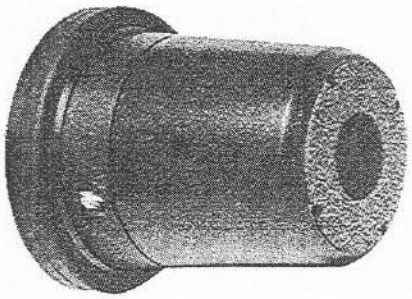
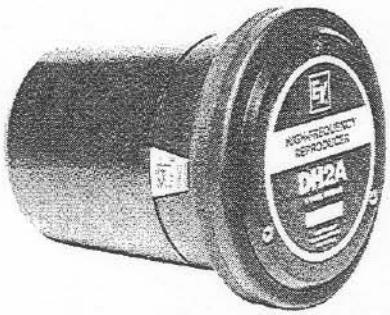
Electro-Voice®

DH2A/DH2A-16

High-Frequency Reproducers





- Pure titanium dome provides extended high-frequency response
- Lightweight aluminum voice coil for maximum efficiency
- Unique, convex-drive phase plug
- Large, #10 screw terminals accept a pair of 12-gauge wires

SPECIFICATIONS:

The following specifications are in accordance with or exceed the AES Recommended Practice for Specification of Loudspeaker Components Used in Professional Audio and Sound Reinforcement (AES2-1984; ANSI S4.26-1984). See AES Recommended Practice section.

Power Frequency Response:
500-20,000 Hz (essentially flat 500-3,000 Hz with 6-dB-per-octave roll-off to 20,000 Hz, rapid roll-off beyond)

Nominal Impedance, on HP Series Horns above 500 Hz,
DH2A:
8 ohms
DH2A-16:
16 ohms

Minimum Impedance at 7,000 Hz,
DH2A:
6 ohms
DH2A-16:
12 ohms

dc Resistance,
DH2A:
4.5 ohms
DH2A-16:
11.0 ohms

Long-Term Average Power Capacity on HP Horns, Indicated Bands of Pink Noise, 8-Ohm Impedance Assumed,
24 Hours, 10-dB Crest Factor:
30 watts (800-20,000 Hz)
2 Hours, 6-dB Crest Factor:
40 watts (800-8,000 Hz);
60 watts (1,500-15,000 Hz)

Nominal Efficiency, 800-3,000-Hz Pink Noise, 8-Ohm Impedance Assumed:
25%

Maximum Long-Term Acoustic Power Output (24 hours):
7.5 watts

Recommended Minimum Crossover Frequency:
800 Hz

Sound Pressure Level at 1 Meter, 1 Watt Input Averaged from 500 Hz to 5,000 Hz,
HP4020 horn:[1]
115 dB
HP6040 horn:
113 dB
HP9040 horn:
111 dB
HP64, HP94:
111 dB
HP420 horn:
114 dB
HP640 horn:
112 dB
HP940 horn:
110 dB
HP1240 horn:
108 dB

Throat Diameter:
4.92 cm (1.94 in.)

Voice Coil Diameter:
5.08 cm (2.00 in.)

Voice-Coil Construction:
Pure aluminum wire wound on high-temperature polyimide coil form

Diaphragm Construction:
Integral all-titanium construction consisting of spherical diaphragm dome and geometrically optimized suspension; high-temperature, long-duration-cure adhesive bonds the coil form to the diaphragm.

Electrical Connection:
Screw terminals, each of which will accept a pair of 12-gauge wires and any smaller size.

1. Measured on axis in the far field with 1 watt input of band-limited pink noise from 500-5,000 Hz and calculated to 1 meter equivalent by inverse square law.

Polarity:
A positive voltage applied to the positive (red) terminal produces a positive acoustic pressure in the throat

Mechanical Connection:
Bolt on, four equally spaced holes on a 10.2-cm (4.00-in.) diameter circle, 1/4-20 threads, bolts supplied with HP series horns

Dimensions (see Figure 2),
Overall Diameter:
17.1 cm (6.75 in.)
Overall Depth:
18.7 cm (7.38 in.)

Net Weight:
6.35 kg (14.0 lb)

Shipping Weight:
6.81 kg (15.0 lb)

DESCRIPTION

The Electro-Voice DH2A/DH2A-16 is a high-performance, high-frequency driver capable of unprecedentedly high acoustic power output over a wide frequency range.

