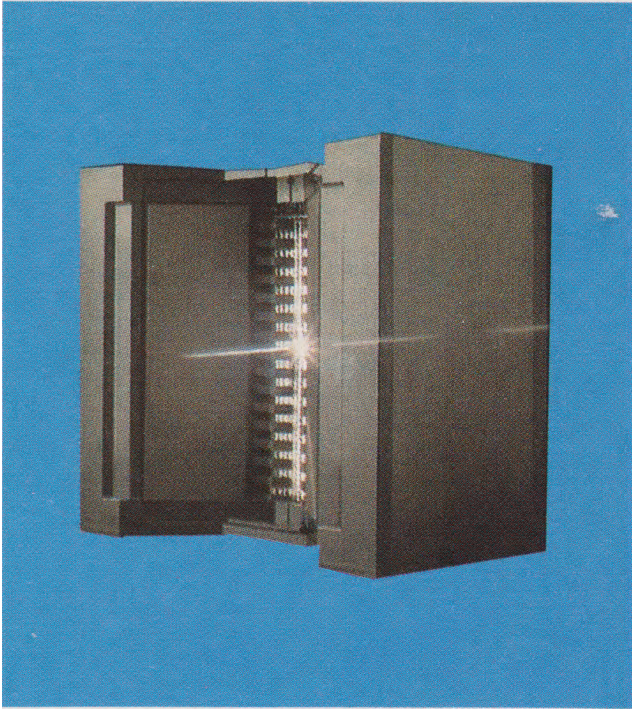




ESU[®]

HEIL AIR-MOUNTED TRANSFORMER
**LOUDSPEAKER
SYSTEMS**

SOUND AS CLEAR AS LIGHT[™]



THE HEIL AIR-MOTION TRANSFORMER

The Heil air-motion transformer is the revolutionary midrange-tweeter that since 1973 has distinguished ESS loudspeakers from all other systems in the world. Its principle is simple yet exclusive. Its results are superior to any other sonic transducer known to man.

The Heil diaphragm, made of soft quiet mylar to reduce background noise, is bonded with conductive aluminum strips. It is equivalent in surface area to a conventional cone-type 8-inch midrange, but accordion-folded down to a compact one-inch band for better point source dispersion. The low-mass diaphragm is suspended in a massive magnet structure concentrating an intense magnetic field around the diaphragm.

When a signal passed through the aluminum strips, the bellows-like motion of the folded "pleats" squeezed air out 430% faster than the air motion of a conventional cone driver. The virtual "instant acceleration" provides high definition, crisp transients, an superb dynamic range, all of which distinguish the Heil from all other transducers.

A simple experiment dramatically illustrates the superiority of the Heil's squeezing motion. Imagine trying to "shot-put" or a light object like a cherry pit (representing air) with the palm of your hand (a speaker cone). It won't travel very far or fast (fig. 1). Now put the pit between your thumb and forefinger and *squeeze* (fig. 2). It squirts out at high velocity. The physics of the



Figure 1

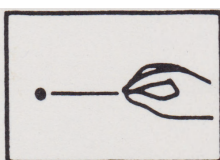


Figure 2

Heil are as simple and brilliant as this principle of leverage.

More than the obvious superiority of the physics of the Heil, it is the special advantages of each physical property that accounts for its audible superiority:

- A lightweight mylar diaphragm provides inaudible resonance, high efficiency and "instant acceleration."
- Its larger driving area provides reduced distortion and increases dynamic range.
- Folding this large area into a small pleated point source results in superior dispersion.
- The high 5 to 1 transformation ratio, low diaphragm velocity and instant acceleration all result in greater definition, increased dynamic range and superb transients.
- The pleats enable the driving force to be distributed uniformly. By preventing the "break-up" associated with cone drivers, the pleats contribute to the Heil's great clarity and definition.

The Heil air-motion transformer is recognized in the audio industry as the most significant loudspeaker breakthrough of the last half-century and is licensed exclusively to ESS. Once you've heard it, you'll



probably agree that the ESS Heil air-motion transformer indeed delivers "Sound as Clear as Light."TM

The ESS Polypropylene low frequency driver. The AMT 1D is equipped with an exceptionally rugged vacuum-formed polypropylene low frequency driver, designed and built by ESS.

