

- 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 •
- APPLICABLE FOR ALL INDOOR PURPOSES •
- 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 siting. And since range is greatly

increased, fewer cardioid enclosures are needed to do the same job as equivalent conventional column loudspeakers.

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

24 W Column loudspeaker

The Philips 24 W cardioid column loudspeaker has been developed for speech reproduction in sound reinforcement systems, particularly in areas with poor acoustic properties.



LBC 3051/03

CARDIOD COLUMN LOUDSPEAKER

SPECIFICATIONS

LBC 3051/03

CARDIOD COLUMN LOUDSPEAKER

Mounting

This column loudspeaker is a lightweight type that can be easily mounted using only two fixing screws and a universal mounting bracket. The bracket is fully adjustable in two perpendicular planes for accurate positioning. A 5 mm hexagonal allen key is all that is required to adjust the mounting arm. For temporary installations, the columns may be mounted on a floorstand (LBC 1250/00) in combination with floorstand adaptor (LBC 1251/00). These accessories are available separately.

Power tapping

The LBC 3051/03 uses eight 3-inch by 5-inch loudspeakers connected in series/parallel and a matching transformer. Electrical connections are made

using a 4-pole connector (supplied) with provision for power tapping inserted into a socket in the rear plate of the column. This connector has one fixed position for the 0 V line and three others for selecting either nominal full-power, half-power or quarter-power radiation (i.e. in 3 dB steps).

Safety aspects

In common with all Philips products, care is taken to meet high safety standards. The 24 W column loudspeaker complies with the relevant safety regulations of EN 60065.

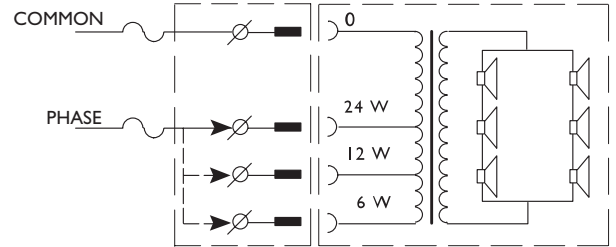
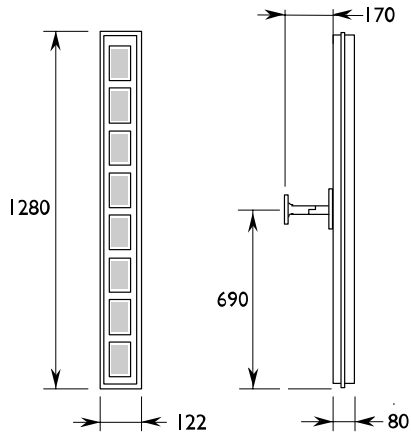
TECHNICAL DATA

LBC 3051/03	
Max. power	36 W
Rated power (PHC)	24 W (24 - 12 - 6 W)
Sound pressure level at 24 W/1 W (at 1 kHz, 1 m)	114 dB/100 dB (SPL)
Effective frequency range (-10 dB)	250 Hz to 12 kHz
Opening angle (hor./vert.) (at 1 kHz, -6 dB)	170°/20°
Rated voltage	100 V
Rated impedance	417 Ω
Ambient temperature range	-25 to +55 °C
Safety	acc. to EN 60065
Connection	100 V connector (incl. power tapping)
Dimensions (H x W x D)	1280 x 122 x 80 mm
Colour	
front	light beige (PH 40317)
rear	dark beige (PH 40429)
Weight	5 kg

SPECIFICATIONS

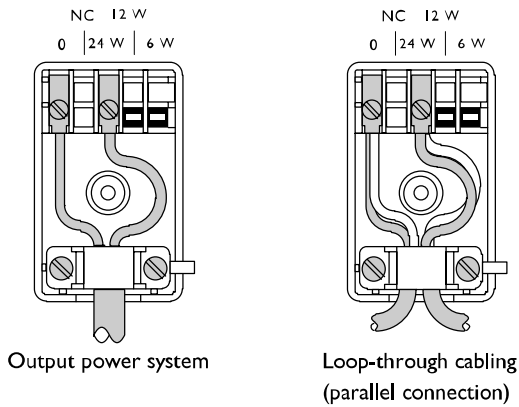
LBC 305 I / 03

CARDIOD COLUMN LOUDSPEAKER



Dimensions (in mm)