This performance results from careful engineering and design, involving expert choices of materials and advanced driver architecture which are ideally suited for efficient presentation of high-quality musical and communication program material. Features of the DH2A/DH2A-16 include:

1. A unique, geometrically optimized diaphragm consisting of a one-piece ribbed dome and suspension fabricated from pure titanium. Advanced metal forming and processing technology developed by EV engineers allows this high-elongation diaphragm design to be formed from stock a mere 0.0012-inch thick. The combination of diaphragm geometry and material choice gives

FIGURE 1 — Axial Frequency Response 1 Watt/1 Meter Curved on HP9040 Horn

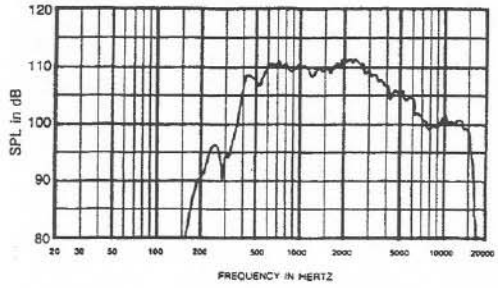


FIGURE 2 — Dimensions

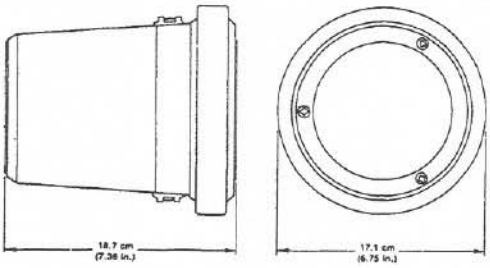


FIGURE 3 — Axial Frequency Response with and without Equalization, 1 Watt/1 Meter, HP9040 Horn