This transducer possesses exceptional properties not found in pulp cones:

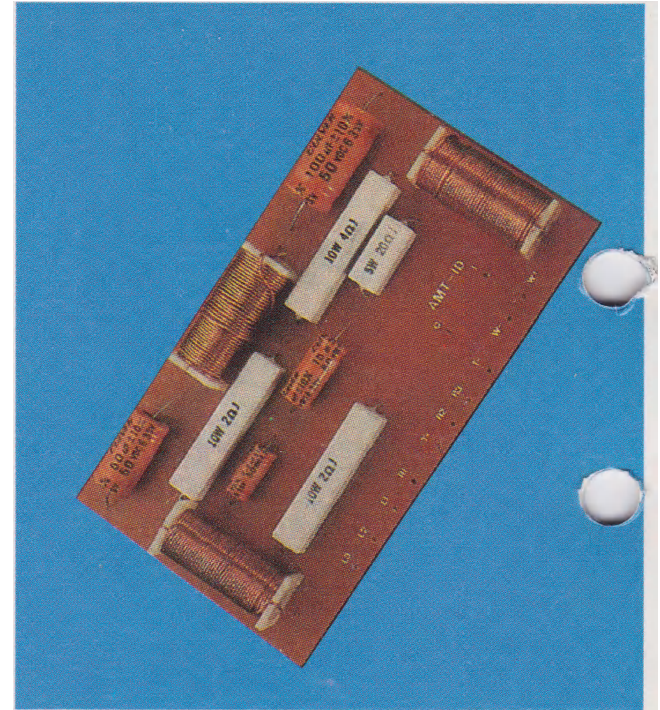
- Low mass.
- High structural rigidity.
- Great internal molecular damping for superb quieting.

□ Less susceptible to resonance and masking distortion.

□ Greater clarity and accuracy.

The improved AMT ID woofer also incorporates a heavier surround for improved midrange response and increased power-handling Capability-

Passive radiator. A rear-mounted 12-inch passive radiator operates in tandem with the active woofer to deliver frequency response down to 35 Hz. The passive radiator serves



the same purpose as a port, but it avoids the distortion added by a port of the loss of efficiency inherent in acoustic suspension systems.

Crossover circuitry and controls. A sophisticated, parallel-type frequency dividing network at 800 Hz assures proper interaction of the woofer with the Heil air-motion transformer by means of a steep 18 dB per octave slope.

Recent circuitry refinements enable greater power handling ability in the crossover region, as well as a uniformly crisp presentation over the entire audible bandwidth. Dual controls allow the listener to precisely achieve desired midrange and high frequency performance.

Hand crafted cabinetry — The feel of excellence.TM

In keeping with the traditional ESS desire to capture the feel of excellence, the new AMT systems are housed in meticulously hand crafted cabinetry. Their structurally reinforced, high density particle board sides are covered with walnut veneer and hand-oiled to a satin finish. All four systems have been complemented with a black grille cloth that is even more acoustically transparent than the previous AMT models.

amt 1D

SPECIFICATIONS

FULL SYSTEM

POWER CAPACITY 400 watts (clean music power)
NOMINAL IMPEDANCE 6 ohms
DISPERSION 120° horizontal 30° vertical
CROSSOVER FREQUENCY. 800 Hz
EFFICIENCY: SPL@1m/1w 91dB
FREQUENCY RESPONSE ±3dB 35-23,000Hz

CONTROLS

AN6E/PRESENCE Continuously variable
attenuation
+ 3dB to -6dB
from 800 Hz to 5KHz

BRILLIANCE Continuously variable
±3 dB from 5 kHz
to beyond audibility

HEIL AIR-MOTION TRANSFORMER

TOTAL RADIATING AREA 21.5 sq. in. (139 cm²)
SQUARE WAVE RISE TIME (@ 5kHz) 15 microsec.
TRANSFORMATION 5.3:1
MAGNET ASSEMBLY WEIGHT 12 lbs. 15 oz. (5.9 kg)
FLUX DENSITY 4,500 gauss

LOW FREQUENCY DRIVER

NOMINAL DIAMETER 12 in. (30.5 cm)
CONE MATERIAL polypropylene
MAGNET ASSEMBLY WEIGHT 7 lbs. 6.5 oz.
(3.4 kg)
FLUX DENSITY 10,500 gauss
E COIL 2 in. (5 cm) copper
bonded with high temperature
phenolic to aluminum

PIVOT RADIATOR

NOMINAL DIAMETER 12 in. (30.5 cm)
MATERIAL .25 in. (.64 cm) rigid
ESP styrene foam base
material laminated to
a damping skin of .25 in.
(.64 cm) open cell foam

DECOR

FINISH	oiled walnut veneer
GRILLE COLOR	black
DIMENSIONS:	HEIGHT 35.25 in. (89.5 cm)
	WIDTH 16.25 in. (41.3 cm)
	DEPTH 16.25 in. (41.3 cm)
SHIPPING WEIGHT	85 lbs. (38.6 kg)



AMT 1D

The unique design of this free standing unit composes a perfect blend of sonic excellence and beauty. Its classic pyramid form is both striking and acoustically efficient, permitting the mid-range/tweeter to disperse sound unobstructed to both the front and rear.

