

NEW MODEL LINEUP 2023

Miniature Sound-Pressure Receiver
This electromagnetic device provides a high level of speech clarity from incoming radio transmissions.

Acoustic Tube
This acoustically designed tube radiates sound pressure energy emitted by the miniature receiver within the ear canal.

Shell
Voiceducer's outer shell is molded in several parts from a high-grade polymer to form a sealed unit. A detachable medical grade Silicone rubber ear tip facilitates cleaning and provides optimum user comfort.

Vibration Pick-up Microphone
Ultra-sensitivity enables this microphone to pick up bone-transmitted vibrations that are converted into minute electrical signals for voice transmission.

Kevlar® Reinforced Cable

March/2023

FEMCO JAPAN CO., LTD.

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TWO TYPES OF SOUND (AIR and BONE)

- SOUND THROUGH THE EAR
- Sound transmitted in the form of air vibration
- Air vibration sound
- SOUND THROUGH THE BONES
- Sound transmitted by bone conduction
- Bone vibration sound



<NOTE> BONE CONDUCTION

- Beethoven who lost hearing listened to the vibration of the piano by holding a baton between his teeth and pressing it against the piano.
- Whale capture sound vibration traveling through water with its lower jaw bone.



BONE CONDUCTION APPLIED TO MIC & SPEAKER

- **BONE VIBRATION MIC**

- Mechanism

- Microphone picks up vocal cord vibration directly from the bones.

- Merit

- Picks up only the user's voice regardless of the ambient noise.
- Provides clear sound even with a facial mask on or in high pressure. Sound is not muffled.

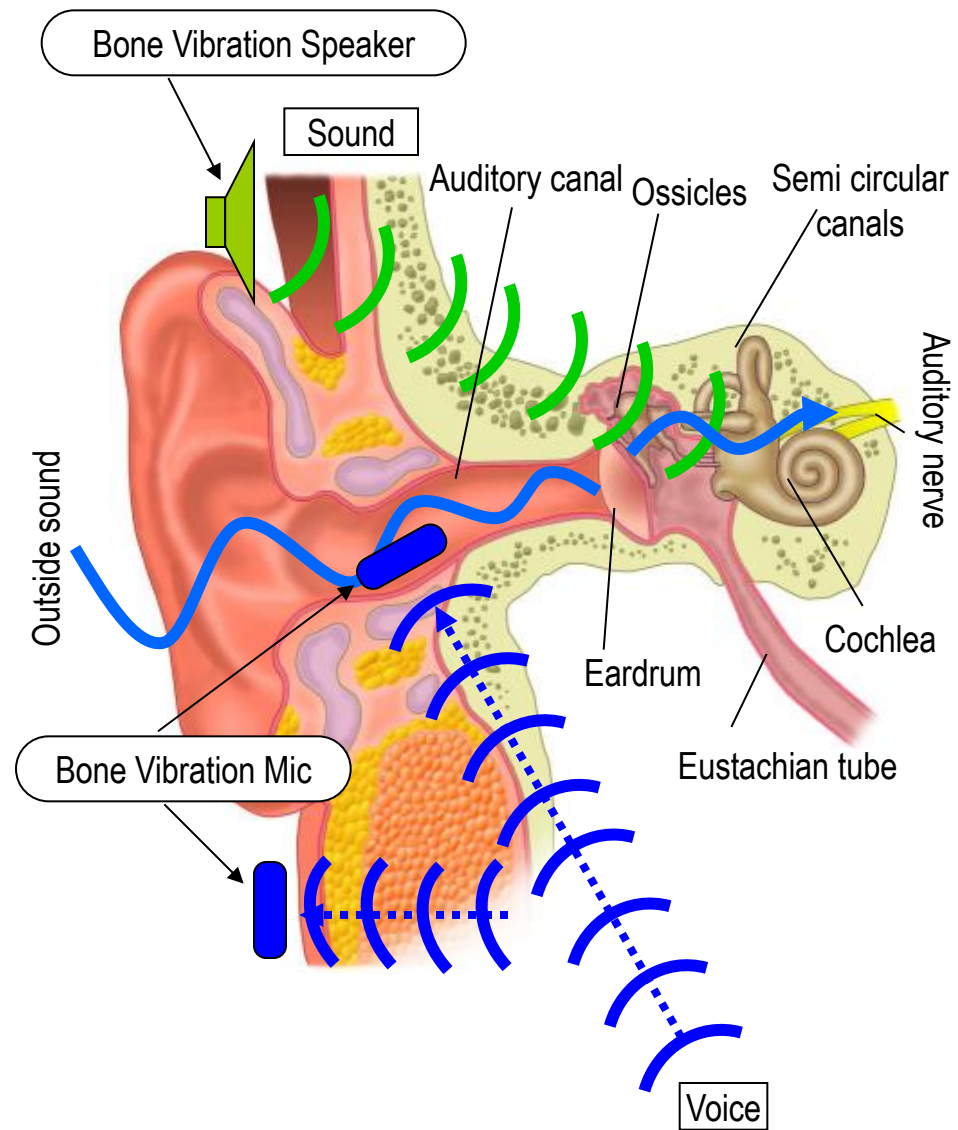
- **BONE VIBRATION SPEAKER**

- Mechanism

- Transmits sound vibration directly to the cochlea by way of bone conduction.

- Merit

- Does not cover the ear and allows the user to hear the ambient sound.
- Its use at mega volume will not harm the eardrum.
- Allows user with damaged eardrum to hear sound (serves as hearing aid).



(Reference) NOISE LEVEL

Extent Of The Noise	Level	Examples
Conversation is not possible	120dB	Threshold of feeling Proximity of the aircraft engine Extremely noisy subway station
	110dB	Near the factory siren
	100dB	Underneath the elevated railway as a train passes Inside subway train, train station
	90dB	Machine workshop, air conditioning machine room,
Difficult to hold conversation	80dB	At intersection, supermarket, busy highway
Need to raise voice	70dB	Theatre, department store, bank lobby, busy office
Conversation possible in a normal tone	60dB	Restaurant, large store, hotel lobby Normal tone conversation City outskirts residential area, inside of the office
	50dB	Murmur of voices inside the theater
	40dB	Inside of the home (on average) Quiet residential area
	30dB	Suburb Radio station studio
	20dB	Rustling of leaves
	10dB	Whisper
	0dB	Threshold of audibility

EAR MICROPHONE

EM20



BONE VIBRATION EAR MICROPHONE

- Enables transmission simply by fitting the device into the ear canal.
- Workable in the noise level of 100dB (underneath the elevated railway).
- New bone vibration mic enables duplex transmission.

