PHL AUDIO

1660 8 Ω
1670 16 Ω

E17

PROFESSIONAL SERIES

6.5" Midrange Extended Drivers
High Sound Pressure Level
High Sounding Quality

APPLICATIONS

These models are the "long excursion" versions of types SP1500/1510. They are dedicated to being used when applications require low-midrange extension capability together with high SPL.

Their particular design ensures that they perform without any compromise in sound quality, making these models optimum for sound reinforcement systems as well as studio monitoring.

Their preferred frequency domain starts from 400Hz (single unit) or 300Hz (dual driver) in direct radiation, while 200Hz is possible when horn is mounted.

DESIGN CONCEPT

PROGRESSIVE WAVE DIAPHRAGM optimized for low-midrange extended frequency domain.

The M17/E17 Series design is based on the PROGRESSIVE WAVE DIAPHRAGM mechanical behavior of the radiating area.
In this principle, the membrane is considered as a mechanical transmission line which should receive a constant given velocity together with critical damping properties to work properly.

This leading edge technology offers substantial sonic advantages. Among them : very low mechanical energy storage in the cone (avoiding standing waves) which ensures coherent sound, fast transients, stable sound imaging, high sensitivity, wide frequency range and very-low directivity pattern.

VENTED COMPACT MAGNET SYSTEM. It has been carefully optimized to obtain maximum transducing efficiency while avoiding unlinear behavior such as coil inductance variation with position, flux modulation, harmonic distortion, rest position offset, air compression and off-axis voice-coil pushing.

Its design incorporates a T-shaped and vented pole piece, and a flux stabilization ring. It also takes into consideration demagnetization at cold temperatures.

INTERCOOLER SYSTEM (patented). Entirely integrated into the loudspeaker itself, the INTERCOOLER SYSTEM extracts the heat produced by Joule effect in the voice-coil by the means of an air flow directed through the heatsink rims of the basket by the motion of the dust-cap and the spider.

The gain brought about by this technology is over 20 % of extra power, so for example, a 3"coil according to this design has the same power handling capacity as a classical 4"one.

FEATURES

Power handling capacity	**250 W AES**
Reference efficiency (1W @ 1m)	**97 dB SPL**
SPL max (continuous)	**117 dB SPL**
Usable frequency range	**300-5000 Hz**
Environmental withstanding	**Outdoor+**

ARCHITECTURAL SPECIFICATIONS

NOMINAL DIAMETER : 166 mm.

FRAME : High tensile alloy pressure die-cast basket with patented INTERCOOLER SYSTEM.

MAGNET SYSTEM : 2"highly energized, heat extracting design with vented pole piece and flux stabilizing ring.

VOICE COIL : High-temperature stabilized, copper-clad aluminum ribbon wound on vented high-strength glass polyimide former.

CONE ASSEMBLY : High-strength cellulose fiber cone impregnated and coated on both sides with damped resins, fitted with central carbon-fiber dome, high-speed flat damped surround and acoustacally damped rear cavity.

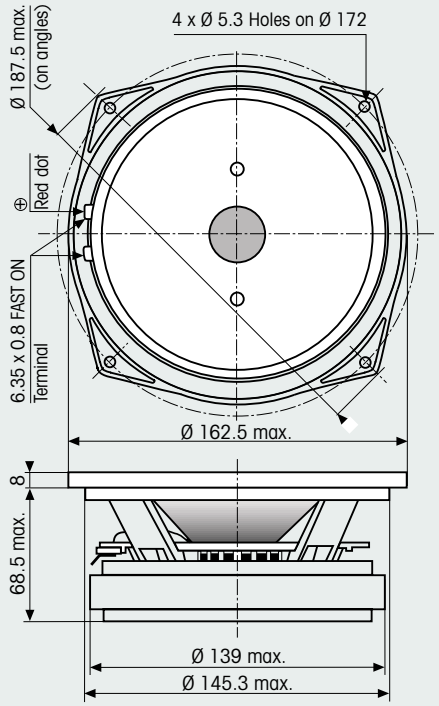
SPEAKER MASS : 2.15 Kg.

