

## FANE EN11801 18" SUB BASS ENCLOSURE

### FANE COMPONENT OPTIONS

COLOSSUS 18XB | 18" Sub Bass Driver

COLOSSUS 18SB | 18" Sub Bass Driver

SOVEREIGN PRO 18-800P | 18" Bass Driver



# FANE EN11801

## 18" SUB BASS ENCLOSURE

### Hints and Tips

#### CHOICE OF TIMBER

We recommend multi-layer 18mm Birch plywood as the best material to withstand the rigours of intensive 'life on the road' or likely exposure to damp conditions. Alternatively, 18mm Medium Density Fibreboard (MDF) offers good acoustic properties with the advantage of being less expensive (although heavier), and may be used where the cabinet will be permanently installed in a dry environment. Both materials accept any type of paint finish extremely well.

#### CONSTRUCTION TECHNIQUE

All joints should be totally airtight, liberally glued with PVA adhesive and screwed at 200mm (8") centres with 4.2mm or 4.8mm (No.8 or No.10) x 50 mm (2") self-tapping screws. The bracing panels are designed to ensure rigidity of construction, making the cabinet as free as possible from panel resonances caused by the internal forces generated by the loudspeaker drive unit and resulting in unwanted vibration and colouration of the sound. Again, these joints should be glued and screwed using the same method.

#### PORTING

The length and area of the ports as specified in the drawing should be strictly adhered to.

#### ACOUSTIC INSULATION

To aid panel damping and prevent internal reflections and standing waves, all internal panels of the cabinet (with the exception of the front baffle) should be lagged with acoustically absorptive material. We recommend the use of acoustic foam wadding. This should be glued, stapled or tacked to the inside of the cabinet, taking care to ensure that port tubes are not obstructed.

#### CROSSOVER NETWORK

This cabinet is designed as a passive unit, and adequate external signal processing arrangements should be made to filter out high-frequency signals.

#### INTERNAL WIRING

Wiring should be kept away from moving loudspeaker parts and fastened to internal panelling to avoid buzzing. We encourage the use of colour coded wiring to identify polarity (red for +ve and black for -ve), and recommend carrying out a phase check before first using the cabinet. This is achieved by applying the positive terminal of a battery to the positive cabinet input which should result in the speaker cone moving forwards if in phase (or by using a dedicated polarity checker).

#### DRIVE UNIT FIXING

The drive unit should be front mounted to the baffle using T-nuts and fixing bolts, and is supplied with a length of self adhesive foam sealing strip which should be fitted around the front edge of the speaker cut-outs to guarantee airtight conditions.

#### LOUDSPEAKER PROTECTION

The exposed front of all speaker drive units is of course vulnerable to damage, necessitating some means of protection which must be robust but acoustically transparent. Cloth/foam type grilles are feasible for fixed cabinets, but a metal mesh grille is certainly the preferred and superior

option. It is recommended that a foam gasket material is used between the wooden cabinet and the metal grille to prevent any unwanted resonances. Please contact Penn Elcom at [www.penn-elcom.com](http://www.penn-elcom.com) to discuss their standard and custom speaker grill solutions.

#### CABINET HARDWARE

We specify Penn-Elcom hardware products as recommend components in the construction of FANE-loaded cabinets. Please visit [www.penn-elcom.com](http://www.penn-elcom.com) to view the full range of Penn Elcom products and discuss standard and custom hardware solutions.

#### CABINET FINISHING

Cabinet finishing is largely a matter of personal preference and as such, detail of this is omitted from the drawing. Generally cabinets are either painted or covered in carpet or vinyl material. If a carpet material is chosen it is recommended that a very dense tight pile type is used and that metal corner protectors are fitted. Corner protectors will have a defined radius that the edges of the cabinet should be finished to. The cabinet shown on the first page of this document has all the external edges routed with a 13mm radius and coated in a hard wearing textured epoxy paint. Two steel carrying handles have been fitted. There are various types of handles and terminal panels available and again details of these have been omitted. It is recommended that these be purchased and cutouts be made in an appropriate position in the panels before final build. Be aware that handles and terminals are not necessarily airtight, which will be detrimental to performance but can be easily remedied using a silicone sealant or polyurethane mastic to seal all joints. Contact Penn Elcom at [www.penn-elcom.com](http://www.penn-elcom.com) to discuss their spray coating, carpet and vinyl options.