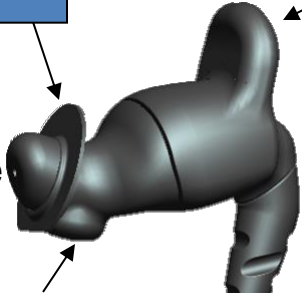


Isolator

Enables duplex transmission by separating transmitting voice from receiving voice

Holder

Holds the ear microphone in place to prevent it from falling during severe exercise.



New Bone Vibration Mic
Vibration Sound Conversion Mic

Pick up voice from the inner ears with incredible clarity.

Miniature PTT Switch

Can be concealed since it takes only a little space.



or

Large Size PTT Switch

Easy to operate in all situation.



Optional



Radio



Connector

Connect direct with the radio without the interface.

* Shape of the connector differ with the model of radio / mobile phone. Please inquire.

VISUAL DESCRIPTION OF VSCM

Rustling Of The Cable

The use of our newly developed VSCM helped to further reduce and minimize rustling noise of the cable heard in our conventional ear microphone.

Bone Vibration Sound

Voice reaches our new VSCM by way of bone conduction. Compared to our conventional bone conduction mic, a significant improvement made to the speech quality enabled the use of VSCM in digital radio.

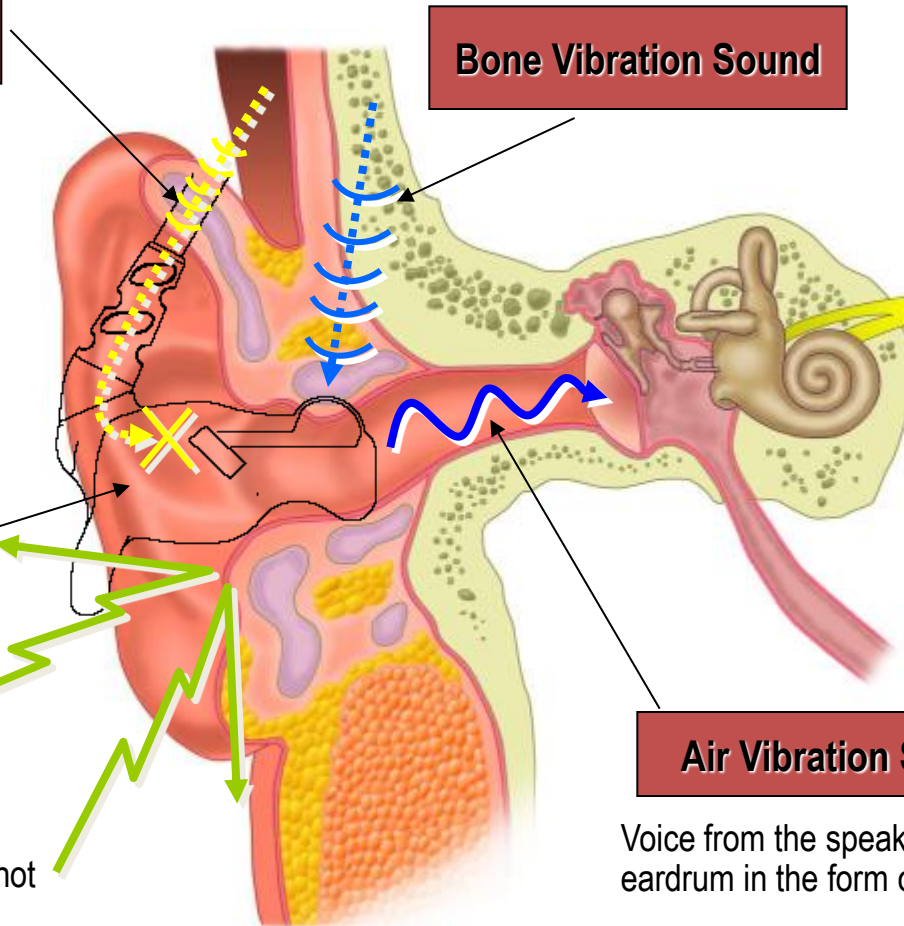
EAR MICROPHONE

Noise

Since the noise does not reach VSCM, ear microphone is noise free.

Air Vibration Sound

Voice from the speaker reaches the eardrum in the form of air vibration.



CONNECTABLE RADIO & INTERFACE

MODEL	RADIO		Require Inter-face	INTERFACE					
	Digital Radio	Analogue Radio		RB	SB	BM	DM19	DM1	V.A.D.E.R.
				RD	SD				
EM20	Yes	Yes	Usable without			Yes	Yes	Yes	Yes
EMP/L	No	Yes	Yes	Yes	Yes	No	No	No	No
EM7	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes

NOTE:

1. EM20 with ECM input terminal enables direct connection without the interface. Rarely, there is an exception. Please inquire. If the VOX function is required, interface with VOX function has to be used.
2. EMP is not compatible with digital radio with the exception of tetra system radio (TDMA method digital radio) MTP 750 by M manufacturer. Please note that both RD and EMP are customized to cope with RFI and general purpose product is not usable.
3. To connect, each "YES" requires appropriate connecting cable.

THROAT MICROPHONE

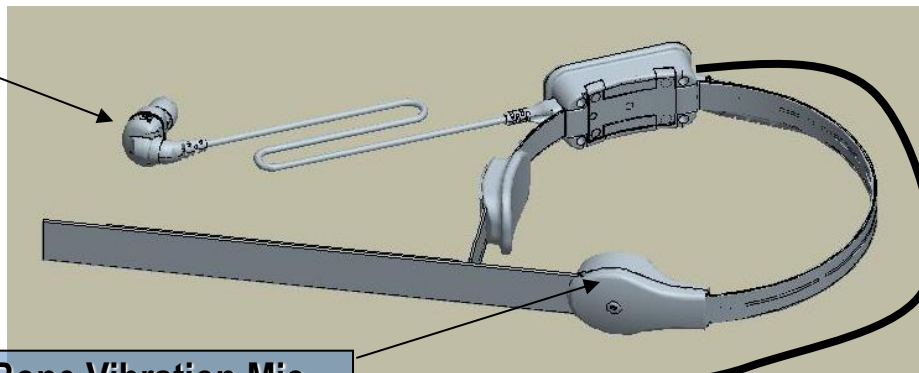
TM80



THROAT MICROPHONE

Bone Vibration Ear Phone

Excellent anti-noise function



New Bone Vibration Mic

Vibration Sound Conversion Mic

Shut out noise and picks up voice clearly



Easy to operate in all situation.

