

## Model No.

# 12Q250: 12" 250W Coaxial Compression Driver

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

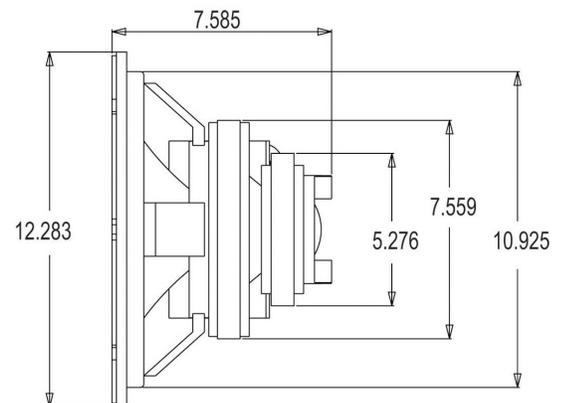
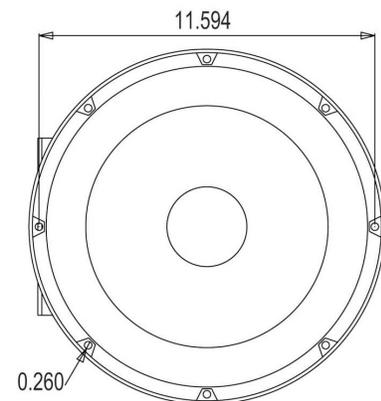
## FEATURES

- **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 in. 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 ( $\pm 6$ dB), 45Hz–20kHz ( $\pm 7.2$ dB)
- **Dispersion Angle:** 90 degrees conical @2kHz octave ( $-6$ dB).
- **Average Sensitivity:** 100.3dB (SPL@1W/1M)
- **Origin:** Made in Europe to Lowell's specifications to meet or exceed all applicable EIA standards.

## 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 in. diameter cone and the high frequency section shall have a 1.75 in. 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 ( $\pm 6$ dB), 45Hz–20kHz ( $\pm 7.2$ dB) 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 in. 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 in. diameter and operate in a magnetic field derived from a ferrite magnet with 38.8 oz. nominal weight. Voice coil impedance shall be 8ohms. The driver shall have a round, structurally reinforced cast aluminum frame with 12.3 in. 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 in. External metal woofer parts shall be painted or of materials that resist rust and corrosion.



## DRIVER SPECIFICATIONS

### PERFORMANCE:

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

### PHYSICAL – WOOFER:

<b>Cone</b> .....	Paper cone with plasticized cloth surround
<b>Magnet</b> .....	77.6 oz. (2.2 kg) ferrite
<b>Voice Coil</b> .....	3.0 in. (76.20mm) aluminum wire
<b>Top Plate</b> .....	0.28 in. (7mm) thick
<b>Terminals</b> .....	Quick disconnect type, spade lugs
<b>Outside Diameter</b> .....	12.3 in. (312mm)

### PHYSICAL – HIGH FREQUENCY DRIVER:

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

### MECHANICAL:

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

### THIELE-SMALL PARAMETERS:

Pe .....	250W	Qts .....	0.22	BL .....	20.1 Tm	Sd .....	85.3 in. <sup>2</sup> (550cm <sup>2</sup> )
Fs .....	45Hz	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:

- 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.
- 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.

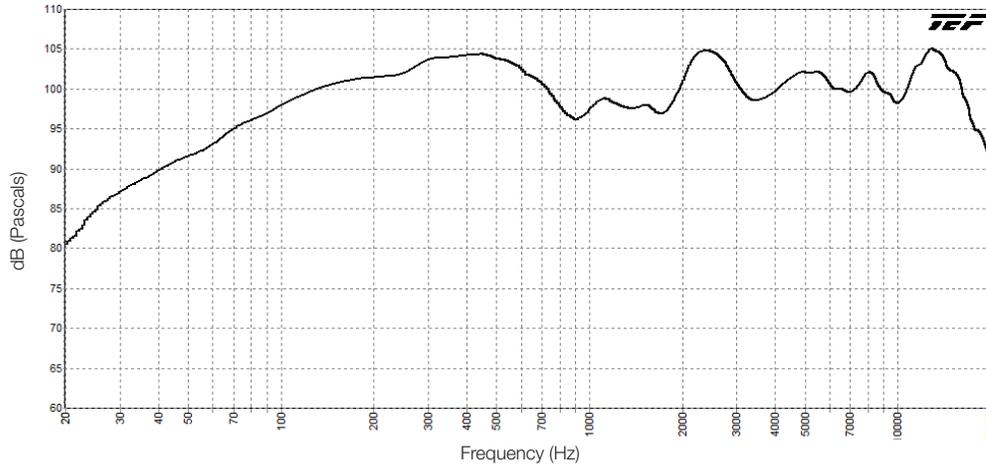
**Thiele-Small Parameters** for raw drivers are measured using the LinearX LMS measurement system. These parameters are useful in determining the optimum type and size of enclosure for a specific driver.

**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.

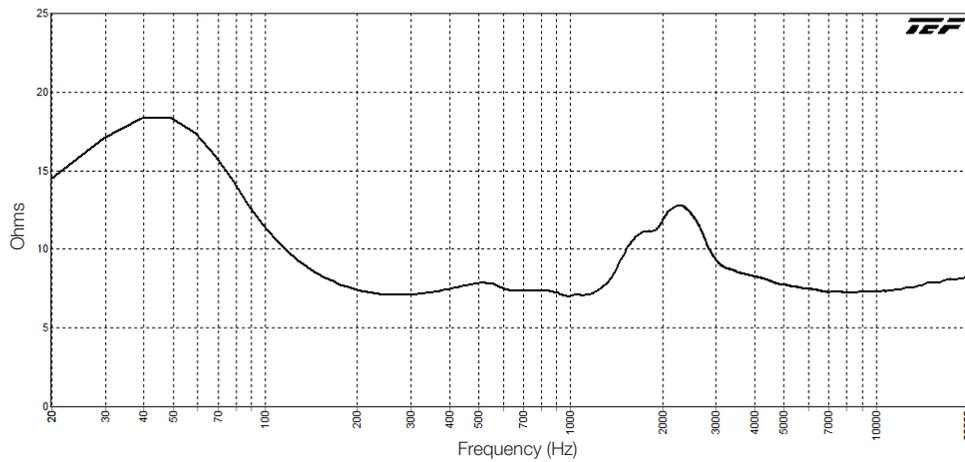
**Impedance Data** may be represented in four different ways depending on the particular model:

- Nominal Impedance** is the generally accepted impedance value for use in making comparisons with competitive products.
- 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.
- Minimum Impedance** is the lowest impedance measurement of the 8ohm driver at a frequency within the specified frequency response range of the speaker.
- Impedance Measured at 1kHz** is the reading expected to be measured by a technician in the field using a typical industry 1kHz impedance meter.

## SPL vs. FREQUENCY (1W/1M, full space, on-axis)



## IMPEDANCE



## POLAR DATA (full space)