#### WARNING!

There are safety regulations regarding the installation of loudspeaker systems. This document is intended as a guide to construct a suitable acoustic enclosure for our components. Fane Acoustics can hold no responsibility for the structural integrity of the finished system. The system will be no stronger than the material it is made from and the joinery techniques used to assemble it. Suspending the finished system will require additional hanging hardware. There are companies who specialise in the manufacture and correct use of this hardware. They are experts and must be consulted if overhead suspension of the finished system is intended.

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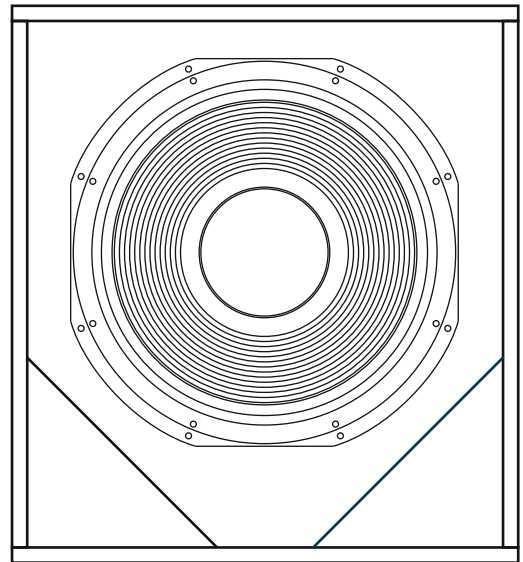
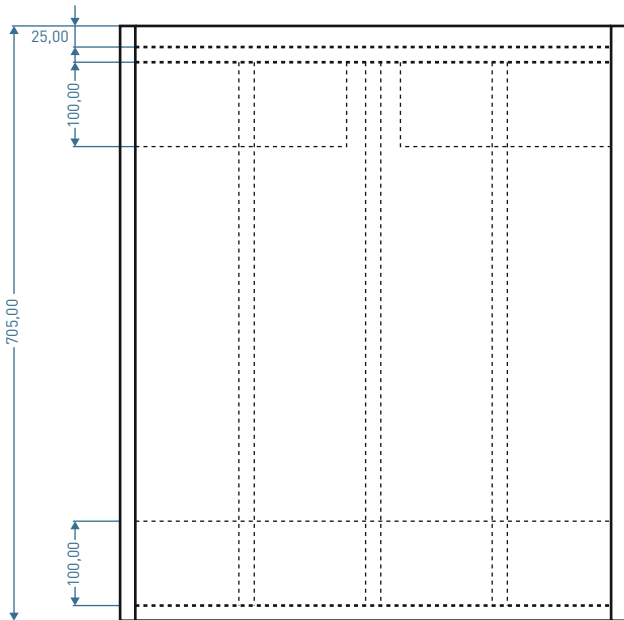
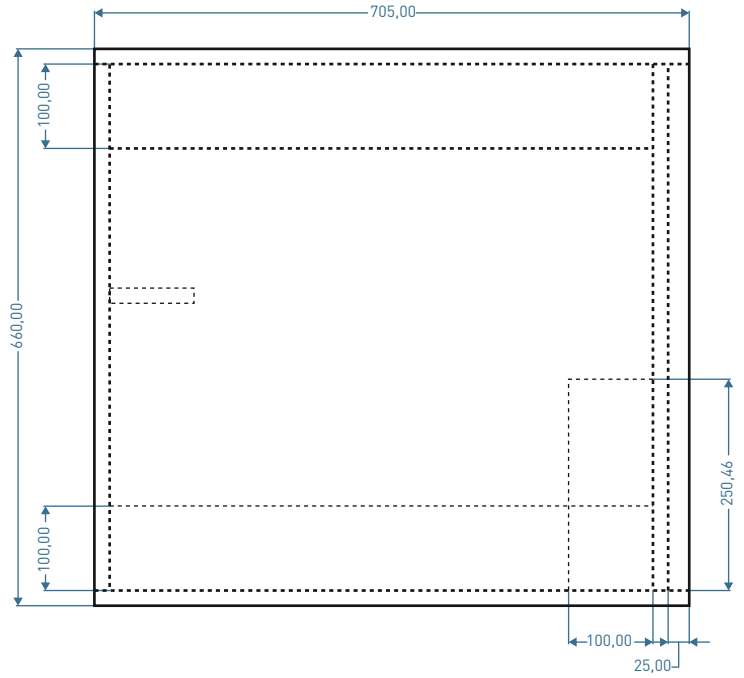
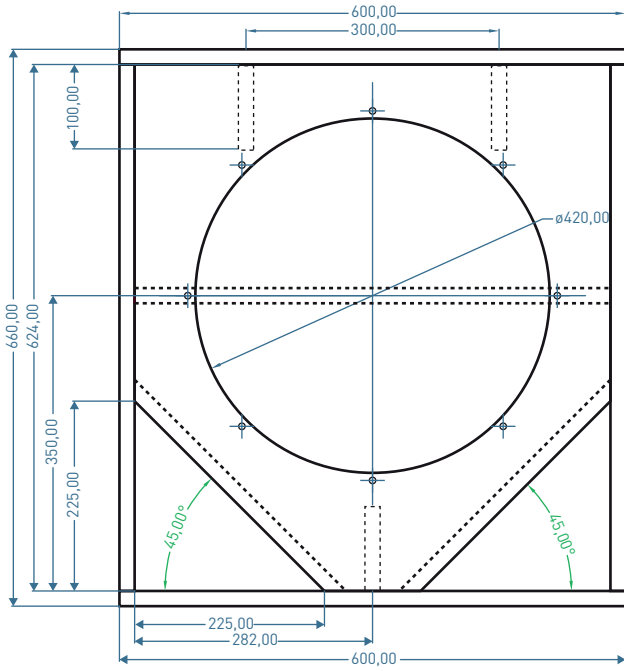
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MODEL			
<b>FANE EN11801 - 18" SUB BASS ENCLOSURE</b>			
REVISION	SCALE	UNITS	Tolerance Linear +/- 0.4, Holes +0.1/-0.0, None - Cumulative
1.0	1:1	mm	
MATERIAL / FINISH			
Unspecified material. 18mm Birch Plywood, Baffle 18mm MDF, Brace 18mm			