The cabinet enclosing the woofer and the rear-mounted passive radiator is strategically braced for structural rigidity. This structural reinforcement also serves to minimize cabinet-induced resonance. Carefully selected walnut veneers have been applied and hand-oiled as fine furniture.

The top-mounted Heil driver in the ID has been tilted upward six degrees for a more usable vertical dispersion pattern. This affords the listener a full field of Heil fidelity whether seated or standing.

An acoustically transparent black grille cloth provides a final touch of beauty and elegance worthy of a precision musical instrument.

The classically contoured AMT 1D offers the listener precisely detailed high frequency and midrange and definition; deep, rich full-bodied bass; and an overall spaciousness to rival the live concert. The result is both the feel and the sound of excellence.

ESU[®] AMT 1D

SOUND AS CLEAR AS LIGHT™

amt monitor

SPECIFICATIONS

FULL SYSTEM

POWER CAPACITY 400 watts (clean music power)
 NOMINAL IMPEDANCE 6 ohms
 DISPERSION 120° horizontal, 30° vertical
 CROSSOVER FREQUENCY 800 Hz
 EFFICIENCY: SPL@1M/1W 91dB
 FREQUENCY RESPONSE ±3dB 40-23,000 Hz

CONTROLS

MIDRANGE/PRESENCE Continuously variable
 attenuation
 +3 dB to -6 dB
 from 800 Hz to 5KHz

BRILLIANCE Continuously variable
 ±3 dB from 5 kHz
 to beyond audibility

HEIL AIR-MOTION TRANSFORMER

TOTAL RADIATING AREA 21.5 sq. in. (139 cnf)
 SQUARE WAVE RISE TIME (@ 5kHz) 15 microsec.
 TRANSFORMATION RATIO 5.3:1
 MAGNET ASSEMBLY WEIGHT 12 lbs. 15 oz. (5.9 kg)
 FLUX DENSITY 4,500gauss

LOW FREQUENCY DRIVER

NOMINAL DIAMETER 12 in. (30.5 cm)
 CONE MATERIAL polypropylene
 MAGNET ASSEMBLY WEIGHT 7 lbs. 6.5 oz. (3.4 kg)
 FLUX DENSITY 10,500 gauss
 VOICE COIL 2 in. (5 cm) copper
 bonded with high temperature
 phenolic to aluminum

PASSIVE RADIATOR

NOMINAL DIAMETER 12 in. (30.5 cm)
 MATERIAL .25 in. (.64 cm) rigid
 ESP styrene foam base
 material laminated to
 a damping skin of .25 in.
 (.64 cm) open cell foam

DECOR

FINISH oiled walnut veneer
 GRILLE COLOR black
 DIMENSIONS: HEIGHT 40 in. (102 cm)
 WIDTH 18 in. (45.7 cm)
 DEPTH 11.5 in. (29.2 cm)
 SHIPPING WEIGHT 85 lbs. (38.6 kg)



The AMT MONITOR

The AMT MONITOR system has been designed to deliver AMT efficiency in a conveniently sized cabinet.

The AMT MONITOR has a 40-inch tall walnut veneer cabinet that proves that available space needn't be an obstacle when the ultimate sound is desired from a loudspeaker system. It will produce 40-23,000Hz (±3dB) whether free-standing or mounted on a sturdy shelf. The AMT MONITOR can offer this kind of efficiency because inside its cabinet you'll find the same quality components utilized in the freestanding ID unit. The "Great Heil", with its 21.5 sq.

in. total radiating area, is front-mounted and can be rotated to accommodate shelf-mounting the cabinet on its side. A 12-inch, high transmission velocity low frequency driver is aided by a rear-mounted passive radiator[^] deliver clean, tight bass response down to 40Hz.

The MONITOR system, like the AMT ID is equipped with presence and brilliance controls making completely listener-tailorab?[^] when compensation for room acoustics is necessary.

The AMT MOINIOR — AMT excellence in a convenient package.

