DX1226

Dual 12 inch Coaxial Loudspeaker



Overview

The DX1226 is a bi-amplified, 3-way coaxial loudspeaker that provides the output and pattern control of two 12 inch transducers in an enclosure size that would typically house a conventional 2-way system. Its coaxial transducer and 120° x 60° horn can be rotated in 45° increments, which allows its coverage to be tailored to an application's requirements. The enclosure's vertically trapezoidal shape allows it to be installed very close to ceilings or beneath large arrays with minimal effect on sight lines. Its unusually broad pattern is uniquely suited for use as the center channel in L-C-R systems, to solve difficult fill problems, and in many other applications.

Fulcrum Acoustic's **TQ**™ processing is an integral part of the DX1226 design. Sound, innovative acoustical design combined with state of the art digital processing leads to exceptional clarity and precise transient response, even at very high sound pressure levels. The required digital signal processing can be provided by one of many supported platforms.

The DX1226 is particularly effective in systems where targeted pattern control is desirable, and is an excellent solution for high fidelity, foreground distributed systems. Its clean aesthetic and compact size complements many architectural styles, which facilitates acceptance by interior designers and architects. This makes it the perfect choice for houses of worship, theaters, night clubs, transportation facilities, theme parks, and more.

Performance Specifications[1]

Operating Mode
Bi-amplified w/ DSP

Operating Range [2]
50 Hz to 19 kHz

Nominal Beamwidth (rotatable)
120° x 60°

Transducers
LF: 12.0" ceramic magnet woofer, 3.0" voice coil
HF/LF: Coaxial 3.0" titanium diaphragm compression driver; 12.0" woofer, 3.0" voice coil; single neodymium magnet

Power Handling @ Nominal Impedance [3]
LF: 53 V / 350 W @ 8 Ω
HF/LF: 57 V / 400 W @ 8 Ω

Nominal Sensitivity @ Input Voltage [4] (whole space)
LF: 98 dB @ 2.83 V
HF/LF: 103 dB @ 2.83 V

Nominal Maximum SPL (peak / continuous)
LF: 129 dB / 123 dB
HF/LF: 135 dB / 129 dB

Equalized Sensitivity @ Input Voltage [5]
98 dB @ 2.83 V

Equalized Maximum SPL [6] (peak / continuous)
132 dB / 126 dB

Recommended Power Amplifiers
LF: 350 W to 700 W @ 8 Ω
HF/LF: 400 W to 800 W @ 8 Ω

Physical Specifications

Connections
(2) Neutrik NL4 Speakon
Pin 1+/-: LF
Pin 2+/-: HF/LF

Mounting / Suspension Points
(12) M10 x 1.5 eye bolt angle points, (2) M10 x 1.5 yoke points, (1) M10 x 1.5 pull back point

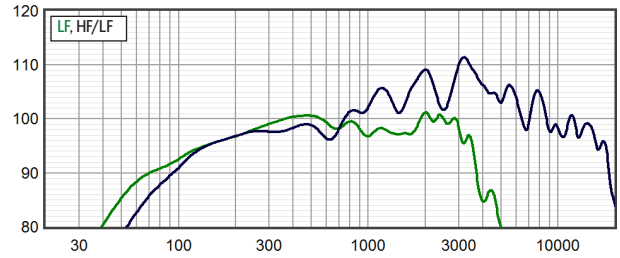
Dimensions / Weight
See pages 6 & 7

Finish
Black painted enclosure w/ matte black grille, or
White painted enclosure w/ matte white grille

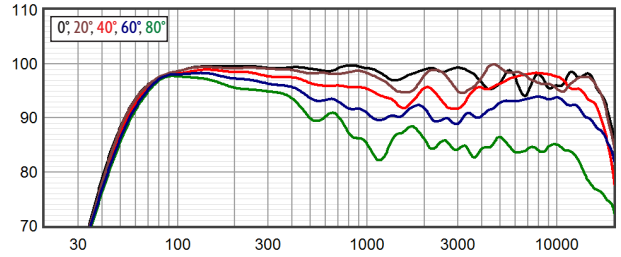
Options

YK-DX12 yoke bracket, Terminal strip input, Custom color finish, Weather-resistant (WR) enclosure & hardware

