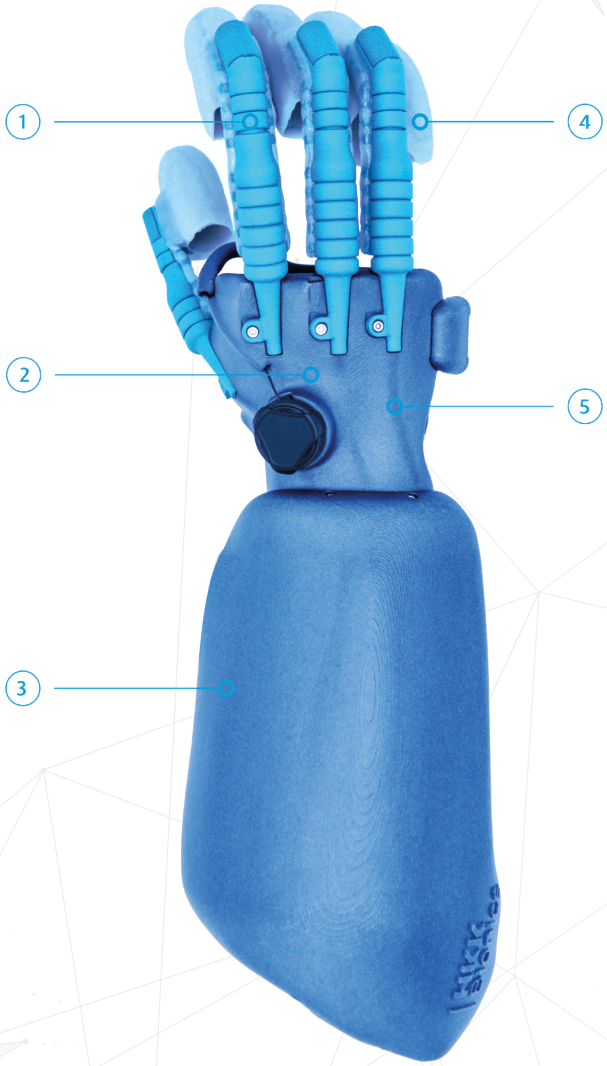
HKK Bionics



exomotion®
HAND/ONE

Brochure for clinicians

Arguments
For reimbursement

- Diagnosis in writing
- Reference to the medical objective of the custom-fit exomotion® hand one exoskeleton according to the instructions for use and its indication (matching the diagnosis). Citing the lack of medical/therapeutic alternatives
- Other direct compensation of the disability is only possible with amputation and prosthesis, both fraught with higher cost and health risks
- Lack of technical alternatives
- Relief for the often overloaded healthy hand
- At present, we are not aware of any assistive aid providing the same level of disability compensation in paralyzed hands

Reimbursement
by German Health Insurance Providers

An increasing number of major German Statutory Health Insurance Providers are already reimbursing the cost of the exomotion® hand one. This is also true for company health plans as well as Private Health Insurance Providers. Please contact us for detailed current information.

Prescription wording
For the exomotion® hand one

When only prescribing the exomotion® hand one (with good upper arm function):

Custom-fit modular electric [side] hand exoskeleton exomotion® hand one system and arm brace exomotion® hand one. [Diagnosis]

When prescribing the exomotion® hand one with elbow support (in impaired upper arm function):

Custom-fit modular electric [side] hand exoskeleton exo-motion® hand one system with passive elbow brace for exomotion® hand one and upper arm splint with dynamic elbow joints for power-enhanced gripping and positioning. [Diagnosis]

exomotion® hand one with elbow support

Contact

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Inclusion & exclusion criteria

Of orthetic management

Indications

Primarily distal plegia or paresis of the upper extremity (uni-/bilateral) with no residual grasping function.

Favorable conditions for orthotic

- Paralysis of the internal and/or intrinsic muscles of the hand
- Adequate residual EMG signal in the proximal forearm for orthotic control
- Primarily flaccid paralysis; in spastic paralysis max. spasticity grade 2 on modified Ashworth scale
- Good range of movement in MCP joints 2 to 5 (ext. 0°, flex. at least 70°)
- Good elbow function allowing hand-mouth contact
- Stable shoulder joint

Most common contraindications

- Patient not of legal age
- Finger extension not possible in neutral wrist position
- Irritating skin disorder of the affected extremity
- Predisposition to hematomas and bleeding
- Marked edema or strong susceptibility to edema formation
- Implanted cardiac pacemaker or deep brain stimulator
- Contracted MCP joints

Treatment examples

Possible causes of paralysis

- Stroke
- Lower brachial plexus paralysis
- Cervical paraplegia (complete or incomplete)
- Spinal muscular atrophy
- Craniocerebral trauma
- Polyneuropathy
- Multiple sclerosis

Read more about our patient Helmut.

Workflow

5 steps to the orthosis

Fitting the exomotion® hand one requires a total of at least 5 visits with one of our orthotics partners:

1. Visit
   - 1.1 Medical history
   - 1.2 Sensing for EMG signals
   - 1.3 Agreeing on treatment protocol
2. Plaster cast visit
3. First fitting
4. Final fitting and delivery
5. Follow-up

It may take 24 weeks and longer from prescription through reimbursement to the first fitting. The product is marketed solely by selected technical orthopedic specialists.

Please visit our website for a listing of our orthotics partners.

Please email us if you need a detailed patient history form.

Total cost

Trial and final orthosis

Manufacture of a customized hand orthosis

- for a three-month trial period (trial orthosis): starting at 20,000 € (example of price)
- for the permanent orthosis (definitive management): starting at 42,000 € (example of price)

The cost of the trial orthosis can be credited toward the cost of a definitive orthosis.

General information

Product & operation

The exomotion® hand one was developed as a functional and reliable everyday assistive device for performing ADLs to assist paralyzed hands in again performing simple grasping motions. It therefore serves to directly compensate for disabilities. The orthosis has been classified as a Class 1 medical device under EU MDR (EU conformity assessment). It provides an IP 22 class of protection against the ingress of water, adequate for everyday use, and has enough battery life for a whole day.

The exoskeleton (1) permits the targeted opening and closing of the fingers via artificial tendons (2) and drives (3) with the fingers resting in customized fingerstalls (4). The brace (5) stabilizes the forearm and metacarpus.

Control unit for selecting the gripping pattern

The simple and intuitive control of the preselected grip pattern is effected via impulses of an active muscle, which are picked up at skin level by an EMG sensor (not shown).

The compact control unit lets the patient configure customized control settings and preselect the six grip patterns. The six gripping patterns are fist grip, thumb grip, three-finger grip, two-finger grip, mouse grip, and keyboard grip.

In patients with limited flexion (Janda 3 or less), the orthotics partner can add an upper arm brace with dynamic elbow joint.