ESU[®] AMT MONITOR

SOUND AS CLEAR / IS LIGHT™

amt monitor

SPECIFICATIONS

FÜLL SYSTEM

POWER CAPACITY 400 watts (clean music power)
 NOMINAL IMPEDANCE 6ohms
 DISPERSION 120° horizontal, 30° vertical
 CROSSOVER FREQUENCY 800Hz
 EFFICIENCY: SPL@1M/1W 91dB
 FREQUENCY RESPONSE \pm 3dB 40-23,000 Hz

CONTROLS

MIDRANGE/PRESENCE Continuously variable
 attenuation
 + 3 dB to -6 dB
 from 800 Hz to 5KHz

BRILLIANCE Continuously variable
 \pm 3 dB from 5 kHz
 to beyond audibility

HEIL AIR-MOTION TRANSFORMER

TOTAL RADIATING AREA 21.5 sq. in. (139 cm²)
 SQUARE WAVE RISE TIME (@ 5kHz) 15 microsec.
 TRANSFORMATION RATIO 5.3:1
 MAGNET ASSEMBLY WEIGHT 12 lbs 15 oz. (5.9 kg)
 FLUX DENSITY 4,500 gauss

LOW FREQUENCY DRIVER

NOMINAL DIAMETER 12 in. (30.5 cm)
 CONE MATERIAL polypropylene
 MAGNET ASSEMBLY WEIGHT 7 lbs. 6.5 oz.
 (3.4 kg)

FLUX DENSITY 10,500 gauss
 VOICE COIL 2 in. (5 cm) copper
 bonded with high temperature
 phenolic to aluminum

PASSIVE RADIATOR

NOMINAL DIAMETER 12 in. (30.5 cm)
 MATERIAL .25 in. (.64 cm) rigid
 EPS styrene foam base
 material laminated to
 a damping skin of .25 in.
 (.64 cm) open cell foam

DECOR

FINISH blackwood
 GRILLE COLOR black
 DIMENSIONS: HEIGHT 40 in. (102cm)
 WIDTH 18 in. (45.7 cm)
 DEPTH 11.5 in. (29.2 cm)
 SHIPPING WEIGHT 85 lbs. (38.6 kg)



The AMT MONITOR

The AMT MONITOR system has been designed to deliver AMT efficiency in a conveniently sized cabinet.

The AMT MONITOR has a 40-inch tall black cabinet that proves that available space needn't be an obstacle when the ultimate sound is desired from a loudspeaker system. It will produce 40-23,000Hz (\pm 3dB) whether free-standing or mounted on a study shelf. The AMT MONITOR can offer this kind of efficiency because inside its cabinet you'll find the same quality components utilized in the freestanding 1D unit. The "Great Heil," with its 21.5 sq. in. total

radiating area, is front-mounted and can be rotated to accommodate shelf-mounting the cabinet on its side. A 12-inch, high transmission velocity low frequency driver is aided by a rear-mounted passive radiator to deliver clean, tight bass response down to 40Hz.

The MONITOR system, like the AMT 1D is equipped with presence and brilliance controls making it completely listener-tailorable when compensation for room acoustics is necessary.

The AMT MONITOR - AMT excellence in a convenient package.

ESS[®] AMT MONITOR

SOUNDS AS CLEAR

™

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 Rancho Cordova, CA 95670

(916)852-0906
 (916) 852-1918 FAX

amt

620 MM

SPECIFICATIONS

FULL SYSTEM

POWER CAPACITY 60 watts RMS above 65 Hz	
MINIMUM RECOMMENDED	
AMPLIFIER POWER	10 watts RMS
NOMINAL IMPEDANCE	6 ohms
CROSSOVER FREQUENCY	1,200 Hz
SPL @ 1 METER w/1 WATT	86,5dB
FREQUENCY RESPONSE	±3dB 65-20,000 Hz

WOOFER

DIAMETER	5 $\frac{1}{4}$ inch (13 cm).
TYPE	fibre cone
VOICE COIL	1" 2-layer
NET ASSEMBLY WEIGHT	3 lbs. (.8 kg)
FLUX DENSITY	9,000 gauss

TWEETER

DIAMETER	1 in.
TYPE	soft cloth dome
VOICE COIL	1 layer copper
MAGNET ASSEMBLY WEIGHT	14 oz. (397 gms)
FLUX DENSITY	12,000 gauss

PASSIVE RADIATOR

NOMINAL DIAMETER	6 in. (15.2 cm)
MATERIAL	12V2 in. (.32 cm) rigid ESP styrene foam base material laminated to a damping skin of .125 in. (.32 cm) open cell foam

FINISH	oiled walnut veneer
GRILLE COLOR	black
DIMENSIONS:	HEIGHT 12 in. (30 cm) WIDTH 7 in. (18 cm) DEPTH 7 $\frac{1}{2}$ in. (19 cm)
SHIPPING WEIGHT	18 lbs. (8 kg) per pair