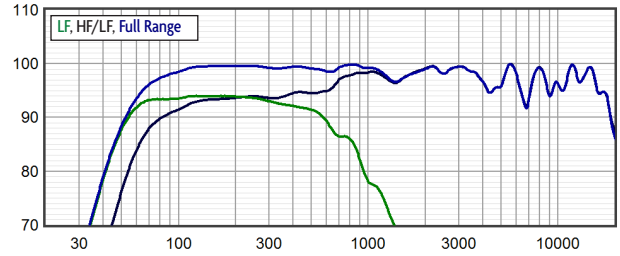
Axial Sensitivity (dB SPL, 2.83 V @ 1 m)[7, 8]



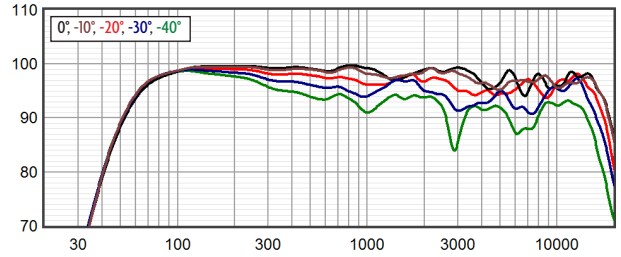
Horizontal Off Axis Response[7, 11]



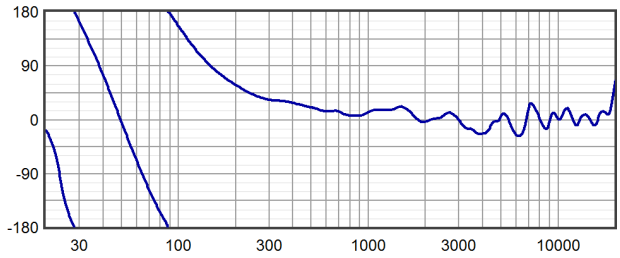
Axial Processed Response (dB)[7, 9]



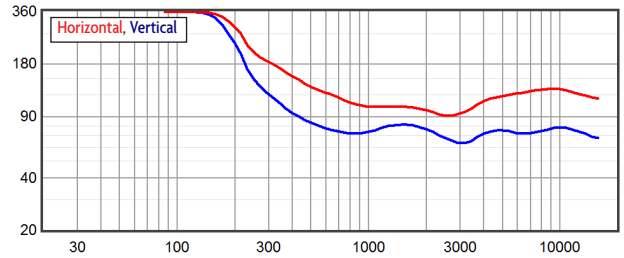
Vertical Off Axis Response[7, 11]



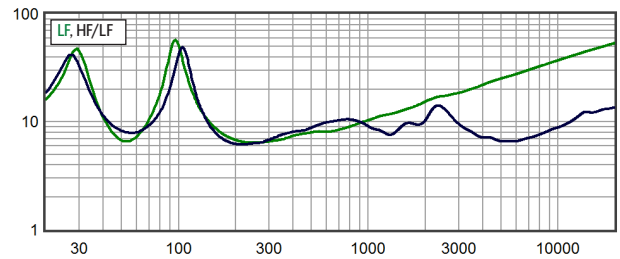
Axial Processed Phase Response (degrees)[7, 10]



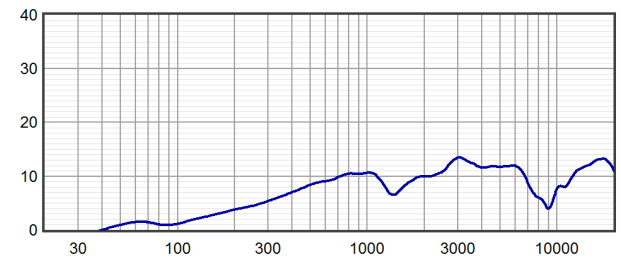
Beamwidth[7, 12]