Large Size PTT Switch



or

Connector



Interface

DSP for noise cancel and VOX function can be added if required.

■ Enables clear transmission under mega noise level of over 110dB (proximity of an aircraft engine)

The use of ear muff is requested in extreme noise environment

* Shape of the connector differ with the model of radio / mobile phone. Please inquire.

Connector

CONNECTABLE RADIO & INTERFACE

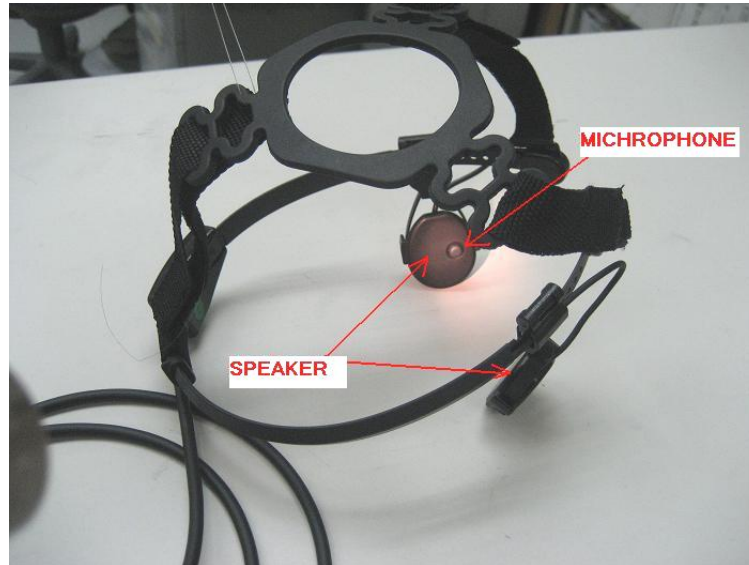
MODEL	RADIO		Require Inter-face	INTERFACE					
	Digital Radio	Analogue Radio		RB	SB	BM	DM19	DM1	V.A.D.E.R.
				RD	SD				
TM80	Yes	Yes	Usable without			Yes	Yes	Yes	Yes

NOTE:

1. When TM80 is connected to the radio without interface or to BM8, sound volume will be reduced unless there is sufficient voice output (50mW/16Ω and over with bone vibration earphone) from the radio.
2. If the VOX function is required, interface with VOX has to be used.
3. To connect, each “YES” requires an appropriate connecting cable.

DOUBLE BONE HEADSET

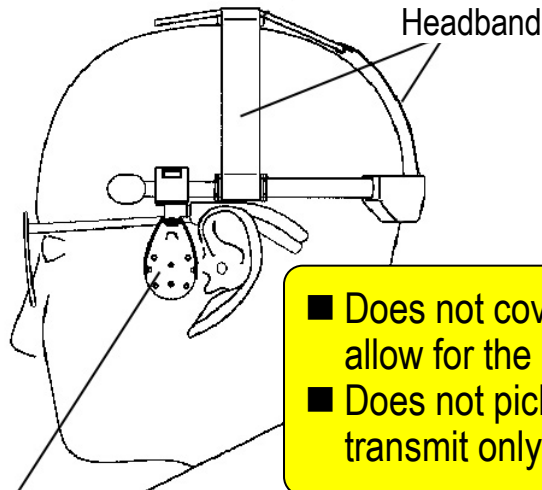
HG70



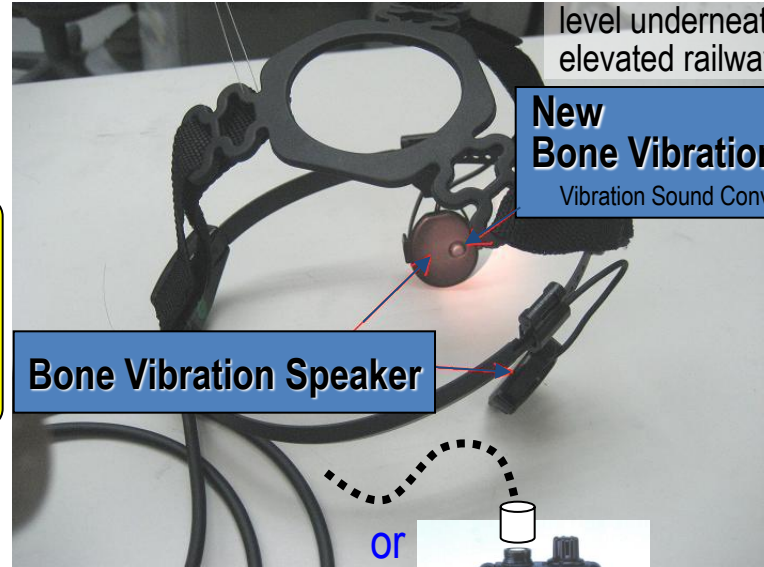
BONE CONDUCTION HEADSET

Anti-noise function enables clear transmission in 100dB / level underneath the elevated railway.

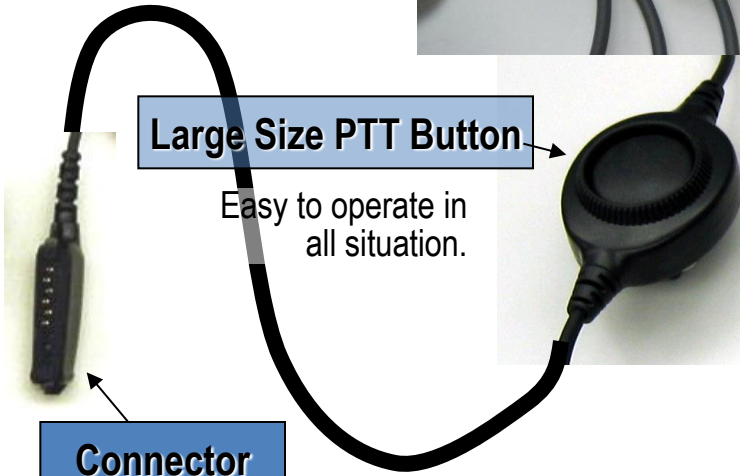
New Bone Vibration Mic
Vibration Sound Conversion Mic



- Does not cover the ear to allow for the ambient noise
- Does not pick up noise and transmit only the user's voice.



1 Bone Vibration Speaker



Connector

Enables direct connection with radio without the interface.

