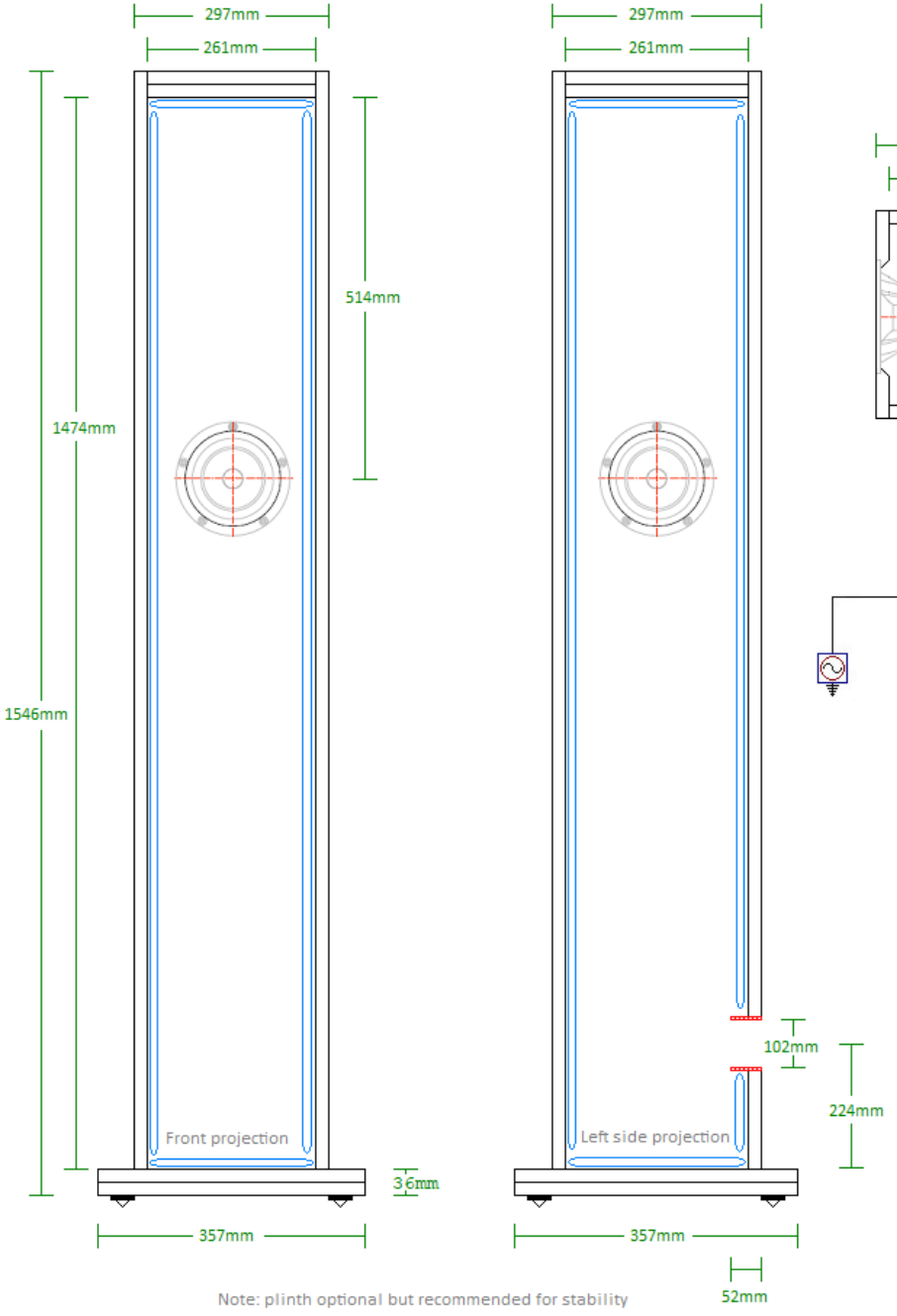
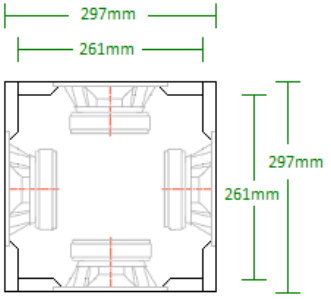
Linear Quadrupole for

Markaudio CHN110

markaudio
New Audio Fidelity

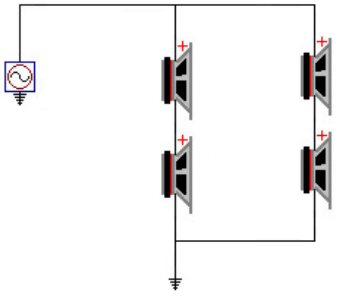


Note: plinth optional but recommended for stability



Top projection

Driver wiring



Notes:

0/ Linear quadrupole. 4 x CHN110 wired in series-parallel. Single driver on each vertical face

1/ 18mm build material suggested. MDF acceptable, quality void-free multiply strongly recommended.