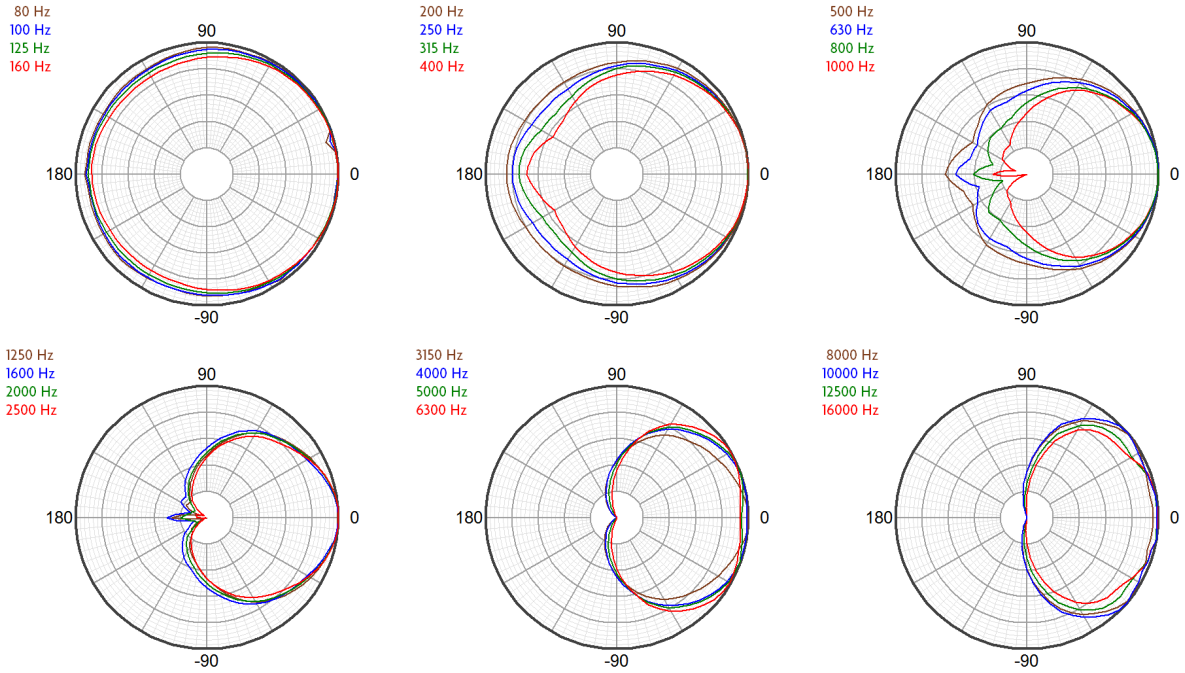
Impedance (ohms)



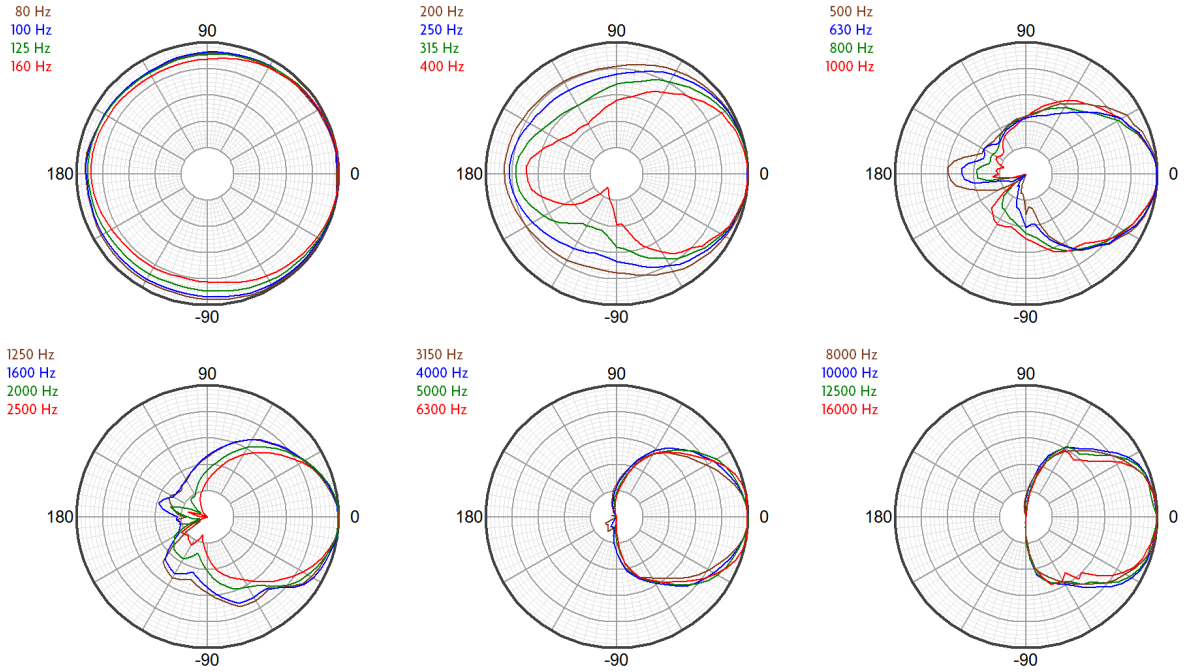
Directivity Index (dB)[13]



