

The Aspect® series is a range of high performance modular loudspeaker enclosures designed for use across a wide spectrum of sound reinforcement activities, easily scalable to specific acoustical and venue requirements ranging from large scale indoor or outdoor concerts to corporate events, theatre shows and nightclub applications.

The aim of any sound reinforcement system is to distribute sound evenly, with consistent frequency response and in a predictable way, across all seats of an auditorium or listening area. An optimum method of attaining this goal is through the correct application of point source arrays to create a segment of a spherical wavefront. Not only does this approach provide an exceptionally well defined and coherent acoustic source, but it also allows for considerable flexibility when assembling arrays in both horizontal and vertical dimensions.

In practice, the dispersion characteristics of a typical sound system are less than ideal because of the tendency for conventional high frequency exponential horns to 'beam' with increasing frequency. When arraying such horns, interference between adjacent sources is inevitable due to the variable curvature of the wavefront caused by the horn's geometry, and this results in undesirable comb filtering effects.

Turbosound engineers, through intensive research and the subsequent implementation of innovative and patented Polyhorn™ designs, have identified and overcome these deficiencies and implemented solutions in the Turbosound Aspect® series. Fundamental to the Polyhorn™ designs—and applied in both mid and high frequency bands—is the principle of dividing an exponential horn flare into a multiplicity of tapered waveguides. A further requirement is that all path lengths from the diaphragm surface to horn mouth are identical, and consequently guarantees uniformity of phase of the wavefront

at the horn mouth. The Polyhorn™ design effectively locates the acoustic centre well behind the motor system, forming a virtual point source whose radius coincides with the array curvature without requiring an excessively deep enclosure.

The TA-500t is a trapezoidal three-way enclosure with integral flyware designed for concert touring applications. It houses high frequency, mid frequency and low frequency elements arranged in a vertical orientation, covering the frequency range from 60Hz to 20kHz.

The top section of the enclosure is dedicated to handling the high frequency band above 5kHz, being reproduced by a custom designed HF driver loaded by a high frequency Polyhorn™ device. The HF driver combines highly innovative patented (and patent applied for) design features to ensure exceptional high frequency performance and long term reliability. High-mid frequencies from 250Hz to 5kHz are handled by a custom designed 10" drive unit on a further Polyhorn™ device optimised for mid frequencies. A single 15" low-mid frequency driver loaded with a TurboBass™ device covers the remaining frequency range below 250Hz.

The TA-500t includes a passive crossover network between the MF and HF drive units for bi-amped operation. It can be bypassed for full tri-amped operation by moving an internal jumper located inside the connector panel, the status of which is visible externally.

A key feature of the Polyhorn™ designs is the very sharp cut-off at the edges of the coverage pattern, which all but eliminates the comb filtering effects commonly experienced between adjacent sources when arraying conventional horn designs. This makes it possible to achieve seamless arrayability in a very intuitive and predictable fashion.



FEATURES

- Ultra low distortion
- Very high output
- Wide dispersion
- Trapezoidal enclosure
- Integrated flyware
- Seamless arrayability

APPLICATIONS

- Concert touring
- Live music venues
- House of Worship
- Dance clubs

All drive units employ high stability, neodymium magnet structures in order to provide very high motor strength—and hence fast transient response—as well as exceptional thermal performance. This also results in a useful reduction in weight which aids transportation and handling.

The TA-500t cabinet is constructed from 15mm (5/8") and 18mm (3/4") birch plywood, and is trapezoidally shaped with side angles optimised at 22.5° to ensure that adjacent boxes are correctly positioned relative to each other with the optimum horizontal array angle.

A fully integrated rigging system is built into the enclosure and consists of steel strips rebated into the cabinet sides. The system allows loudspeaker clusters up to three cabinets wide by three deep to be flown. Inter-cabinet links connect additional rows of cabinets, allowing a range of vertical coverage angles. Cabinets are held in vertical alignment by means of the captive biscuits built into each cabinet.

The cabinet is equipped with a recessed handle on the bottom of the cabinet, with an additional grab position at the top. A removable, stackable wheelboard clips on to the front of the cabinet for transportation.