2/ Bracing not shown but strongly recommended. Ensure vertical plane not significantly disrupted to preserve longitudinal standing wave which forms active part of alignment

3/ Chamfer driver cut-out to enhance airflow

4/ All internal faces lagged 20mm - 25mm bonded acoustic fibreglass board, SAE-F10 rated felt, jute carpet underlay or equivalent. Avoid acoustic foam. Ensure does not block or come into contact with driver or vent cutouts

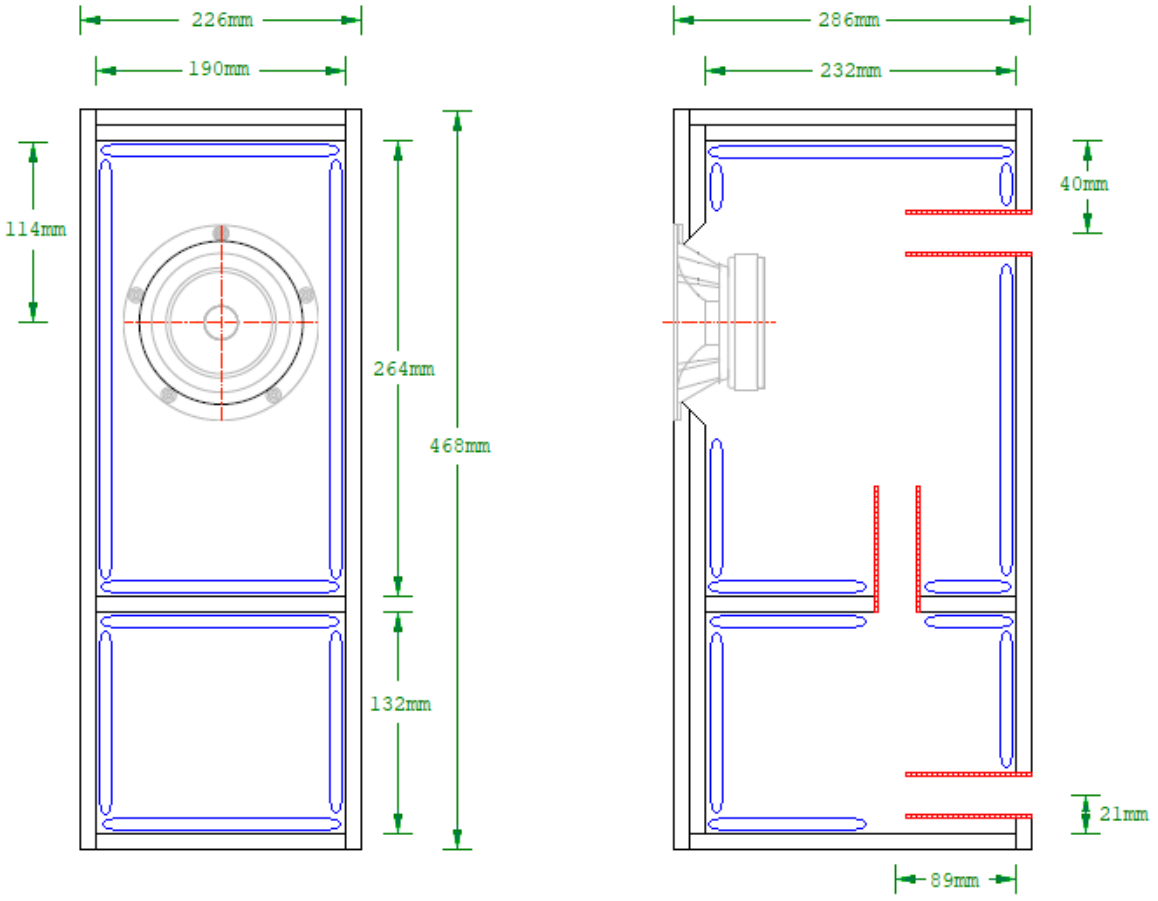
5/ Single duct 102mm diameter x 52mm total length on rear panel

-Design inspired by classic EPI 1000 quadratic tower speaker. All drive units reproduce full frequency range.

-Intended for large spaces & requires siting at least 4ft or more from room boundaries for optimum performance.