* Shape of the connector differ with the model of radio/mobile phone. Please inquire.



Interface

Function such as VOX and DSP for noise cancel can be added .

CONNECTABLE RADIO & INTERFACE

MODEL	RADIO		Require Inter-face	INTERFACE					
	Digital Radio	Analog Radio		RB	SB	BM	DM19	DM1	V.A.D.E.R.
				RD	SD				
HG70B	Yes	Yes	Usable without			Yes	Yes	Yes	Yes

NOTE:

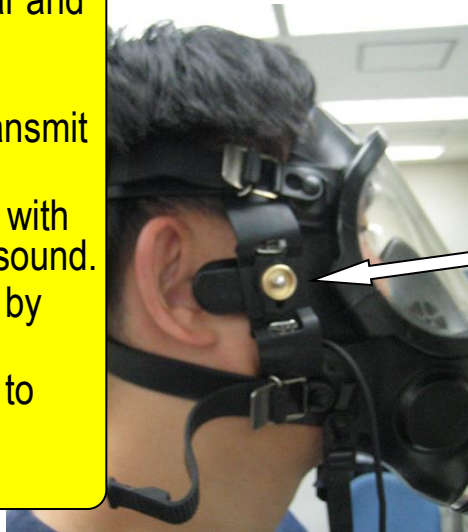
1. When HG70B is connected to the radio without interface or to BM8, sound volume will be reduced unless there is sufficient voice output (200mW/8Ω and over) from the radio.
2. If VOX function is required, interface with VOX function has to be used.
3. To connect, each “YES” requires appropriate connecting cable.

FACE MASK HEADSET & RSM

FM3 & RSM51

FACE MASK HEADSET & RSM

- Does not cover the ear and let the user hear the ambient sound.
- Shut out noise and transmit the user's voice only.
- Enables clear speech with mask on. No muffled sound.
- Can be used as RSM by pulling out FM plug.
- New FM3 is available to wash with the mask.



Clip

Can easily be attached to the face mask.

FM3

New Bone Vibration Mic
Vibration Sound Conversion Mic

Shut out noise (100dB/ noise level underneath the elevated railway) to enable clear transmission.

Bone Vibration Speaker

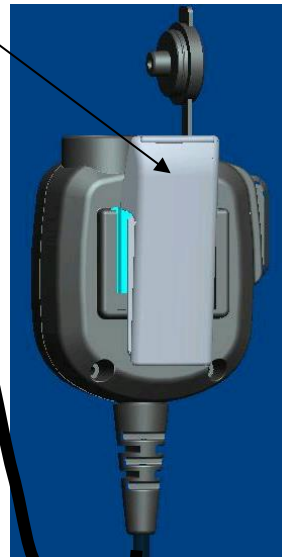


Belt Clip

Secure RSM to the belt. Also, it rotates.



* Shape of the connector differ with the model of the radio/mobile. Please inquire.



Velcro

Used to bind cables in one.

Plug

Removable with one touch motion.

Large Size PTT

Easy to operate even with the gloves on.



RSM51

FM3 & RSM51

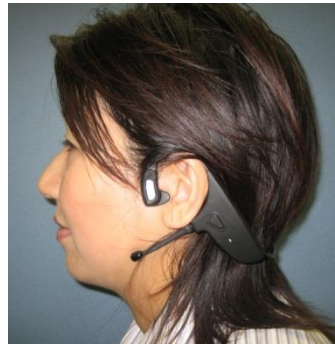
BLUETOOTH RSM & HEADSET

RSM41BT



BLUETOOTH RSM & HEADSET

- Does not cover the ear and let the user hear the ambient noise.
- No cumbersome cable.
- Allows the use of radio and mobile phone at the same time.
- RSM vibrates when there is an incoming radio call while using a mobile phone.



or



HG41

ON/OFF button for communication

HSP

Air Vibration Mic

Used in mobile phone (Duplex).

HFP

Bone Vibration Speaker

Built in Bluetooth

Send radio voice wireless to the headset. RSM can be used by itself.



Mobile phone



Radio



* Shape of the connector differ with the model of the radio or mobile phone. Please inquire.



RSM41

DSP WITH RSM

DM51RSM

DSP WITH RSM

- Equipped with built in VOX function activated by human voice only. (No malfunction caused by noise)
- Connectable with many types of headset. Hands free operation is possible.

PTT Button

Can be operated with gloves on.

Headset Plug

HG21,HG30,HG40,
HG70,EM20,FM3.TM80
(VSCM type Headset)

Connectable with many types of headset. By disconnecting the plug, it can be used as RSM by itself.

DM19
PCB
inside

Built in DSP

VOX is not affected by noise and will not malfunction because of it. Also, built in noise cancel functions to shut out noise.



* Shape of the connector differ with the model of radio or mobile phone. Please inquire.

Earmuffs type headset

HG82



Earmuffs type headset

- It is an epoch-making earmuffs type headset equipped with a technique TEMCO's original in high-performance earmuffs H540A of PELTOR company which is reputation worldwide to a base.
- The microphone part adopts high-performance vibration pickup type VSCM(*); in the speaker part It is equipped with the high output and waterproofing dynamic type.

(*) VSCM Vibration Sound Conversion Mic



PTT Switch

Waterproofing press talking switch

H540A of PELTOR

Aim of the sound insulation level

: H Quite More than 4kHz 40dB

: M 1kHz from approximately 250kHz 32dB

: L Approximately 250kHz or less 23dB



New Bone Vibration Mic

Used in radio transmission (Simplex).

Allows transmission under loud noise (100dB/noise underneath the elevated railway)

Dynamic Sp

Ear Microphone for Mobile phone

EM20/EM21



Ear Microphone for Mobile phone

- Enables transmission simply by fitting the device into the ear canal.
- Workable in the noise level of 100dB (underneath the elevated railway).
- New bone vibration mic enables duplex transmission.

