capable of withstanding a load of up to 230 N with an elbow segment length of 305 mm.

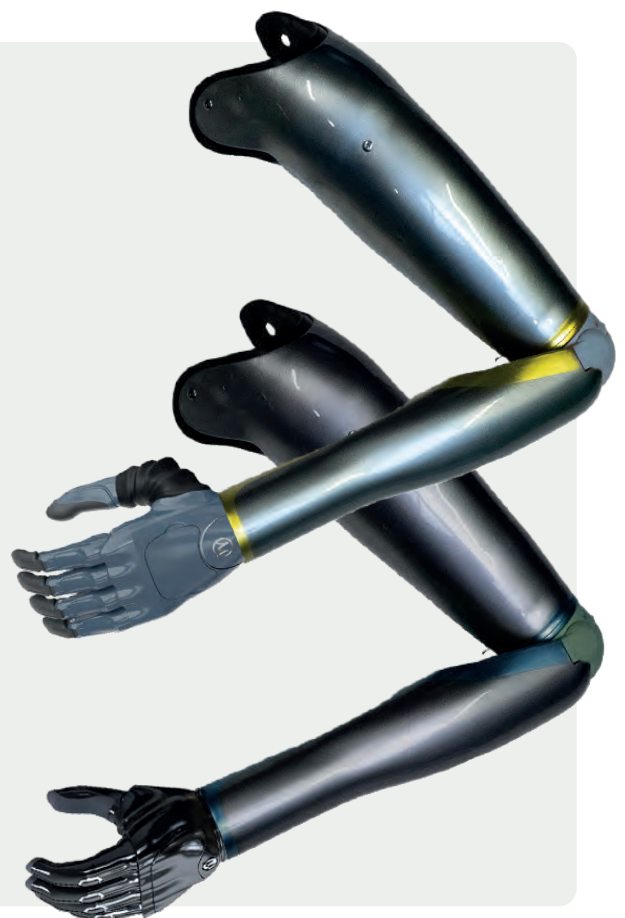
Hand module: INDY or MANIFESTO Hand depending on configuration.

Allowable flexion angle at the elbow: from 15° to 145°.

Battery life: from 5 hours.

Touchscreen fingertip in a basic design prosthesis.

Appearance: custom design of the body of the prosthesis and a custom geometry of a prosthetic socket.



The specifications of the ELBOW prosthesis depend on the selected hand module. See INDY module specifications on page 18, and MANIFESTO Hand specifications on page 19.

How **INDY** and **MANIFESTO** work

The bionic prosthesis' control system works by means of electrodes that read the electric potential from the residual limb's muscles as they contract.

Data from the sensors is transmitted to the hand microprocessor and is converted into motor commands via computer algorithms. As a result, the prosthesis bends or extends the fingers.



Motorica Start Prosthesis Fitting App

The Motorica Start app is designed to control and adjust your INDY and MANIFESTO.

It allows you to:

Take EMG sensor data
in real time.

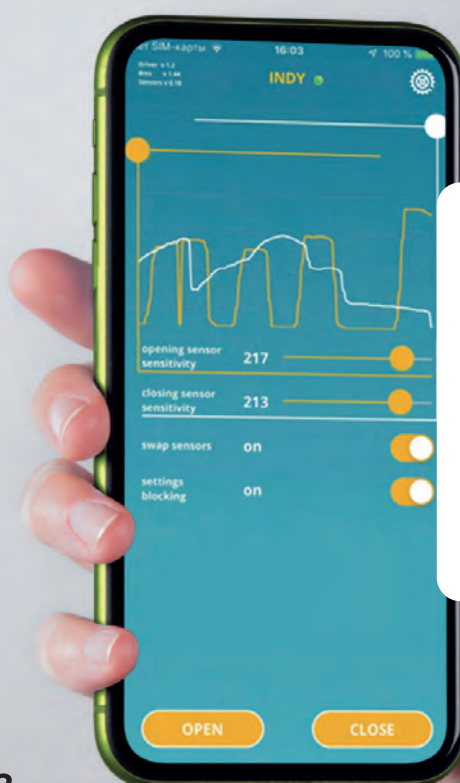
Adjust the sensitivity
of each individual sensor.

Adjust the **sensitivity threshold levels of the sensors**.

