



PRODUCT NUMBER: 1011600

Thunder T1Fs Folding Earmuff

Overview

Reference Number
1011600

Product Type
Hearing Protection

Range
Earmuffs

Line
Noise Blocking Earmuffs

Brand
Howard Leight by Honeywell

Brand formerly known as
BILSOM

- Industry**
- Administration • Agriculture • Army - Defence • ATEX environment • Automotive and Part Manufacturer
 - Aviation • Building and Construction • Catering • Chemical Industries • Energy or Electricity
 - Fire Protection brigades • Fishing • Food Industries • Foundry • Glass Industries
 - Green Spaces • Homeland defense • Industrial Cleaning • Iron and steel industry
 - Logistics • Maintenance • Medical and Pharmaceutical • Metal steel • Mining and Quarrying
 - Offshore • Paper Industries • Petro-chemical • Printing Industries • Services
 - Telecoms • Textile Industries • Transportation • Utilities • Water treatment • Welding
 - Wood Industries • Laboratory • Ship Building • Industry

Product Use

Noise Blocking Earmuff

Features & Benefits**Feature**

AIR FLOW CONTROL™ TECHNOLOGY Bilsom's patented Air Flow Control™ technology delivers optimal attenuation across all frequencies, without increasing earcup size or weight. A patented baseplate chamber and high-tech non-woven layer manage the flow of air inside the earmuff to control how sound reaches the ear. The result is better, more consistent overall attenuation for virtually all industrial noise environments. Air Flow Control is a standard feature on all Thunder series earmuffs. **DIELECTRIC/PLASTIC CONSTRUCTION** Thunder's robust nondeforming dielectric construction withstands use and abuse, while protecting your workers in electrical environments. **FOLDING DESIGN** Folds down for compact, convenient storage. **NON-DEFORMING OUTER HEADBAND** Thunder's non-deforming outer headband provides better comfort, minimizes pressure on head, withstanding rough treatment in the toughest workplaces. **QUICK CLICK HEIGHT ADJUSTMENT** Height adjustment remains fixed during wear. **SNAP-IN EAR CUSHIONS** Make replacement quick and easy. **BELT CASE AVAILABLE SEPARATELY**

Benefit

When it comes to selecting an earmuff, comfort reigns supreme with workers. That's why the Thunder series earmuff is designed with all-day comfort in mind. Headband earmuffs feature a unique dual-headband for better positioning and breathability, and non-deforming outer headband that minimizes pressure on the head. Plus, its dielectric construction withstands use and abuse, while protecting workers in electrical environments

Technical Description**SNR (dB)**

31

H (dB)

33

M (dB)

28

L (dB)

22

Attenuation Data

| Frequency (Hz) Frequenz (Hz) Fréquence (Hz) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|---|------|------|------|------|------|------|------|------|
| Mean Attenuation (dB) Mittlere Dämmung (dB) Atténuation moyenne (dB) | 17.6 | 19.9 | 25.3 | 28.6 | 34.3 | 35.7 | 37.4 | 37.8 |
| Standard Deviation (dB) Standardabweichung (dB) Déviation standard (dB) | 4.9 | 4.7 | 4.7 | 4.7 | 3.1 | 2.9 | 3.4 | 3.8 |

| | | | | | | | | |
|---|------|------|------|------|------|------|------|------|
| Assumed Protection (dB) Angenommener (dB) Protection supposée (dB) | 12.7 | 15.2 | 20.6 | 23.9 | 31.2 | 32.8 | 34.0 | 34.0 |
|---|------|------|------|------|------|------|------|------|

Earmuff Construction

Plastic [or Dielectric]

Other Material

POM, PC/PBT, PP, PUR-E, PVC

Dielectric

Yes

Color

Black, Green, and Grey

Batteries Needed

None

Weight (grs)

196

Design Patents

Air Flow Control™

Headband Style

Over-Head

Sound Amplification

No

AM/FM Radio

No

Automatic Shut-Off Function

No


Audio Input Jack

No

Hi-Visibility

No

Certifications

 **E.C. Declaration of Conformity**

EC Category PPE

2


Quality Assurance

ISO 9001 / 2000

EC Certificate Number

0401097

EC Attestation

 EC Attestation

EC Attestation Number

200422139

Photos & Images

We're sorry, there are no images available at this time.

Maintenance

Life Cycle

Cushions should be replaced periodically to retain maximum attenuation. Use the following as a guideline for replacement of ear cushions and insert foam. General use and wear - Ear cushions and foam inserts should be replaced at least every 6 months. Heavy use or wear in humid/extreme climates - Ear cushions and foam inserts should be replaced at least every 3 months. Cracking or leakage is visible - replace ear cushions and foam inserts immediately.

Storage Information

When not in use, the earmuffs should be stored in a clean dry container or locker. Do not use solvents or petroleum-based products. Do not immerse the earmuffs in water.

Care Instructions

Earmuffs are an important safety product and should be inspected regularly. Its use, care and maintenance are critical to its effective performance. Earmuffs and in particular ear cushions may deteriorate with use and should be examined at frequent intervals for cracking and leakage. If the ear cushions become hard, damaged or deteriorated, they should be replaced promptly using recommended Hygiene Kits. Earmuffs should be maintained by regular cleaning. Use a mild disinfectant solution. A gentle wipe is all that is required.

Parts & Accessories

Accessories

Hygiene Kit - Packed in a plastic bag, including two ear cushions and two liners. Ref. # 1010974 for T1, T1H, T1F

Belt Case - For carrying purpose. Ref. # 1000251

Beltclip - For carrying purpose. Old Ref. # 1000252 New Ref. # 1016730

Cool II Pads - Sweat absorbing pads. Ref. # 1000365 5-pair, Ref. # 1000364 100-pair

Optisorb - cotton sleeve slides over earcup. Ref. # 3302101

Polar Hood - Ref. # 1016870 Lg/XLg; Ref. # 1016871 Sm/Med

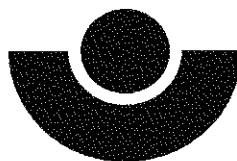
Packaging

EAN Code

7312550116005



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PRÜFBERICHT TEST REPORT

Nr./No.: 200422139

über die EG-Baumusterprüfung eines Gehörschützers

- | | | |
|-----|---|---|
| 1. | Auftraggeber/ Customer | Bacou Dalloz AB Box 550 S-26050 Billesholm |
| 2. | Prüfmuster/ Test specimen | Kapselgehörschützer Bilsom Thunder T1Fs |
| 2.1 | Hersteller/ Manufacturer | Bacou Dalloz AB Box 550 S-26050 Billesholm |
| 2.2 | Bauart, Bezeichnung/ Type, designation | Thunder T1Fs |
| | Kennzeichnung Marking | Bilsom Thunder T1Fs EN 352 |
| 2.3 | Bestimmungsgemäße Verwendung/ intended use | Kapselgehörschützer mit faltbarem Kopfbügel / Persönliche Schutzausrüstung nach Art. 8 (2) der EG-Richtlinie 89/686/EWG (Kategorie II) |
| 2.4 | Datum der Herstellung/ Date of fabrication | - - - |
| 2.5 | Weitere Angaben/ further details | Werkstoffe (nach Angaben des Auftraggebers): Kapseln - PP (grün) Kopfbügel - POM (schwarz) Absorptionseinlagen - Polyäther Dichtungskissen - PVC (schwarz) und Schaumstoff (PU) Masse - 196 g (INSPEC - Prüfbericht) |

3. **Prüfung/
Testing**3.1 Art der Prüfung/
Type of test

EG-Baumusterprüfung

3.2 Datum der Prüfung/
Date of testing

4. Quartal 2004

3.3 Prüfverfahren, -grundlagen/
Test method, requirements

- Grundlegende Anforderungen für Gesundheitsschutz und Sicherheit nach Anhang II der EG-Richtlinie 89/686/EWG
- EN 352-1:2002
- BS EN 24869-1:1993, ISO 4869-1:1990

4 **Beurteilung, Eignung/
Assessment, suitability****(Besondere Hinweise/
Special remarks)**

Die Sicherheitsanforderungen werden von den unter 2. beschriebenen Prüfmustern erfüllt.

Der Prüfbericht Nr. 04.05.02 (INSPEC Laboratories Ltd., England) wurde der Sicherheitsbeurteilung zu Grunde gelegt.