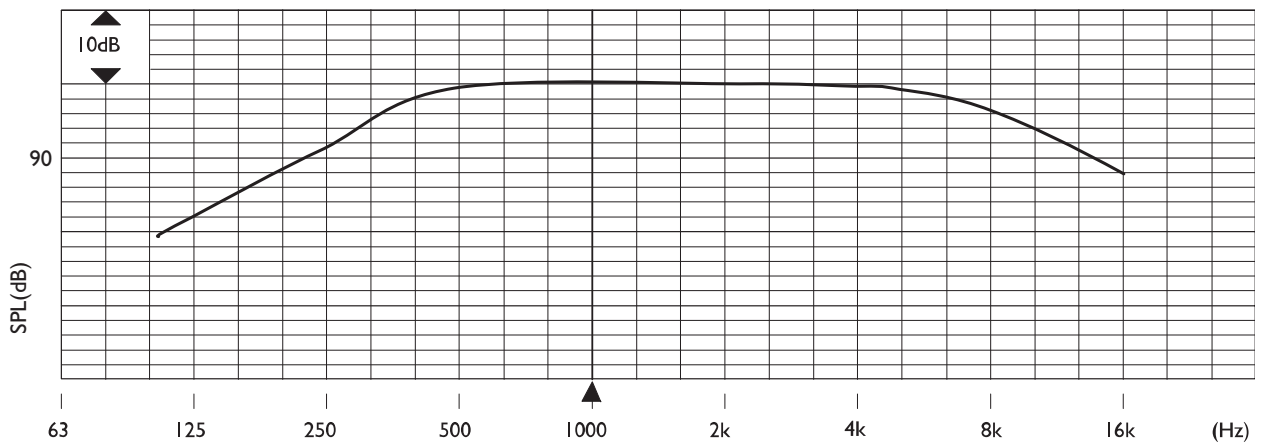
Circuit diagram



Connector wiring



Wall mounting bracket and connector

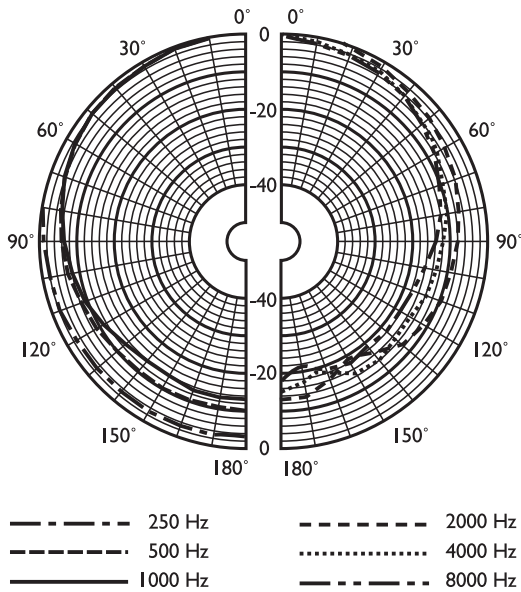


Frequency response

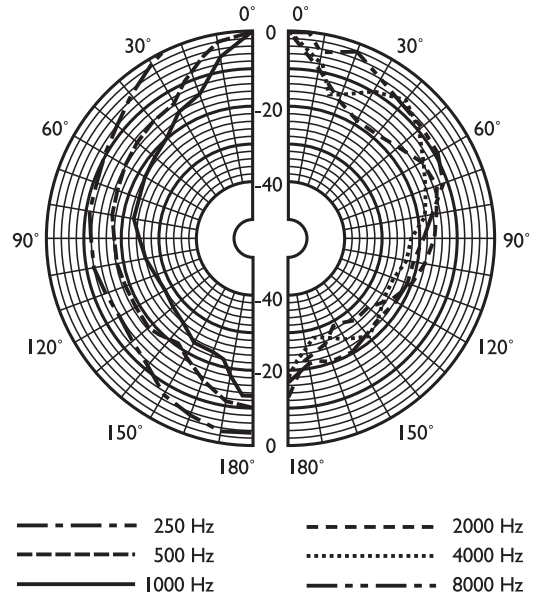
SPECIFICATIONS

LBC 3051/03

CARDIOD COLUMN LOUDSPEAKER



Polar diagram horizontal (measured with pink noise)



Polar diagram vertical (measured with pink noise)

Octave band (Hz)	125	250	500	1 k	2 k	4 k	8 k
SPL 1.1	80	92	100	100	98	98	95
SPL max.	94	106	114	114	112	111	109
Q-factor	4.3	5.5	9	16	27	40	56
Efficiency	0.03	0.36	1.4	0.79	0.29	0.2	0.07
Hor. angle	180	180	180	170	140	110	90
Vert. angle	120	70	40	20	12	10	8

Architect's and Engineer's Specifications

The loudspeaker enclosure shall have an overall height of 1280 mm, an overall width of 122 mm and an overall depth of 250 mm including the fixing arm. The column loudspeaker shall be provided with an adjustable diecast-aluminium fixing arm. The fixing arm shall allow the position of the column loudspeaker to be adjusted through 15° both up and down and through 90° both to the left and to the right. The mounting plate of the fixing arm shall be provided with two holes for fixing purposes and the maximum distance between supporting wall and rear of column loudspeaker shall be 170 mm. The weight of the column loudspeaker shall be 5 kg. The column loudspeaker shall include eight loudspeakers of 4 Ω nominal impedance which shall be symmetrically positioned within

the column loudspeaker. The nominal impedance of the column loudspeaker shall be 417 Ω. The frequency response of the column loudspeaker on axis and with the column loudspeaker supplied with a constant voltage signal and measured in accordance with IEC standards shall be from 250 Hz to 12 kHz. The column loudspeaker shall produce a sound pressure level of 100 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 column loudspeaker shall operate within an ambient temperature range of -25 to +55 °C. The column loudspeaker shall be the Philips 24 W column loudspeaker, type LBC 3051/03.



PHILIPS

Let's make things better.