Isolator

Enables duplex transmission by separating transmitting voice from receiving voice

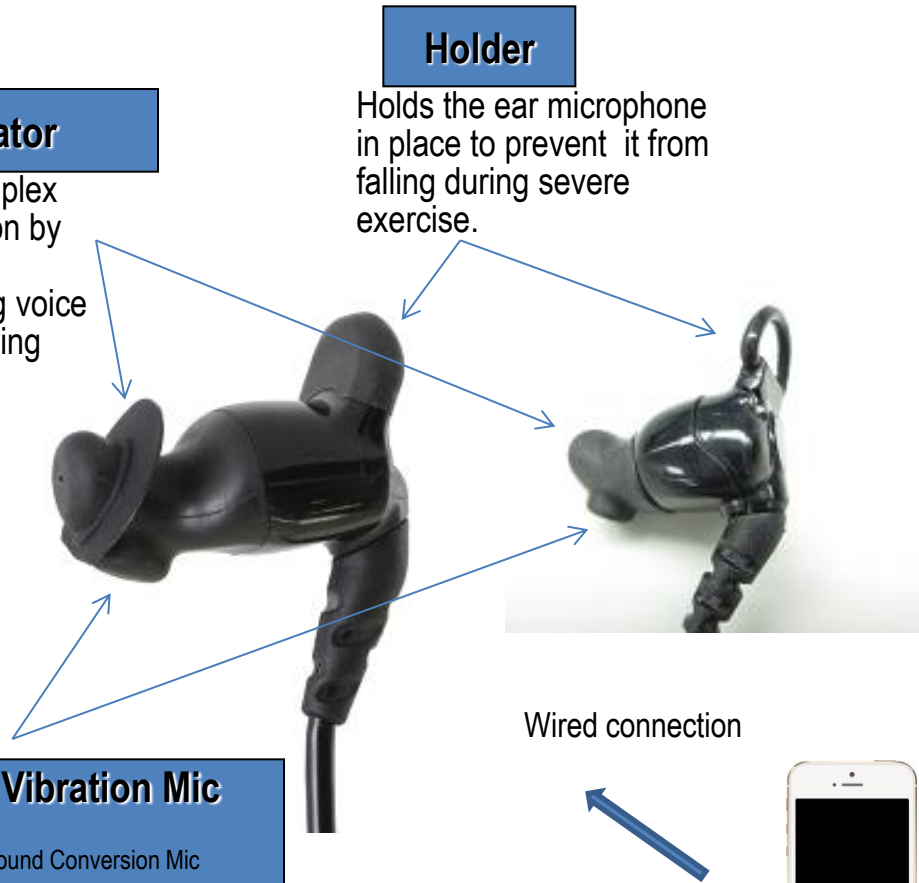
Holder

Holds the ear microphone in place to prevent it from falling during severe exercise.

New Bone Vibration Mic

Vibration Sound Conversion Mic

Pick up voice from the inner ears with incredible clarity.



Wired connection



Mobile phone

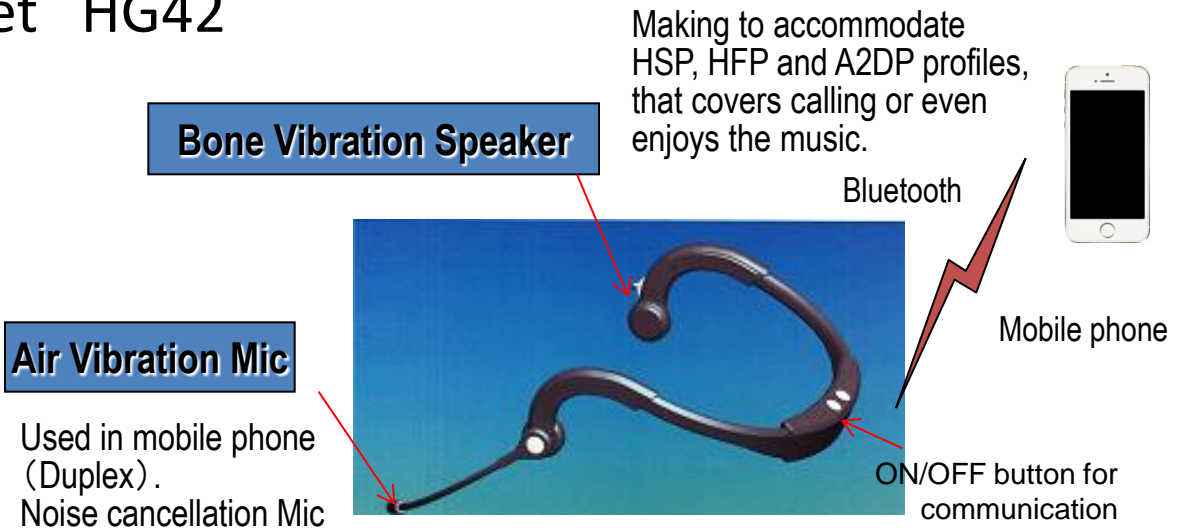
Bluetooth Headset / DUPLEX Headset

HG42/HP80+HG21



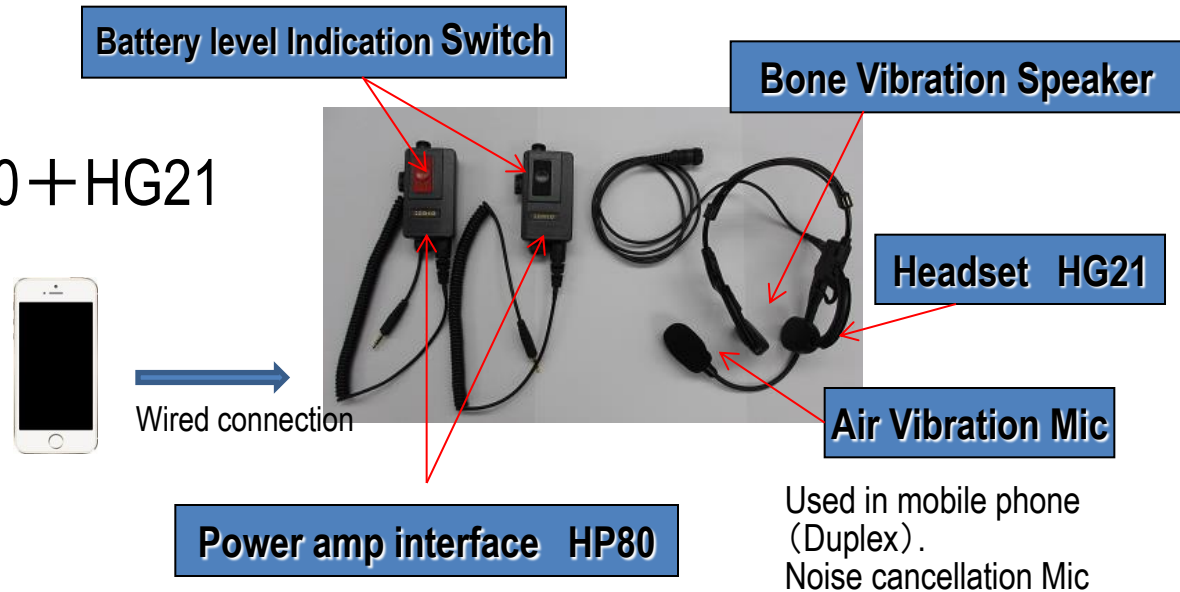
Bluetooth Headset HG42

- Does not cover the ear and let the user hear the ambient noise.
- No cumbersome cable.
- Allows the use of mobile phone at the same time.
- Practical Waterproof



DUPLEX Headset HP80 + HG21

- Does not cover the ear and let the user hear the ambient noise.
- Battery level Indication Switch
- use of mobile phone at the same time.
- Waterproof(Ip×4)



SUNGLASSES/Glasses



SUNGLASSES GL42

- Allows you to transmit /receive call simply by wearing it.
- Can be worn while driving a vehicle since it does not cover the ear.
- No cumbersome cable attached.