Der Hersteller bestätigt, dass das Produkt mit der Kennzeichnung "BILSOM T1F", welches durch INSPEC geprüft wurde, identisch ist mit dem als "BILSOM T1Fs" gekennzeichneten und unter Absatz 2. beschriebenen Produkt.

Im Rahmen der EG-Baumusterprüfung wurden die technischen Fertigungsunterlagen des Herstellers nach Anhang III und die in englischer Sprache eingereichte „Informationsbroschüre des Herstellers“ nach Anhang II der EG-Richtlinie 89/686/EWG gesichtet und für angemessen in Bezug auf die grundlegenden Anforderungen der Richtlinie gehalten.

5. **Gültigkeit des Prüfberichtes/
Validity of Test Report**

Die ermittelten Ergebnisse gelten nur für die geprüften Objekte.

Einschränkungen der Gültigkeit oder
Verwendung dieses Prüfberichtes:
*Limitation of validity or use of this
Test Report:*

keine

**6. Allgemeine Hinweise/
General remarks**

Dieser Prüfbericht besteht
aus
The present Test Report
consists of

5

Seiten.
Pages.

Die Seiten 1 bis 3 enthalten das Gesamtergebnis der Prüfung. Zum vollständigen Prüfbericht gehört das Prüfprotokoll, aus dem die Einzelangaben ersichtlich sind.

Pages 1 to 3 indicate the overall test result. The complete Test Report also includes the test protocol containing all pertinent details.

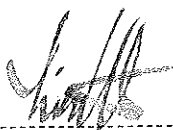
Dieser Prüfbericht berechtigt nicht zur Verwendung des GS-Zeichens, BG-Zeichens oder CE-Zeichens.
The present Test Report does not warrant the use of the GS-label, BG-label or CE-mark.

Im übrigen gilt die Prüf- und Zertifizierungsordnung der Prüf- und Zertifizierungsstellen im BG-PRÜFZERT in Verbindung mit den Allgemeinen Geschäftsbedingungen des Hauptverbandes der gewerblichen Berufsgenossenschaften e.V.

In all other respects the Rules of Procedure for Testing and Certification carried out by the Test and Certification Bodies in BG-PRÜFZERT shall apply in conjunction with the General Business Conditions of the Hauptverband der gewerblichen Berufsgenossenschaften e.V.

Für die Beurteilung:
For the assessment:

Für die Prüfung:
For the testing:



(Dr. rer. nat. Martin Liedtke)
Fachzertifizierer
Certification officer

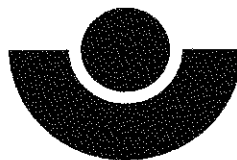


(Petra Delfs)
Leiterin des Prüflabors
Head of Testlaboratory

Anlagen / Enclosures:

Zu diesem Prüfbericht gehören als Anlage die folgenden vom BIA geprüften und mit Sichtvermerk Nr. 200422139 versehenen Unterlagen:

- Prüfbericht Nr. 04.05.02 (INSPEC Laboratories Ltd., England) (Seiten 6-19)
- technische Fertigungsunterlagen des Herstellers nach Anhang III der EG-Richtlinie 89/686/EWG (Seiten 20-26) sowie
- die „Informationsbroschüre des Herstellers“ nach Anhang II, Abschnitt 1.4. der EG-Richtlinie 89/686/EWG (Seiten 27-32)



- UNOFFICIAL TRANSLATION -

PRÜFBERICHT **TEST REPORT**

Nr./No.: 200422139

on the EC – type examination of hearing protectors

- | | | |
|-----|---|--|
| 1. | Auftraggeber/ Customer | Bacou Dalloz AB Box 550 S-26050 Billesholm |
| 2. | Prüfmuster/ Test specimen | Ear-muff Bilsom Thunder T1Fs |
| 2.1 | Hersteller/ Manufacturer | Bacou Dalloz AB Box 550 S-26050 Billesholm |
| 2.2 | Bauart, Bezeichnung/ Type, designation | Thunder T1Fs |
| | Kennzeichnung Marking | Bilsom Thunder T1Fs EN 352 |
| 2.3 | Bestimmungsgemäße Verwendung/ intended use | Ear-muff with foldable headband / personal protective equipment according to article 8 (2) of the EC-directive 89/686/EEC (category II) |
| 2.4 | Datum der Herstellung/ Date of fabrication | - - - |
| 2.5 | Weitere Angaben/ further details | materials (according to the customer): cups - PP (green) headband - POM (black) liners - Polyether cushions - PVC (black) and foam (PU) mass - 196 g (INSPEC - test report) |

3. **Prüfung/
Testing**3.1 Art der Prüfung/
Type of test

EC-type examination

3.2 Datum der Prüfung/
Date of testing

4. quarter 2004

3.3 Prüfverfahren, -grundlagen/
Test method, requirements

- Basic requirements for health and safety in accordance with Annex II of the EC-directive 89/686/EEC
 - EN 352-1:2002
 - BS EN 24869-1:1993, ISO 4869-1:1990

4 **Beurteilung, Eignung/
Assessment, suitability****The safety requirements are satisfied by the specimen described in paragraph 2.****(Besondere Hinweise/
Special remarks)**

The Test report No. 04.05.02 (INSPEC Laboratories Ltd., UK) was taken as a basis for the safety assessment.

The manufacturer confirms, that the product with the marking "BILSOM T1F" tested at INSPEC is identical to the one with the marking "BILSOM T1Fs" described in paragraph 2.

The manufacturer's technical file in accordance with Annex III and the „Information supplied by the manufacturer“ in accordance with Annex II of the EC-directive 89/686/EEC submitted in English were inspected and found to fulfil the requirements of the directive.

5. **Gültigkeit des Prüfberichtes/
Validity of Test Report**

The test results apply to the tested objects only.

Einschränkungen der Gültigkeit oder
Verwendung dieses Prüfberichtes:
*Limitation of validity or use of this
Test Report:*

none

**6. Allgemeine Hinweise/
General remarks**

Dieser Prüfbericht besteht
aus
The present Test Report
consists of

5

Seiten.
Pages.

Die Seiten 1 bis 3 enthalten das Gesamtergebnis der Prüfung. Zum vollständigen Prüfbericht gehört das Prüfprotokoll, aus dem die Einzelangaben ersichtlich sind.

Pages 1 to 3 indicate the overall test result. The complete Test Report also includes the test protocol containing all pertinent details.

Dieser Prüfbericht berechtigt n i c h t zur Verwendung des GS-Zeichens, BG-Zeichens oder CE-Zeichens.
The present Test Report does n o t warrant the use of the GS-label, BG-label or CE-mark.

Im übrigen gilt die Prüf- und Zertifizierungsordnung der Prüf- und Zertifizierungsstellen im BG-PRÜFZERT in Verbindung mit den Allgemeinen Geschäftsbedingungen des Hauptverbandes der gewerblichen Berufsgenossenschaften e.V.

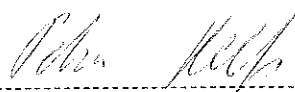
In all other respects the Rules of Procedure for Testing and Certification carried out by the Test and Certification Bodies in BG-PRÜFZERT shall apply in conjunction with the General Business Conditions of the Hauptverband der gewerblichen Berufsgenossenschaften e.V.