620 MM

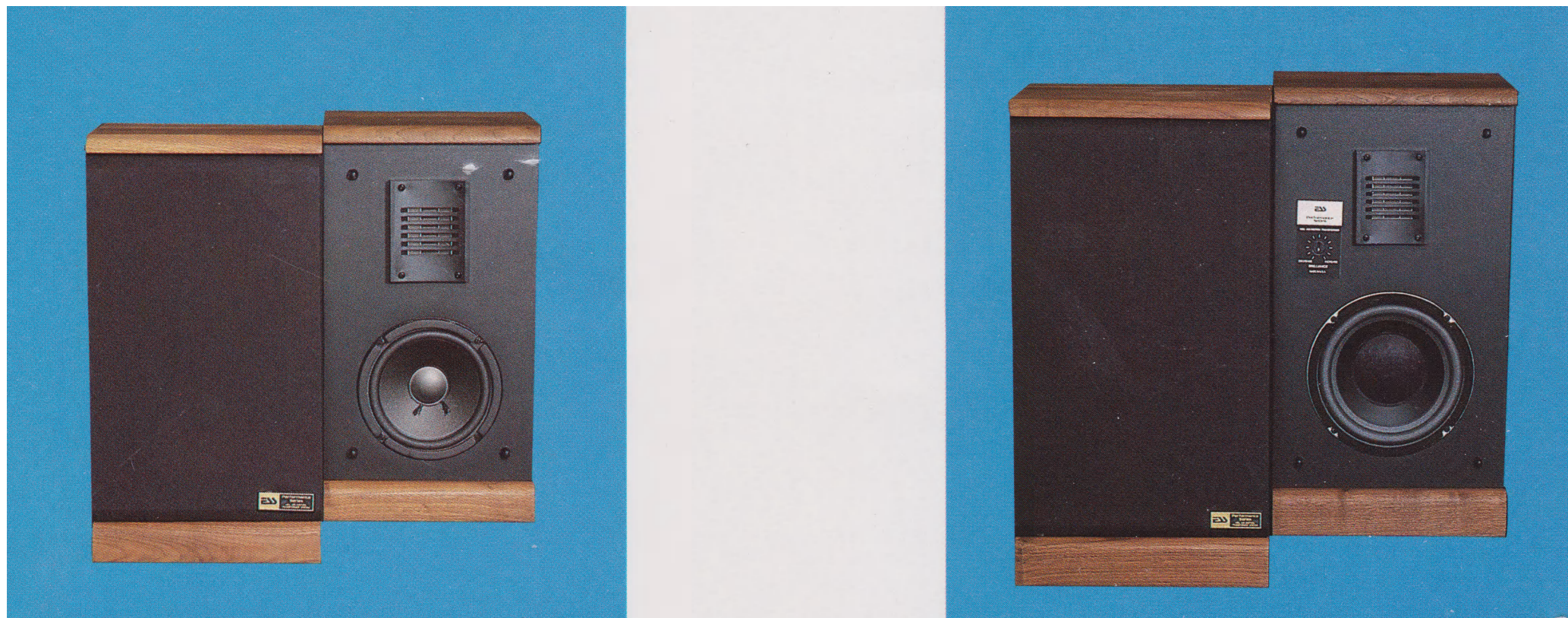
The old notion that a good speaker system needs to be large to be accurate has now been shattered by the introduction of a superb compact system from ESS. The model 620 MM not much larger than a clock radio, is a remarkable high fidelity bookshelf speaker system that *really* fits on a bookshelf. With specifications that rival those of much larger, bulkier systems, the Model 620 MM, represents a stunning achievement in high fidelity loudspeaker design.

Ideally suited to today's powered electronics, the 620 MM, can be driven to room-filling volume with a 10-watt amplifier, yet easily handles anything a 50-watt RMS amplifier can dish out.

As a total sound system, the ESS 620 MM is a quality audio reproducer worthy of the most critical audiophile. Hand-finished in natural oiled walnut veneers, the 620 MM represents a remarkable value by any standard.

