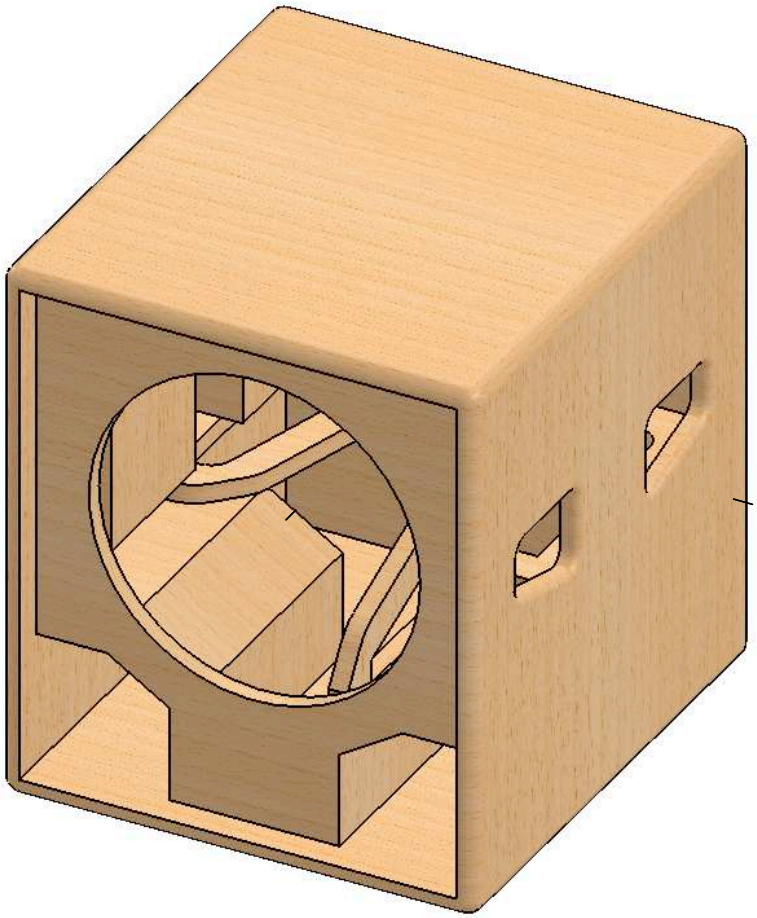
BR18XS - 18” BASS REFLEX ENCLOSURE

SUITABLE FOR COLOSSUS PRIME 18XS



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.

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 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 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.

THE PROFESSIONAL SERIES

COLOSSUS PRIME 18XS

SUB BASS DRIVER

18” / 457.2 mm	2400 W	35 Hz - 500 Hz	4” / 101.6 mm	100 dB	12 mm Xmax
CHASSIS DIAMETER	PROGRAM POWER	FREQUENCY RESPONSE	VOICE COIL DIAMETER	SENSITIVITY (1W/ 1m)	MAX. LINEAR EXCURSION

The Prime 18XS 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, a large Xmax of 12mm with peak to peak travel of 60mm, ensures fast accurate 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 1200 Watts (A.E.S.) continuous and can cope with peaks in excess of 4800 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 Prime 18XS exhibits 100 dB sensitivity and can deliver bass down to 29 Hz (-6 dB) in a 200 Litre ported enclosure.

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COLOSSUS PRIME 18XS

SUB BASS DRIVER

18" / 457.2 mm
CHASSIS DIAMETER

2400 W
PROGRAM POWER

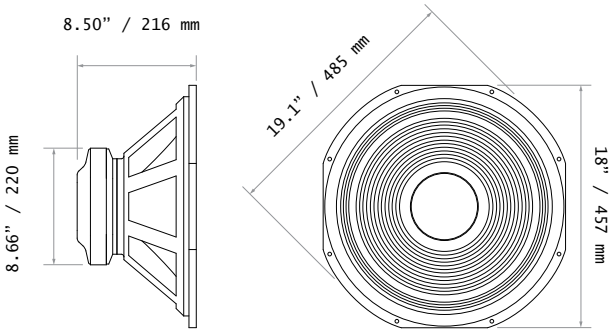
35 Hz - 500 Hz
FREQUENCY RESPONSE

4" / 101.6 mm
VOICE COIL DIAMETER

100 dB
SENSITIVITY (1W/ 1m)

