

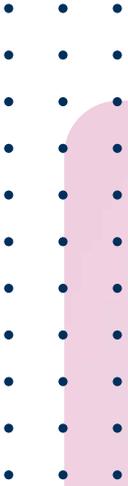
Wir verstehen Hören.

**bruckhoff**

CHILDREN'S HEARING SYSTEM

# BRUCKHOFF JUNIOR BONE CONDUCTION.







# OPENING UP THE WORLD OF HEARING – WITH NO NEED FOR SURGERY

Hearing is a significant and essential part of the human learning process – especially for a child. For children with combined hearing loss, conductive hearing impairment or single-sided deafness, hearing with bone conduction is the only natural alternative to surgery.

The fully digital junior bone conduction hearing system, which was developed by bruckhoff specifically with children in mind, provides any easy way for young people to access the world of hearing. This exceptionally light and powerful hearing system features a bone conduction

hearing aid in small, discreet housing, which slots into an easy-to-wear headband.

The combination of a headband and hearing module offers numerous advantages which clearly set the junior system apart from comparable solutions by other manufacturers. Comfortable and barely even noticeable, children will soon forget that they are wearing a hearing system at all. The headband means that the hearing system is hardly visible and makes it easy to position correctly on a child's head.

# BONE CONDUCTION SYSTEMS FOR CHILDREN

## EXPERTISE FROM THE DEUTSCHES HÖRZENTRUM (GERMAN HEARING CENTRE) IN HANOVER

PROF. THOMAS LENARZ  
MEDIZINISCHE HOCHSCHULE HANNOVER (HANOVER MEDICAL SCHOOL, MHH).



Early detection procedures for hearing impairments pick up almost all hearing difficulties, many of which had not previously been discovered. Children with external indications of a problem, such as ear dysplasia or unformed auditory canals, have always had a good chance of having their condition diagnosed at an early stage. In this respect, early detection is very important, as the auditory nerve needs to grow and mature – like fruit on a tree.

If this does not happen in early childhood and treatment is delayed until later, the chances of a child being able to hear as well using their auditory nerve will not be as good. Their hearing sensation will remain rudimentary and their speech development will suffer. Therapeutic care after diagnosis (which can now be done at any early stage) is therefore crucial too.

In the case of the conditions mentioned above, a solution known as a bone conduction hearing aid is often the only way to give people the ability to hear.

In principle, bone conduction hearing aids can be implanted surgically. For young children, however, whose hearing development is at a critical stage, this kind of operation is neither possible nor advisable in most cases.

That is why bone conduction hearing systems worn using a headband are absolutely essential and virtually the only option.

Since the number of people affected by this is small, there is only a limited selection of adequate products available. Years of experience are needed to develop these to a high standard.

This experience is something that bruckhoff can offer and our hearing systems have been well received. The German Hearing Centre in the ENT Clinic at MHH provides detailed advice on all the options available from the various manufacturers offering these systems, so that patients can always make their own decision after trying devices out themselves.

# JUNIOR BONE CONDUCTION.

## CHILDREN'S HEARING SYSTEM.

HEADBANDS WITH BONE CONDUCTION HEARING SYSTEMS,  
AVAILABLE IN A RANGE OF COLOURS.



### GOOD HEARING MADE EASY

Hearing freely gives children the freedom to play: the winning combination of a headband and hearing module offers plenty of benefits for young people affected by hearing impairments. The junior system stands out because it is:

- barely noticeable to the children wearing it,
- comfortable to wear,
- easy to position correctly on a child's head.

With its comfortable feel and discreet look, the junior hearing system offers the ultimate in wearability. It boasts the quality you would expect from a German-made product and is sure to bring your young patients lasting enjoyment.

### SMALL BUT POWERFUL

- Hardly visible
- Adjustable headband
- Quick and easy to fit
- No need for surgery
- Good, realistic sound quality
- Reduced background noise

### FASHIONABLE HEADBANDS

Customers can choose from a great selection of attractive and stylish headbands for their child. These are prefabricated, so the junior hearing system is quick and easy to assemble.

In addition to the ready-made range, customers' own headbands can also be adapted and reworked for use with the junior hearing system.



- Reduced wind noise
- Two-stage feedback suppression system
- Compatible with the Phonak Roger system
- Volume control and programme selection can be disabled
- Fitted using bone conduction fitting software
- Compatible with NOAH and NOAH Link (version 4.3 onwards)

# USING JUNIOR HEADBANDS.

## READY-PREPARED AND READY TO GO.

ASSEMBLY MADE EASY WITH  
THE JUNIOR HEARING SYSTEM.



### QUICK AND EASY TO ASSEMBLE

The fashionable junior headband collection features a wide range of comfortable headbands, which are prefabricated to make the junior hearing system quick and easy to assemble. All you need to do is attach the hearing module with the simple snap fastener – done!