Built in Bluetooth



HFP

A2DP

Both the transmitting /receiving voice and the ambient sound are clearly audible.

Bone Vibration Speaker

Air Vibration Mic

Picks up speech clearly

Making to accommodate HSP, HFP and A2DP profiles, that covers calling or even enjoys the music.

Glasses GL49

- Allows you to transmit /receive call simply by wearing it.
- Can be worn while driving a vehicle since it does not cover the ear.
- No cumbersome cable attached.
- Built in Bluetooth .
- Stereo sound.
- battery charging by USB

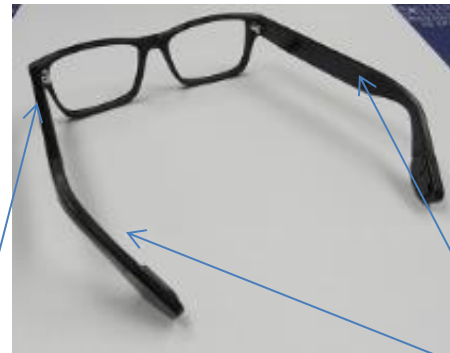


Bone Vibration Speaker

Both the transmitting /receiving voice and the ambient sound are clearly audible.



Making to accommodate HSP, HFP and A2DP profiles, that covers calling or even enjoys the music.



Air Vibration Mic

Picks up speech clearly

Built in Bluetooth

Hearing assistance device

HA301/HA601/A no naming



Hearing assistance HA301(kikutyan)

- Bone conduction technology was applied to develop “Kikuchan”, a bone conduction assistive listening device well received by people with hearing difficulty because it does not necessarily rely on the eardrum to pick up sound.
- Reduce ambient noise with a noise cancellation microphone.

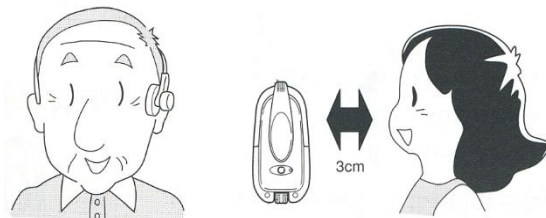
Bone Vibration Speaker



kikutyann



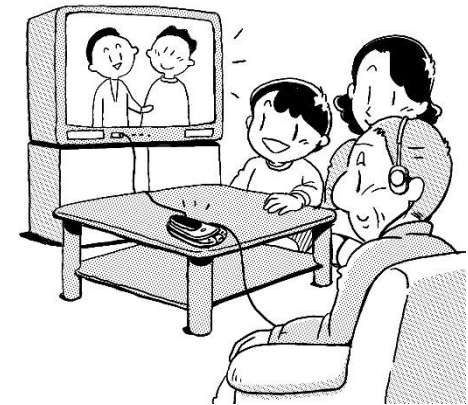
Battery charger



- Headset compatible with Kikuchan.



- Bone conduction speaker for Kikuchan.



- Wireless bone conduction amplifier, TV/Conference Kikuchan

Hearing assistance HA601(kiku2)

- Bone conduction technology was applied to develop “Kiku2”, a bone conduction assistive listening device well received by people with hearing difficulty because it does not necessarily rely on the eardrum to pick up sound.
- Reduce ambient noise with a noise cancellation microphone.



Choose headphones or an earphone.



Connected in cable broadcasting.

HSP



A transmitter is used together with a battery charger.

Even if they are watching it on TV, the neighboring sounds come from Mike.

HFP



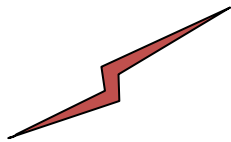
A2DP



Making to accommodate HSP, HFP and A2DP profiles, that covers calling or even enjoys the music.

Hearing assistance (A no naming)

- Hearing aid of the pipe type that adopted Bone Vibration Speaker.
- Bone conduction sound to be handed down from a tooth.
- Slender, stylish design
- It is an eco-friendly electronic cigarette.



It carries a microphone, Bone Vibration Speaker, Bluetooth

Bone Vibration Speaker phone

A no naming



Bone Vibration Speaker phone

- It is a telephone equipped with Bone vibration speaker.
- Because I adopt sound delay line, it becomes easy to hear it.
- The figure is different from the fact that is a figure of reference.