Horizontal Polar Response (30 dB Scale, 6 dB per Major Division)



Vertical Polar Response (30 dB Scale, 6 dB per Major Division)



Technologies

The proprietary horns employed in the DX series represent a modern digital-signal-processing-aware update to the traditional horn-loaded coaxial loudspeaker concept. The well-known benefits of the coaxial approach have been realized without the familiar shortcomings of historical designs. Fulcrum Acoustic's **Temporal Equalization™ (TQ™)** digital signal processing techniques eliminate midrange colorations and high frequency harshness while producing a smooth, seamless coverage pattern through the crossover range. In fact, the coaxial transducers were designed from the ground up to take advantage of the unique capabilities of **TQ™**.

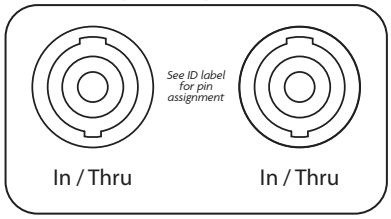
The coaxial transducer in the DX1226 includes a 3 inch diaphragm compression driver. The large diaphragm area permits the compression driver to operate at frequencies too low for smaller compression drivers to handle. This allows the high frequency horn to smooth the polar response of the low frequency section in the frequency range where the horn would otherwise cause shadowing. It also allows the compression driver to produce extreme sound pressure levels with an effortless sonic character.

The coaxial woofer's large radiating surface works in conjunction with the HF horn to improve directional control at the bottom of the horn's operating range, increasing directional control beyond what can be accomplished by the horn alone. The coaxial transducer's compact, neodymium magnet not only minimizes weight, but also allows very tight spacing between the compression driver and woofer voice coils. The delay between the driver outputs is thereby minimized, which allows the coaxial device to work well with a passive crossover.

Low frequency output and reliability are maximized with a uniquely effective alignment technique. A separate, dedicated LF transducer is used that has more excursion capability below 100 Hz than the LF transducer in the coaxial assembly. Its operating range overlaps that of the coaxial device up to approximately 300 Hz. Drive levels are tailored so that the summed response is "flat", yet the arrangement results in a 4 dB increase in overall low frequency output capability compared to a conventional 3-way system.

Connections

Neutrik NL4 Speakon Input



Mechanical Specification Drawings

2D and 3D DWG dimensional drawings are available for download at www.fulcrum-acoustic.com/resources

Notes

[1] **Performance Specifications** *All acoustic specifications rounded to nearest whole number. External DSP with Fulcrum Acoustic-provided settings is required to achieve the specified performance.*

[2] **Operating Range** *The frequency range within which the processed response is within 10 dB of the average.*

[3] **Power Handling** *Based on the AES power handling of the transducers.*

[4] **Nominal Sensitivity** *The 1-meter-referenced SPL produced by a 1 watt band limited pink noise signal, with no processing applied.*