What's more, all of the fabrics and materials used are carefully tested, have no cytotoxic effects and comply with the applicable medical regulations.

### ADJUSTABLE HEADBAND LENGTH

junior headbands can be adjusted to fit each individual child's head using a Velcro strip. This enables you to adapt it to each child's physical build and their personal requirements.



### COSTS COVERED BY HEALTH INSURANCE

The costs of junior headbands can be covered by health insurance as a special solution. Most health insurance providers will even pay the full costs of a second headband if customers apply for this.

### ADAPTING OTHER HEADBANDS

In addition to the ready-made range, commercially sold off-the-shelf headbands can also be adapted and reworked for use with the junior hearing system. This means children can choose headbands in any colour or design they like and they don't have to give up any favourite headband they may already have.

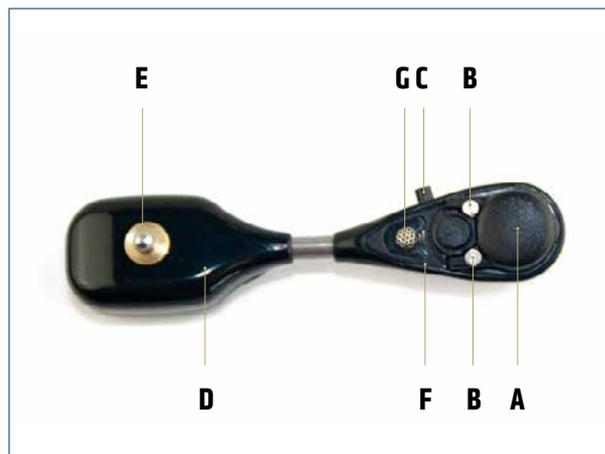
# TECHNICAL INFORMATION.

## BRUCKHOFF JUNIOR.

HIGHLIGHTS OF THE CHILDREN'S HEARING SYSTEM.

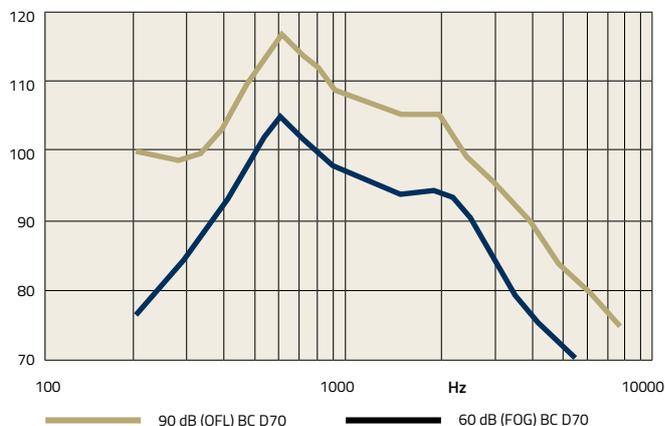
### TECHNICAL DATA

- Maximum amplification of up to 48 dB
- Frequency range of 200 to 5000 Hz
- Less than 3% signal distortion
- 16 channels used for signal processing
- Up to six programmes can be custom-set to ensure comfortable hearing
- Specially developed bone conduction fitting software available
- An integrated generator developed specifically for this bone area makes it easy to pinpoint the ideal place on the mastoid bone for fitting the device
- The speech signal can be improved with selectable noise suppression
- Programmable wind noise suppression
- An extremely powerful 4th-generation feedback suppression system ensures an pleasant hearing experience
- Audio input with connection option for external audio signals, e.g. Phonak Roger-X receiver
- The devices come with a size 13 battery
- The volume can be set individually by the user as required
- Matching headbands with an adjustable length are available in various designs
- All fabrics and materials used are tested, have no cytotoxic effects and comply with the applicable medical regulations
- The junior hearing aids' simple fastening mechanism allows users to make their own customised headbands from off-the-shelf products
- A T-coil is integrated as standard



**A** Battery compartment **B** Locking screw **C** Volume control/programming button **D** Hearing aid unit housing **E** Snap fastener stud **F** Programming socket **G** Microphone

### OFL90 MAXIMUM OUTPUT FORCE LEVEL AND FOG (60)



acousto-mechanical force level | Measurements in accordance with DIN IEC 60118-9

# FITTING JUNIOR HEADBANDS.

## BASED ON A MEDICAL DIAGNOSIS ONLY.

A MEDICAL DIAGNOSIS IS ALWAYS REQUIRED  
BEFORE FITTING A HEADBAND.