Für die Beurteilung:
For the assessment:

Für die Prüfung:
For the testing:



(Dr. rer nat. Martin Liedtke)
Fachzertifizierer
Certification officer



(Petra Delfs)
Leiterin des Prüflabors
Head of Testlaboratory

Anlagen / Enclosures:

The present test report includes the following documents examined and stamped by BIA with the number No. 200422139:

- test report No. 04.05.02 (INSPEC Laboratories Ltd., UK) (pages 6-19)
- the manufacturer's technical file in accordance with Annex III of the EC-directive 89/686/EEC (pages 20-26) and
- the „Information supplied by the manufacturer“ in accordance with Annex II, paragraph 1.4 of the EC-directive 89/686/EEC (pages 27-32)

**Informationen für den Benutzer nach EN 352-1, Abschnitt 6.2 /
Wearer information in accordance with EN 352-1, 6.2**

Die folgenden Informationen für den Benutzer müssen mit dem Kapselgehörschützer geliefert werden: /
The following information for the wearer shall be supplied with the ear-muff:

| Gelieferte Informationen <i>Supplied information</i> | Ja <i>Yes</i> | Nein <i>No</i> | Entfällt <i>Not applicable</i> |
|---|------------------|-------------------|-----------------------------------|
| Die Nummer der Norm / <i>the number of the standard</i> : EN 352-1:2002 | X | | |
| Handelsmarke des Herstellers, Importeur oder Lieferers <i>trade mark of the manufacturer, importer or distributor</i> | X | | |
| Modellbezeichnung / <i>model designation</i> | X | | |
| Hinweis auf "Sonderanforderungen" nach 8.1 (d) / <i>Statement "Optional requirements" in accordance with 8.1 (d)</i> | | | X |
| Werkstoffe des Bügels und der Dichtungskissen / <i>material of headband and cushions</i> | X | | |
| Hinweise zum Aufsetzen/Einstellung nach 8.1 (g) und (h) / <i>method of fitting/adjustment - 8.1 (g) and (h)</i> | X | | |
| Hinweis auf "Sondergrößen" / <i>Statement for "Small/Large size ranges"</i> | X | | |
| Schalldämmwerte: Mittelwert, Standardabweichung und APV-Wert bei jeder Prüffrequenz, H-, M-, L- und SNR-Wert / <i>Sound attenuation values: mean value, standard deviation and APV-value at each test frequency, H-, M-, L and SNR-value</i> | X | | |
| Empfehlungen zum Aufsetzen, zur Einstellung, zur Tragedauer und zur Wartung nach Abs. 8.1 (i) / <i>Instructions for fitting, adjusting, wearing time and maintenance in accordance with 8.1 (i)</i> | X | | |
| Warnung nach 8.1 (j) (Beeinträchtigung der Schutzwirkung bei unsachgemäßer Verwendung) / <i>warning in accordance with 8.1 (j) (Decrease of the protection afforded when recommendations are not adhered)</i> | X | | |
| Hinweise zur Reinigung / <i>Instructions for cleaning</i> | X | | |
| Angabe nach 8.1 (l) (Chemische Substanzen) <i>statement in accordance with 8.1 (l) (chemical substances)</i> | X | | |
| Angaben nach Abs. 8.1 (m) (Dichtungskissenverschleiß) / <i>statement in accordance with 8.1 (m) (Wear and tear of the cushions)</i> | X | | |
| Angaben nach Abs. 8.1 (n) (Hygieneüberzüge können akustische Eigenschaften verändern) / <i>statement in accordance with 8.1 (n) (fitting of hygiene covers may affect the acoustic performance)</i> | X | | |
| Angaben für die Bestellung von Ersatzdichtungskissen / <i>Information when ordering replacement cushions</i> | X | | |
| Empfehlungen zur Aufbewahrung / <i>recommendations for storage</i> | X | | |
| Methode des Dichtungskissenaustausches / <i>method of cushion replacement</i> | X | | |
| mittlere Masse der Gehörschützer / <i>mean mass of the ear-muffs</i> | X | | |
| Anschrift zur Anforderung weiterer Informationen / <i>Adress from which additional information can be obtained</i> | X | | |

Prüfergebnis / Test result: Diese Sicherheitsanforderung wird erfüllt. / *This safety requirement is satisfied.*



Kennzeichnung nach EN 352-1, Abschnitt 5 / Marking in accordance with EN 352-1, 5

Die Kapselgehörschützer müssen dauerhaft mit folgenden Angaben gekennzeichnet werden:
The ear-muffs shall be durably marked with the following information:

- Name, Handelsmarke oder ein anderes Zeichen des Herstellers /
the name, trademark or other identifying mark of the manufacturer
- Modellbezeichnung / *model designation*
- Nummer dieser Europäischen Norm, d.h. EN 352 / *the number of this Standard, e.g. EN 352*
- **Kennzeichnung / Marking:** „Bilsom Thunder T1Fs EN 352“

Prüfergebnis / Test result: Diese Sicherheitsanforderung wird erfüllt. / *This safety requirement is satisfied.*

Weitere Bemerkungen / Further remarks:

Der Hersteller erklärt, dass die Teile des Gehörschützers, die mit der Haut des Benutzers in Berührung kommen, nicht dafür bekannt sind, Hautreizungen, allergische Reaktionen oder andere Gesundheitsgefährdungen hervorzurufen. Die Werkstoffe werden vom Hersteller schon seit 24 Jahren ohne jeden Hinweis auf Hautprobleme verwendet. /

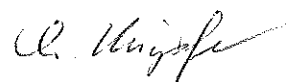
The manufacturer declares that those parts of the hearing protector that may come into contact with the wearer's skin are not known to be likely to cause skin irritation, allergic reaction or any other adverse effect on health. The materials have been used by the manufacturer without any evidence of skin problems for 24 years.

Leiterin des Prüflabors /
Head of Testlaboratory:



(Petra Delfs)

Geprüft von /
Tested by:



(Christoph Knipfer)



56 LESLIE HOUGH WAY • SALFORD • GREATER MANCHESTER • M6 6AJ • UNITED KINGDOM
Email: testing@inspec-international.com Website: www.inspec-international.com
Tel: +44 (0) 16 17 37 06 99 Fax: +44 (0) 16 17 36 01 01

Test Report

EN 352-1 : 2002

Report no: 04.05.02
Client: Bacou-Dalloz AB
Dungatan 2
260 50 Billesholm
Sweden
Order(s) received: 16 and 31 March 2004
Model: Bilsom Thunder T1F
Date(s) tested: 9 April to 6 May 2004

Conditions:

This report shall not be reproduced except in full, without the written approval of INSPEC International Limited.

Opinions, comments and interpretations expressed herein are outside the scope of UKAS accreditation are shown in italics in this report.

Tests marked ☒ are not included in the UKAS accreditation schedule for INSPEC.

Samples will be returned.

Checked:

T. D. SEDDON

Approved:

A. NELSON

Issued:

6 May 2004

Page 1 of 7

| | | |
|--|-------------------|------------------------------------|
| Berufsgenossenschaftliches Institut für Arbeitssicherheit - BIA | | |
| Prüf-Nr.: 2004 22139 | | |
| SICHTVERMERK | | |
| Seite 6 | Datum 15.10.04 | Unterschrift <i>[Signature]</i> |

Testing requested


Type of test: Mandatory

| Stated product characteristics : | |
|----------------------------------|-----------------------|
| Universal ear-muff | No |
| Wearing mode(s) | Over-the-head (O-T-H) |
| Size range | Large |
| Adjustable force | No |
| Replaceable cushions and liners | Yes |
| Fluid filled cushions | No |

Sample details

| Product | Submitter | Quantity | Received | INSPEC no. (P162+) |
|-----------------------------|-----------|----------|------------|--------------------|
| Bilsom Thunder T1F ear-muff | Client | 10 | 16 Mar. 04 | 01 to 10 |
| User instructions | | 1 | 5 May 04 | - |

Samples were selected by INSPEC from the submission detailed above.

| | | |
|--|-------------------|---|
| Berufsgenossenschaftliches Institut für Arbeitssicherheit - BIA | | |
| Prüf-Nr.: 2004 22139 | | |
| SICHTVERMERK | | |
| Seite 7 | Datum 15.10.04 | Unterschrift  |

Summary of assessment*

| Clause | | Samples | Result |
|--------|---|-----------|--------|
| 4 | Requirements | | |
| 4.2 | Materials and construction | | |
| 4.2.1 | Materials | 05 and 06 | MFR |
| 4.2.2 | Construction | 05 and 06 | PASS |
| 4.3 | Performance | | |
| 4.3.2 | Sizing and adjustability | 01 to 06 | PASS |
| 4.3.3 | Cup rotation | | PASS |
| 4.3.4 | Headband force | | PASS |
| 4.3.5 | Cushion pressure | | PASS |
| 4.3.6 | Resistance to damage when dropped | | PASS |
| 4.3.7 | Resistance to damage when dropped at low temperature (optional) | - | NR |
| 4.3.8 | Change in headband force | 01 to 06 | PASS |
| 4.3.9 | Insertion loss | 01 to 10 | PASS |
| 4.3.10 | Resistance to leakage | 05 and 06 | NAP |
| 4.3.11 | Ignitability | 05 and 06 | PASS |
| 4.3.12 | Minimum attenuation ☒ | 01 to 04 | PASS |
| 5 | Marking | | |
| 5 | Marking | 05 and 06 | FAIL |
| 6 | Information supplied by the manufacturer | | |
| 6.1 | General | 05 and 06 | PASS |
| 6.2 | Wearer information | | FAIL |
| 6.3 | Additional information | - | MFR |

Key

- PASS = the product satisfied the requirement.
 FAIL = the product did not satisfy the requirement. Refer to the "Result detail" section for more information.
 NAP = the requirement was not applicable to this product.
 NR = the requirement was not requested for assessment.
 MFR = the requirement could not be assessed and the manufacturer must certify against this requirement.