[5] **Equalized Sensitivity** *The 1-meter-referenced SPL produced when an EIA-426-B signal is applied to an equalized loudspeaker system, at a level which produces a total power of 1 watt, in sum, to the loudspeaker subsections.*

[6] **Equalized Maximum SPL** *The 1-meter-referenced SPL produced when an EIA-426-B signal is applied to an equalized loudspeaker system, at a level which drives at least one subsection to its rated power.*

[7] **Resolution** *All response graphs are subjected to 1/6 octave cepstral smoothing with a gaussian weighting function.*

[8] **Axial Sensitivity** *The SPL plotted against frequency for a 1 watt swept sine wave, referenced to 1 m with no signal processing.*

[9] **Axial Processed Response** *The axial magnitude response with recommended signal processing applied.*

[10] **Axial Processed Phase Response** *The axial phase response with recommended signal processing applied, and latency removed.*

[11] **Horizontal / Vertical Off Axis Responses** *The magnitude response at various angles off axis, with recommended signal proceessing applied.*

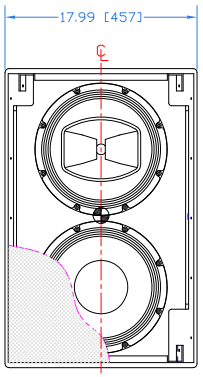
[12] **Beamwidth** *The angle between the -6 dB points in a loudspeaker's polar response.*

[13] **Directivity Index (D_i)** *The ratio of the on-axis sound pressure squared to the spherical average of the sound pressure squared at a particular frequency expressed in dB. To convert the directivity index to directivity factor (Q) use the formula* $10^{Di/10}$.

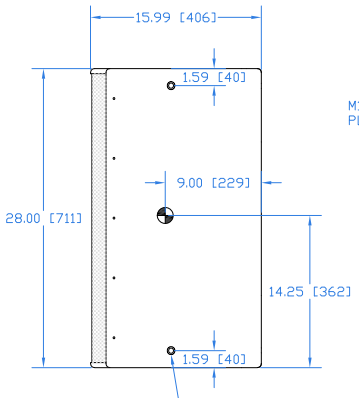
Notes:
1. Net Weight = Approx. 63.0 lb / 28.6 kg
2. Symbol ⊙ = M10 x 1.5 eye bolt angle point
3. Symbol ⊙ = M10 x 1.5 nut plate
4. Symbol ⊕ = CoG
5. Drawing representative of:
   DX1226, DX1265, DX1277, DX1295

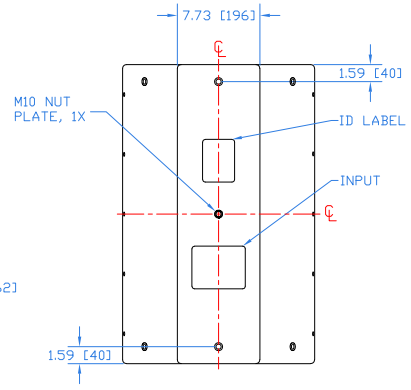
REVISIONS

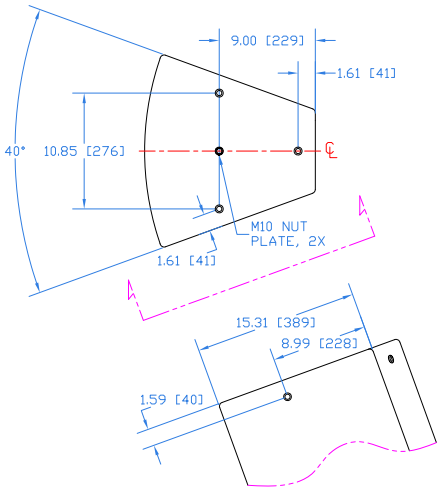
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2	ADDED COG, UPDATED WEIGHT, CORRECTED REAR VIEW	RAF 6/11/09
3	CHANGED M6 POINTS TO M10, ADDED M10 NUT PLATES	RAF 8/4/09
4	ADD SHIPPING WEIGHT	RAF 12/7/11
5	CHANGE DRAWING NAME TO "DX12 SERIES"	RAF 5/9/12
6	ADD "DX1226" TO NOTE 6	RAF 6/6/13
7	RE-LOCATE CoG SYMBOL FOR CLARITY	RAF 7/18/18
8	UPDATE NOTES, ADJUST SIDE POINTS	RAF 8/15/25