### CRANIUM THICKNESS

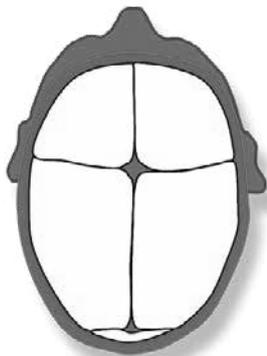
Source: Stärke der Schädeldecke (Cranium thickness) | Book: Das Kind Forensische Medizin (Forensic medicine – The child)



Infant: 1 mm



Young child: 4 mm



Adult: 10 mm

### GENERAL INFORMATION REGARDING CONTACT PRESSURE

To transfer mechanical vibrations into the inner ear, the bone conduction hearing aid unit needs to exert static pressure on the skull. This static pressure should be kept to a minimum, but it must be strong enough to get past the layer of fat and skin tissue over the bones.

50–60 grams is an adequate and comfortable level of contact pressure. The hearing system should be positioned on the mastoid bone in a way that ensures direct contact with the skin.

### CONTACT PRESSURE IN INFANTS AND SMALL CHILDREN

Since the bones in a baby's or small child's skull are still very thin and delicate (see diagram on the right), it is particularly important to apply the right amount of contact pressure. Too much pressure must be avoided under any circumstances.

Regular pressure point checks therefore need to be carried out. If necessary, the junior hearing system should be moved to a different part of the mastoid area.

### BONE CONDUCTION THRESHOLDS

**Bilateral hearing loss:** For bilateral bone conduction hearing solutions, the difference between the two bone conduction thresholds should be < 15 dB. Otherwise, the worse side will be heard in the better inner ear (250–3000 Hz).

**Bilateral conductive hearing impairment:** If there is a conductive hearing impairment on both sides, bone conduction hearing systems – just like an air conduction system – always focus on the better ear.

If the bone conduction thresholds are more or less equal (< 15 dB difference between the two sides), the system should support both ears.

# POSITIONING ON THE HEAD.

## BRUCKHOFF JUNIOR.

HOW TO FIND THE  
PERFECT POSITION.

### FINAL POSITION ON THE HEAD

Left hearing aid



Right hearing aid

### BENDING THE HEADBAND TO FIT THE HEAD

Bending point



*Example: fitting the left hearing aid*

# WORKING ON THE DEVICE.

## OPERATION AND MAINTENANCE.

CARRY OUT SIMPLE TASKS AND  
ADJUSTMENTS YOURSELF.



### CHANGING THE BATTERY

Open the battery compartment, touch the battery with the magnetic stylus and take it out. Insert the new battery into the battery compartment using the magnetic stylus.



### SWITCHING THE DEVICE ON AND OFF

If the battery compartment is closed, the device is in operation.  
If the battery compartment is slightly open, the device is switched off.



### BATTERY TYPES

The junior system uses a type 13 battery as standard. To use the smaller type 312 battery, carefully pull out the battery compartment door and replace it with the flatter type 312 version. Insert the new type 312 battery into the battery compartment using the magnetic stylus.



### CHILD SAFETY

The battery compartment can be locked with two screws to protect it from being opened by children unintentionally.

# ROGER X AND JUNIOR. WIRELESS RECEIVER.

ENHANCED SPEECH INTELLIGIBILITY  
WITH PHONAK'S ROGER X.



## EASY TO CONNECT

The junior system can be connected to the Phonak Roger X using an adapter cable. The wireless receiver is linked directly to the hearing aid using something known as an audio shoe and coupled once with the Roger transmitter used. Done!

The Roger wireless transmitter can now send the speaker's voice directly to the hearing aid. The receivers also adapt to the amplification level, according to the ambient noise, which significantly improves the intelligibility of speech in noisy environments.

Studies have shown that the Roger X can improve speech intelligibility by 53%. All Roger X options are therefore also available for the junior children's hearing system.

## FEATURES

- Connect and hear instantly
- Optimum speech intelligibility
- Better audibility in noisy environments
- Outstanding signal to noise ratio
- Automatic frequency synchronisation
- Additional adaptive amplification
- Outstanding speech intelligibility in noisy environments
- Wireless connection quality measurement
- Standby mode is activated after around 40 seconds with no transmitter signal

# LA BELLE JUNIOR BC D50 FEATURES

## BONE CONDUCTION

	LA BELLE JUNIOR BC D50 HEADBAND
FEATURES	LA BELLE JUNIOR BC D50
WDRC	16 channels
Feedback suppression	4th generation
Noise reduction	•
Wind noise reduction	•
MPO	•
Volume control	•
Channels	16
Integrated sound generator	•
Programmes	4
Buttons	Programmes
Programme selection tone	•
Battery warning tone	•
Telecoil	•
Microphone	1
Audio input	•
Phonak Roger X receiver, optional	•
Battery size 13	•
BC-specific fitting software	BC-Fit
NOAH from version 4.3	•
NOAH Link	•