# THE PROFESSIONAL SERIES COLOSSUS 18XB

SUB BASS DRIVER



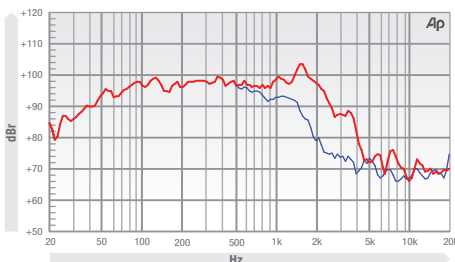
<b>18" / 457.2 mm</b> CHASSIS DIAMETER	<b>1000 w (A.E.S.)</b> POWER HANDLING	<b>99 dB</b> SENSITIVITY (1w / 1m)
<b>35 Hz - 1 kHz</b> FREQUENCY RESPONSE	<b>4.0" / 101.6 mm</b> COPPER - INSIDE / OUTSIDE WINDINGS VOICE COIL	<b>Designed for 100-250</b> litre ported enclosures

The Colossus 18XB is intended for use as a high-output sub-bass driver either singly or in multi way systems. The unit features a 4 inch 'sandwich' inside and outside windings voice coil, immersed in a symmetric magnetic field and centralized by using two suspensions in a dual arrangement to maintain ultra linearity and stability at high excursions. The heavily ribbed straight-sided paper cone membrane is reinforced with high-strength composite fibres to resist deformation under extreme loads. The driver handles 1000 Watts (A.E.S.) continuous and can cope with peaks in excess of 4000 Watts. This is due to advanced thermal management in the form of a vented die-cast chassis and motor system using an internal heatsink coupled to a large vaned heatsink mounted on the rear of the unit. These measures effectively remove heat from the voice coil resulting in extremely low-power compression. The Colossus 18XB is designed for use in 100 to 250 litre ported enclosures.