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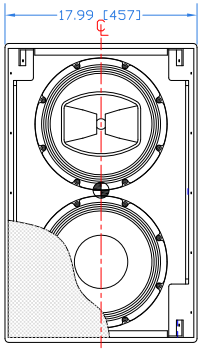
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		CHECKED: RAF 6/12/09	
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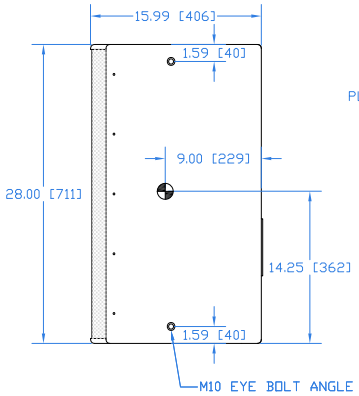
Notes:
1. Net Weight <= Approx. 63.0 lb / 28.6 kg
2. Symbol ⊙ = M10 x 1.5 eye bolt angle point
3. Symbol ⊙ = M10 x 1.5 nut plate
4. Symbol ⊕ = CoG
5. Enclosure construction:
   Fiberglass Reinforced Polyurethane
6. Drawing representative of:
   DX1226-WR, DX1265-WR, DX1277-WR, DX1295-WR

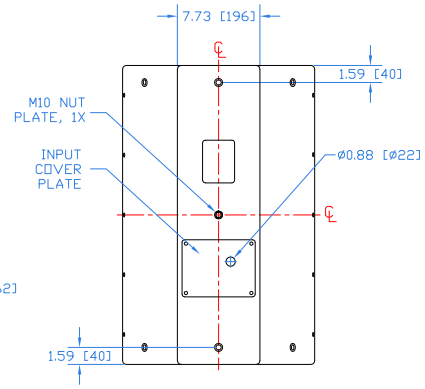
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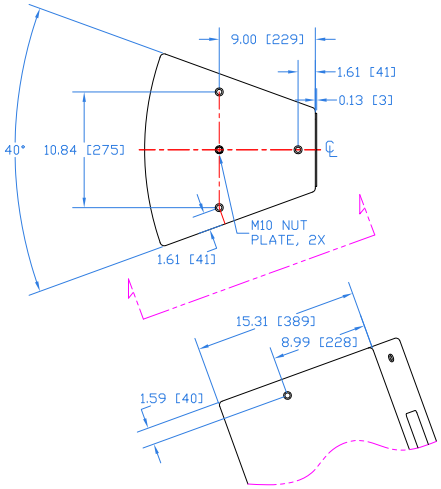
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2	GENERAL DRAWING UPDATES	RAF 1/5/16
3	DRAWING UPDATES - FRP	DEW 4/3/18
4	CHANGE COVER PLATE, UPDATE DIMS	RAF 1/19/21
5	CHANGE COVER PLATE, UPDATE NOTES	RAF 8/15/25