12 mm Xmax
MAX. LINEAR EXCURSION

- High grade Y35 ferrite magnet motor structure with Low interference flux path.
- Vented chassis and motor design provides efficient thermal management and extremely low power compression.
- Aluminium demodulation ring.
- Dual silicone laminated suspension system combined with optimised software materials offers increased linearity for fast, accurate and undistorted bass reproduction at extreme SPL.
- 12 mm Xmax with 64 mm peak-to-peak travel.
- Ideal for bass reflex and scoop enclosure designs from 125-400 Litres.
- Also performs well in horn loaded systems.
- 4-Inch Inside / Outside windings copper voice coil.



GENERAL SPECIFICATIONS

Nominal Chassis Diameter	18" / 457.2 mm
Nominal Impedance (1)	8 Ohm
Minimum Impedance Zmin	6.5 Ω
AES Power Handling (2)	1200 W (A.E.S.)
Program Power	2400 W
Peak Power (6dB Crest Factor)	**4800 W**
Frequency Range (-6dB)	35 Hz - 500 Hz
Sensitivity (1W/ 1m)	**100 dB**
Magnet Material	**Ferrite Y35**
Magnet Weight	145 oz
Magnetic Gap Depth	0.43" / 11 mm
Flux Density	1.1 Tesla
Former Material	Glass Fibre
Voice Coil Material	Copper - Inside / Outside
Coil Winding Height	1.18" / 30 mm
Voice Coil Diameter	**4" / 101.6 mm**
Cone/ Dust Dome Material	Straight Fibre Loaded Poly-cellulose Ribbed / Solid Paper (Inverted)
Surround / Edge Termination	Polyvinyl Damped Multi Roll. Poly Cotton

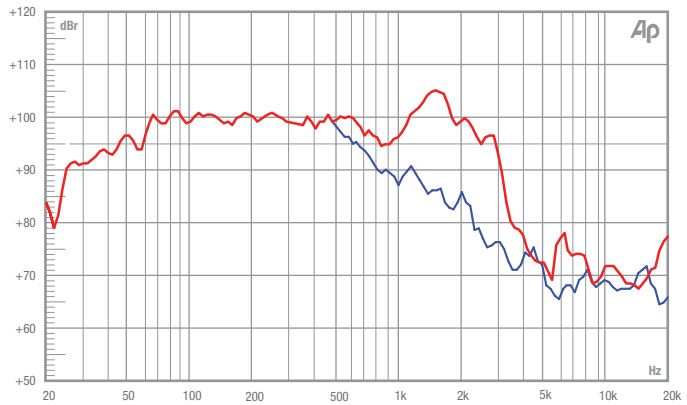
TECHNICAL & THIELE SMALL PARAMETERS

Fs	33 Hz
Re	5.2 Ω
Qms	8.2
Qes	0.404
Qts	0.385
Vas	257 Litres
Vd	1.45 Litres
Cms	0.124 mm/N
Bl	22.4 T/m
Mms	188 g
Xmax	12 mm
Sd	1210 cm²
Efficiency	2.2 %
Le (1k Hz)	1.5 mH
EBP	81.68 Hz
Effective Piston Diameter	15.43" / 391.92 mm
Rec. Enclosure Volume	4.41 - 14.12 ft3 / 125 - 400 Litres