ESS AMT 620 MM

SOUND AS CLEAR AS LIGHT™



ESS PERFORMANCE SERIES

PS 820

WOOFER	Specially designed high power 6" bass-mid driver featuring new ultra-damped polypropylene cone, hi-temp voice coil, and 2 lb. magnetic circuit.
PASSIVE RADIATOR	8" foam/slate laminate, tuned resonance of 40 hz.
TWEETER	Heil air-motion transformer with $3/4" \times 2 1/2"$ pleated teflon diaphragm, 2 lb. 6 oz. magnetic circuit, rise time of 15 micro seconds, and 5.3 to 1 amplification factor.
CROSSOVER:	2 khz, computer designed linear phase type featuring premium components, minimum phase error and group delay, and impedance equalization.
IMPEDANCE	4 ohms,
POWER RATING	Minimum 5 watts, maximum 100 watts step music power.
EFFICIENCY	89 db for 1 watt/meter.
PROTECTION	Thermal overload-sensing breaker, self resetting.
FREQUENCY RESPONSE	Usable range of 42 hz to 23 khz. with typical mid-band accuracy of ± 1 db.
DISPERSION	Horizontal 120 degrees, vertical 40 degrees.
FINISH	Hi-tech black with walnut top cap and bottom accent piece, black removable grill.
SIZE	Approximately $9 1/2"$ wide by $9 1/2"$ deep by $17 3/4"$ high.
WARRANTY	Limited 5 years parts and labor covering manufacturing defects.

PS 920

WOOFER	Specially designed high power 8" bass-mid driver featuring new ultra-damped polypropylene cone, hi-temp voice coil, and 3 lb. magnetic circuit.
PASSIVE RADIATOR	8" foam/slate laminate, tuned resonance of 35 hz.
TWEETER	Heil air-motion transformer with $9/8" \times 2 1/4"$ pleated teflon diaphragm, 2 lb. 6 oz. magnetic circuit, rise time of 15 micro seconds, and 5.3 to 1 amplification factor.
CROSSOVER:	2 khz, computer-designed linear phase type featuring premium components, minimum phase error and group delay, and impedance equalization.
IMPEDANCE	4 ohms, ^A
POWER RATING	Minimum 5 watts, maximum 125 watts step music power.
EFFICIENCY	91 db at 1 watt/meter.
PROTECTION	Thermal overload-sensing breaker, self resetting.
FREQUENCY RESPONSE	Usable range of 38 hz to 23 khz. with typical mid-band accuracy of ± 1 db.
DISPERSION	Horizontal 120 degrees, vertical 40 degrees.
FINISH	Hi-tech black with walnut top cap and bottom accent piece, removable grill with black cloth.
SIZE	Approximately $11 1/2"$ wide by 11" deep by 22" high.
WARRANTY	Limited 5 years parts and labor covering manufacturing defects.

PS 820 & PS 920

SOUND AS CLEAR AS LIGHT™



ESS PERFORMANCE SERIES

PS 1020

WOOFER	Specially designed high power 10" bass-mid driver featuring new ultra-damped polypropylene cone, hi-temp voice coil, and 3.5 lb. magnetic circuit.
PASSIVE RADIATOR	10" foam/slate laminate, tuned resonance at 30 hz.
TWEETER	Heil air-motion transformer with $3A \times 2\frac{1}{2}$ " pleated teflon diaphragm, 4 lb. 9 oz. magnetic circuit, rise time of 15 micro seconds, and 5.3 to 1 amplification factor.
CROSSOVER:	1600 khz, computer designed linear phase type featuring premium components, minimized phase and group delay error, and includes impedance equalization.
CONTROLS	Continuously variable tweeter level control mounted on front baffle for convenience.
IMPEDANCE	4 ohms,
POWER HANDLING	Minimum 10 watts, maximum 150 watts step music power.
EFFICIENCY	92 db for 1 watt/meter.
PROTECTION	Thermal overload-sensing breaker, self resetting.
FREQUENCY RESPONSE	Usable range of 32 hz to 23 khz. with typical mid-band accuracy of ± 2 db.
DISPERSION	Horizontal 120 degrees, vertical 40 degrees.
FINISH	Hi-tech black with walnut top cap and bottom accent piece, removable grill with black cloth.
SIZE	Approximately 14V4" wide by 13" deep by 25" high.
WARRANTY	Limited 5 years parts and labor covering manufacturing defects.

PS 1220

WOOFER	Cast frame 12" with new ultra-damped polypropylene cone, hi-temp voice coil, and 5 lb. magnetic circuit.
PASSIVE RADIATOR	12" foam/slate laminate, tuned resonance at 20 hz.
MIDRANGE	4" "maxilinear" unit featuring polysynthetic cone, hi-temp voice coil, and loaded by damped sub-enclosure.
TWEETER	Heil air-motion transformer with $3\frac{3}{4} \times 2\frac{1}{2}$ " pleated teflon diaphragm, 4 lb. 9 oz. magnetic circuit, rise time of 15 micro seconds, and 5.3 to 1 amplification factor.
CROSSOVER:	380 hz and 2 khz, computer designed linear phase type featuring premium components, minimized phase and group delay error, and includes impedance equalization.
CONTROLS	Continuously variable midrange and treble level controls mounted on front baffle for convenience.
IMPEDANCE	4 ohms,
POWER HANDLING	Minimum 10 watts, maximum 200 watts step music power.
EFFICIENCY	93 db at 1 watt/meter.
PROTECTION	Thermal overload-sensing breaker, self resetting.
FREQUENCY RESPONSE	Usable range of 28 hz to 23 khz. with typical mid-band accuracy of ± 1 db.
DISPERSION	Horizontal 120 degrees, vertical 40 degrees.
FINISH	Hi-tech black with walnut top cap and bottom accent piece, removable grill with black cloth.
SIZE	Approximately 14V4" wide by 12" deep by 34" high.
WARRANTY	Limited 5 years parts and labor covering manufacturing defects.