* Assessment relates only to those items tested in this report.

| | | |
|--|----------|--------------|
| Berufsgenossenschaftliches Institut für Arbeitssicherheit - BIA | | |
| Prüf-Nr.: 2004 22139 | | |
| SICHTVERMERK | | |
| Seite | Datum | Unterschrift |
| 8 | 15.10.04 | |

Procedures

Testing was performed in accordance with EN 352-1 : 2002 (BS EN 352-1 : 2002), unless stated otherwise below.

1. The acoustic test fixture and test site used for the measurement of insertion loss were as described in ISO/TR 4869-3. A plane progressive wave was used.
2. Sound attenuation testing was performed at the University of Salford's School of Computing, Science and Engineering and was conducted by INSPEC personnel.

Result detail

4.2.1 Materials

4.2.1.1 Manufacturer to certify regarding likelihood of skin irritation, allergic reaction or any other adverse effect on health. **Mfr**

4.2.1.2 The materials of the ear-muff were visibly unimpaired after cleaning and disinfection by the methods specified by the manufacturer.

4.3.4 Headband force

| Mode | Size | Force (N) | | | | | | |
|-------|------|-----------|------|------|------|------|------|------|
| | | 01 | 02 | 03 | 04 | 05 | 06 | Mean |
| O-T-H | L | 10.6 | 10.6 | 10.6 | 10.6 | 10.5 | 10.6 | 10.6 |


4.3.5 Cushion pressure

| Mode | Size | Pressure (Pa) | | | | | |
|-------|------|---------------|------|------|------|------|------|
| | | 01 | 02 | 03 | 04 | 05 | 06 |
| O-T-H | L | 2827 | 2823 | 3360 | 2944 | 3084 | 2768 |

4.3.8 Change in headband force

Headband force (following conditioning) and Change in headband force – Large size

| Sample | 01 | 02 | 03 | 04 | 05 | 06 | Mean |
|------------|------|------|------|------|------|------|------|
| Force (N) | 9.7 | 9.8 | 9.6 | 9.8 | 9.7 | 9.8 | 9.7 |
| Change (%) | -8.5 | -7.5 | -9.4 | -7.5 | -7.6 | -7.5 | - |

| | | |
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4.3.9 Insertion loss

Samples 01 to 10 were tested.

A summary of the insertion loss data for the individual samples, and the mean insertion loss with standard deviations at each frequency, are given in the Annex to this report.

4.3.12 Minimum attenuation ☒

Refer to the University of Salford's Test Report, No: HP/04/15, which is contained in the Annex to this report.

Attenuation

| Frequency (Hz) | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|---|------|------|------|------|------|------|------|
| Measured attenuation ($M_f - s_f$) (dB) | 15.2 | 20.6 | 23.9 | 31.2 | 32.8 | 34.0 | 34.0 |

5 Marking

The following markings were present.

- a) *Manufacturer identification* – “Bilsom”.
- b) *Model designation* – “THUNDER T1” not “THUNDER T1F” marked.
- c) *Standard number* – “EN 352”.
- d) Not applicable.

Fail

All markings present were durable.

6 Information supplied by the manufacturer

The instructions to users have been assessed as detailed below, with reference only to the relevant requirements of the Standard.

INSPEC Testing Services has not assessed these instructions with respect to claims made by the manufacturer outside of these requirements, and therefore accepts no responsibility for the legitimacy of any such claims.

6.1 General

Information was provided in the English language.

6.2 Wearer information

User instructions were not provided with the samples.

Fail

One separate set of instructions was provided by the client for assessment.

- a) Standard number included.
- b) Manufacturer identification included.
- c) Model designation included - “Thunder T1F”.
- d) Not required.
- e) Headband and cushion material included.
- f) Fitting/adjustment instructions included.
- g) Size range included in wearer information.
Large size range statement included in wearer information.
Packaging/box information was not provided for assessment.
- h) The required attenuation values were included.
- i) Recommendations were included.
- j) Adhering to the recommendations warning included.

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| Not assessed | | |
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- k) Cleaning and disinfection method included.
Manufacturer to certify that the specified agents are not known to be harmful to the wearer. Mfr
- l) Chemical substances statement included.
- m) Deterioration statement included.
- n) Fitting of hygiene covers statement included.
- o) Storage conditions included.
- p) Replacement cushion information included.
- q) Cushion replacement instructions included.
- r) Mass of the ear-muffs included.
- s) Address included.


6.3 Additional information

Not assessed. Manufacturer to certify.

Mfr

(4.1.3.6) Mass


The mean mass of the ten samples was 196 grams.

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ANNEX

This Annex comprises 4 sections:-

1. University of Salford, School of Computing, Science and Engineering
Report No: HP/04/15 - 4 pages.
2. H-M-L and SNR values calculated from the results detailed
in the University's Report - 1 page.
3. Insertion loss results summary - 1 page.
4. Estimates of the uncertainty of measurement - 1 page.

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Report No: HP/04/15
Date: 29 April 2004
Page 1 of 4

TEST REPORT
SOUND ATTENUATION
OF HEARING PROTECTORS
BS EN 24869-1 : 1993
ISO 4869-1 : 1990

CLIENT: INSPEC International Limited
56 Leslie Hough Way
Salford
Greater Manchester
M6 6AJ

YOUR ORDER NO: 2/040422-2

TYPE OF HEARING PROTECTOR: Ear-muff

MODEL: Bilsom Thunder T1F

MANUFACTURER: Bacou-Dalloz AB

DATE RECEIVED: 23 April 2004

DATE(s) OF TESTS: 23, 26, 28 April 2004

| | | |
|--|-------------------|------------------|
| Berufsgenossenschaftliches Institut für Arbeitssicherheit - BIA | | |
| Prüf-Nr.: 2004 22739 | | |
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Signed:

A. Nelson
Test Engineer

Approved:

D.J. McCaul
Laboratory Manager



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2000

INTRODUCTION:

BS EN 24869-1 : ISO 4869-1 specifies a subjective method for measuring the attenuation of hearing protectors at the threshold of hearing. This method, including details of the test signals, site, equipment, subjects and procedure, was applied to the samples tested and the results are presented, as required by the Standard, on the following pages of this Report.

For complete details of the method, please refer to BS EN 24869-1 : ISO 4869-1.

TEST SIGNALS, SITE AND EQUIPMENT:

The facilities used for this test are located within the School of Computing, Science & Engineering at the University of Salford.

TEST SUBJECTS:

The 16 test subjects comprised both males and females and covered a wide age range. All subjects were audiometrically screened in accordance with Clause 4.4.1 of BS EN 24869-1 prior to the test. They also satisfied the requirements of Clauses 4.4.2 and 4.4.3.

FITTING:

Manufacturer's instructions were provided and were followed during the fitting of the hearing protectors. Guidance was also available from the test operator.

TEST PROCEDURE:

Each of the four sample hearing protectors supplied by the client was tested on four test subjects. Each test subject's protected threshold was assessed once.

The procedures specified in Clause 4.5 were followed.


OBSERVATIONS :

1. SM commented that the sound was more noticeable from the rear.

RESULTS:

See the attached sheet for the attenuation data for each individual subject.

The results here presented relate only to the items tested and described in this report.