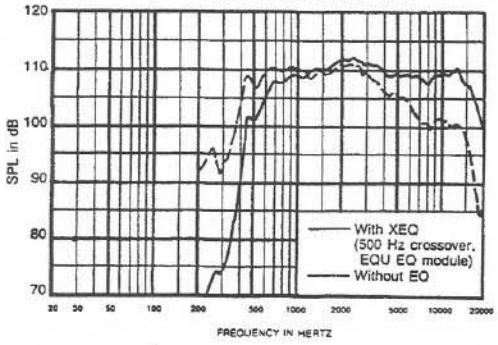


FIGURE 4 — Distortion Response, 2-Inch Plane-Wave Tube, 3 Watts

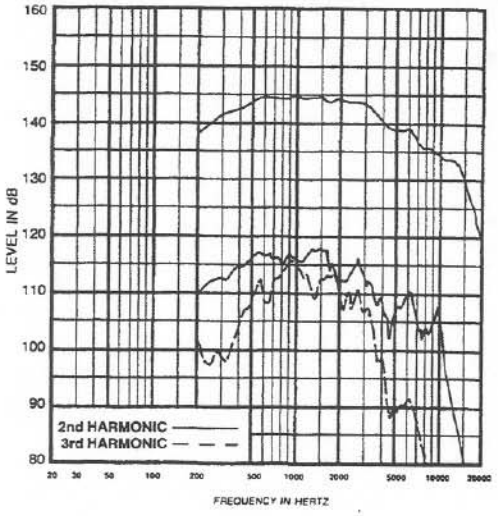


FIGURE 5 — Distortion Response, HP9040 Horn, 3 Watts/1 Meter

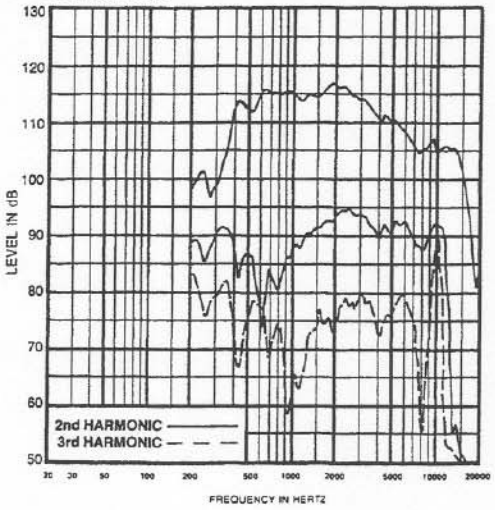


FIGURE 6 — Impedance Response, 2-Inch Plane-Wave Tube, 8-Ohm Driver

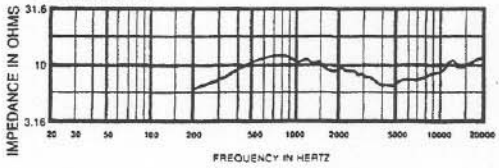


FIGURE 7 — Impedance Response, HP9040 Horn, 8-Ohm Driver

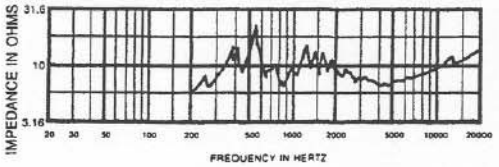


FIGURE 8 — Impedance Response, 2-Inch Plane-Wave Tube, 16-Ohm Driver

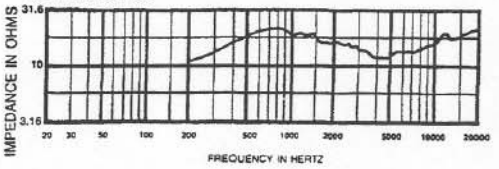
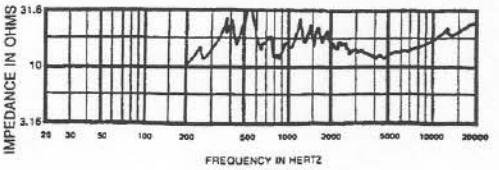


FIGURE 9 — Impedance Response, HP9040 Horn, 16-Ohm Driver



the DH2A/DH2A-16 diaphragm an ideal combination of superb high-frequency response and resistance to fatigue from stress.

2. A precision, lightweight voice coil made from pure aluminum wire, which gives the DH2A/DH2A-16 high magnetic motor strength and maximum efficiency. Proprietary high-temperature winding and electrical bonding technologies assure excellent coil reliability and performance.

3. A new, convex-drive phase-plug design giving optimum upper-octave response.

4. Screw-type input terminals which are an EV exclusive. They provide an unusually positive electrical connection. Each terminal will easily accept a pair of 12-gauge wires, and any smaller size. These special terminals were designed using the results of an extensive field survey of consultants and sound-system installers.

5. The DH2A/DH2A-16 is unusual in appearance and concept. It would normally be shorter in length and have a smaller throat diameter; a "one-inch driver." Standard practice would be to provide an "adapter" for this driver for mating it to a 2-inch-throat horn. Extensive surveying of professional users shows a universal dislike for this type of "acoustic plumbing." The DH2A/DH2A-16's front housing eliminates these problems and provides a direct attachment to a 2-inch horn. This design provides the following features and benefits:

   a) A proper flare, assuring a correct low-frequency acoustic impedance match to the horn.

   b) Simple, strong horn mounting, saving costly installation time, and eliminating complex and unattractive hardware.

RECOMMENDED HORNS

The following Electro-Voice horns are recommended for use with the DH2A/DH2A-16: HP64, HP94, HP420, HP640, HP940, HP1240, HP4020, HP6040 and HP9040.

CROSSOVER AND EQUALIZATION

As with all horn/driver combinations that combine high overall efficiency with constant directivity, the DH2A/DH2A-16 and HP series horns provide "raw" or unequalized frequency response that rolls off above 3,000 Hz or so at about 6 dB per octave. Figure 3 shows the DH2A/DH2A-16 on an HP9040 horn, with and without equalization. The equalization has been provided by an Electro-Voice XEQ-2/XEQ-3 crossover/equalizer equipped with the EQU equalization module. While the equalization of a constant-directivity horn/driver combination can be achieved with a conventional one-third-octave equalizer, the use of the XEQ-2/XEQ-3 crossover/equalizer with the appropriate accessory EQ module is recommended. This way, the broadband equalization required by the horn/driver combination is supplied by the crossover/equalizer network, and the one-third-octave equalizer can be devoted to correcting the more subtle room- and array-related response anomalies. The following EQ modules are available for the DH2A/DH2A-16:

Module	Horn(s)
EQO	HP9040
EQR	HP940
EQS	HP1240
EQT	HP640
EQU	HP4020; HP6040
EQV	HP420
EQW	HP64, HP94

Refer to the XEQ-2/XEQ-3 engineering data sheets for more information on XEQ-2/XEQ-3 performance and application.

For passively crossed over systems, the XEQ804 and XEQ808 crossover/equalizers are available.

FIELD REPLACEMENT

In case of voice-coil or diaphragm failure, the diaphragm cover subassembly can be replaced by just removing the driver from the front housing, then replacing the cover subassembly itself by the removal of six cover screws. A replacement kit with instructions may be ordered under Electro-Voice Part No. 81161XX (DH2A) and 82816XX (DH2A-16) from the Electro-Voice Service Department in Buchanan, Michigan. If desired, the complete driver may be returned for service.