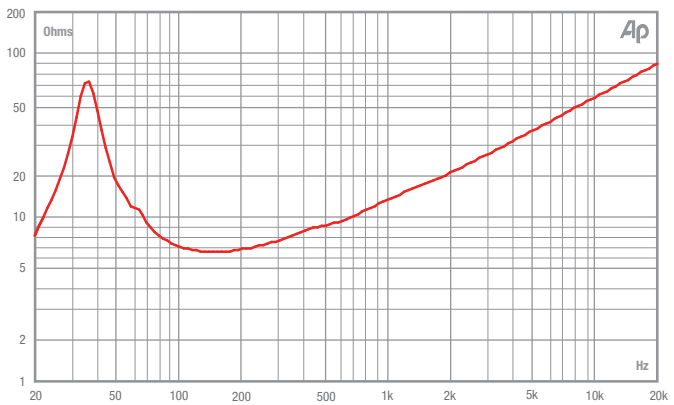
MOUNTING / SHIPPING INFORMATION

Overall Diameter	19.1" / 485 mm
Width Across Flats	18" / 457 mm
Depth	8.50" / 216 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
Chassis Material	**Die-cast Aluminium**
Gasket Supplied	Front & Rear
Outer Fixing Holes	8x ø 0.275" on 18.425" PCD / 8x ø 7 mm on 468 mm PCD
Inner Fixing Holes	8x ø 0.275" on 17.25" PCD / 8x ø 7 mm on 438.15 mm PCD
Connectors (4)	Push-button Spring Terminals
Weight	**33.75 lb / 15.3 kg**
Shipping Weight	37.45 lb / 17 kg
Packing Carton Dimensions (mm)	(W) 495 (D) 495 (H) 255

FREQUENCY RESPONSE DATA (3)



IMPEDANCE



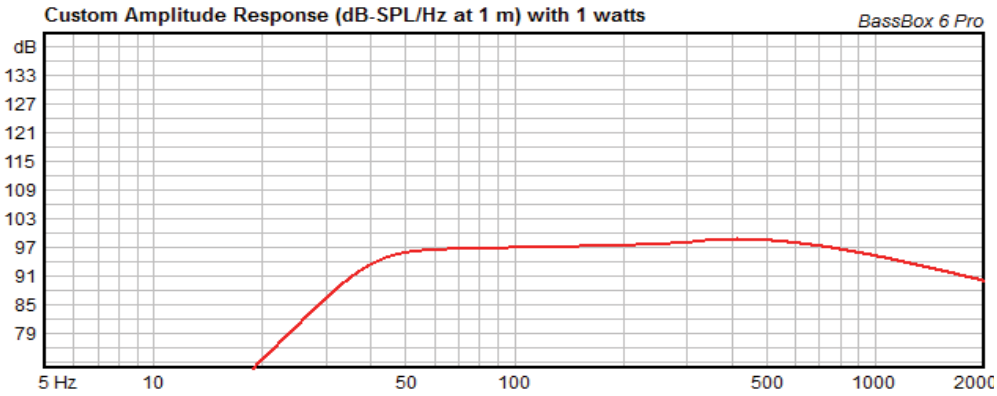
(1) *Please enquire about alternative impedances.*

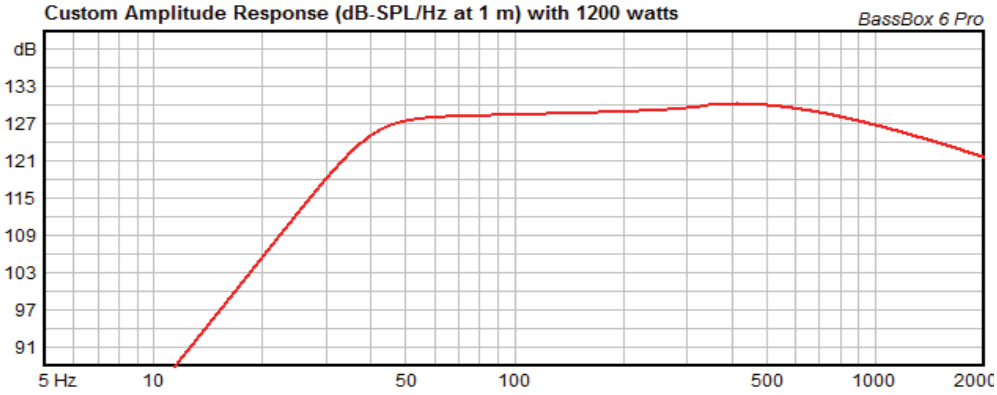
(2) *A.E.S. power handling test. Pink noise bandpass filtered at 12 dB per octave with cutoff frequencies of 30 Hz and 300 Hz. Driver mounted in free air, test signal applied at rated power for two hours.*