A recessed panel at the rear of the cabinet carries two parallel-linked Speakon NL8MP's for input and loop-through connections, with a further Speakon NL4MP which is used for the sub link out connection.

The TA-500t is recommended for flown and ground stacked regional touring applications as well as for installing in theatres, concert halls and entertainment venues.

KEY FEATURES

- Controlled dispersion pattern of 50° x 25° generates highly focused coverage pattern in both horizontal and vertical planes with exceptional projection capabilities
- HF transducer employs a high stability, high temperature neodymium magnet structure which offers higher efficiency, as well as reduced weight
- Patented HF Polyhorn™ designs generate equal level across a uniformly curved wavefront whose radius is identical to the array profile
- Directivity over 1kHz exhibits very sharp cut-off at the edges of the pattern, dramatically reducing out-of-band signal
- Unique 10" high-mid frequency driver is fabricated from a single-piece aluminium bowl, serving as a high strength frame, heatsink, rear compression chamber and high pass filter.

KEY SYSTEM BENEFITS

- Minimal destructive interference between adjacent enclosures, effectively giving seamless arrayability in both horizontal and vertical planes. All audience seats get essentially the same frequency response
- Wide horizontal dispersion pattern suits many one-box-a-side touring applications
- Intuitive 'point and shoot' characteristics make it very easy to adapt flown or ground stacked clusters to widely variable venue and audience requirements
- Very high power capability combined with high efficiency means that peak sound pressure levels of up to 141dB are easily achievable from one cabinet
- Greatly improved thermal performance from neodymium magnet structures reduces power compression to negligible levels and delivers more amplifier power into acoustic watts
- Ability to tailor the PA coverage according to extremely varied venue requirements; can achieve optimum coverage even in irregularly shaped rooms



DIMENSIONS (HxWxD)	977mm x 574mm x 498mm (38.5" x 22.6" x 19.6")														
NET WEIGHT	57kg (125.4 lbs)														
COMPONENTS	1 x custom 15" (381mm) LF driver, 1 x custom 10" (254mm) MF driver on a midrange Polyhorn™, 1 x custom HF driver on a high frequency Polyhorn™														
FREQUENCY RESPONSE¹	60Hz - 20kHz ±4dB (with DSP)														
DISPERSION²	50°H x 25°V; horizontal array angle: 45°														
POWER HANDLING	LF: 400 watts r.m.s., 800 watts program MF: 200 watts r.m.s., 400 watts program HF: 50 watts r.m.s., 100 watts program														
SENSITIVITY³(1W@1M)	LF: 106dB; MF: 105dB; HF: 112dB														
MAXIMUM SPL	135dB continuous ⁴ , 141dB peak ⁵														
CROSSOVER POINTS	Passive: 250Hz, Active: 250Hz, 4k/5k99Hz														
NOMINAL IMPEDANCE	LF: 8 ohms; MF: 16 ohms; HF: 16 ohms														
CONSTRUCTION	15mm (5/8") and 18mm (3/4") birch plywood throughout; rebated, screwed and glued. Finished in black semi-matt textured paint (optional TurboBlue™). Two recessed grab handles. Integral flying hardware. Detachable wheelboard.														
GRILLE	Powder coated perforated steel with reticulated foam backing														
CONNECTORS	(2) Neutrik Speakon NL8 wired: pin1+ and 1- link to NL4; pin 2+: LF positive; pin2-: LF negative; pin 3+: MF positive, pin 3-: MF negative, pin 4+: HF positive, pin 4- HF negative (1) Neutrik Speakon NL4 wired: pin1+: sub positive, pin1-: sub negative														
SPARES AND ACCESSORIES	<table border="0"> <tr> <td>MG-500</td> <td>Replacement cloth/expanded metal grille</td> </tr> <tr> <td>LS-1527</td> <td>15" (381mm) LF loudspeaker</td> </tr> <tr> <td>RC-1527</td> <td>Recone kit</td> </tr> <tr> <td>LS-1021.2</td> <td>10" (254mm) HMF loudspeaker</td> </tr> <tr> <td>RC-1021.2</td> <td>Recone kit</td> </tr> <tr> <td>CD-113</td> <td>HF driver</td> </tr> <tr> <td>RD-113</td> <td>Replacement HF diaphragm</td> </tr> </table>	MG-500	Replacement cloth/expanded metal grille	LS-1527	15" (381mm) LF loudspeaker	RC-1527	Recone kit	LS-1021.2	10" (254mm) HMF loudspeaker	RC-1021.2	Recone kit	CD-113	HF driver	RD-113	Replacement HF diaphragm
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Notes