Invert the function of the sensors
to extend and clench the hand.

Customize the **grip lock** option.

Use the manual hand control tool
(opening and clenching the hand,
customizing user gestures).



Scan the QR-code
to download apps

Touchscreen Fingertips

The basic design of the INDY and MANIFESTO includes Touchscreen Fingertips to allow the use of the prosthesis with touchscreen displays on smartphones.

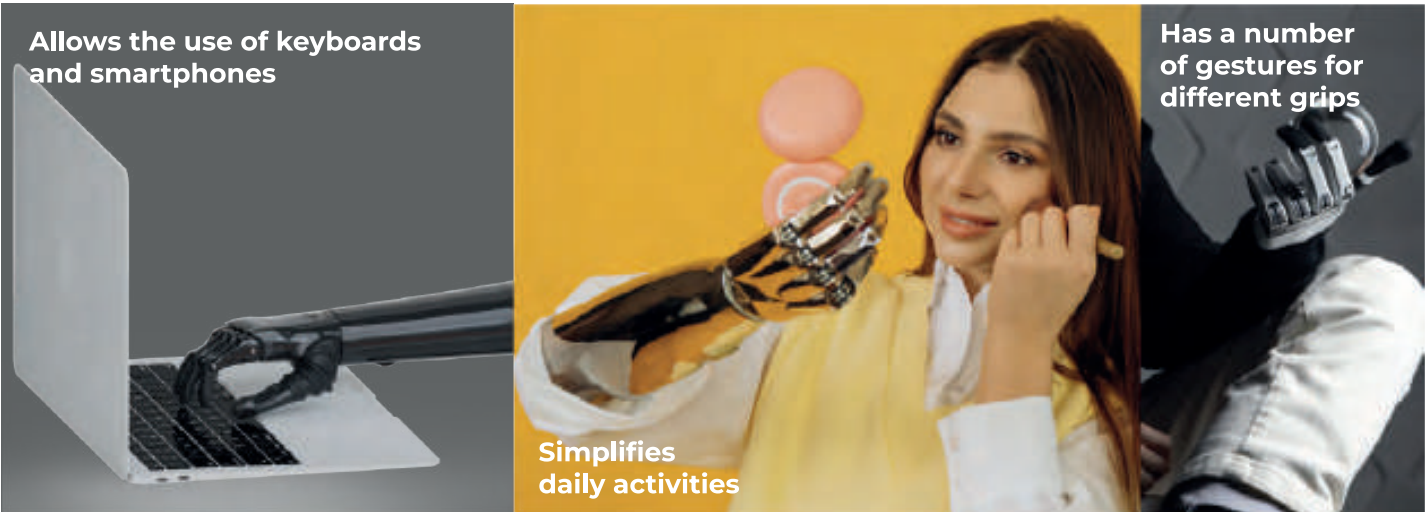
Touchscreen Fingertips are put on the prosthesis in place of one or more conventional fingertips. They allow using your prosthesis to control any touchscreen display, including your smartphone, smartwatch or laptop touchpad.

Please note that the **color of the Touchscreen Fingertips will always be black** (due to the nature of the material they are made of).

Keep this in mind when choosing the design of your future prosthesis.



INDY and MANIFESTO Prostheses Features



What other features does a Bionic Prosthesis have?

Watch the videos to learn more about what else you can do with your bionic prosthesis and how they work.

Scan the QR code and follow the link to watch!