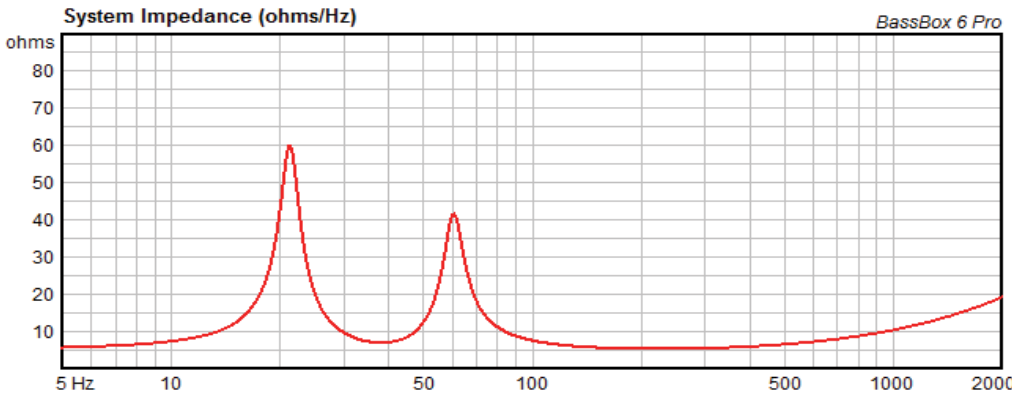
(3) *Half space response measured in a 975 Litre sealed box. Blue line = fundamental 45° off-axis. Please note that the frequency response measurements are supplied for comparison only and are not a measure of the low frequency performance which may be achieved in a fully optimised system.*