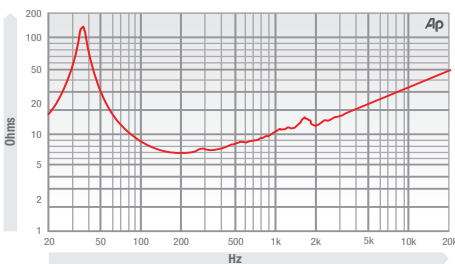
- **Deep, warm, well controlled bass reproduction.**
- **High BL factor 25.9 T/m.**
- **Ribbed, fibre loaded, UK manufactured ribbed straight sided cone for increased strength, durability and performance.**

THE PROFESSIONAL SERIES

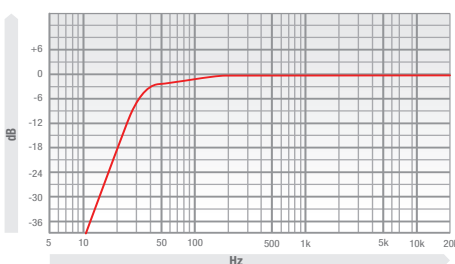
## FREQUENCY RESPONSE DATA\*



## IMPEDANCE



## PREDICTED BASS RESPONSE



## ELECTRO ACOUSTIC SPECIFICATIONS

Nominal Chassis Diameter	18" / 457.2 mm
Impedance	4 / 8 / 16 Ω
Power Handling	1000 w (A.E.S.)
Peak Power (6dB Crest Factor)	4000 w (A.E.S.)
Usable Frequency Range -6dB	35 Hz - 1 kHz
Sensitivity (1 w - 1 m)	99 dB
Moving Mass inc. Air Load	173 grams
Minimum Impedance Zmin	6.5 Ω
Effective Piston Diameter	15.03" / 381.76 mm
Peak Displacement Volume of Cone Vd	0.803 litres
Magnet Weight	120 oz
Magnetic Gap Depth	0.39" / 10 mm
Flux Density	1.2 Tesla
Coil Winding Height	0.90" / 23 mm
Voice Coil Diameter	4.0" / 101.6 mm

## MOUNTING / SHIPPING INFORMATION

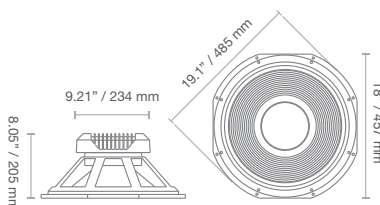
Overall Diameter	19.1" / 485 mm
Width Across Flats	18" / 457 mm
Flange Height	0.465" / 11.8 mm
Baffle Hole Diameter F/M	16.53" / 419.86 mm
Baffle Hole Diameter R/M	16.33" / 414.78 mm
Gasket Supplied	Front & Rear
Fixing Holes	8x 0.275" diam on 18.425 PCD / 8x 0.275 diam on 17.25 PCD 8x 7 mm diam on 468 PCD / 8x 7 diam on 438.15 PCD
Depth	8.05" / 205 mm
Weight	31.29 lb / 14.2 kg
Recommended Enclosure Volume	3.53 - 8.82 cu ft / 125 - 400 litres
Shipping Weight	35.26 lb / 16 kg
Packing Carton Dimensions	250 x 520 x 520 mm

## THIELE SMALL PARAMETERS

FS Hz	33 Hz
RE Ohms	6.5 Ω
Qms	5.77
Qes	0.358
Qts	0.337
Vas Ltr	236 litres
Vd litres	0.803 litres
CMS (mm/N)	0.13 mm/N
BL T/m	25.9 T/m
Mms (grams)	173 grams
Xmax (mm)	7.5 mm
Sd (cm²)	1131 cm²
Efficiency %	2.30%
Le (1k Hz)	1.99 mH

## MATERIALS OF CONSTRUCTION

Former Material	Glass Fibre
Voice Coil	Copper - Inside / Outside Windings
Magnet Material	Ferrite
Chassis	Die-cast Aluminium
Cone	Straight Polycellulose Ribbed Cone
Surround / Edge Termination	Polyvinyl Damped Multi Roll. Poly Cotton
Dust Dome	Paper
Connectors	Push-button Spring Terminals
Polarity	Positive voltage at red terminal causes forward motion of cone



- Please enquire about alternative impedances.
- A.E.S. power handling test. Pink noise bandpass filtered at 12 dB per octave with cutoff frequencies of 30 Hz and 300 Hz. Driver mounted in free air, test signal applied at rated power for two hours.
- Please note that the frequency response measurements are supplied for comparison only and are not a measure of the low frequency performance which may be achieved in a fully optimised system.