Note: This is not designed as a conventional hi-fi loudspeaker but a wideband interpretation of the classic range-topping model from EPI produced during the 1970s

Fb = 44Hz
F6 = 38Hz [nominal anechoic]



Cordelia

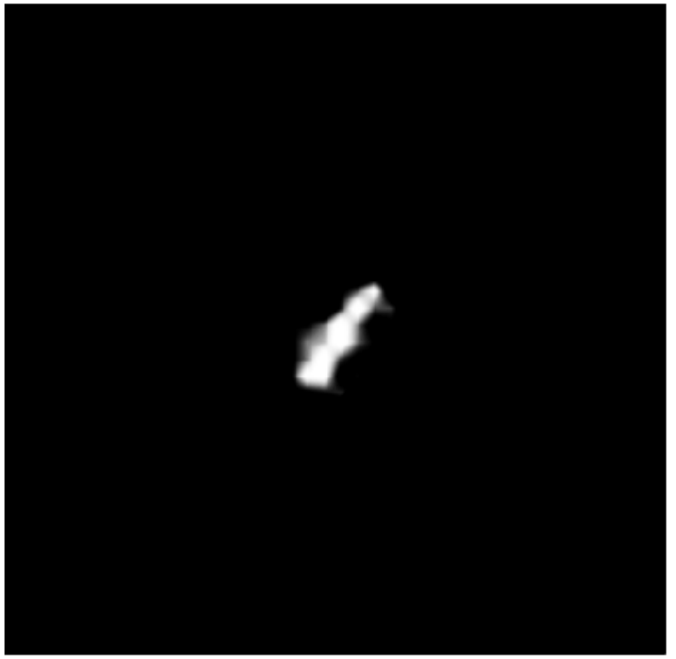
Traditional double-chamber reflex for Markaudio CHN110

Notes:

0/ 18mm sheet build material assumed. MDF acceptable, quality void-free multiply recommended
1/ Front & top baffles doubled for increased rigidity
2/ Bracing not shown but recommended. See Pensil 12 drawing for example of optimal longitudinal bracing
3/ Chamfer / relieve driver cutout to reduce reflections & enhance airflow
4/ All internal faces lagged 19mm OC-703 bonded acoustic fibreglass board, SAE-F10, jute or equivalent. Avoid acoustic foam

Design assumes voltage source amplifier with 1/2ohm series R for typical wire loop, connection losses

Fb = 44Hz
F6 = 40Hz [nominal anechoic]
F10 = 34Hz [nominal anechoic]



Vent options [diameter x length] for untapered ducts

01/ 30mm x 105mm
02/ 35mm x 146mm

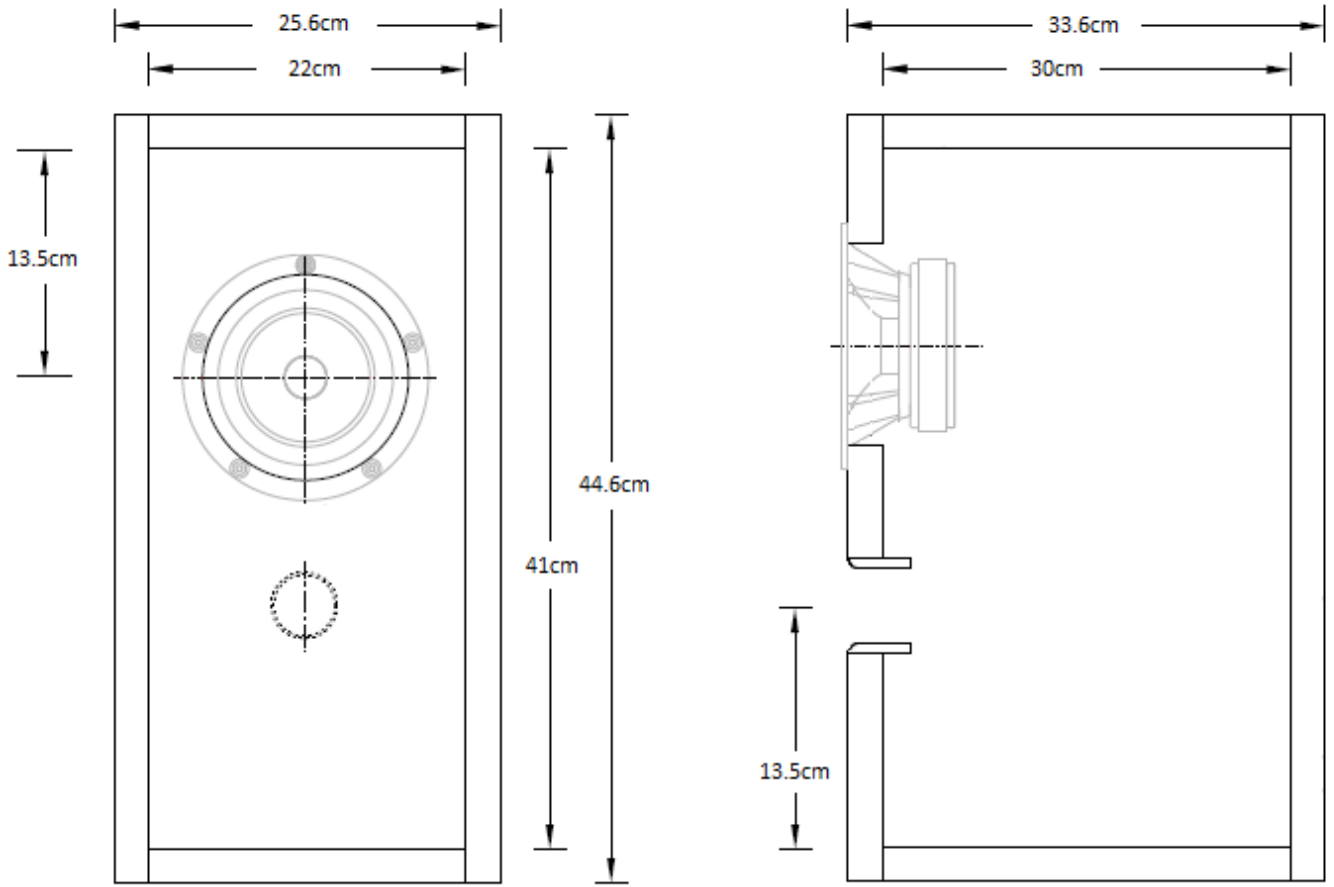
Note: to maintain correct tuning, do not mix duct diameter x length values