AES RECOMMENDED PRACTICE

The DH2A/DH2A-16's specifications conform to the AES Recommended Practice for Specification of Components Used in Professional Audio and Sound Reinforcement (AES2-1984; ANSI S4.26-1984). This recommended practice was developed over a number of years by consultants, manufacturers and government agencies from around the world, so that the detailed performance information required in professional applications could be provided in a unified format. The recommended practice has been published in the October, 1984, issue of the Journal of the Audio Engineering Society (vol. 26, pp. 771-780). Individual copies of the recommended practice are available from the Audio Engineering Society, 60 East 42nd Street, New York, New York 10165, USA. Also appearing in this issue is an article which comments on the recommended practice from an engineering point of view (C.A. Henricksen, "Engineering Justifications for Selected Portions of the AES Recommended Practice for Specification of Loudspeaker Components," pp. 763-769). The comments in this article will be particularly of interest to those not involved in the day-to-day design and testing of loudspeakers.

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The loudspeaker shall be of the compression-driver type consisting of a 0.002-cm (0.012-in.) thick titanium diaphragm joined to an edge-wound aluminum ribbon voice coil on a polyimide form.

The nominal impedance shall be 8 ohms (DH2A) or 16 ohms (DH2A-16). The loudspeaker shall exhibit essentially flat power response from 500 to 3,000 Hz, with a smoothly rolled-off response from 3,000 to 20,000 Hz. Its efficiency shall not be less than 25%. Its sensitivity, when mounted on an EV HP4020 horn, shall be 115 dB (1 W/1 m) with a 500-to-5,000-Hz pink-noise signal applied.

The loudspeaker shall be capable of handling a 30-watt, 800-to-20,000-Hz pink-noise signal with a 10-dB crest factor (300 watts peak) for a period of 24 hours. In addition, it shall be capable of handling a 40-watt, 800-to-8,000-Hz pink-noise signal and a 60-watt, 1,500-to-15,000-Hz pink-noise signal, with 6-dB crest factors for a period of two hours in both cases.

The loudspeaker shall have a diameter of 17.1 cm (6.75 in.) and a depth of 18.7 cm (7.38 in.). It shall have a 1.94-inch throat opening, with four 1/4-20 threaded bolt holes on a 4-inch-diameter circle for mounting.

The unit shall weigh no more than 7.2 kg (15.8 lb).

The loudspeaker shall be the Electro-Voice model DH2A (DH2A-16) compression driver.

WARRANTY (Limited)

Electro-Voice products are guaranteed against malfunction due to defects in materials or workmanship for a specified period, as noted in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual, beginning with the date of original purchase. If such malfunction occurs during the specified period, the product will be repaired or replaced (at our option) without charge. The product will be returned to the customer prepaid. **Exclusions and Limitations:** The Limited Warranty does not apply to: (a) exterior finish or appearance; (b) certain specific items described in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual; (c) malfunction resulting from use or operation of the product other than as specified in the product data sheet or owner's manual; (d) malfunction resulting from misuse or abuse of the product; or (e) malfunction occurring at any time after repairs have been made to the product by anyone other than Electro-Voice or any of its authorized service representatives. **Obtaining Warranty Service:** To obtain warranty service, a customer must deliver the product, prepaid, to Electro-Voice or any of its authorized service representatives together with proof of purchase of the product in the form of a bill of sale or receipted invoice. A list of authorized service representatives is available from Electro-Voice at 600 Cecil Street, Buchanan, MI 49107 (616/695-6831) and/or Electro-Voice West, at 8234 Doe Avenue, Visalia, CA 93291 (209/651-7777). **Incidental and Consequential Damages Excluded:** Product repair or replacement and return to the customer are the only remedies provided to the customer. Electro-Voice shall

provided to the customer. Electro-Voice shall not be liable for any incidental or consequential damages including, without limitation, injury to persons or property or loss of use. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you. **Other Rights:** This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Electro-Voice Speakers and Speaker Systems are guaranteed against malfunction due to defects in materials or workmanship for a period of five (5) years from the date of original purchase. The Limited Warranty does not apply to burned voice coils or malfunctions such as cone and/or coil damage resulting from improperly designed enclosures. Electro-Voice active electronics associated with the speaker systems are guaranteed for three (3) years from the date of original purchase. Additional details are included in the Uniform Limited Warranty statement.

Service and repair address for this product: Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107.

Specifications subject to change without notice.

ELECTRO-VOICE **600 Cecil Street, Buchanan, Michigan 49107**
MANUFACTURING PLANTS AT ■ BUCHANAN, MI ■ NEWPORT, TN ■ SEVIERVILLE, TN ■ OKLAHOMA CITY, OK ■ GANANOQUE, ONT.

Part Number 532025 — 9343