COLLOSSUS 18XB

# THE PROFESSIONAL SERIES COLOSSUS 18SB

SUB BASS DRIVER



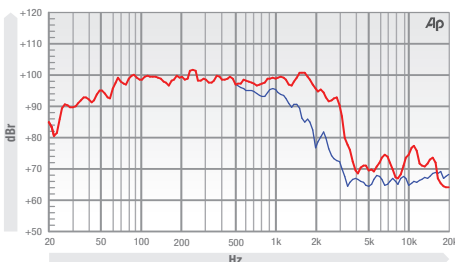
<b>18" / 457.2 mm</b> CHASSIS DIAMETER	<b>1000 w (A.E.S.)</b> POWER HANDLING	<b>100 dB</b> SENSITIVITY (1w / 1m)
<b>35 Hz - 2.5 kHz</b> FREQUENCY RESPONSE	<b>4.0" / 101.6 mm</b> COPPER - INSIDE / OUTSIDE WINDINGS VOICE COIL	<b>8.25mm Xmax</b>

The Colossus 18SB is intended for use as a high-output bass driver in multi way systems. It features a 4 inch 'sandwich' inside and outside windings voice coil, immersed in a symmetric magnetic field yielding increased linearity and lower distortion. This, coupled with a large Xmax of 8.25 mm and laminated silicone suspension, ensures tight, punchy bass at high levels of excursion. The cone membrane, manufactured from polycellulose, is much stronger and more durable than conventional paper pulp alternatives. This allows the driver to combine high-sensitivity with the structural integrity required to produce undistorted low frequencies at extreme sound pressure levels. The driver handles 1000 Watts (A.E.S.) continuous and can cope with peaks in excess of 4000 Watts. This is due to advanced thermal management in the form of vented die-cast chassis and increased motor system venting. These measures effectively remove heat from the voice coil, resulting in extremely low-power compression. The Colossus 18SB exhibits 100 dB sensitivity and can deliver bass down to 35 Hz (-6 dB) in a 200 litre ported enclosure.

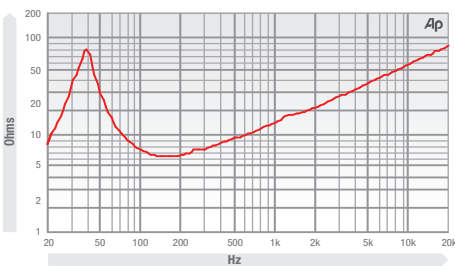
- **Fast, accurate bass. Defined, clean and punchy.**
- **Fibre loaded, UK manufactured cone offering increased strength, durability and performance.**
- **Delivers bass down to 35 Hz in a 200 litre ported enclosure.**

THE PROFESSIONAL SERIES

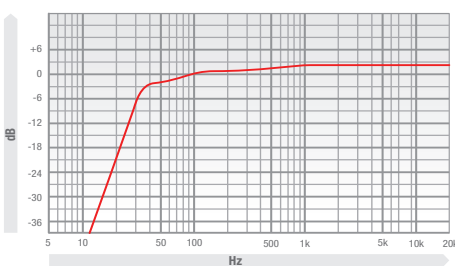
## FREQUENCY RESPONSE DATA\*



## IMPEDANCE



## PREDICTED BASS RESPONSE



## ELECTRO ACOUSTIC SPECIFICATIONS

Nominal Chassis Diameter	18" / 457.2 mm
Impedance	8 Ω
Power Handling	1000 w (A.E.S.)
Peak Power (6dB Crest Factor)	4000 w (A.E.S.)
Usable Frequency Range -6dB	35 Hz - 2.5 kHz
Sensitivity (1 w - 1 m)	100 dB
Moving Mass inc. Air Load	177 grams
Minimum Impedance Zmin	6.5 Ω
Effective Piston Diameter	14.84" / 376.93 mm
Peak Displacement Volume of Cone Vd	0.893 litres
Magnet Weight	120 oz
Magnetic Gap Depth	0.43" / 11 mm
Flux Density	1.1 Tesla
Coil Winding Height	0.87" / 22 mm
Voice Coil Diameter	4.0" / 101.6 mm