Design by Dr. S. Lindgren
June 2021

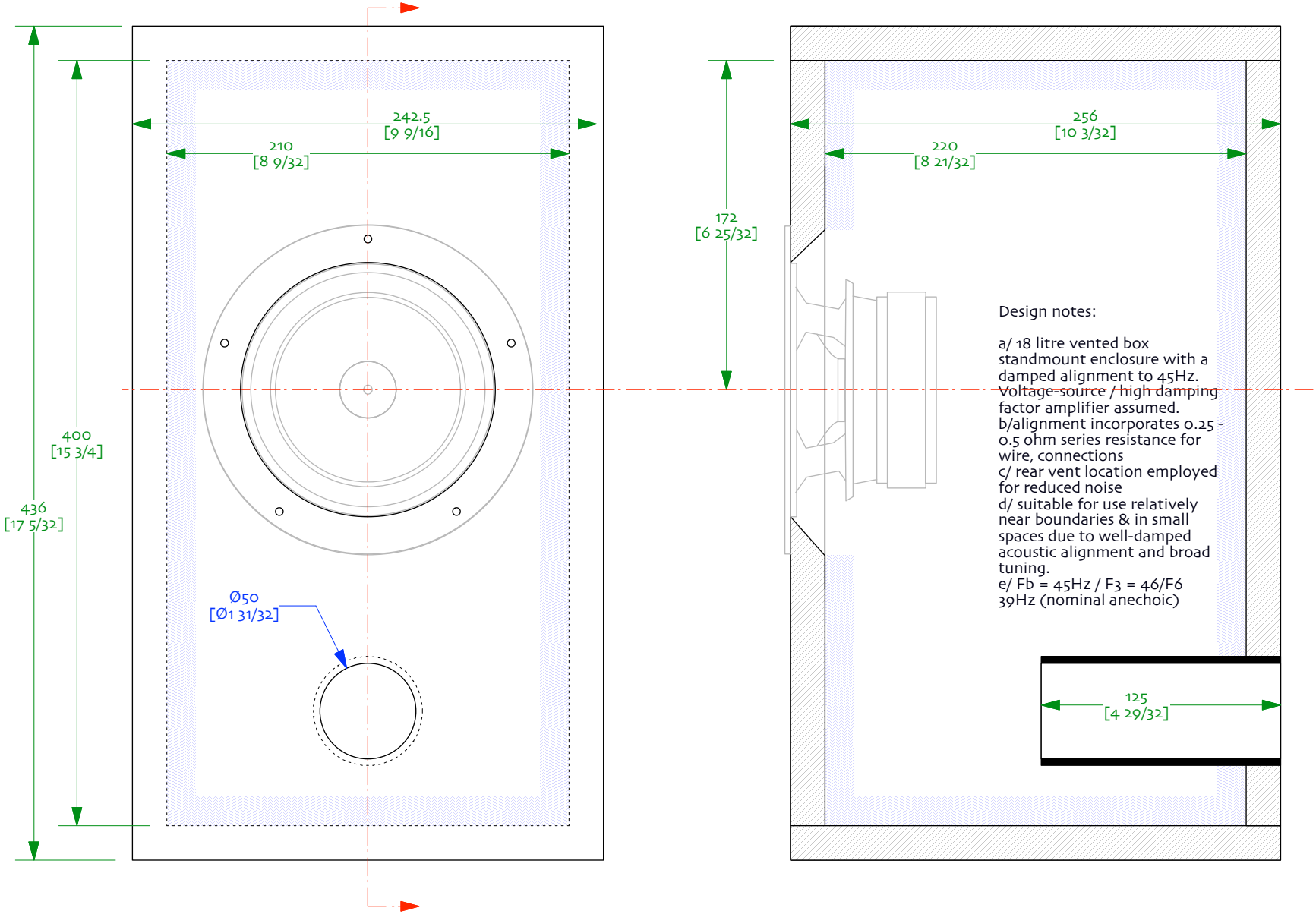
Fenlon 110

markaudio
New Audio Fidelity

-Simple vented box designed by Mark Fenlon for CHN110 driver!
-Industry norm front port!
-Projects bass forwards for interesting and captivating sound charactertisic!
-Simple construction!
-Port 3.5cm wide and 2.6cm long for powerful bass performance!
-Line box apart from front panel with 2cm - 3cm thick polyester damping material



