

- BETTER SPEECH INTELLIGIBILITY •
- PA SYSTEMS CAN OPERATE AT HIGHER GAIN •
- GREATER SPEAKING DISTANCE FROM MICROPHONE POSSIBLE •
- BETTER HIGH/LOW FREQUENCY BALANCE •
- BETTER LOCALIZATION OF SOUND SOURCE •
- GREATER FREEDOM IN MICROPHONE SITING •

The Philips range of cardioid loudspeaker enclosures provides a comprehensive selection of uni-directional enclosures for indoor sound reinforcement systems. They are ideal for use in areas with difficult acoustic properties which present problems when conventional loudspeakers are used.

The cardioid range has been developed as a result of Philips' wide ranging experience in all aspects of sound reinforcement, from design and manufacture of individual products such as microphones, audio amplifiers and loudspeakers, right up to the design and installation of complete public address systems.

Cardioid enclosures

When compared with conventional loudspeaker enclosures, cardioid enclosures provide improved sound reproduction and greater speech intelligibility due to their well-defined sound pressure beam at both high and low frequencies. Better beam definition results from inclusion of acoustic filters in the form of slits in the outer part of the enclosure.

Enclosures that employ the cardioid technique have a front to random index that is approximately 4.5 dB better than a conventional sound column of the same type in the range below 1000 Hz. Therefore, for the same level of directional sound, there is 4.5 dB less diffused reverberant sound resulting in high speech intelligibility. And, since the maximum level of reinforcement is determined mainly by the level of low frequency acoustic feedback, the use of cardioid enclosures allows approximately 4.5 dB more gain, which translates into a 65% greater speaking distance from the microphone. Since sound beam directivity is maintained for both high and low frequencies, balance between treble and bass remains constant up to an opening angle of approximately 180°.

Far greater freedom of microphone siting and much better sound localization are possible because the critical distance for direct coupling between microphone and loudspeaker is greatly reduced, which allows far greater flexibility in enclosure citing. And since range is greatly increased, fewer cardioid enclosures are needed to do the same job as equivalent conventional sound columns.



LBC 3002/04

SOUND PROJECTOR

The cardioid range includes a 6 W sound projector and 12 W, 24 W and 50 W columns that can be used for both speech and music. They are uniformly styled and finished in light beige and dark beige Styrosun. Each enclosure includes a matching transformer.

6 W sound projector

The 6 W cardioid sound projector LBC 3002/04 has been developed for speech reproduction in applications where the use of sound columns would be inappropriate.

SPECIFICATIONS

LBC 3002/04

SOUND PROJECTOR

Mounting

It is a lightweight type that is easily mounted using only two fixing screws. A universal mounting bracket allows the projector to be easily directed and provides a wide degree of movement so that it may be adjusted to face any direction. Alternatively, the sound projector may be suspended from its own cable.

Power tapping

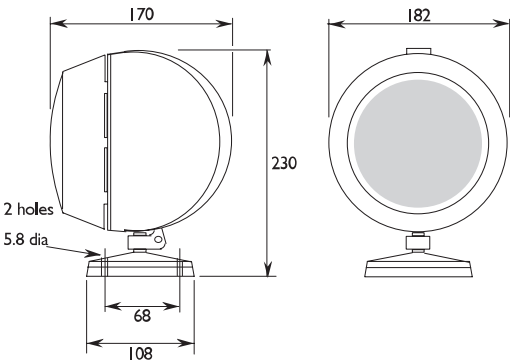
The LBC 3002/04 utilizes a single 5-inch loudspeaker and includes a matching transformer. Taps on the primary winding of the matching transformer are provided to allow operation at 6 W, 3 W and 1.5 W as required.

Safety aspects

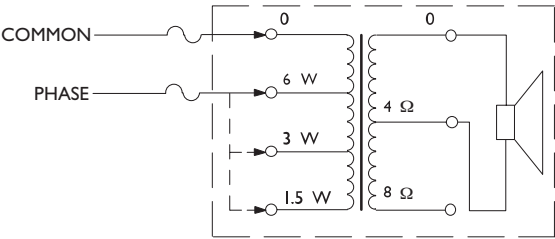
In common with all Philips products, care is taken to meet high safety standards. The 6 W sound projector complies with the relevant safety regulations of EN 60065.