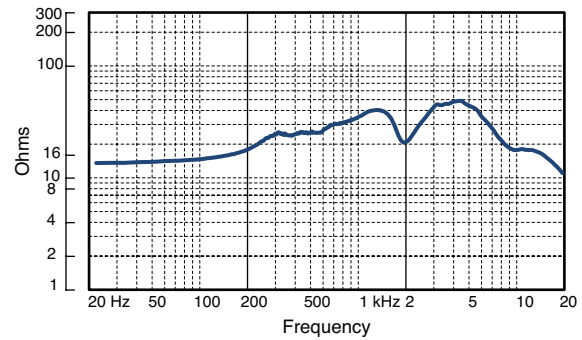
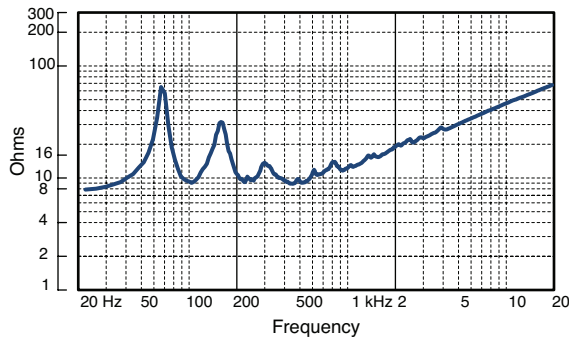
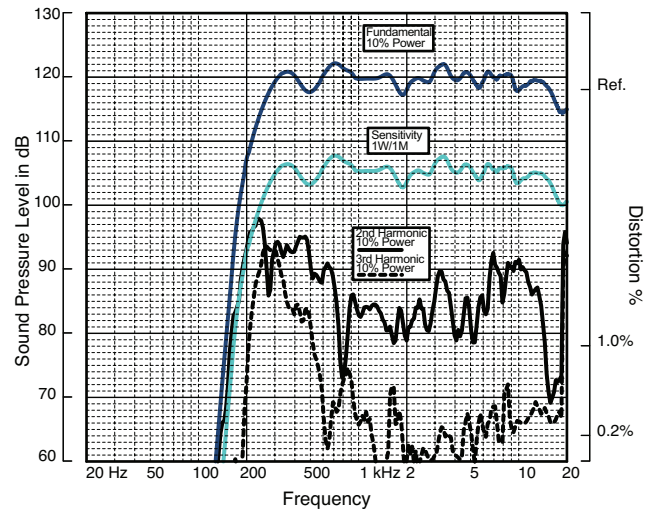
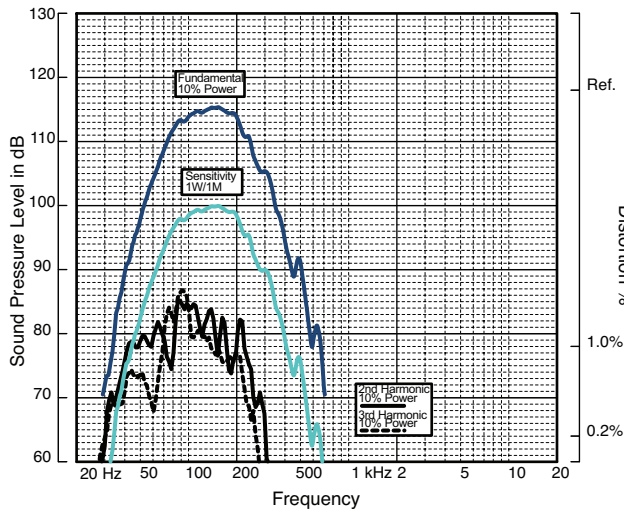
¹Measured on axis

²Average over stated bandwidth

³Average over stated bandwidth

⁴Unweighted diode-clipped pink noise. Measured in a half space environment.