Design consultant: Dr. S. Lindgren



Design notes:

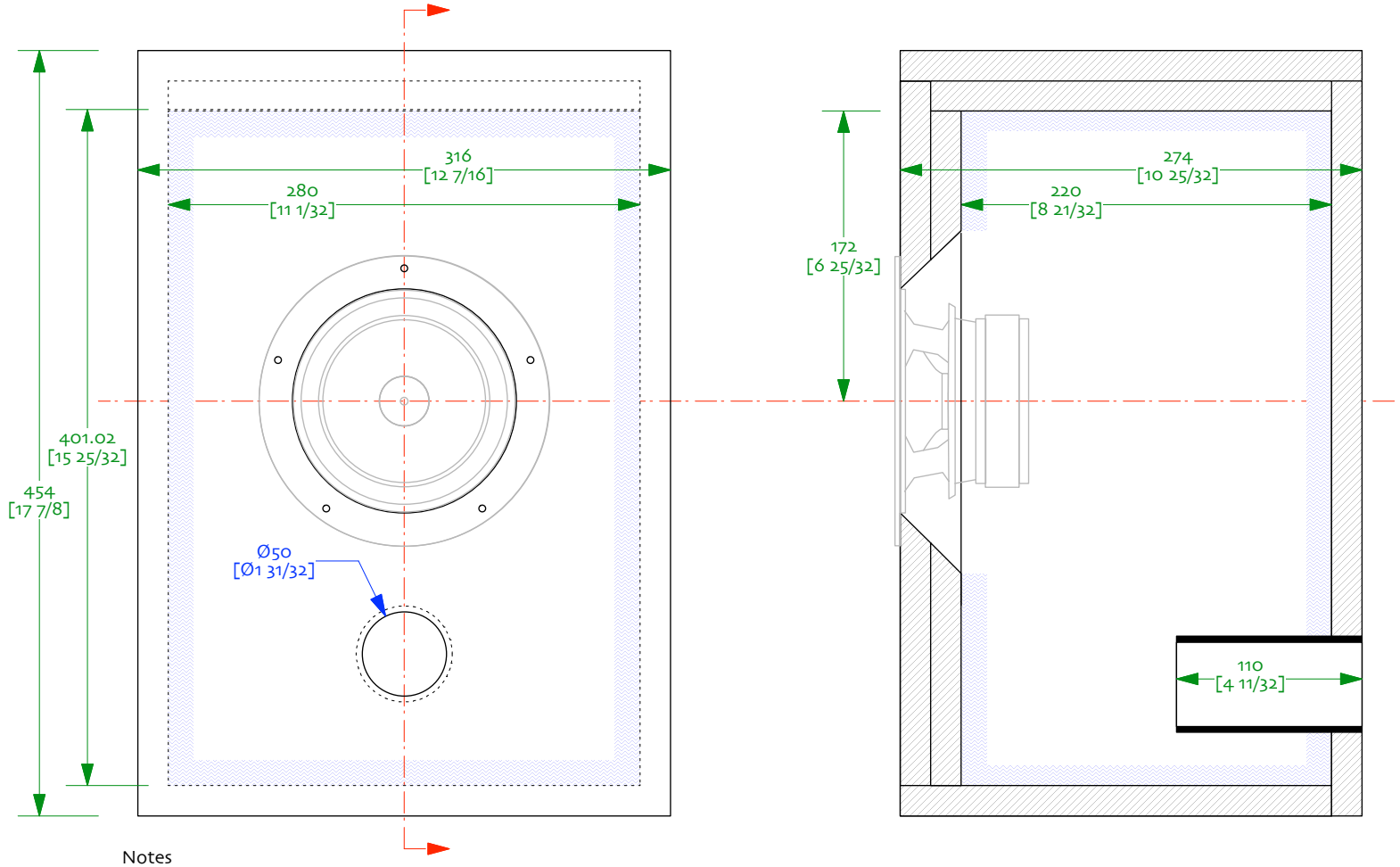
a/ 18 litre vented box standmount enclosure with a damped alignment to 45Hz. Voltage-source / high damping factor amplifier assumed.
b/alignment incorporates 0.25 - 0.5 ohm series resistance for wire, connections
c/ rear vent location employed for reduced noise
d/ suitable for use relatively near boundaries & in small spaces due to well-damped acoustic alignment and broad tuning.
e/ Fb = 45Hz / F3 = 46/F6 39Hz (nominal anechoic)