TECHNICAL PERFORMANCE DATA ACC. TO IEC 268-5

	LBC 3002/04
Max. power	9 W
Rated power (PHC)	6 W (6 - 3 - 1.5 W)
Sound pressure level at 6 W/1 W (at 1 kHz, 1 m)	97 dB/89 dB (SPL)
Effective frequency range (-10 dB)	200 Hz to 16 kHz
Opening angle (at 1 kHz, -6 dB)	180°
Rated voltage	100 V
Rated impedance	1667 Ω
Ambient temperature range	-25 to +50 °C
Safety	acc. to EN 60065
Connection	
cable	2-wire
length	1.25 m
Dimensions (H x W x D)	230 x 182 x 170 mm
Colour	dark beige (40429)/light beige (40317)
Weight	1.2 kg



Dimensions (in mm)



Circuit diagram

SPECIFICATIONS

LBC 3002/04

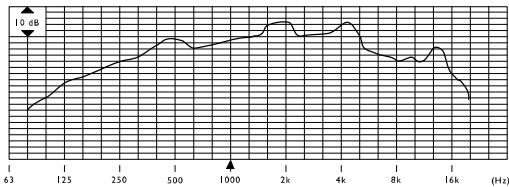
SOUND PROJECTOR



Mounting bracket adjustment

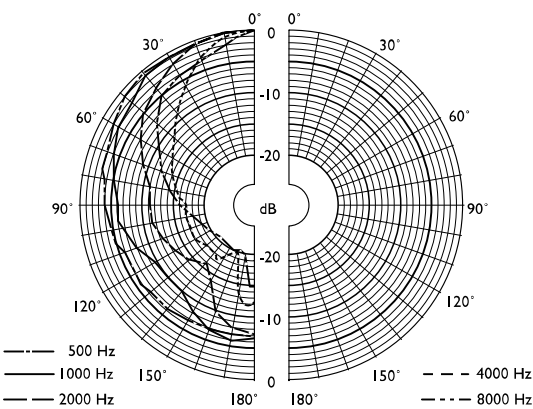


Enclosure may be suspended from its cable



Frequency response

Octave band (Hz)	125	250	500	1 k	2 k	4 k	8 k
SPL I.1	75	82	86	89	92	90	82
SPL max.	83	90	94	97	100	98	90
Q-factor	2.7	2.6	2.4	3.1	5.4	13.5	10.5
Efficiency	0.01	0.08	0.21	0.32	0.37	0.09	0.02
Hor. angle	200	210	220	180	115	60	85
Vert. angle	200	210	220	180	115	60	85



Polar diagram horizontal and vertical (measured with pink noise)

Architect's and Consultant's Specifications

The loudspeaker enclosure shall have an overall height of 230 mm and an overall depth of 170 mm. The enclosure shall be of an ABS plastic and finished in an attractive two-tone colour. The loudspeaker will be of a cardioid type and have a front-to-rear index that is approximately 4.5 dB better in the range below 1000 Hz, than that for a conventional type. The loudspeaker enclosure shall include one loudspeaker and a 100 V transformer with a nominal impedance of 1667 Ω. The frequency

response of the loudspeaker enclosure, on axis and supplied with a constant voltage signal, shall be from 200 Hz to 16 kHz. The loudspeaker enclosure shall produce a sound pressure level of 89 dB at a frequency of 1000 Hz with respect to 2×10^{-5} Pa at a distance of 1 m with an input power of 1 W. The loudspeaker enclosure shall operate within an ambient temperature range of -25 to +55 °C. The sound projector shall be the Philips 6 W sound projector type LBC 3002/04.

SPECIFICATIONS

L B C 3 0 0 2 / 0 4

SOUND PROJECTOR



PHILIPS

Let's make things better.