(4) *Positive voltage at red terminal causes forward motion of cone.*

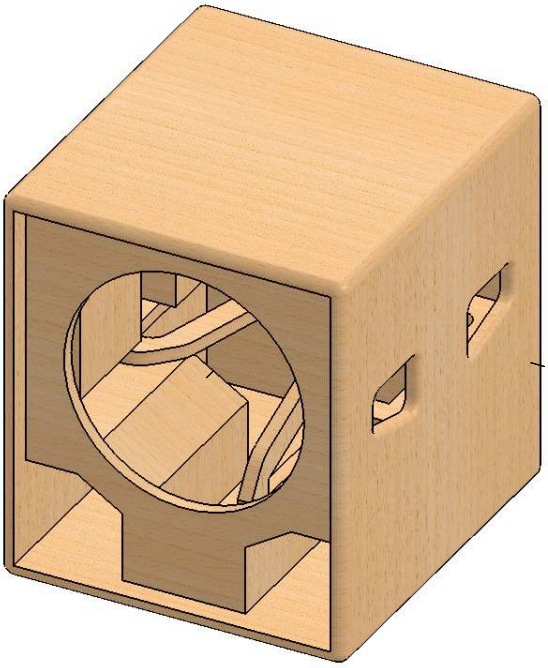
SIMULATED FREQUENCY PREDICTIONS

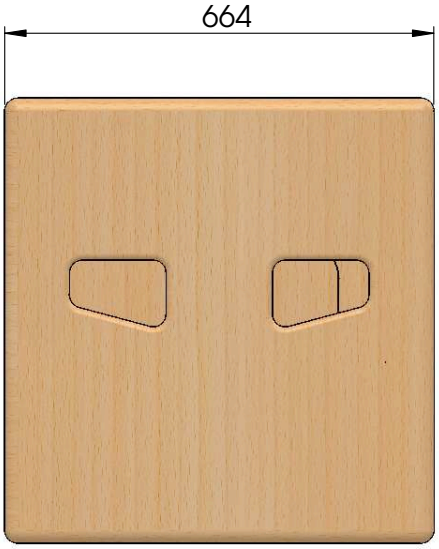


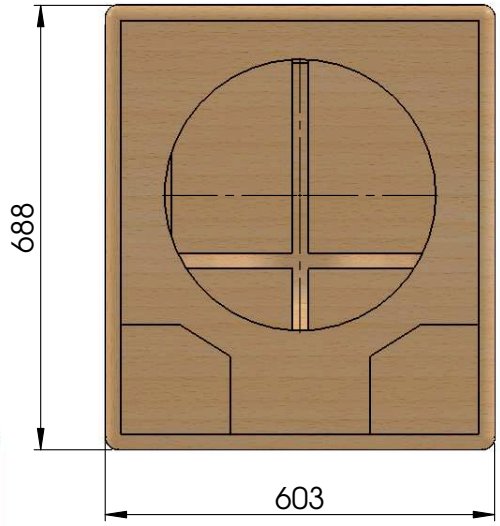




BR18XS - 18” BASS REFLEX ENCLOSURE PLANS