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| | |
|------------------------------------|--------------------|
| Model | Bilsom Thunder T1F |
| Mode tested | Over-The-Head |
| Attenuation results (values in dB) | See below |
| Test Reference No. | HP/04/04/03 |

Frequency (Hz)

| Subject | Sample | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|-------------|--------|------|------|------|------|------|------|------|------|
| DJM | 01 | 28 | 20 | 24 | 32 | 40 | 40 | 42 | 40 |
| GP | 01 | 20 | 20 | 24 | 30 | 40 | 38 | 42 | 36 |
| SM | 01 | 12 | 16 | 20 | 28 | 36 | 34 | 40 | 31 |
| CL | 01 | 16 | 18 | 26 | 26 | 32 | 38 | 34 | 46 |
| CN | 02 | 16 | 20 | 23 | 28 | 36 | 36 | 34 | 38 |
| SVH | 02 | 13 | 15 | 24 | 26 | 36 | 32 | 34 | 38 |
| FW | 02 | 14 | 20 | 26 | 30 | 35 | 30 | 30 | 36 |
| CW | 02 | 13 | 20 | 26 | 32 | 28 | 32 | 36 | 36 |
| SBM | 03 | 16 | 16 | 22 | 22 | 34 | 33 | 36 | 39 |
| RF | 03 | 24 | 32 | 38 | 42 | 34 | 36 | 40 | 42 |
| RB | 03 | 22 | 24 | 18 | 24 | 33 | 38 | 40 | 40 |
| RC | 03 | 17 | 22 | 28 | 32 | 34 | 38 | 36 | 33 |
| PD | 04 | 14 | 22 | 24 | 25 | 30 | 34 | 40 | 36 |
| ES | 04 | 12 | 11 | 22 | 24 | 34 | 38 | 36 | 33 |
| JB | 04 | 24 | 24 | 30 | 28 | 34 | 36 | 38 | 42 |
| RH | 04 | 20 | 18 | 30 | 28 | 32 | 38 | 40 | 39 |
| Mean | | | | | | | | | |
| Attenuation | | 17.6 | 19.9 | 25.3 | 28.6 | 34.3 | 35.7 | 37.4 | 37.8 |
| Standard | | | | | | | | | |
| Deviation | | 4.9 | 4.7 | 4.7 | 4.7 | 3.1 | 2.9 | 3.4 | 3.8 |
| Assumed | | | | | | | | | |
| Protection | | | | | | | | | |
| <i>SSV2</i> | | 12.7 | 15.2 | 20.6 | 23.9 | 31.2 | 32.8 | 34.0 | 34.0 |

Assumed Protection Value rounded to one decimal place.

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HEADBAND FORCE:

The headband force of each sample ear muff was measured as specified in Clause 4.6, at 145mm head width and 129mm head height. The measurements were recorded after a period of 2 minutes. The results are presented below:

| Sample | Force (N) |
|--------|-----------|
| 01 | 10.2 |
| 02 | 10.0 |
| 03 | 10.0 |
| 04 | 10.4 |


REPLACEABLE PARTS:

1. Foam absorber
2. Foam filled cushions

| | | |
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ATTENUATION VALUES CALCULATED FROM
UNIVERSITY OF SALFORD,
SCHOOL OF COMPUTING, SCIENCE AND ENGINEERING
REPORT NO: HP/04/15

| | | |
|-----|---|----|
| H | = | 33 |
| M | = | 28 |
| L | = | 22 |
| SNR | = | 31 |

| | | |
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Sample Numbers: 01 to 10

Mode tested: Over-the-head

Insertion loss (IL)

Summary of results (dB)

| Freq (Hz) | 250 | 315 | 400 | 500 | 630 | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3150 | 4000 | 5000 | 6300 | 8000 |
|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 01 Cup R | 22.3 | 26.9 | 31.6 | 36.6 | 43.6 | 44.2 | 44.6 | 40.9 | 35.6 | 38.8 | 33.4 | 35.8 | 37.6 | 43.6 | 33.6 | 38.7 |
| 01 Cup L | 25.5 | 29.4 | 30.9 | 34.0 | 35.8 | 37.6 | 40.6 | 40.1 | 32.9 | 36.8 | 29.9 | 36.1 | 35.2 | 38.2 | 37.1 | 36.3 |
| 02 Cup R | 22.2 | 28.9 | 32.2 | 34.0 | 37.6 | 40.4 | 42.9 | 39.9 | 33.3 | 37.1 | 33.7 | 35.1 | 37.2 | 39.8 | 35.7 | 34.1 |
| 02 Cup L | 23.7 | 29.1 | 34.1 | 35.8 | 38.9 | 39.6 | 40.7 | 38.7 | 33.6 | 40.8 | 36.3 | 33.5 | 32.9 | 39.8 | 29.6 | 33.0 |
| 03 Cup R | 24.3 | 28.5 | 33.3 | 34.2 | 35.7 | 37.1 | 39.4 | 36.6 | 33.0 | 37.5 | 33.4 | 34.6 | 34.0 | 36.1 | 31.9 | 36.3 |
| 03 Cup L | 23.6 | 28.3 | 33.1 | 34.8 | 37.9 | 41.1 | 43.0 | 39.4 | 33.8 | 40.9 | 36.7 | 34.9 | 38.0 | 40.5 | 34.2 | 35.8 |
| 04 Cup R | 24.2 | 25.8 | 27.6 | 28.9 | 31.0 | 31.7 | 33.4 | 33.5 | 30.2 | 41.0 | 30.6 | 29.2 | 31.4 | 36.7 | 35.3 | 38.4 |
| 04 Cup L | 22.5 | 26.2 | 31.3 | 35.4 | 38.6 | 40.2 | 41.7 | 38.3 | 32.7 | 38.1 | 31.6 | 31.5 | 34.6 | 40.2 | 36.9 | 36.8 |
| 05 Cup R | 24.0 | 26.0 | 29.0 | 30.6 | 32.6 | 35.5 | 38.3 | 36.6 | 32.2 | 37.6 | 28.7 | 30.4 | 35.1 | 40.8 | 38.2 | 36.8 |
| 05 Cup L | 23.3 | 28.1 | 32.3 | 34.3 | 36.4 | 37.1 | 38.4 | 34.7 | 32.6 | 37.6 | 33.0 | 35.1 | 35.2 | 40.8 | 36.4 | 35.3 |
| 06 Cup R | 22.0 | 24.8 | 28.9 | 32.5 | 35.3 | 36.1 | 37.4 | 36.1 | 32.9 | 37.9 | 28.4 | 32.6 | 33.9 | 40.7 | 36.5 | 35.3 |
| 06 Cup L | 24.5 | 26.3 | 30.9 | 31.9 | 33.9 | 34.6 | 34.4 | 34.0 | 32.6 | 41.4 | 35.6 | 34.1 | 36.0 | 38.6 | 28.6 | 35.6 |
| 07 Cup R | 24.0 | 27.5 | 31.9 | 34.1 | 36.6 | 38.5 | 41.1 | 38.2 | 32.7 | 39.0 | 33.6 | 36.7 | 37.2 | 34.9 | 38.6 | 33.7 |
| 07 Cup L | 21.4 | 23.2 | 25.2 | 27.0 | 29.0 | 33.4 | 38.7 | 36.7 | 32.5 | 36.8 | 30.5 | 30.0 | 33.2 | 36.3 | 38.1 | 40.0 |
| 08 Cup R | 23.6 | 29.2 | 31.5 | 34.9 | 37.9 | 38.5 | 40.1 | 37.6 | 33.0 | 36.9 | 31.0 | 35.7 | 36.8 | 34.3 | 40.5 | 37.4 |
| 08 Cup L | 23.9 | 27.2 | 30.3 | 33.2 | 35.5 | 37.2 | 39.6 | 39.4 | 34.2 | 40.1 | 33.0 | 30.8 | 33.7 | 39.0 | 37.0 | 36.3 |
| 09 Cup R | 25.4 | 28.5 | 30.3 | 32.3 | 35.5 | 36.0 | 37.4 | 36.5 | 32.6 | 37.5 | 32.0 | 32.6 | 35.1 | 37.7 | 36.3 | 35.7 |
| 09 Cup L | 25.4 | 29.2 | 32.7 | 35.3 | 37.3 | 37.8 | 40.0 | 38.6 | 34.0 | 44.4 | 31.8 | 32.2 | 35.3 | 43.3 | 37.6 | 35.9 |
| 10 Cup R | 24.4 | 28.3 | 31.6 | 33.6 | 35.4 | 36.7 | 38.1 | 36.7 | 33.4 | 39.3 | 32.0 | 33.8 | 34.8 | 38.3 | 34.5 | 36.0 |
| 10 Cup L | 23.1 | 26.6 | 30.3 | 33.0 | 35.2 | 37.2 | 40.1 | 38.0 | 34.2 | 45.7 | 35.1 | 30.0 | 32.1 | 39.6 | 35.1 | 34.1 |

| | | | | | | | | | | | | | | | | |
|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Mean | 23.6 | 27.4 | 30.9 | 33.3 | 36.0 | 37.5 | 39.5 | 37.5 | 33.1 | 39.3 | 32.5 | 33.2 | 34.9 | 38.9 | 35.6 | 36.1 |
| Std. Dev. | 1.2 | 1.7 | 2.1 | 2.3 | 3.0 | 2.8 | 2.7 | 2.0 | 1.1 | 2.5 | 2.3 | 2.3 | 1.8 | 2.5 | 2.9 | 1.7 |


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EN 352-1 : 2002**Estimates of the uncertainty of measurement**

| Clause | Test | Uncertainty |
|--------|--------------------------|-------------------|
| | Weighing | 1.2% |
| 4.3.4 | Headband Force | 0.8% |
| 4.3.5 | Cushion Pressure | 1.3% |
| 4.3.8 | Change in headband force | 1.1% |
| 4.3.9 | Insertion loss | 4.1% (max: 250Hz) |

Values expressed as a percentage (%) are relative.