Notes

0/ drawn with 18 mm material
1/ good multi-ply recommended
2/ optional bracing not shown (necessary if MDF used). Orient braces vertically
3/ line all internal faces with damping 15mm - 20mm [3/4in] wool felt or similar [blue on drawing]. Avoid foam.
4/ If 2in vent used it dhould be 5in
5/ open up back-side of driver cutout (45° bevel shown)

WODEN DESIGN

Pactolus OV93
Mark Audio CHN-110
Sheet 0 – 18mm plan
designed by Scott Lindgren
drawn by dld / 14-november-2019



Notes

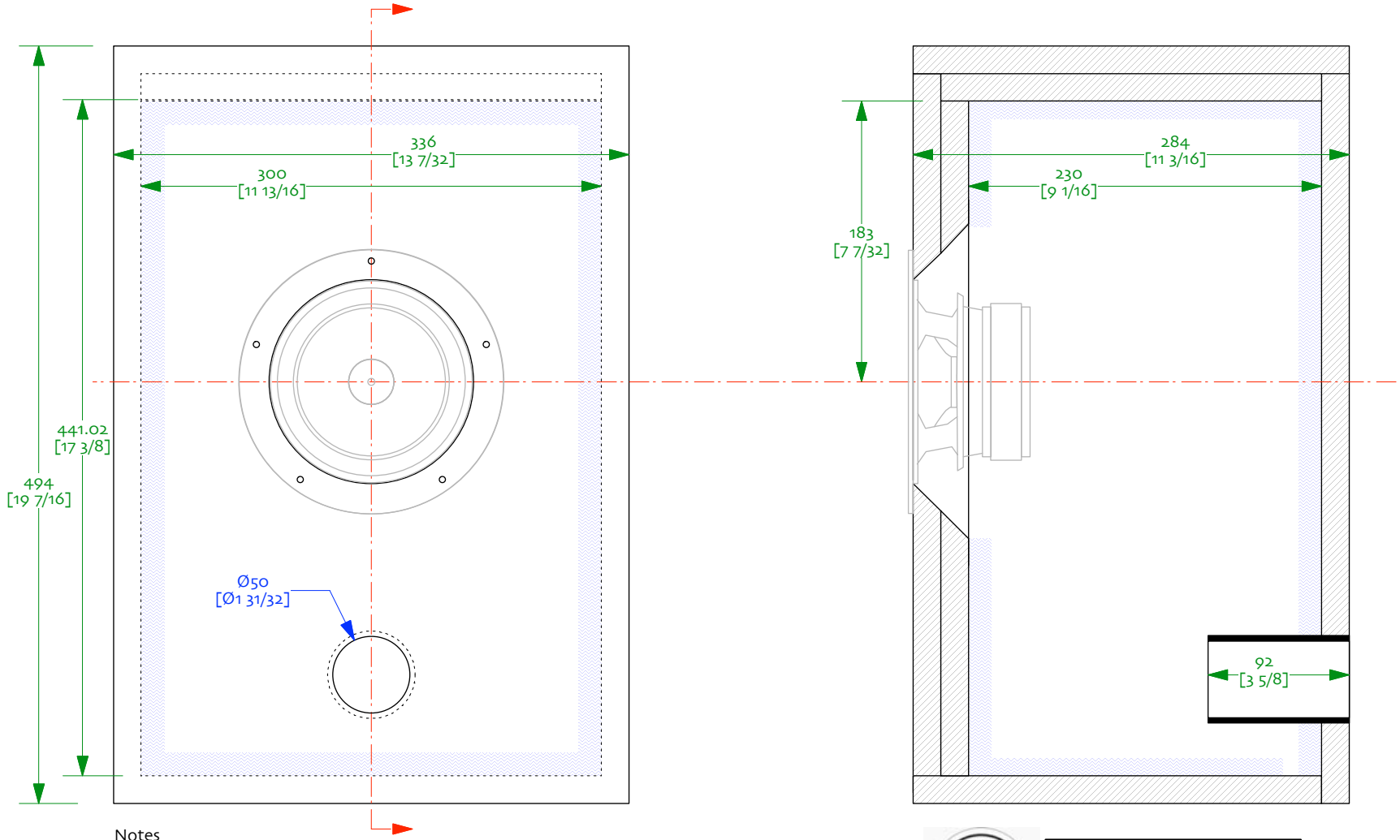
0/ drawn with 18 mm material
1/ good multi-ply recommended
2/ optional bracing not shown (necessary if MDF used).
Orient braces vertically
3/ line all internal faces with damping 15mm - 20mm [3/4in]
wool felt or similar [blue on drawing]. Avoid foam.
4/ If 2in vent used it dhould be 4.375in
5/ open up back-side of driver cutout (45° bevel shown)

Design notes:

a/ 24 litre vented box standmount enclosure with a damped alignment to 45Hz. Voltage-source / high damping factor amplifier assumed.
b/alignment incorporates 0.25 - 0.5 ohm series resistance for wire, connections
c/ rear vent location employed for reduced noise. d/ istance for wire, connections
Rear vent location employed for reduced noise. Speaker is suitable for use nearer boundaries than 30 litre FB-40-30 enclosure due to damped acoustic alignment and slightly broader tuning.
e/ Fb = 41Hz / F3 = 40/F6 36Hz (nominal anechoic)