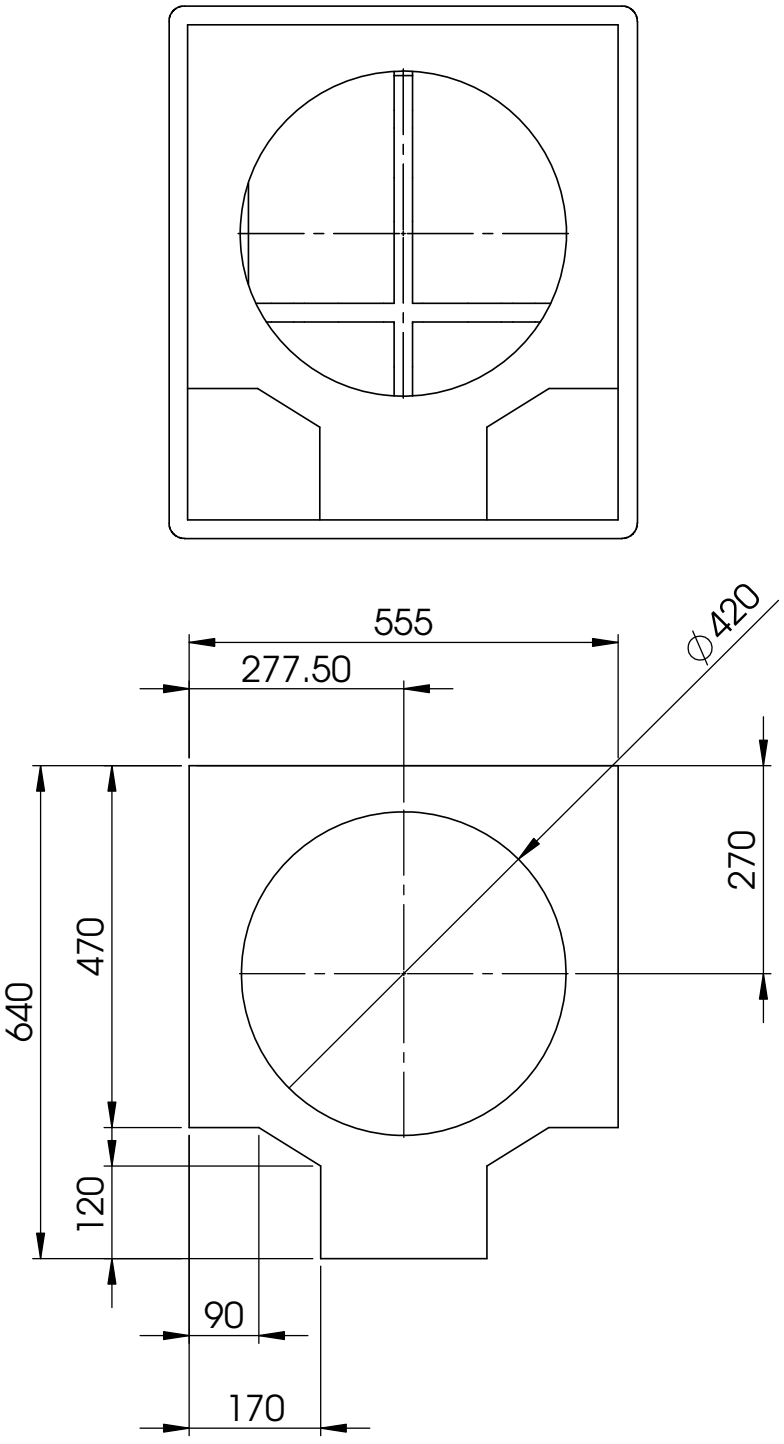






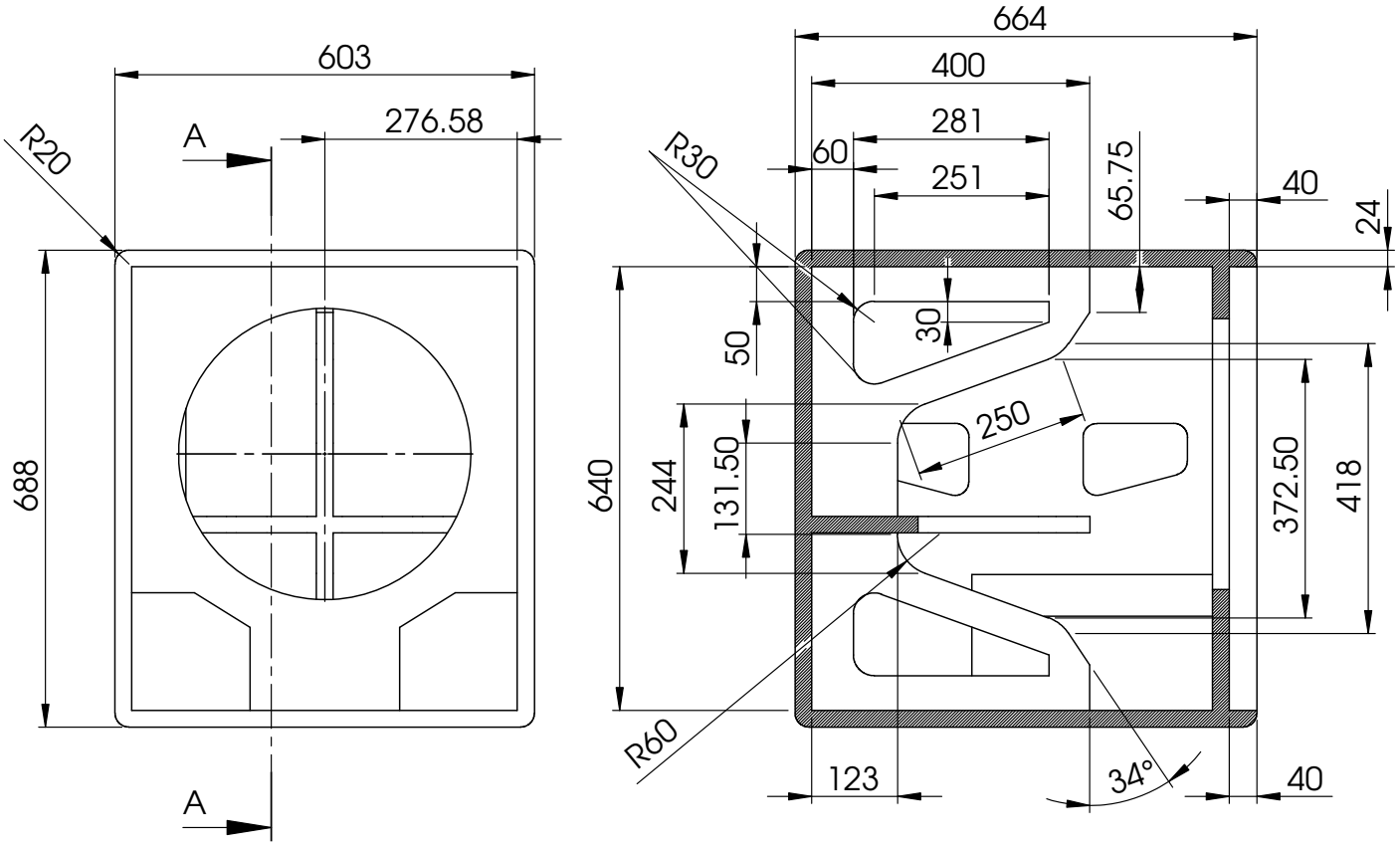
BAFFLE DIMENSIONS

24 mm BIRCH PLYWOOD CONSTRUCTION



VERTICAL BRACE - SIDE ELEVATION - SECTION AA

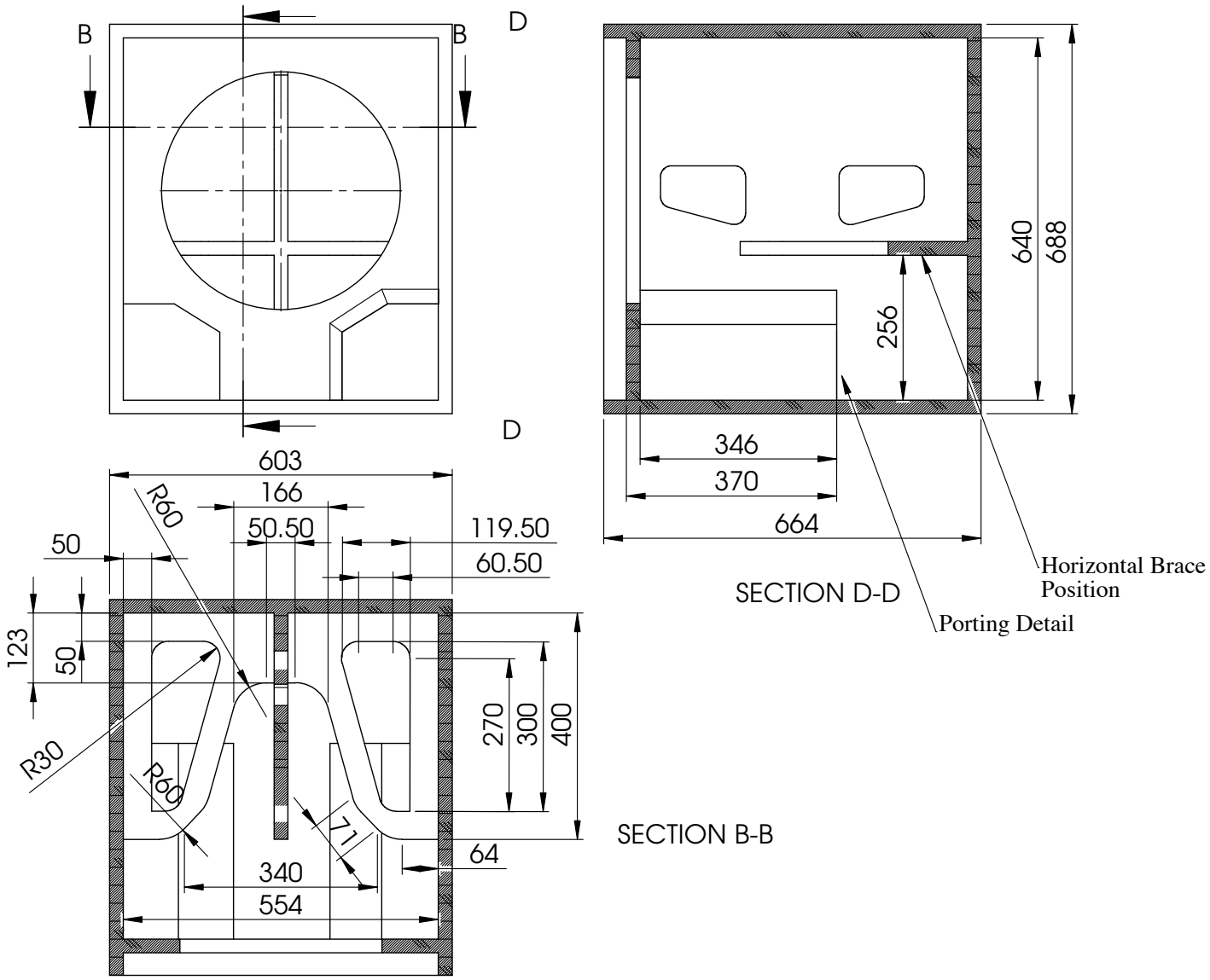
24 mm BIRCH PLYWOOD CONSTRUCTION, 20 mm RADIUS ON BOTTOM CORNERS



SECTION A-A

HORIZONTAL BRACE - TOP ELEVATION - SECTION BB

24 mm BIRCH PLYWOOD CONSTRUCTION, 20 mm RADIUS ON BOTTOM CORNERS



OPTIONAL HANDLE POSITION
SIDE ELEVATION - SECTION CC
DETAILED HANDLE ENCLOSURE - W

24 mm BIRCH PLYWOOD CONSTRUCTION, 20 mm RADIUS ON BOTTOM CORNERS