GRILLE PARTIALLY SHOWN





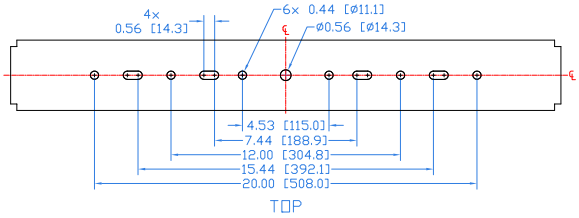


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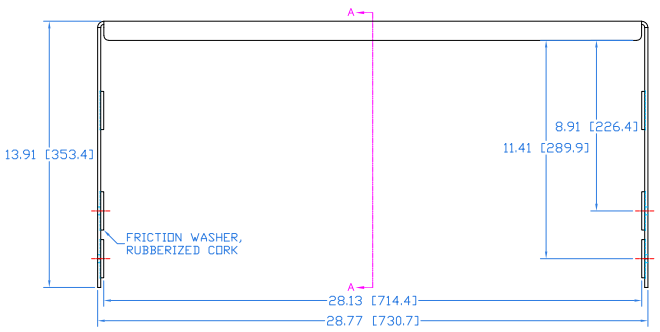
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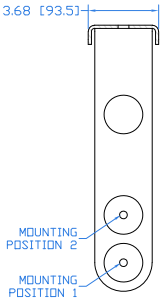
Notes:
1. Fits: DX12 Series
2. Net Weight: Approx. 10.3 lb / 4.7 kg
3. Material: 8 GA ASTM A36 steel
4. Includes 2x each M10 socket head cap screws, split washers, and flat washers
5. USE FOR OVERHEAD CEILING MOUNT ONLY

REVISIONS		
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1	NEW ISSUE	RAF 1/12/21
2	CHANGE DRAWING ORIENTATION	RAF 6/27/25

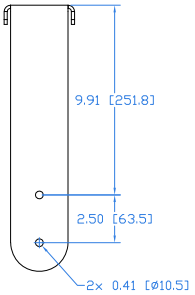


TOP





SECTION A-A



RIGHT SIDE

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		APPROVALS / DATE	
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		CHECKED:	
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		MFG ENG:	DWG. NO. 820-300-038 REV 2

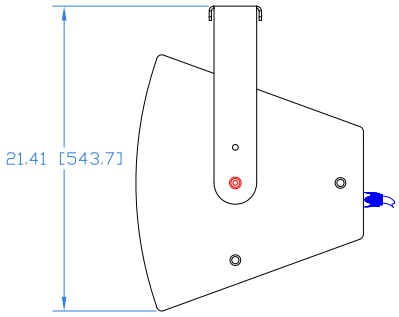
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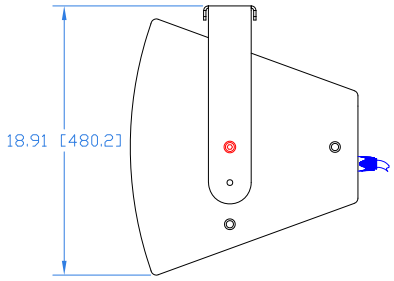
Notes:
The YK-DX12 yoke bracket is designed to mount DX12 Series loudspeakers in a horizontal orientation. It is fitted with two mounting holes which allow the installer to vary the distance between the loudspeaker enclosure and the mounting surface.

Note that the range of motion is restricted when the enclosure is mounted closer to the yoke. The maximum range of motion is achieved when the enclosure is mounted to the holes nearest the end of the bracket arms.

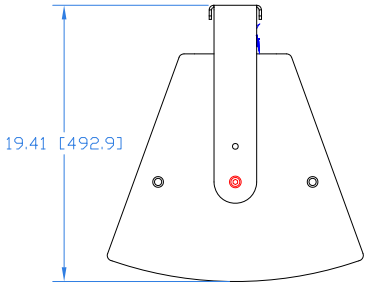
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2	CHANGE DRAWING ORIENTATION	RAF 6/27/25

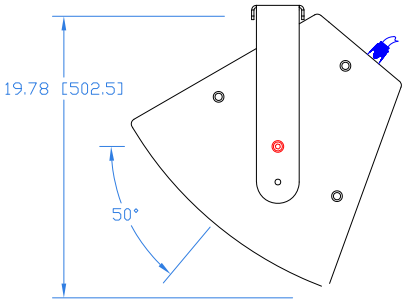


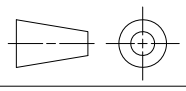
MOUNTING POSTION 1



MOUNTING POSTION 2





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		APPROVALS / DATE	
		DRAWN: RAF 1/19/21	TITLE: Mechanical Spec, YK-DX12 + DX12xx Assembly
		CHECKED:	
		DES ENG:	A SHEET 1 OF 1 SCALE: 1:12
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