WODEN DESIGN

Pelorus ov92
Mark Audio CHN-110
Sheet 0 – 18mm plan
designed by Scott Lindgren
drawn by dld / 14-november-2019



Notes

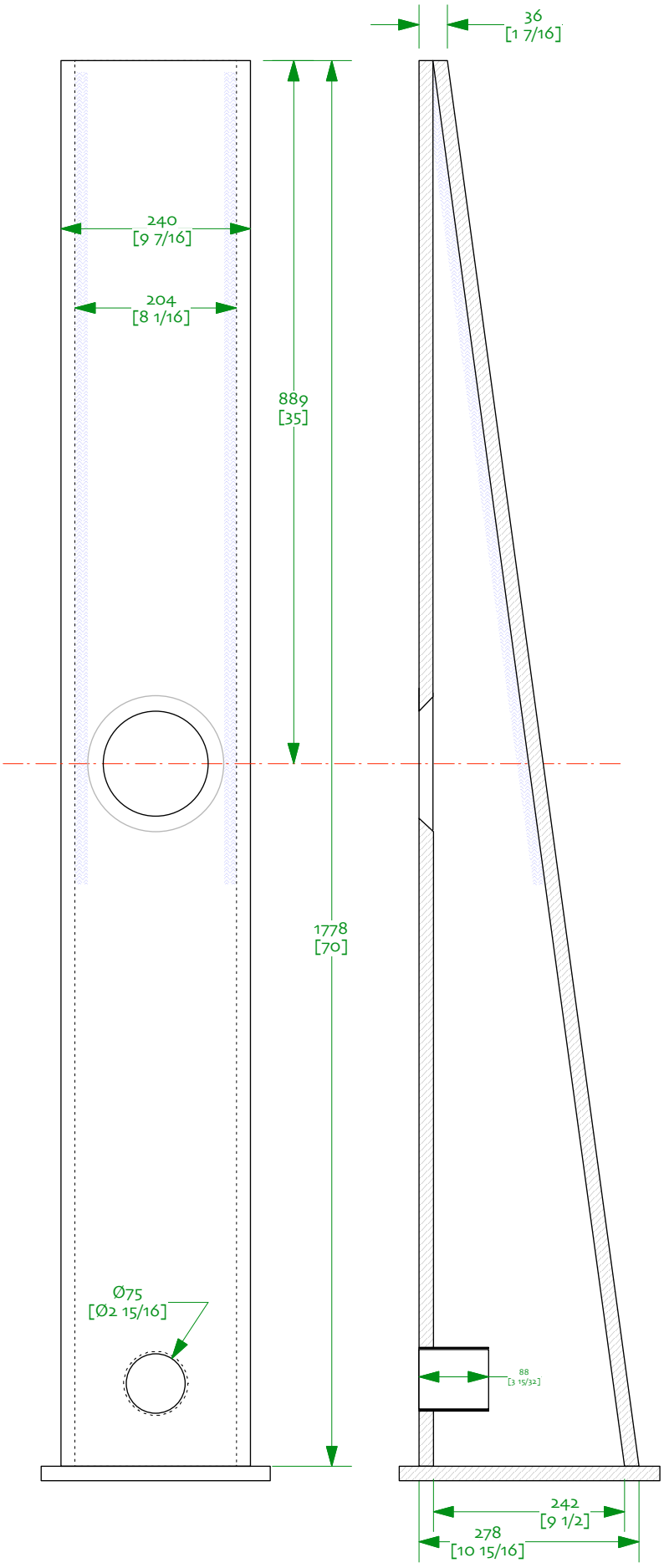
0/ drawn with 18 mm material
1/ good multi-ply recommended
2/ optional bracing not shown (necessary if MDF used). Orient braces vertically
3/ line all internal faces with damping 15mm - 20mm [3/4in] wool felt or similar [blue on drawing]. Avoid foam.
4/ If 2in vent used it dhould be 3.625in
5/ open up back-side of driver cutout (45° bevel shown)

Design notes:

a/ 30 litre vented box standmount enclosure with a damped alignment to 45Hz. Voltage-source / high damping factor amplifier assumed.
b/ alignment incorporates 0.25 - 0.5 ohm series resistance for wire, connections
c/ enclosure provides near maximally-flat alignment to 40Hz. Voltage-source / high damping factor amplifier assumed. Rear vent location employed for reduced noise. Avoid use near boundaries or bass gain may become excessive.
e/ Fb = 40Hz / F3 = 36/F6 32Hz (nominal anechoic)

WODEN DESIGN

Perseus ov91
Mark Audio CHN-110
Sheet 0 – 18mm plan
designed by Scott Lindgren
drawn by dld / 13-november-2019