INDY and MANIFESTO Prosthetics Custom Design

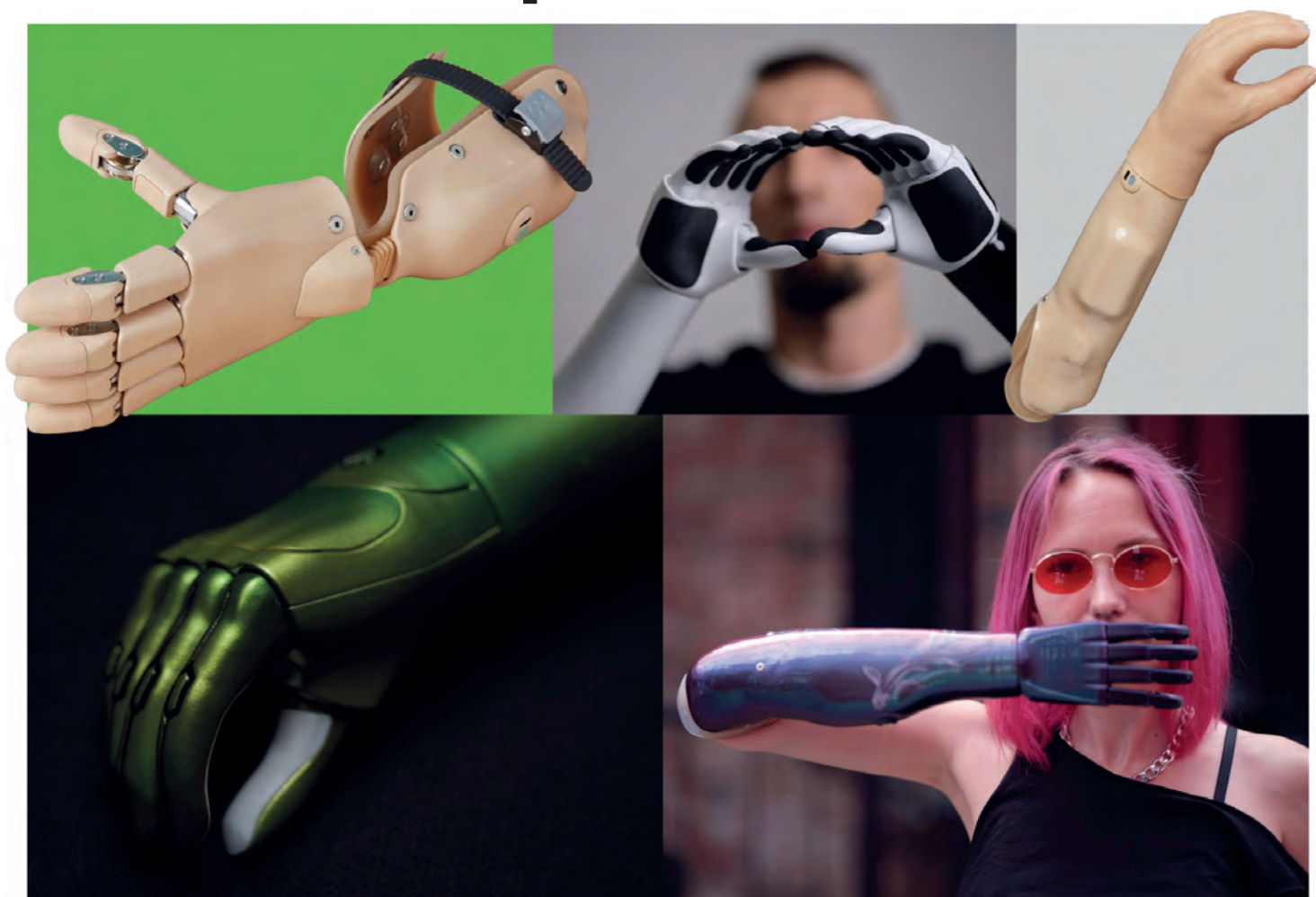
For the INDY prosthesis, you can choose a cosmetic shell or create a unique design of the plastic body based on your own preferences: bright, unusual colors, an illustration, or a quote.