It should be noted that the above values have not been taken into account when making assessment to the pass/fail criteria.

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| A | | B | | C | | D | | E | |
|----------|------|-------|------|-------|-------|---|--|---|--|
| Ass. no. | Rev. | Notes | Date | Sign. | Appr. | | | | |
| | | | | | | | | | |

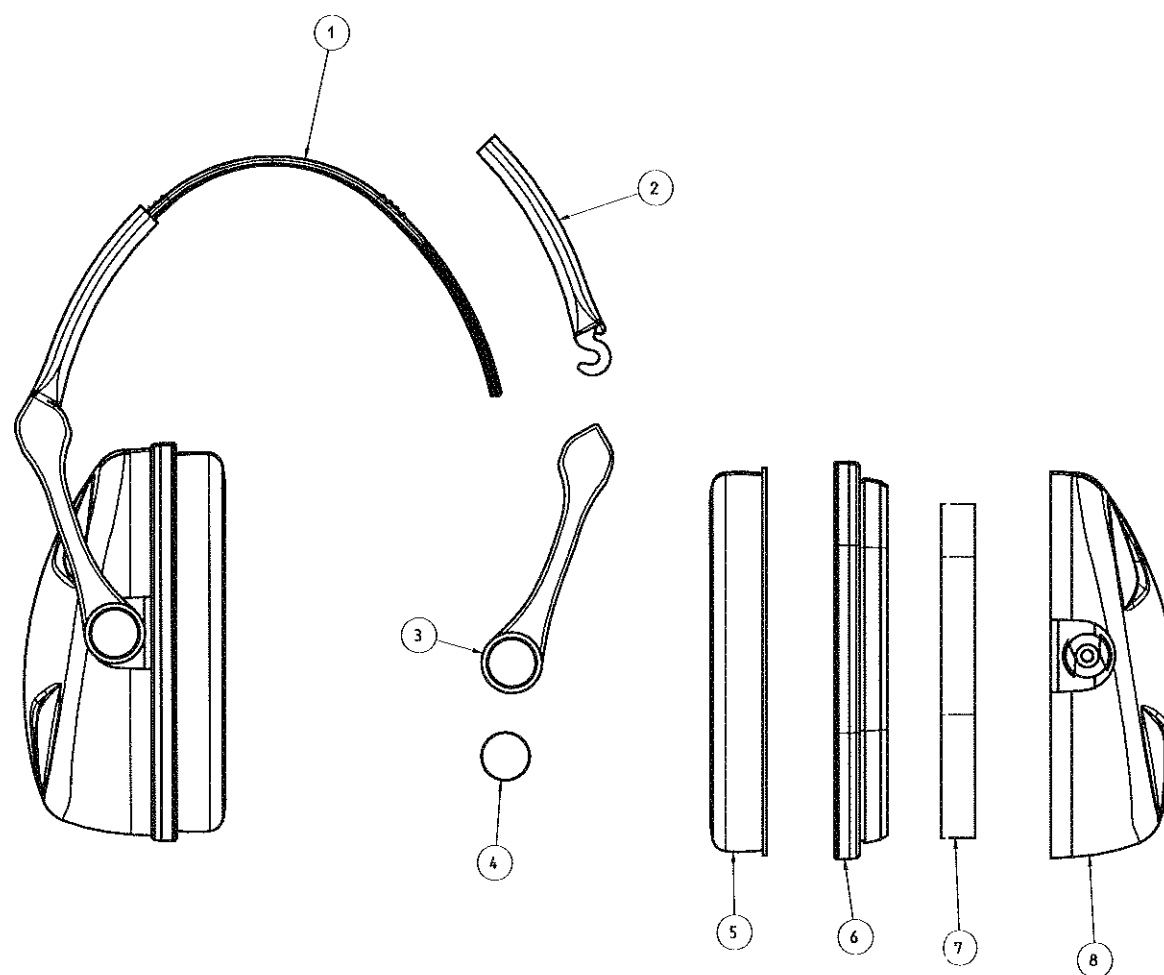
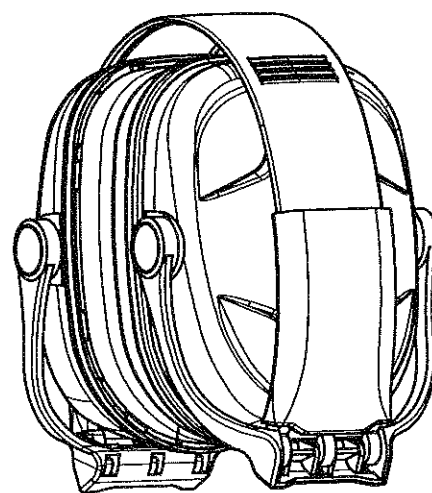
| F | | G | | H | |
|--------|--------|------|------|--------------------------------|------------------|
| Ver. A | Ver. B | Pos. | Rev. | Standard, material, notes etc. | Drp. as/Art. no. |
| | | | | | |

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| Pos. No. | Specifications | Standard material | Drawing / Article no. |
|----------|-------------------|--------------------------|-----------------------|
| 1 | 1 Upper headband | POH | 50003828 |
| 2 | 2 Headband slide | PBT | 50003827 |
| 3 | 2 Headband fork | POH | 50001570 |
| 4 | 4 Button for fork | POH | 50000162 |
| 5 | 2 Earcushion | Plastifiziert PVC, PUR-E | 90010857 |
| 6 | 2 Rim NST | PP | 50001895 |
| 7 | 2 Foam absorber | PUR | 90007570 |
| 8 | 2 Cup | PP | 90010952 |

| Drawn | HE | By | AN | Check | Appr. | Drp. | Drp. | Drp. | Drp. |
|--------|----|----|----|--|-------|------|------|------------|------|
| | | | | | | | | | |
| Bilsom | | | | Bilsom Thunder T1 Foldable muff Assembly drawing | | | | 2004-05-05 | |
| | | | | | | | | 1011600 | |

THUNDER 1^F®

| | | |
|--|----------|--------------------|
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| 21 | 15.10.04 | <i>[Signature]</i> |



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INSPEC

This is to certify that:-


Bacon-Dalloz s.r.o.
Nitrianska cesta 503/60
Partizánske 95801
Slovakia

having been satisfactorily assessed and undertaken to comply with
INSPEC Certification requirements at all times is entitled to claim
that the activities defined in the associated schedules are carried out
within a management system that complies with:-

ISO9001:2000/EN ISO9001:2000/BS EN ISO9001:2000


Claim may also be made that they are an INSPEC CERTIFIED COMPANY
for the defined activities carried out at the specified address(es).

Signed for and on behalf of INSPEC


Kevin J Warren
Manager, Certification Services.

Date 14th March 2003

Certification remains valid whilst compliance with
INSPEC's surveillance and assessment programme is maintained.

| | | |
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CERTIFICATE NUMBER Q.S.031



The use of the Accreditation Mark indicates accreditation in respect of those activities covered by the accreditation certificate number 031

INSPEC

*INSPEC International Ltd hereby confirm
that*

Bacou-Dalloz s.r.o.
Nitrianska cesta 503/60
Partizánske 95801
Slovakia


has been satisfactorily assessed against

ISO9001:2000/EN ISO9001:2000/BS EN ISO9001:2000

and has been awarded Certificate No. Q.S. 031

*The activities covered by this certificate are detailed on the associated
schedule.*

Signed for and on behalf of INSPEC International Ltd



Kevin Warren

Date: 14th March 2003

Berufsgenossenschaftliches Institut
für Arbeitssicherheit - BIA

File No: 2004 22139

SICHTVERMERK

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| 24 | 15.10.04 |  |

CERTIFICATION SCHEDULE

COMPANY: Bacou-Dalloz s.r.o.