⁵Verified by subjective listening tests of familiar program material, before the onset of perceived signal degradation.



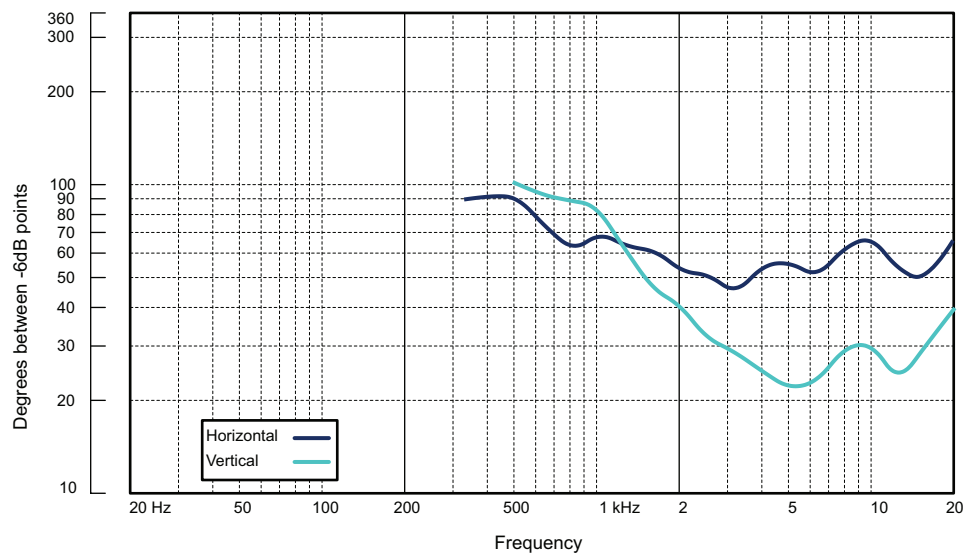
LOW FREQUENCY

HIGH/MID FREQUENCY

Impedance A constant current circuit was used to measure the impedance. **Frequency response** The frequency response shown was obtained by feeding a swept sine wave through the system in a half space environment. The position of the microphone was vertically on-axis at a distance of 2 metres, then scaled to represent 1 metre. **2nd & 3rd Harmonic Distortion** Distortion measurements were obtained using an Audio Precision harmonic distortion analysis system and comply with AES recommendations for enclosure measurement (AES paper ANSI S4-26-1984). **Data Conversion** All graphs were digitally generated using the APEX custom software system, designed to translate data derived from Audio Precision 'System One' test equipment into AutoCAD™. This program enables graphical information to be plotted to a high degree of accuracy.