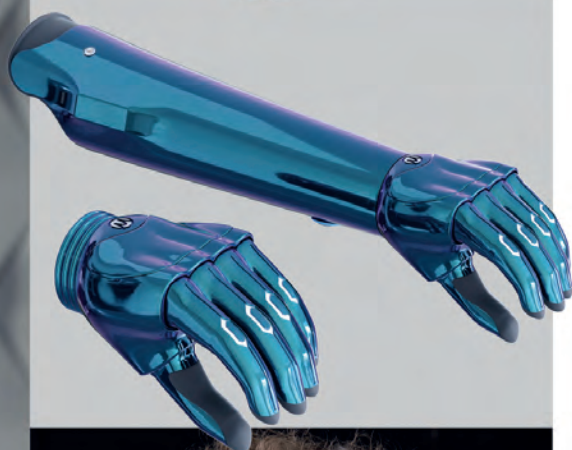
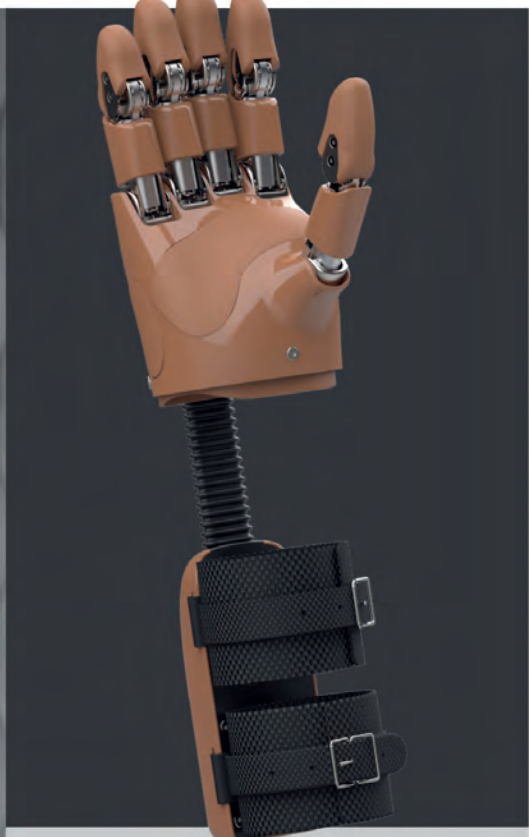
The cosmetic shell is customized for each user based on their skin color.

The MANIFESTO prosthesis does not have a cosmetic shell.

It is a completely custom-made product designed by the user of the prosthesis. They can choose their new gadget's colors, drawing, and pattern. Our designer creates a preliminary model, gets the approval, and then brings it to life.

Skin-tone or bright colors from a basic palette





MYOBOX

*Software and Hardware Package
for Assessment of EMG Signals*



MYOBOX

The main purpose of the MYOBOX is to evaluate the ability to operate a bioelectrical prosthesis with an external power source by means of EMG signals taken from the skin surface.

The package also makes it possible to generate a medical and technical report on the ability to operate a prosthesis with an external power source.

This ability is assessed by analyzing signals from two muscle groups (flexion and extension of the wrist joint muscles). If the patient learns to control these muscles separately over time, it can be enough to operate most of the upper limb prostheses with an external power supply.



The Myobox Features

- Evaluating the ability to operate a prosthesis with an external power source.
- Finding the points of application of EMG sensors during prosthetic care.
- Generating a medical and technical report.
- EMG signals real-time analysis and registration.
- EMG signals and muscle activity dynamics analysis.
- Cloud storage of myograms and reports.



MYOBOX Supply Package

The package includes:

- 1 Product passport
- 2 Locking cuff
- 3 Charging wire
- 4 EMG sensors
- 5 Storage case
- 6 Signal strength display



The MyoBox Software for PC can be downloaded at motorica.org or via a link by scanning the QR code.



Why Choose Us?

A comprehensive approach

Prosthetics are not just about fitting the prosthesis itself. It is a more complex process, which consists of different stages: preparing the documentation for the prosthesis, dealing with government agencies, choosing the method of financing and payment. At each stage, we fully support and accompany the user.

Rehabilitation

Another important aspect is the rehabilitation and aftercare of the user. After fitting the prostheses, we stay in touch, support and answer any questions they have about rehabilitation and using the prosthesis.

High quality

We use modern 3D-printing technologies with plastic and metal, as well as reliable motors, and electronics of our own design.

A user community

We form a community of users of high-tech assistive devices. People can communicate with each other or with specialists - rehabilitation therapists, prosthetists and engineers.

Also, an important point in forming a large community is the common approach and attitude of people to prosthetics. In order to improve it, we also hold and participate in various events.

Warranty and service

All Motorica products come with a mandatory warranty, during which the maintenance and repair of the prosthesis is free of charge at our service centers.



LLC Motorica

Our team is shaping a new attitude to prosthetics, introducing new technologies and raising the standards of the industry so that getting a prosthesis is associated only with positive emotions.

We work with individuals in need of a prosthesis, public and private prosthetic companies, and we also cooperate with the Social Insurance Fund and the Ministry of Labor and Social Security.

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