Bone vibration speaker Handset



SPECIFICATION

	MODEL NAME	Ear Microphone	Throat Microphone	Dual Bone Headset	Headset for Face Mask	Remote Speaker Microphone		Interface with RSM	Sunglasses
	MODEL NUMBER	EM20	TM80	HG70B	FM3	RSM51	RSM41BT	DM51RSM	GL41
MICROPHONE	BONE CONDUCTION	●(*VSCM)	●(*VSCM)	●(*VSCM)	●(*VSCM)	X	X	X	X
	TYPE	Electret Condenser	Electret Condenser	Electret Condenser	Electret Condenser	Electret Condenser	Electret Condenser	Electret Condenser	Electret Condenser
	OUTPUT IMPEDANCE	Rated condition 5V 2.2kΩ	Rated condition 5V 2.2kΩ	Rated condition 5V 2.2kΩ	Rated condition 5V 2.2kΩ	Less than 2.2KΩ (RL=2.2KΩ)	Less than 2.2KΩ (RL=2.2KΩ)	Less than 2.2KΩ (RL=2.2KΩ)	-
	FREQUENCY RENG	200Hz ~ 4000Hz	200Hz ~ 4000Hz	200Hz ~ 4000Hz	200Hz ~ 4000Hz	200Hz ~ 5000Hz	200Hz ~ 5000Hz	200Hz ~ 5000Hz	200Hz ~ 8000Hz
	OUTPUT LEVEL	-13dB ± 4.5dB at 1KHz, (0dB=1V/0.5G)	-13dB ± 4.5dB at 1KHz, (0dB=1V/0.5G)	-13dB ± 4.5dB at 1KHz, (0dB=1V/0.5G)	-13dB ± 4.5dB at 1KHz, (0dB=1V/0.5G)	-42dB ± 4dB at 1KHz, (0dB=1V/Pa)	-42dB ± 4dB at 1KHz, (0dB=1V/Pa)	-42dB ± 4dB at 1KHz, (0dB=1V/Pa)	-44dB ± 4dB at 1KHz, (0dB=1V/Pa)
	DIRECTIVITY	-	-	-	-	OMNI	OMNI	OMNI	OMNI
	CURRENT CONSUMPTION	Less than 1.1mA	Less than 1.1mA	Less than 1.1mA	Less than 1.1mA	-	-	-	-
RECEIVER	BONE CONDUCTION	X	●(KE07)	●(KE03)	●(KE03)	X	X	X	●(KE07)
	TYPE	Electromagnetic	Electromagnetic	Electromagnetic	Electromagnetic	Dynamic	Dynamic	Dynamic	Electromagnetic
	IMPEDANCE	400Ω± 20% at 1KHz DCR 236Ω Approx.	20Ω± 30% at 1KHz DCR 12Ω Approx.	36Ω± 30% at 1KHz DCR 10.5Ω Approx.	10Ω± 30% at 1KHz DCR 3.5Ω Approx.	20Ω± 30% at 1KHz	20Ω± 30% at 1KHz	20Ω± 30% at 1KHz	-
	FREQUENCY RANGE	100Hz ~ 5000Hz	300Hz ~ 3000Hz	300Hz ~ 3000Hz	300Hz ~ 3000Hz	300Hz ~ 3200Hz	300Hz ~ 3200Hz	300Hz ~ 3200Hz	300Hz ~ 3000Hz
	OUTPUT LEVEL	104dB ± 4.5dB at 1KHz/1mW (0dB=20μPa)	96dB±4.5dB at 1kHz (0dB=1μN /1mW)	100dB±4.5dB at 1kHz (0dB=1μN /1mW)	99dB±4.5dB at 1kHz (0dB=1μN /1mW)	90dB±4dB at 1kHz/1mW (0dB=20μPa)	90dB±4dB at 1kHz/1mW (0dB=20μPa)	90dB±4dB at 1kHz/1mW (0dB=20μPa)	110dB±5dB at 1kHz (0dB=1μN /1mW)
	NOMINAL INPUT	0.5mW	0.05W	0.1W	0.1W	0.5W	0.5W	0.5W	-
	MAXIMUM INPUT	2mW	0.2W	0.5W	0.5W	1W	1W	1W	-
OTHERS	SIZE (W x H x D)	16.4 x 17.5 x 27.4		130x72x160	100x32x47				
	WEIGHT	7.5g (0.26OZ) (W/O CABLE)		130g (4.58OZ) (W/O CABLE)	35g (1.23OZ) (W/O CABLE)				g (OZ)
	WATERPROOF	IPX2	IPX8	IPX7	IPX8	IPX5	IPX4	IPX5	IPX4
	ONE TOUCH CONNECTOR	●(Option)	●(Option)	●(Option)	●(Option)	●	-	●	-
	*DSP	-	-	-	-	X	X	●	-
	BATTERY	-	-	-	-	-	Lithium Polymer 3.7V 400mAh	-	Lithium Polymer 3.7V 250mAh
	OPERATION TIME	-	-	-	-	-	Approximately 13h (By continued usage)	-	Approximately 5h (By continued usage)
	CHARGE METHOD	-	-	-	-	-	AC Adaptor (AC100V-240V)	-	AC Adaptor (AC100V-240V)
	CHARGE TIME	-	-	-	-	-	-	-	Approximately 3h
	WIRELESS METHOD	-	-	-	-	-	Bluetooth 2. BASE	-	Bluetooth 1.2 BASE
PROFILE	-	-	-	-	-	HSP (Gateway)	-	HSP, HFP, A2DP	

* VSCM : Vibration Sound Conversion Microphone

* DSP : Digital Sound Processor



Company & Technology introduction



How it all started..

Temco was established by Takeshi Takeda in 1985 in a small workshop in Shinjuku with 10 colleagues.

They first product was a patented piezo electric ear microphone to be used in two-way communication