## MOUNTING / SHIPPING INFORMATION

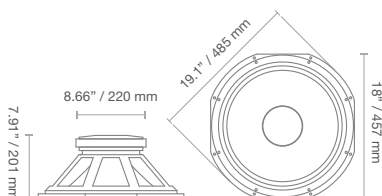
Overall Diameter	19.1" / 485 mm
Width Across Flats	18" / 457 mm
Flange Height	0.465" / 11.8 mm
Baffle Hole Diameter F/M	16.53" / 419.86 mm
Baffle Hole Diameter R/M	16.33" / 414.78 mm
Gasket Supplied	Front & Rear
Fixing Holes	8x 0.275" diam on 18.425 PCD / 8x 0.275 diam on 17.25 PCD 8x 7 mm diam on 468 PCD / 8x 7 diam on 438.15 PCD
Depth	7.91" / 201 mm
Weight	27.6 lb / 12.51 kg
Recommended Enclosure Volume	4.41 - 14.12 cu ft / 125 - 400 litres
Shipping Weight	28.9 lb / 13.1 kg
Packing Carton Dimensions	250 x 520 x 520 mm

## THIELE SMALL PARAMETERS

FS Hz	36 Hz
RE Ohms	5.2 Ω
Qms	6.583
Qes	0.366
Qts	0.346
Vas Ltr	199 litres
Vd litres	0.893 litres
CMS (mm/N)	0.109 mm/N
BL T/m	24 T/m
Mms (grms)	177.2 grams
Xmax (mm)	8.25 mm
Sd (cm²)	1134 cm²
Efficiency %	2.49%
Le (1k Hz)	2.23 mH

## MATERIALS OF CONSTRUCTION

Former Material	Glass Fibre
Voice Coil	Copper - Inside / Outside Windings
Magnet Material	Ferrite
Chassis	Die-cast Aluminium
Cone	Curvilinear Polycellulose
Surround / Edge Termination	Polyvinyl Damped Multi Roll. Poly Cotton
Dust Dome	Solid Paper
Connectors	Push-button Spring Terminals
Polarity	Positive voltage at red terminal causes forward motion of cone



- Please enquire about alternative impedances.
- A.E.S. power handling test. Pink noise bandpass filtered at 12 dB per octave with cutoff frequencies of 30 Hz and 300 Hz. Driver mounted in free air, test signal applied at rated power for two hours.
- Please note that the frequency response measurements are supplied for comparison only and are not a measure of the low frequency performance which may be achieved in a fully optimised system.

# THE PROFESSIONAL SERIES SOVEREIGN PRO 18-800P

BASS DRIVER



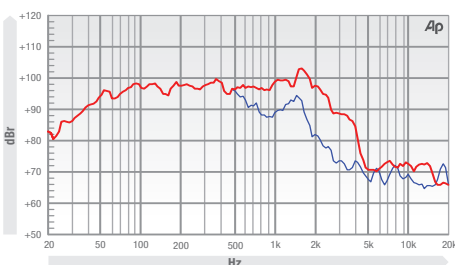
<b>18" / 457.2 mm</b> CHASSIS DIAMETER	<b>800 w (A.E.S)</b> POWER HANDLING	<b>97.5 dB</b> SENSITIVITY (1w / 1m)
<b>35 Hz - 1 kHz</b> FREQUENCY RESPONSE	<b>4.0" / 101.6 mm</b> COPPER - INSIDE / OUTSIDE WINDINGS VOICE COIL	<b>Delivers bass down to 35 Hz in a 200 litre ported enclosures</b>

The Sovereign Pro 18-800P is intended for use as a high-output bass driver in multi way systems and features a 4 inch 'sandwich' inside and outside windings voice coil, immersed in a symmetric magnetic field yielding increased linearity and lower distortion. This, coupled with laminated silicone suspensions ensures fast accurate bass at high levels of excursion. The driver handles 800 Watts continuous and can cope with peaks in excess of 3200 Watts. This is due to advanced thermal management in the form of vented die-cast chassis. These measures effectively remove heat from the voice coil, resulting in extremely low-power compression. The Sovereign 18-800P exhibits 97.5 dB sensitivity and can deliver bass down to 35 Hz (-6 dB) in a 200 litre ported enclosure.

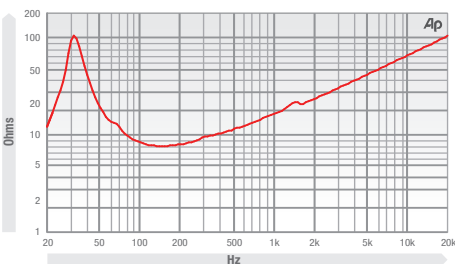
- Highly versatile in 2-way ported enclosures.
- UK manufactured cone with optimised pulp offering increased strength, durability and performance.