1660 ▪ 1670

6.5" Extended Range Drivers

		1660	1670	
TYPICAL CHARACTERISTICS				
Rated impedance	Z	8	16	Ω
Reference efficiency (1 W@1 m)	-	97	97	dB SPL
Usable frequency range [1]	-	300–5000	300–5000	Hz
Power handling capacity [2] (AES)	-	250	250	W
Max Sound Pressure Level [3]	SPL_{max}	117	117	dB SPL
Min. impedance modulus	Z_{min}	5.8 @ 650Hz	13.5 @ 600Hz	Ω
Voice-coil inductance [4] @ 1 kHz	L_{e1k}	0.55	1.51	mH
@ 10 kHz	L_{e10k}	0.26	0.72	mH
Bl product	Bl	9.8	16.1	N/A
Moving mass	M_{ms}	0.0110	0.0110	Kg
THIELE-SMALL PARAMETERS : TYPICAL (QC LIMITS)				
Resonance frequency [5]	F_s	125 (±25)	125 (±25)	Hz
DC resistance [6]	R_e	5.4 (±0.5)	11.6 (±1.1)	Ω
Mechanical quality factor	Q_{ms}	4.1	4.1	1
Electrical quality factor	Q_{es}	0.49	0.39	1
Total quality factor	Q_{ts}	0.43	0.35	1
Mechanical suspension compliance	C_{ms}	145	145	10^{-6} m/N
Effective piston area	S_d	0.0150	0.0150	m^2
Equivalent C_{as} air load	V_{as}	0.0045	0.0045	m^3
Max. linear excursion	X_{max}	±2.0	±2.0	mm
Linear displacement volume	V_d	0.030	0.030	10^{-3} m^3
Half-space efficiency		1.8	2.3	%
Unity load volume	V_{as} Q_{ts}^2	0.89	0.95	10^{-3} m^3
ABSOLUTE MAXIMUM RATINGS				
Short term max. input voltage [7]	V_{max}	90	130	V
Max. excursion before damage	X_{dam}	4.0	4.0	mm
Ambient operating temperature		–10 to +50		°C
Storage temperature [8]		–20 to +70		°C
Environmental conditions [9]		Outdoor✚		
APPLICATION INFORMATION				
Air volume occupied by the driver [10]		0.64	0.64	10^{-3} m^3
Speaker net mass		2.6	2.6	Kg
Recommended reflex box	V_b/F_b	3 / sealedL / Hz		
Electrical polarity		A positive voltage applied on the red terminal produces forward cone motion.		

PHYSICAL CHARACTERISTICS



SPECIFICATION NOTES

Note 1 : Allowing for energy response, excursion capability, Power spectrum, and -3dB low freq. roll-off for standard reflex tuning.

Note 2 : Established at 20°C ambient temp, according to AES2-1984 standard using IEC268-1 simulated programme signal and a 3 liter sealed test enclosure with a 2nd order high-pass filter @ 400Hz.

Note 3 : Established at 1m on axis of the loudspeaker mounted in test enclosure, when driven at full AES Power Handling Capacity, including 4dB of thermal compression loss.

Note 4 : Measured at 20 mA in free air.

Note 5 : Measured at 20 mA and 20°C ambient temp. in free air conditions, after full run and rest.

Note 6 : Measured at 20°C ambient temp. QC limits are ±10 %

Note 7 : Stated in RMS voltage according to IEC 268-5.

Note 8 : Includes shipping conditions. The lower limit prevents from demagnetization.

Note 9: Our products are classified in three categories : Indoor, Outdoor, and Outdoor✚ for permanent outdoor use or severe conditions.

Note 10 : Calculated for front mounting on to a 18 mm thick board.

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