Model No.

12Q250

12-inch 250W Coaxial Compression Driver

INCLUDES:

- 12-inch 250W coaxial compression driver

THE 12Q250 is a premium, high-fidelity performance driver with robust motor structure engineered for high ceiling, high energy applications like convention centers, ballrooms, athletic facilities, airport terminals, and entertainment venues.

FEATURES

DESCRIPTION: Large-format high frequency compression driver with 38.8 oz. magnet and 1.75-inch voice coil for an exceptional combination of power handling and efficiency. Low frequency driver with 77.6 oz. magnet and 3.0-inch aluminum voice coil. Built-in crossover network with fourth-order high-pass and third order low-pass filter for proper frequency division between the two drivers.

FRAME: Cast aluminum frame with black corrosion-resistant finish.

POWER RATING: 250W RMS

FREQUENCY RESPONSE: 60Hz–19.2kHz (±6dB); 45Hz-20kHz (±7.2dB)

DISPERSION ANGLE: 90 degrees conical @2kHz octave (-6dB).

SENSITIVITY: Average SPL = 100.3dB (@1W/1M); Maximum SPL = 124.3dB (calculated based on power rating and measured sensitivity).

MOUNTING DEPTH: 7.6 inches

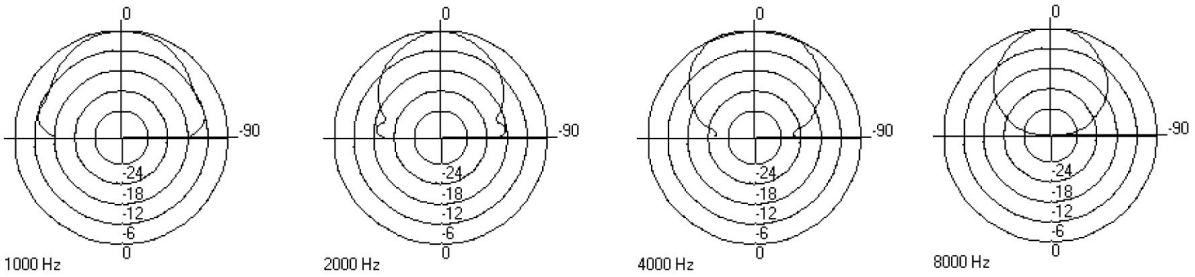
NET WEIGHT: 26.7 lbs.

COUNTRY OF ORIGIN: Spain

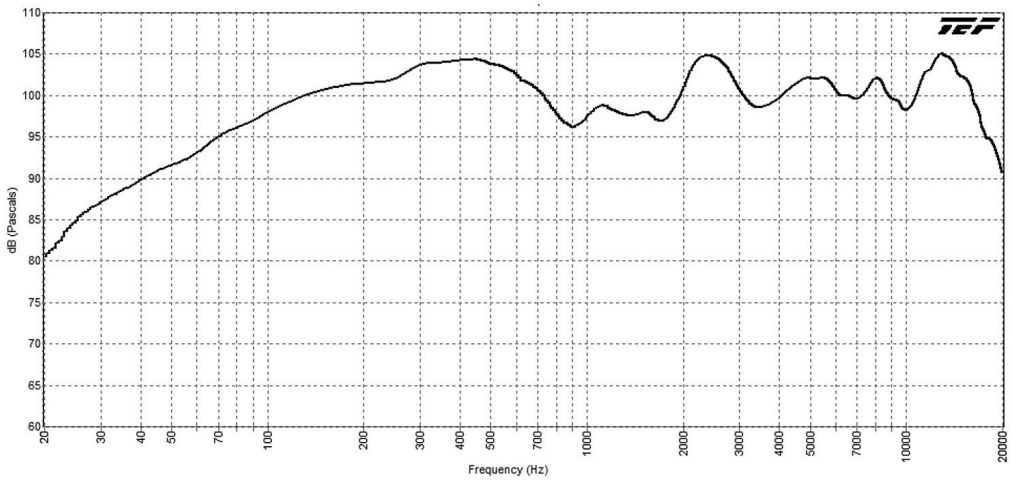
A&E SPECIFICATIONS:

The 12-inch driver shall be Lowell model 12Q250, which shall be of the coaxial compression type having electrically independent high and low frequency transducers. The low frequency section shall have a 12-inch diameter cone and the high frequency section shall have a 1.75-inch large format compression driver. A built-in electrical crossover network shall be employed to accomplish the proper frequency division between the two drivers. The crossover shall be at 2.2 kHz with fourth order high-pass filter and third order low-pass filter. The driver shall be capable of producing uniform audible frequency response over the range 60Hz–19.2kHz (±6dB), 45Hz–20kHz (±7.2dB) with dispersion angle of 90 degrees conical @2kHz octave. Average sensitivity shall measure 100.3dB (SPL at 1W/1M). Power rating shall be 250 watts RMS. The low frequency voice coil shall have a 3-inch diameter and shall operate in a magnetic field derived from a ferrite magnet with 77.6 oz. nominal weight. The high frequency voice coil shall have a 1.75-inch diameter and operate in a magnetic field derived from a ferrite magnet with 38.8 oz. nominal weight. Voice coil impedance shall be 8 ohms. The driver shall have a round, structurally reinforced cast aluminum frame with 12.3-inch overall diameter and eight holes equally spaced at 45 degrees on 11.6-inch diameter mounting bolt circle. Overall depth shall not exceed 7.6-inches. External metal woofer parts shall be painted or of materials that resist rust and corrosion.