ESS® **PS 1020 & PS 1220**

SOUND AS CLEAR AS LIGHT™

Inside the ESS Heil air-motion transformer

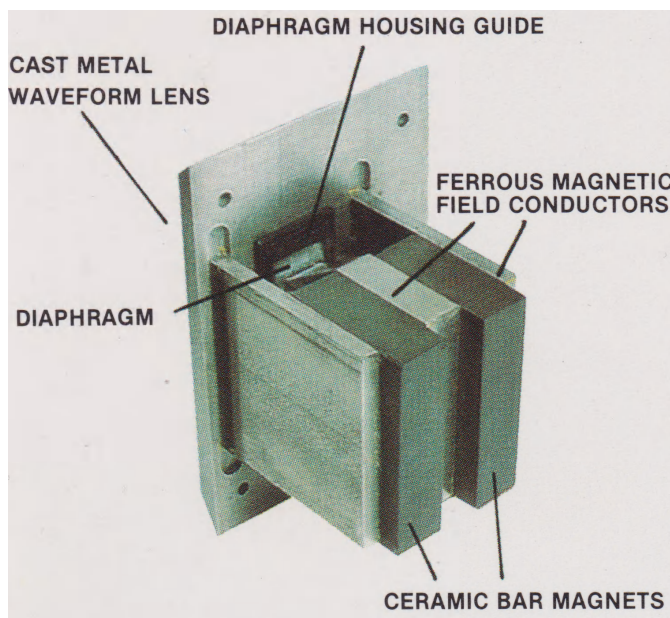


Fig. 3

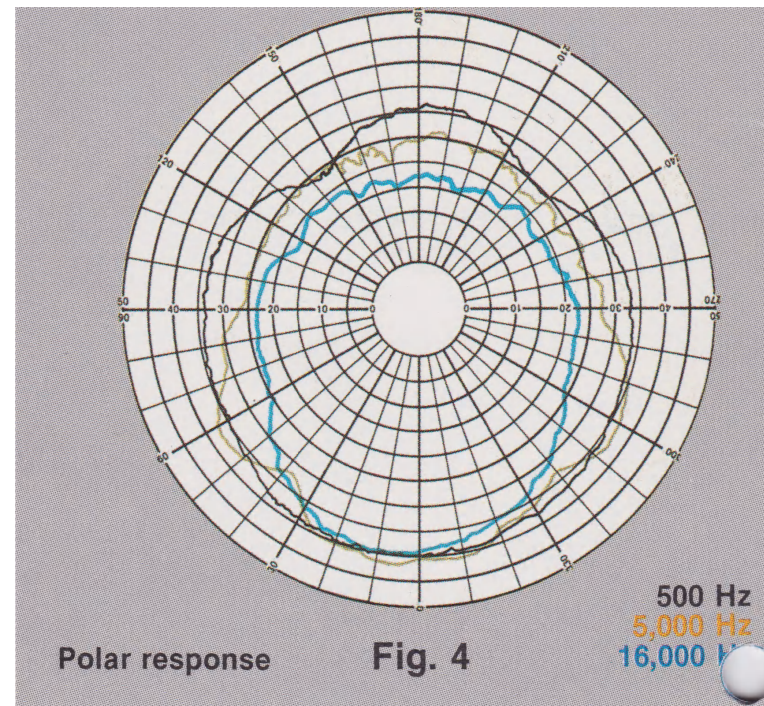
Figure 3:

The heart of the Heil air-motion transformer is a featherweight pleated Teflon diaphragm bonded with conductive aluminum strips. The diaphragm is suspended within a massive magnet structure. A series of precision milled focus lenses concentrate an intense magnetic field around the diaphragm.

When a signal passes through the diaphragm's foil strips, the bellows-like motion of the pleats squeezes air out at five times the speed of the vibrating diaphragm itself. This virtual "instant acceleration" distinguishes the Heil from all other loudspeakers.