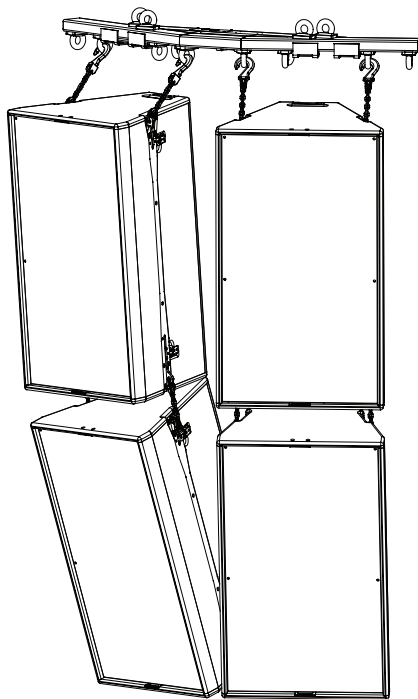
NOTES ON MEASUREMENT CONDITIONS

BEAMWIDTH

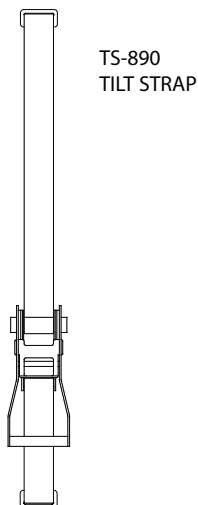


RIGGING HARDWARE

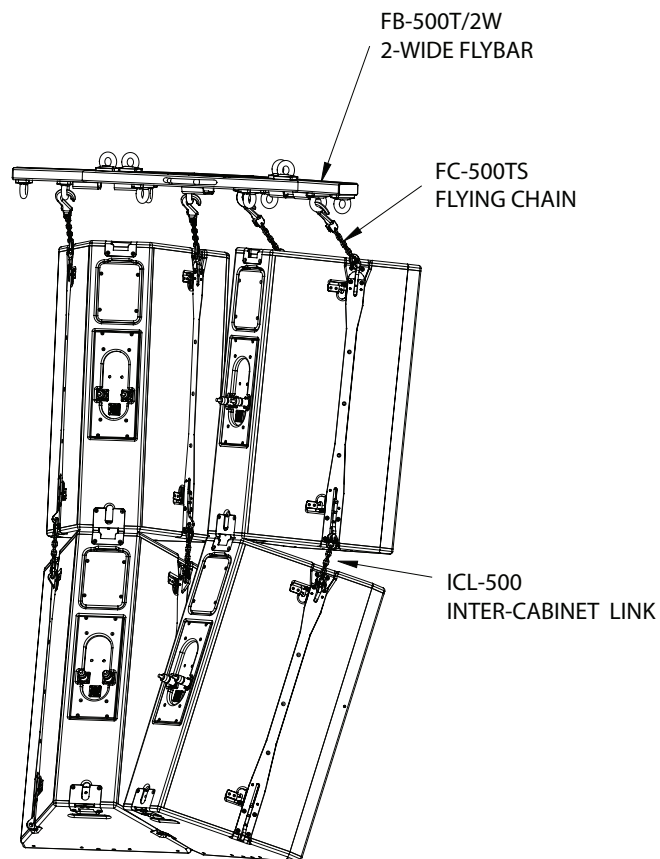
The rigging system is fully integrated into the cabinet in order to enable flown clusters to be assembled quickly and easily with the minimum of external parts. It consists of load-bearing steel strips rebated flush into the sides of the cabinet, and these are used in conjunction with fixed angle flybars designed to provide single column, two-wide and three-wide array configurations up to a maximum of nine cabinets. Additional cabinets are connected using inter-cabinet links, secured by retractable pins in the flygear, and these are designed to offer a range of vertical angles. A captive biscuit located at the rear of the cabinet provides the hinge mechanism necessary to tie the backs of the cabinets together.



The external hardware consists of two-wide and three-wide fixed angle flybars, standard length and long flying chain assemblies, inter-cabinet links, chain bridles and ratchet straps. The flybars provide both wide and narrow lifting points and pick up points to accommodate shallow or deep arrays, and offer a wide range of coverage requirements.



TS-890
TILT STRAP



**ARCHITECTURAL
& ENGINEER'S
SPECIFICATIONS**

The loudspeaker system shall be of the trapezoidal switchable bi-amped/tri-amped type with integral rigging hardware comprising: one high frequency driver loaded with a patented PolyHorn™, one 10" (254mm) high-mid frequency driver loaded with a patented PolyHorn™, and one 15" (381mm) low frequency driver loaded with a TurboBass™ device. Performance specifications of a typical production unit shall meet or exceed the following:- Frequency response, measured with a swept sine wave input shall be flat within $\pm 4\text{dB}$ from 60Hz to 20kHz (with DSP). Dispersion shall average $50^\circ\text{H} \times 25^\circ\text{V}$. Nominal impedance shall be LF: 8 ohms, MF: 16 ohms, HF: 16 ohms. Power handling shall be LF: 400 watts r.m.s., 800 watts program; MF: 200 watts r.m.s., 400 watts program; HF: 50 watts r.m.s., 100 watts program. Sensitivity measured with 1 watt input at 1 metre distance on axis, mean averaged over stated bandwidth shall be LF: 106dB, MF: 105dB, HF: 112dB. Maximum SPL (peak), measured with music program shall be 141dB. Dimensions: 977mm x 574mm x 498mm (38.5" x 22.6" x 19.6"). Weight: 57kg (125.4lbs). The loudspeaker system shall be the Turbosound Aspect TA-500t. No other system shall be acceptable unless the above combined performance specifications are equalled or exceeded.

DIMENSIONS