THE PROFESSIONAL SERIES

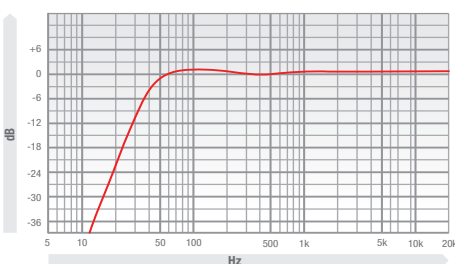
## FREQUENCY RESPONSE DATA\*



## IMPEDANCE



## PREDICTED BASS RESPONSE



## ELECTRO ACOUSTIC SPECIFICATIONS

Nominal Chassis Diameter	18" / 457.2 mm
Impedance	8 Ω
Power Handling	800 w (A.E.S)
Peak Power (6dB Crest Factor)	3200 w (A.E.S)
Usable Frequency Range -6dB	35 Hz - 1 kHz
Sensitivity (1 w - 1 m)	97.5 dB
Moving Mass inc. Air Load	147 grams
Minimum Impedance Zmin	7.92 Ω
Effective Piston Diameter	15.03" / 381.76 mm
Peak Displacement Volume of Cone Vd	0.85 litres
Magnet Weight	120 oz
Magnetic Gap Depth	0.39" / 10 mm
Flux Density	1.2 Tesla
Coil Winding Height	0.90" / 23 mm
Voice Coil Diameter	4.0" / 101.6 mm

## MOUNTING / SHIPPING INFORMATION

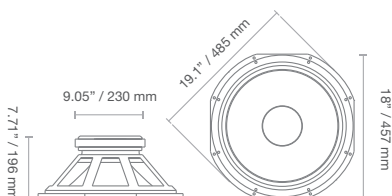
Overall Diameter	19.1" / 485 mm
Width Across Flats	18" / 457 mm
Flange Height	0.465" / 11.8 mm
Baffle Hole Diameter F/M	16.53" / 419.86 mm
Baffle Hole Diameter R/M	16.33" / 414.78 mm
Gasket Supplied	Front & Rear
Fixing Holes	8x 0.275" diam on 18.425 PCD / 8x 0.275 diam on 17.25 PCD / 8x 7 mm diam on 468 PCD / 8x 7 diam on 438.15 PCD
Depth	7.71" / 196 mm
Weight	27.6 lb / 12.5 kg
Recommended Enclosure Volume	4.41 - 14.12 cu ft / 125 - 400 litres
Shipping Weight	28.9 lb / 13.1 kg
Packing Carton Dimensions	250 x 520 x 520 mm

## THIELE SMALL PARAMETERS

FS Hz	34 Hz
RE Ohms	6.6 Ω
Qms	4.83
Qes	0.363
Qts	0.337
Vas Ltr	234 litres
Vd litres	0.848 litres
CMS (mm/N)	0.129 mm/N
BL T/m	25.5 T/m
Mms (grms)	170 grams
Xmax (mm)	7.5 mm
Sd (cm²)	1131 cm²
Efficiency %	2.88%
Le (1k Hz)	2.43 mH

## MATERIALS OF CONSTRUCTION

Former Material	Glass Fibre
Voice Coil	Copper - Inside / Outside Windings
Magnet Material	Ferrite
Chassis	Die-cast Aluminium
Cone	Straight fibre loaded Polycellulose Ribbed Cone
Surround / Edge Termination	Polyvinyl Damped Dbl. Half Roll Poly Cotton
Dust Dome	Solid Paper
Connectors	Push-button Spring Terminals
Polarity	Positive voltage at red terminal causes forward motion of cone



- Please enquire about alternative impedances.
- A.E.S. power handling test. Pink noise bandpass filtered at 12 dB per octave with cutoff frequencies of 35 Hz and 350 Hz. Driver mounted in free air, test signal applied at rated power for two hours.
- Please note that the frequency response measurements are supplied for comparison only and are not a measure of the low frequency performance which may be achieved in a fully optimised system.

SOVEREIGN PRO 18-800P

FANE