Figure 4:

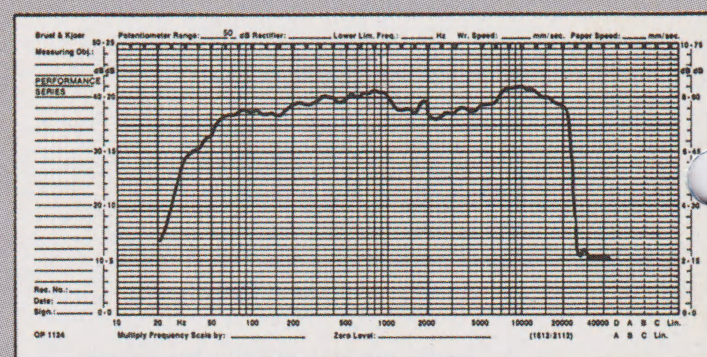
Polar response curves at a wide range of frequencies reveal a broad horizontal dispersion pattern throughout the audible spectrum.



Polar response Fig. 4

Figure 5:

Frequency response curves graphically demonstrate the linear and generously broad bandwidth characteristics.



Response curve PS-4A Fig. 5

Figure 6:

A pair of drawings illustrates the movements of the Heil's pleats and the corresponding musical sine wave signals. In Figure 6A, the front facing pleats contract as the sine wave rises, forcing air out under pressure. Meanwhile the pleats opening towards the rear draw air in. When the sine wave reverses, as shown in Figure 6B, the pleats contract in the opposite direction.

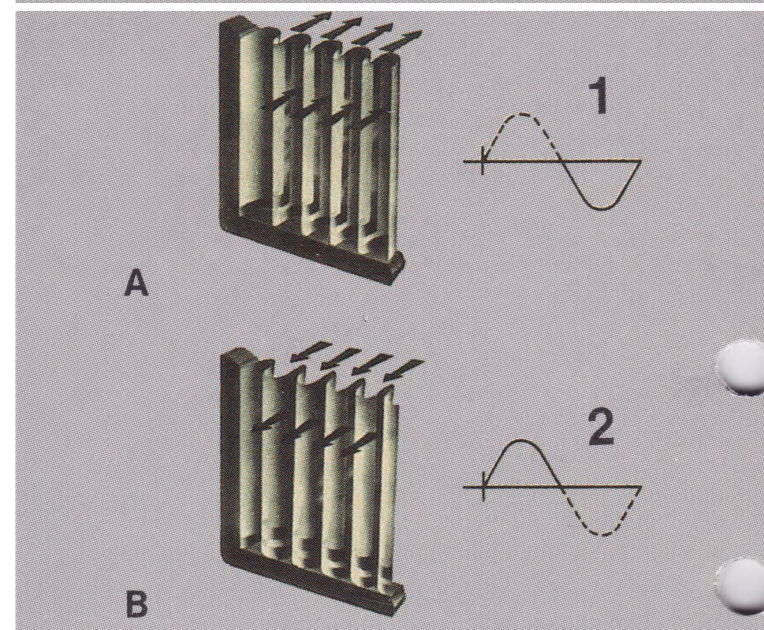


Fig. 6

Figure 7:

The "squeezing" action of the Heil diaphragm's pleats viewed in detail from above. As the pleat walls (A) squeeze together, they force a large amount of air to accelerate under pressure through a narrow opening (B). The folds are 5.3 times as deep as they are wide, resulting in a 430 percent increase in air velocity.

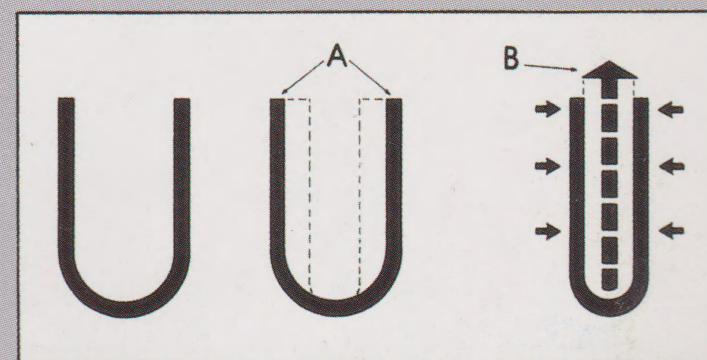


Fig. 7



Loud and Proud

HIFIGOTEBORG.se a



Sound As Clear As Light™



WANT TO RELAX TO BEAUTIFUL
MUSIC

WELCOME

WE HAVE GOOD HIFI AT YOUR
SERVICE

PLEASE WAIT HERE & A MEMBER
OF OUR TEAM WILL BE WITH
YOU SHORTLY.

Or press finger HERE