SCHEDULE NO: ONE

CERTIFICATE NO: Q8031

DATE: 14th March 2003

Certification Scope:

- Manufacture of Eye Protection, Ear Muffs, Fall Protection and Respiratory Protection (Air Supplied and Power Assisted Filtering Devices).
- Final Packaging of Ear Plugs
- Supply of Personal Protective Equipment to Bacou-Dalloz internal Marketing Departments and Distribution Centres
- Final Product Control (Article 11.B/PPE Directive) of Respiratory Protective Devices


Signed for and on behalf of INSPEC

Kevin Warren, Manager, Certification Services

Berufsgenossenschaftliches Institut
für Arbeitssicherheit - BIA

Prot-Nr: 2004 22139

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| | |
|------------|-------------------------|
| Date | No. of pages incl. this |
| 2004-06-30 | 1 |

| |
|-------------------|
| To (organization) |
| BIA |

| |
|---------------|
| From |
| Claes Haglund |

| |
|--|
| Subject |
| Quality & ISO for China for new products |

Dear Petra

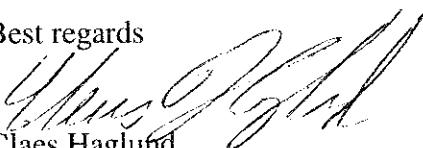
I hereby confirm that the quality management system applied to the production of each batch of the following types:

Bilsom Thunder T1 s
Bilsom Thunder T1F s
Bilsom Thunder T2 s


in the plant in:
Hang Tat Manufacturing Co. Ltd.
Flat A, 10/F.,
Blk1, Camelpaint Bldg.,
NO.62 Hoi Yuen Rd., Kwun Tong,
KLN., Hong Kong

will be identical to that applied and certified in accordance with EN ISO 9001:2000 for Bacou-Dalloz in Partizanske, Slovakia and that we will file the ISO 9001 certificate for the new plant as soon as possible.

Best regards



Claes Haglund
R&D Group leader
Bacou-Dalloz AB

| | | |
|--|----------|---|
| Berufsgenossenschaftliches Institut für Arbeitssicherheit - BIA | | |
| Prüf-Nr.: 2004 221 39 | | |
| SICHTVERMERK | | |
| Seite | Datum | Unterschrift |
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Bilsom® Thunder® T1F

User instruction

1. INSTRUCTIONS FOR USE (according to picture A-I)

1. Pull out the earcups (picture A-B).
2. Place the earcups over the outer ear (picture D).
3. Adjust the crown headband by moving it up and down in the side headbands (picture E).
4. The ear cushions should seal firmly against the head (picture F-G). For best results, remove all hair under the cushion. Noise reduction will be adversely effected by anything that impairs the seal of the earmuff cushions against the head, such as thick spectacle frames, balaclavas, etc. (picture H-I).
5. After use, fold up the headband/earmuff (picture C).

2. IMPORTANT USER INFORMATION

1. The earmuffs should be fitted, adjusted and maintained in accordance with the instructions.
2. The earmuffs should be worn at all times in noisy surroundings.
3. The earmuffs should be regularly inspected for serviceability.
4. The earmuffs should be cleaned and disinfected with soap and warm water. They may not be dipped into water.
5. Earmuffs and in particular cushions may deteriorate with use and should be examined at frequent intervals for cracking and leakage, for example. For ear cushion replacement, just pull off the old ones and snap in the new. For the order of new ear cushions please see information about hygiene kit.
6. The fitting of hygiene covers to the cushions may affect the acoustic performance of the ear-muffs.
7. Before and after use, store in a dry, cool place. The temperature should not exceed +55°C.
8. This product may be adversely affected by certain chemical substances. Further information should be sought from the manufacturer.

3. APPROVAL

Bilsom Thunder T1F is tested and approved in accordance with the PPE directive 89/686/EEC and European Standard EN 352-1:2002 at INSPEC, Salford, M6 6AJ, UK, (UKAS Accredited Testlaboratory, No. 0316).

4. TECHNICAL DATA

Foldable headband earmuff. Material of headband: Acetal (POM)
Material of ear cushion: PVC and polyurethane

5. DISCLAIMER

If the above-mentioned recommendations are not followed, the protection and function afforded by the earmuffs may be severely impaired. This may cause consequences for the user for which Bacou-Dalloz can not be held responsible. Bacou-Dalloz can not guarantee that any type of warning signals incl. communication with other people in the surroundings can be heard and understood by the wearer of this hearing protector. The sound level and the frequency content of the warning signals as well as of the background noise can vary in different situations.

6. WARNING

All hearing protection affords limited protection. The user is responsible for the proper selection, use, care and maintenance of this device. Improper selection (including under/over protection), use or maintenance may lead to serious hearing loss. If there are any questions concerning this product contact your safety supervisor or Bacou-Dalloz.

These earmuffs are of 'large size range'. Ear-muffs complying with EN 352-1 are of 'medium size range' or 'small size range' or 'large size range'. 'Medium size range' ear-muffs will fit the majority of wearers. 'Small size range' or 'large size range' ear-muffs are designed to fit wearers for whom 'medium size range' ear-muffs are not suitable.

7. GUARANTEE

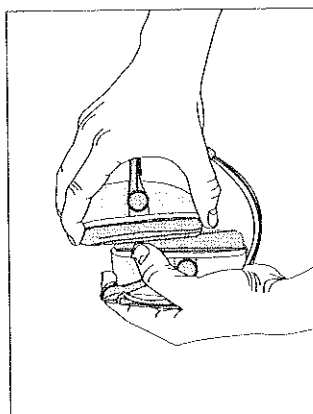
There is a one years guarantee against defects in material and workmanship. The guarantee does not cover damage caused by misuse, abuse or unauthorised modifications.

For further information please contact Bacou-Dalloz AB, Box 550, SE-260 50 BILLESOLM, Sweden
tel. +46 42 88100, fax +46 42 73822 or any of the other addresses shown.

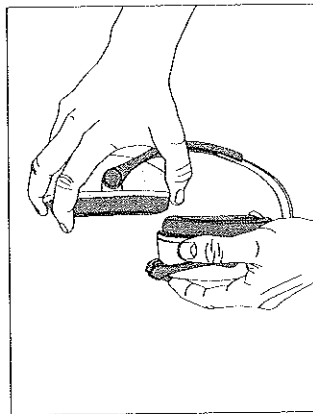
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| Seite | Datum | Unterschrift |
| 27 | 15.10.04 | |

INSTRUCTIONS BILSOM Thunder T1F.

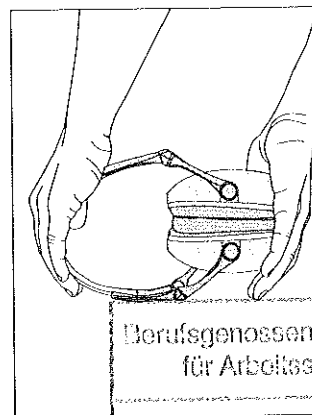
Foldable



A.



B.



C.

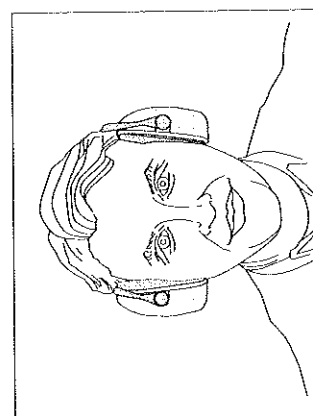
Fitting



D.

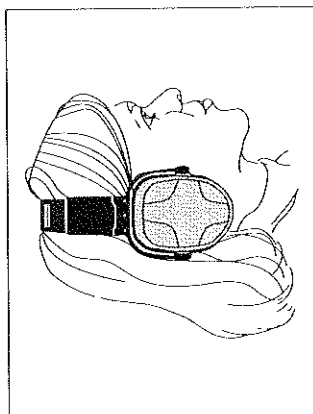


E.

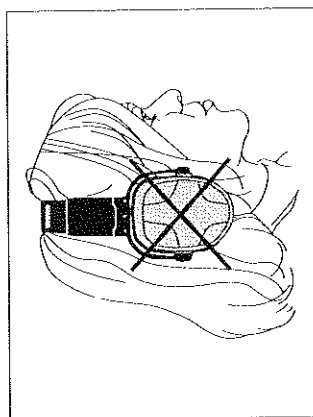


F.