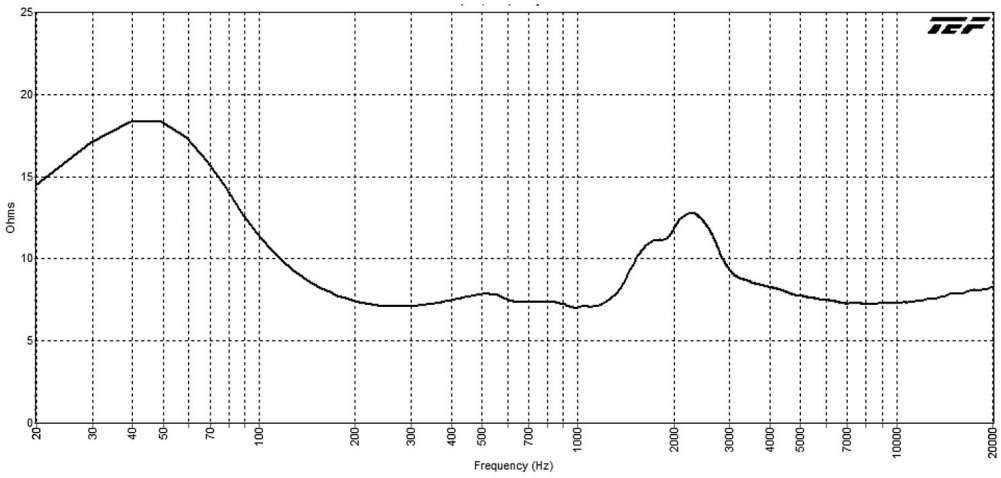
POLAR DATA (HALF SPACE)



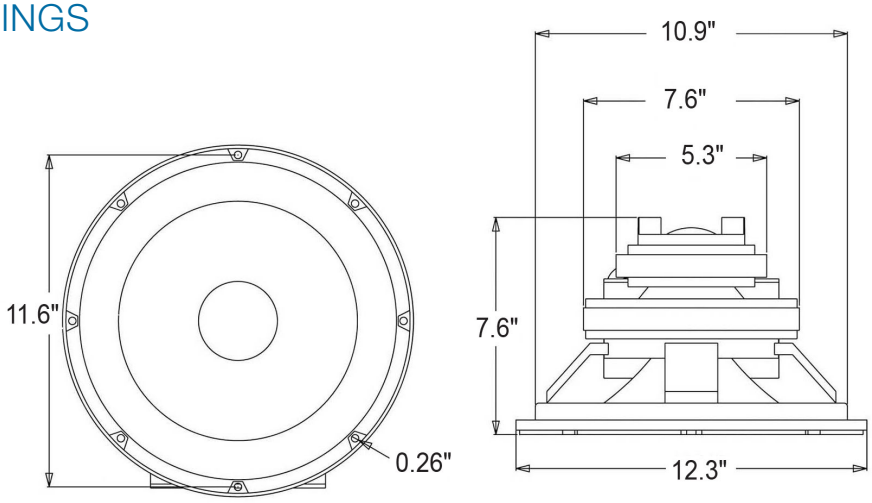
SPL VS. FREQUENCY (1W/1M, HALF SPACE, ON-AXIS)



IMPEDANCE



DRAWINGS



DRIVER SPECIFICATIONS

PERFORMANCE:

Power Rating	250 watts RMS measured per E.I.A. Standard RS-426B
Sensitivity	100.3dB Average SPL (measured 2.83V @1m) 124.3dB Maximum SPL (calculated based on power rating and measured sensitivity)
Impedance	Driver Nominal Impedance: 8 ohms Driver Minimum Impedance: 7.0 ohms @967Hz Driver Measured Impedance: 7.1 ohms @1kHz
Frequency Response	60Hz–19.2kHz (±6dB); 45Hz–20kHz (±7.2dB)
Crossover Frequency	2.2Hz, fourth order high-pass filter, third order low-pass filter
Dispersion Angle	90 degrees conical @2kHz octave (-6dB)

PHYSICAL – WOOFER:

