

PHL
A U D I O

6030 8 Ω
6090 8 Ω

B38

PROFESSIONAL SERIES

15" Bass Drivers High Power - High Sounding Quality Very High Sound Pressure Level

APPLICATIONS

This high sounding quality Bass Driver is dedicated to transducing low frequencies at very high SPL in a very compact enclosure or to driving a folded horn.

Application fields are Sound Reinforcement main bass way as well as Studio Monitoring sub-bass cabinets.

The 4" magnet system is optimized in terms of BL product to Xmax ratio and takes full advantage of its INTERCOOLER SYSTEM to reach an AES Power Handling of 1kW.

Cone profile is deep and slightly curved to withstand full power mechanical stress. Recommended Reflex enclosure is 55L to 70L tuned at 44Hz. Highest recommended X-over frequency is 400Hz.

The SP6090 takes up the characteristics of the SP6030. Its cone is treated on both sides thanks to a coating process designed and developed in our R&D Department which enables it to withstand extremely severe outdoor conditions. Another advantage of such a treatment is the decreasing of distortion by almost 6 dB.

DESIGN CONCEPT

DEFLECTION CONTROLLED DIAPHRAGM optimized for dynamic damping. DEFLECTION CONTROLLED DIAPHRAGM technology consists in optimizing the shape and material of the diaphragm so that it works as a mechanical transmission line, to avoid breaking modes as well as mechanical threshold which destroy sound quality.

This leading edge technology offers substantial sonic advantages. Among them: sound coherency, fast transients, stable sound imaging, high sensitivity, wide frequency range and reduced 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 **1000 W AES**
Reference efficiency (1W @ 1m) **97 dB SPL**
SPL max (continuous) **123 dB SPL**
Usable frequency range **35-1000 Hz**
Environmental withstanding **6030 / Outdoor**
6090 / Outdoor+

ARCHITECTURAL SPECIFICATIONS

NOMINAL DIAMETER : 380 mm.

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

MAGNET SYSTEM : 4" highly energized, heat extracting design with vented pole piece and flux stabilizing ring.

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

CONE ASSEMBLY : High-strength cellulose fiber cone impregnated and front-coated with damped resins, fitted with central carbon-fiber dome and double-roll, treated and damped fabric surround.

SPEAKER MASS : 10.90 kg

6030 ■ 6090

15" Bass Drivers

6030 6090

TYPICAL CHARACTERISTICS

Rated impedance	Z	8	8	Ω
Reference efficiency (1 W@1 m)	-	97	97	dB SPL
Usable frequency range ¹	-	35-1000	35-1000	Hz
Power handling capacity ² (AES)	-	1000	1000	W
Max Sound Pressure Level ³	SPL _{max}	123	123	dB SPL
Min. impedance modulus	Z _{min}	6.8 @ 220Hz	6.8 @ 220Hz	Ω
Voice-coil inductance ⁴ @ 1 kHz	L _{e1k}	1.76	1.76	mH
	@ 10 kHz	L _{e10k}	0.87	0.87
Bl product	Bl	26.6	26.6	N/A
Moving mass	M _{ms}	0.150	0.158	Kg

THIELE-SMALL PARAMETERS : TYPICAL (QC LIMITS)

Resonance frequency ⁵	F _s	38 (±5)	35 (±5)	Hz
DC resistance ⁶	R _e	5.6 (±0.5)	5.6 (±0.5)	Ω
Mechanical quality factor	Q _{ms}	4.5	5.0	1
Electrical quality factor	Q _{es}	0.28	0.28	1
Total quality factor	Q _{ts}	0.27	0.27	1
Mechanical suspension compliance	C _{ms}	116	130	10 ⁻⁴ m/N
Effective piston area	S _d	0.0892	0.0892	m ²
Equivalent C _{as} air load	V _{as}	0.130	0.145	m ³
Max. linear excursion	X _{max}	8.0	8.0	mm
Linear displacement volume	V _d	0.714	0.714	10 ⁻³ m ³
Half-space efficiency		2.4	2.2	%
Unity load volume	V _{as} Q _{ts} ²	9.3	9.9	10 ⁻³ m ³

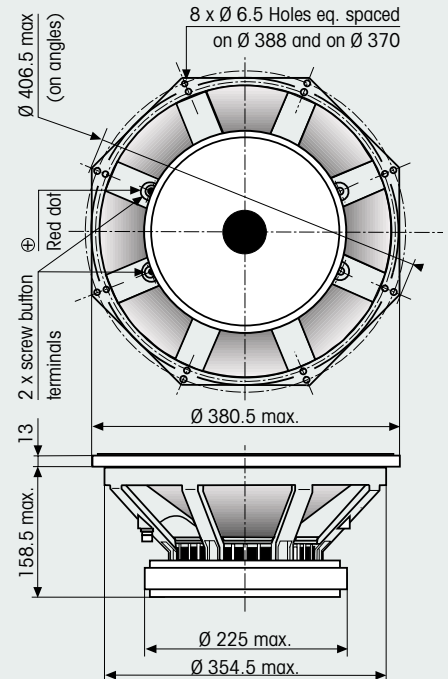
ABSOLUTE MAXIMUM RATINGS

Short term max. input voltage ⁷	V _{max}	180	180	V
Max. excursion before damage	X _{dam}	14	14	mm
Ambient operating temperature		-10 to +50 °C		
Storage temperature ⁸		-20 to +70 °C		
Environmental conditions ⁹		Outdoor	Outdoor+	

APPLICATION INFORMATION

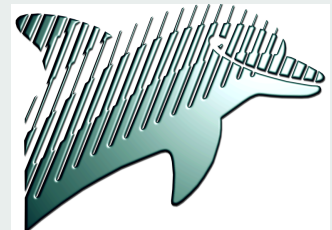
Air volume occupied by the driver ¹⁰		4.9	4.9	10 ⁻³ m ³
Speaker net mass		10.9	10.9	Kg
Recommended reflex box	V _b /F _b	65 / 44		L / Hz
Electrical polarity		A positive voltage applied on the red terminal produces forward cone motion.		

PHYSICAL CHARACTERISTICS



SPECIFICATION NOTES

- Note 1 : With consideration of 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 75 liter Bass-Reflex test enclosure tuned at 45Hz.
- 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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