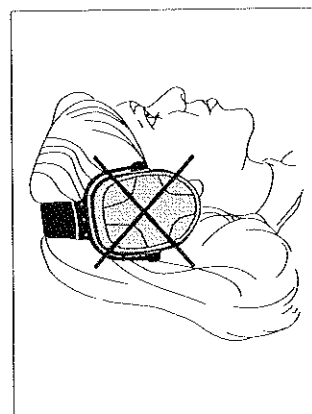
Important



G.



H.



I.

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ATTENUATION DATA
Tested according to ISO 4869-1:1990, ISO 4869-2:1992

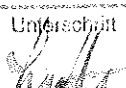
| Model | ① Frequency Hz | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|---|-----------------|---------|------|---------|------|-----------|------|------|------|
| Thunder T1F_s 196 g | ② Mean Att., dB | 17.6 | 19.9 | 25.3 | 28.6 | 34.3 | 35.7 | 37.4 | 37.8 |
| | ③ Std. Dev., dB | 4.9 | 4.7 | 4.7 | 4.7 | 3.1 | 2.9 | 3.4 | 3.8 |
| | ④ APV, dB | 12.7 | 15.2 | 20.6 | 23.9 | 31.2 | 32.8 | 34.0 | 34.0 |
| H=33 dB | | M=28 dB | | L=22 dB | | SNR=31 dB | | | |

⑤ Headband force:

Large= 10.6 N

OVER-THE-HEAD POSITION. POSITION EN SERRE-TÊTE. POSITION DES BÜGELS AUF DEM KOPF. POSICIÓN SOBRE LA CABEZA. POSIZIONE SOPRA IL CAPO. HJÄSSLÄGE. OVER-HODET STILLING. OVER HOVEDET-POSITION. PÄÄLAKIASENTO. HOOFDBAND-VERSIE. POSIÇÃO SOBRE A CABEÇA. ΘΕΣΗ ΠΑΝΩ ΣΤΟ ΚΕΦΑΛΙ. WERSJA Z PAŁĄKSIEM NAGŁOWNYM. FEJRPÄNTÖS VÁLTOZAT. POŁOHA NAD HLAVOU. POŁOHA PŘI NASAZENÍ PŘES HLAVU. ПОЛОЖЕНИЕ НАД ГОЛОВОЙ.

- ① Fréquences. Frequenz. Frecuencia. Frequenze. Frekvens. Frekvens. Frekvens. Taajuus. Frequentie. Frequência. Συχνότητα. Częstotliwość. Frekvencia. Frekvencia Hz. Frekvence v Hz. Частота Гц.
- ② Atténuation moyenne. Mittelwert der Schalldämmung. Atenuación media. Attenuazione media. Medelvärde. Middelverdi. Middelværdi. Keskiarvo. Gemiddelde demping. Atenuação média. Μέση Εξασθένιση. Tűmienie średnie. Átlagos tompítás. Priemerné utlmenie. Střední utlum. Средний уровень подавления.
- ③ Ecart type. Standardabweichung. Desviación estandard. Deviazione Standard. Standardavvikelse. Standardavvik. Standardafvigelse. Standardpoikkeama. Standaard afwijking. Desvio padrão. Κανονική Απόκλιση. Odchylenie standardowe. Szabványos eltérés. Štandardná odchýlka. Standardní odchylka. Стандартное отклонение.
- ④ Protection effective en dB. Angenommene Schutzwirkung dB. Protección calculada en dB. Protezione presunta in dB. Förväntad skyddseffekt i dB. Forventet demping i dB. Forventet dæmpning i dB. Arvioitu suojausteho, dB. Verwachte beschermcapaciteit in dB. Expectativa de protecção em dB. Αναμενόμενη Προστασία σε dB. Przewidywany zakres ochrony. Feltételezett védőhatás. Zaručená ochrana, dB. Předpokládaná ochrana v dB. Предполагаемый уровень защиты, дБ.
- ⑤ Force du serre-tête. Kopfbügelndruck. Fuerza del fleje. Forza dell'archetto. Hjässbygelkraft. Hodebøylens styrke. Hovedbøjle styrke. Päälakisangan puristusvoima. Hoofdbanddruk. Armação parietal, força. Δύναμη τόξου στήριξης. Nacisk pałaka. Fejrpánterő. Tlak náhlavnej pásky. Síla náhlavního oblouku. Упругость головного обруча.

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Approval No / N° d'homologation / Zulassungsnr. / Aprobación n° / N° di omologazione / Godkännande nr. /
Godkjennelse nr. / Godkendelse nr. / Hyväksyntäno / Goedkeuringsnummer / Aprovação n° / Αρ. έγκρισης / Nr atestu
/ Jóvähagyási sz. / Osvedčenie č. / Schválení č. / Аттестат №.


| | Art.no. | Approval no. |
|--------------|---------|--------------|
| Thunder T1F. | 1011600 | 0401097 |

GB Institute: BIA (0121), DE-53754 Sankt Augustin, Germany
FR Institut: BIA (0121), DE-53754 Sankt Augustin, Allemagne
DE Institut: BIA (0121), DE-53754 Sankt Augustin, Deutschland
ES Instituto: BIA (0121), DE-53754 Sankt Augustin, Alemania
IT Istituto: BIA (0121), DE-53754 Sankt Augustin, Germania

Hygiene kit / Kit d'hygiène / Hygieneset / Juego higiénico / Kit igiene /
Hygiensats / Hygienesett / Hygiejneindlæg / Hygieniasarja / Hygiëneset / Kit
de higiene / Kit Υγιεινής με / Wkład higieniczny / Higiéniai csomag /
Hygienická súprava / Hygienická souprava / Гигиенический набор

| | Art.no. | Hygiene kit* art.no. |
|--------------|---------|----------------------|
| Thunder T1F. | 1011600 | 1010974 |

* Foamabsorber and foamfilled replaceable ear cushions x2. Amortisseur en mousse et coussinets remplaçables remplis de mousse x2. Schaumstoffabsorber und Schaumstoff gefüllte, austauschbare Ohrauflagen x2. Absorbedor de espuma y almohadillas auditivas desechables rellenas de espuma x2. 2 auricolari fonoassorbenti e riempiti con schiuma sostituibili. Skumabsorbent, skumfyllda utbytbara tättningsringar x2. Skumabsorbent og skumfylte utbyttable øreputer x 2. Skumplade og udskiftelige skumfylde tættningsringe x2. Vaahtomuovinen vaimenninosa ja vaahtomuovitäyteiset vaihdettavat tiivisterenkaat x2. Schuimabsorbeerder en met schuim gevulde vervangbare oorkussens 2x. Protectores acústicos con espuma absorbente e enchimento de espuma substituíveis x2. Αφρώδες απορροφητικό υλικό και αντικαταστάσιμα μαξιλαράκια ακουστικών από αφρώδες υλικό ω2. Piankowy pochłaniacz potu i piankowe wymienne pierścienie uszczelniające x2. Habszivacs zajelnyelő és habszivaccsal töltött, cserélhető fülvédő párnák x2. Penový absorbér a penou plnené vymeniteľné ušné vankúšiky x2. Pěnový pohlcovač a výměnné náušníky vyplněné pěnou, 2x. Сменные подушечки, заполненные пенополиуретаном, 2шт.

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| Prüf-Nr: 2004 22739 | | |
| SICHTVERMERK | | |
| Serie 31 | Datum 15.10.04 | Unterschrift  |

Bilsom



E.C. Declaration of Conformity

The manufacturer or its legal representative supplier in the European Community:

Honeywell Safety Europe

Declares that the Personal Protective Equipment described here after conforms to the provisions of the European Council Directive 89/686/CEE:

Designation: Thunder T1Fs Folding Earmuff

Reference: 1011600

Standard(s): EN-24869-1:1993, EN-352-1:2002

This PPE is the object of the below EC examination certificate n°:

0401097

Delivered by:

B.G.I.A.

Alte Heerstrasse 111

53754

Stankt Augustin

Germany

Drawn up in Germany, on the 29/03/2013

By:

Division: Hearing Protection

A handwritten signature in dark ink, reading "Stephen Gilder".

ZI Paris Nord II 33, rue des Vanesses BP 50288 95958 Roissy CDG France

Tel: +33 (0) 49 90 79 79 Fax: +33 (0)1 49 90 79 80

www.honeywellsafety.com