Cone	Paper cone with plasticized cloth surround
Magnet	77.6 oz. (2.2kg), ferrite
Voice Coil	3 in. (76.20mm) diameter, aluminum wire
Terminals	Quick disconnect type, spade lugs
Top Plate	0.28 in. (7mm) thick
Outside Diameter	12.3 in. (312mm)

PHYSICAL – HIGH FREQUENCY DRIVER:

Type	Compression driver
Magnet	38.8 oz. (1.1kg), ferrite
Voice Coil	1.75 in. (44mm) dia. edgewound aluminum wire/1.75 in. polyester cone
Top Plate	0.34 in. (8.6mm) thick
Outside Diameter	5.3 in. (134mm)

MECHANICAL:

Basket	Cast aluminum
Outside Diameter	12.3 in. (312mm)
Mounting Bolt Circle	11.6 in. (295mm) with 8 holes equally spaced at 45 degrees (EIA RS-278-B)
Cutout Diameter	10.95 in. (278mm)
Mounting Depth	7.6 in. (193mm)
Net Weight	26.7 lbs. (12.1kg)

THIELE-SMALL PARAMETERS:

Pe 250W	Qts.....0.22	BL.....20.1 Tm	Sd .....85.3 in^2 ($550cm^{2)}$
Fs ..... 45 Hz	Qes.....0.22	Efficiency, h 4%	Mms.....0.051 kg
Xmax..... 0.20 in. (5.1mm)	Qms.....14.95	Vas.....101.21 liters, 6175.5 cu.in.	Cms .....0.237 uM/N
Re ..... 6.25 ohms			

SCOPE OF PERFORMANCE AND POWER TESTS: Lowell drivers and loudspeaker systems are tested to provide specifiers and contractors with data that reflects the performance of production products. Testing equipment includes the GoldLine TEF-20 analyzer (for performance measurements) and the LinearX LMS measurement system (for Thiele-Small Parameters).

Power Rating is tested based on EIA Standard RS-426B.

Frequency Response data is provided which is the measured frequency response range (defined by ±6dB) which is useful in predictive engineering calculations.

Sensitivity (SPL) data is presented in two ways:

1. Log Average SPL is a computer calculated log average of the SPL measured at 1 meter with 1 watt input over the stated frequency response range.
2. Maximum SPL is calculated based on the measured log average SPL and the 8ohm power rating of the speaker. Maximum SPL for speakers that do not include an 8ohm input, is calculated based on the measured log average SPL and the highest transformer power tap.

Dispersion Angle is defined as the angle of coverage that is no more than 6dB down from the on-axis value averaged over the 2000Hz octave band. Since speech intelligibility is very dependent upon the 2000Hz octave, this specification is quite useful in designing speech reinforcement systems that provide even coverage and speech intelligibility.

Thiele-Small Parameters for raw drivers are measured using the LinearX LMS measurement system. These parameters are useful in determining the optimum type and size of enclosure for a specific driver.

Polar Data is presented for the averaged one octave band surrounding the center frequencies of 1000Hz, 2000Hz, 4000Hz, and 8000Hz. Radial polar response curves show the relative change in sound pressure level as one moves from directly on-axis to an increasingly off-axis listening position. Since coaxial speaker drivers are symmetrical in the vertical and horizontal directions, only one set of polar plots will be presented for coaxial drivers and speaker systems incorporating coaxial drivers.

Impedance Data may be represented in four different ways depending on the particular model:

1. Nominal Impedance is the generally accepted impedance value for use in making comparisons with competitive products.
2. Impedance Curve is a graphical representation of the 8ohm driver impedance measured in the lab and gives the impedance of the device over the audio frequency range.
3. Minimum Impedance is the lowest impedance measurement of the 8ohm driver at a frequency within the specified frequency response range of the speaker.
4. Impedance Measured at 1kHz is the reading expected to be measured by a technician in the field using a typical industry 1kHz impedance meter.

12Q250 OVERVIEW

	Model No.	*Driver*	*Transformer*	*Transformer Primary Taps*	*Mounting Depth**	*Outside Diameter*	*Net Weight*	*Sensitivity***	*System Specs Frequency Response*	*Dispersion Angle****
THIS SPEC	12Q250	12" 250W coaxial	---	---	7.6"	12.3"	26.7 lbs.	100.3 dB	60Hz–19.2kHz (±6dB) 45Hz–20kHz (±7.2dB)	90°

** Mounting Depth: Minimum depth required for assembly to be rear-mounted to grille in an enclosure.*
*** Sensitivity: Average SPL (measured 2.83V @ 1M)*
**** Dispersion Angle: Conical @ 2kHz octave (–6dB)*

Note on Speaker Spacing: *Conical dispersion measurements are provided for comparison with other speakers. To determine correct speaker spacing, see the technical paper "Distributed System Speaker Spacing for the Integrator" (www.Lowellmfg.com) which explains the difference between conical and linear dispersion and the measurements to use for best results. For quick calculations, a calculator for speaker spacing is also available online under Resources – Interactive Tools.*