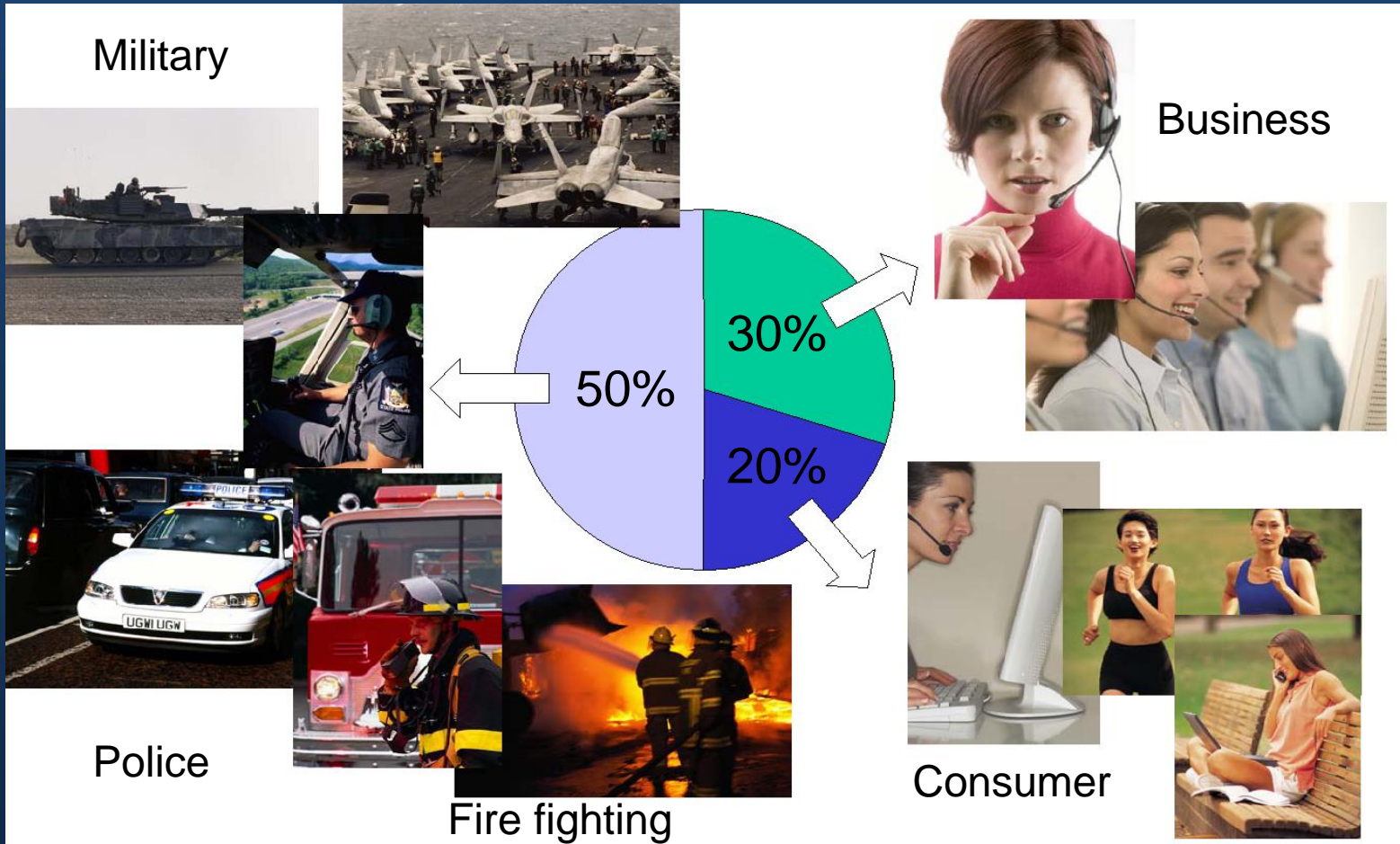
Today Temco continues its roots as a small, tight knit group who tirelessly pursue for their dreams and works enthusiastically to achieve high quality results.



Products and Customers

PRODUCTS	CUSTOMERS
<ul style="list-style-type: none">• Bone Conduction Mic/Speakers, Audio Accessories• Officials, Health Care and Military Communication Systems	<ul style="list-style-type: none">• Motorola, Panasonic, Toshiba, Sanyo, US Army, Japan SDF, ITT Honda, NTT Docomo, Google, Buhel etc.

Temco Product Diversity



Technology

BONE VIBRATION MIC

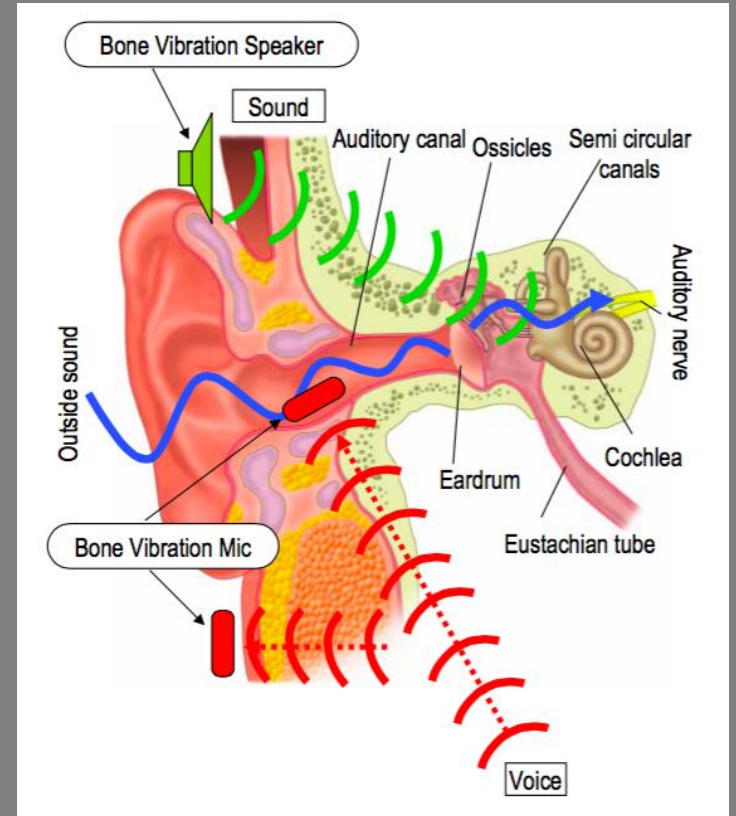
Mechanism

- Microphone picks up vocal cord vibration directly from the bones.
- Merit
- Picks up only the user's voice regardless of the ambient noise.
 - Provides clear sound even with a facial mask on or in high pressure noise.
- Sound is not muffled.

BONE CONDUCTION SPEAKER

Mechanism

- Transmits sound vibration directly to the cochlea by way of bone conduction.
- Merit
- Does not cover the ear and allows the user to hear the ambient sound.
 - Its use at mega volume will not harm the eardrum.
 - Allows user with damaged eardrum to hear sound (serves as hearing aid).



Current Consumer Products



SMART AUDIO GLASSES

- ✓ Allows you to transmit/receive a call simply by wearing it



HELMET AUDIO SOLUTION

- ✓ 360 sound; helmet shell amplifies the sound. No wires needed inside the helmet



STEREO HEADSET SOLUTION

- ✓ Does not block your ears from what happening around you, provides sound with high resolution vibration drivers.



BLUETOOTH MONO HEADSET

- ✓ Bone vibration microphone inside the ear provides superior noise reduction



MUSIC PILLOW

- ✓ Allows you to privately listen music, watch TV without interrupting others

How to differentiate with Temco Technology

Temco Patented Bone Conduction Technology provides:

- ✓ **SAFETY** - doesn't block you from what's happening around you; extremely important while driving, jogging etc
- ✓ **MORE DESIGN OPTIONS** - doesn't have to go inside your ear or placed on ear at all to provide you excellent audio experience
- ✓ **DUST AND WATERPROOF** – easier to make product, dust and waterproof as it doesn't require holes/openings for audio
- ✓ **IMPAIRED SENSE OF HEARING** - With Temco technology even the people are able to hear without looking different from others
- ✓ **SOUND THAT YOU CAN FEEL** - Gives you richer experience on movies/gaming
- ✓ **SUPERIOR NOISE REDUCTION** - No need to place close to mouth, picking up only your voice

Anfragen :

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