Imbolc ML-V 0v91

CHN-110 | plan (18mm)
designed by Scott Lindgren | drawn by dld
14-nov-2019| © 2010-19 Woden Design
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Notes

0/ drawn with 18 mm material
1/ good multi-ply recommended
2/ optional bracing not shown (necessary if MDF used). Orient braces vertically
3/ damping applied back and side walls to 152mm [6in] below driver. 15mm - 20mm [3/4in] wool felt or similar [blue on drawing] recommended. Avoid acoustic foam
4/ If 3in vent used it should be 3.5in
5/ open up back-side of driver cutout (45° bevel shown)

Design notes:

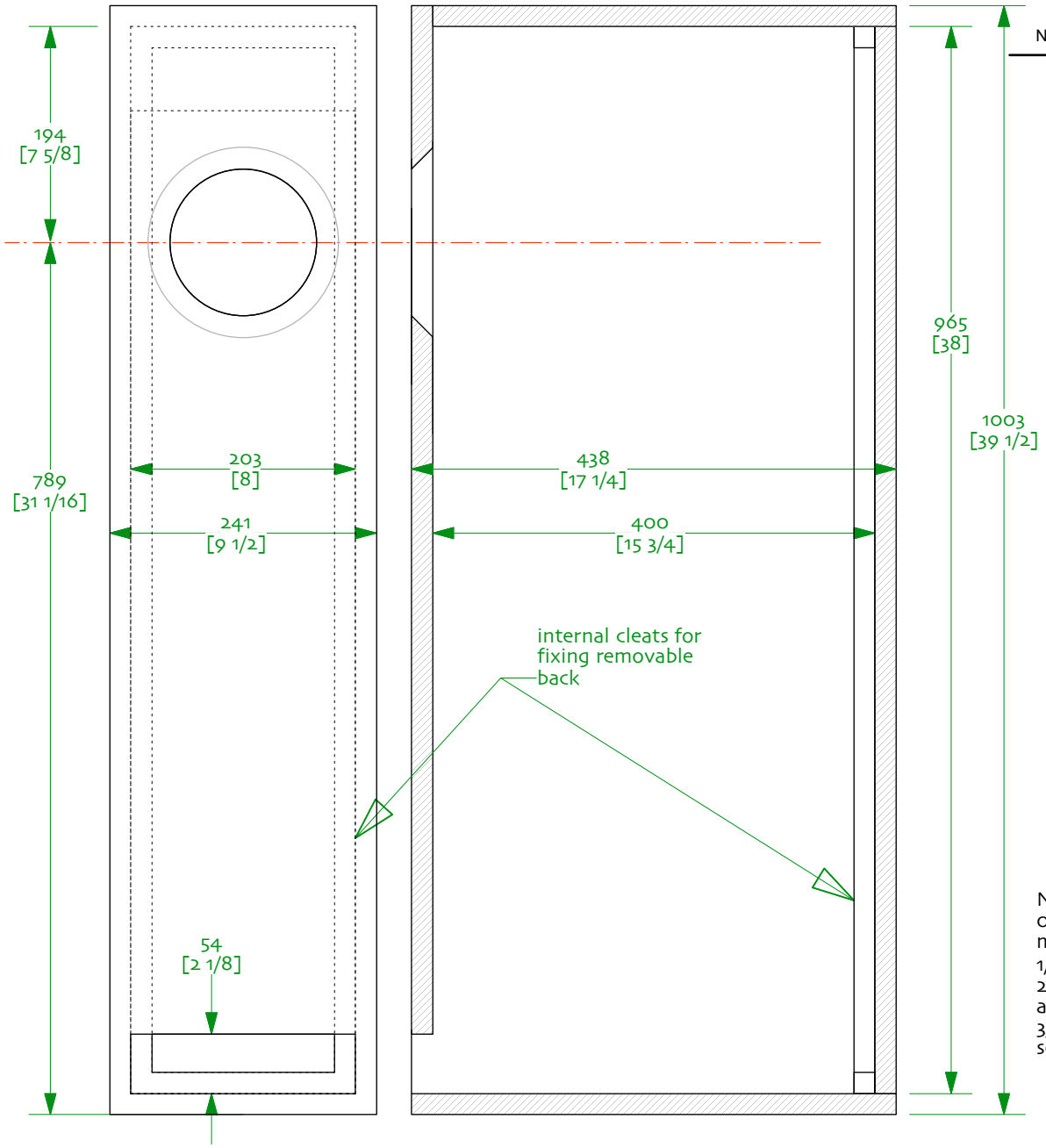
a/ mass-loaded Voigt horn provides relatively flat alignment to 41Hz. Voltage-source / high damping factor amplifier assumed.
b/ alignment incorporates 0.25 - 0.5 ohm series resistance for wire, connections
c/ driver and vent may be positioned on the vertical or sloping baffle
e/ Fb = 41Hz / F3 = 37/F6 32Hz (nominal anechoic)

This is a free example of a member of the Woden Festival Series

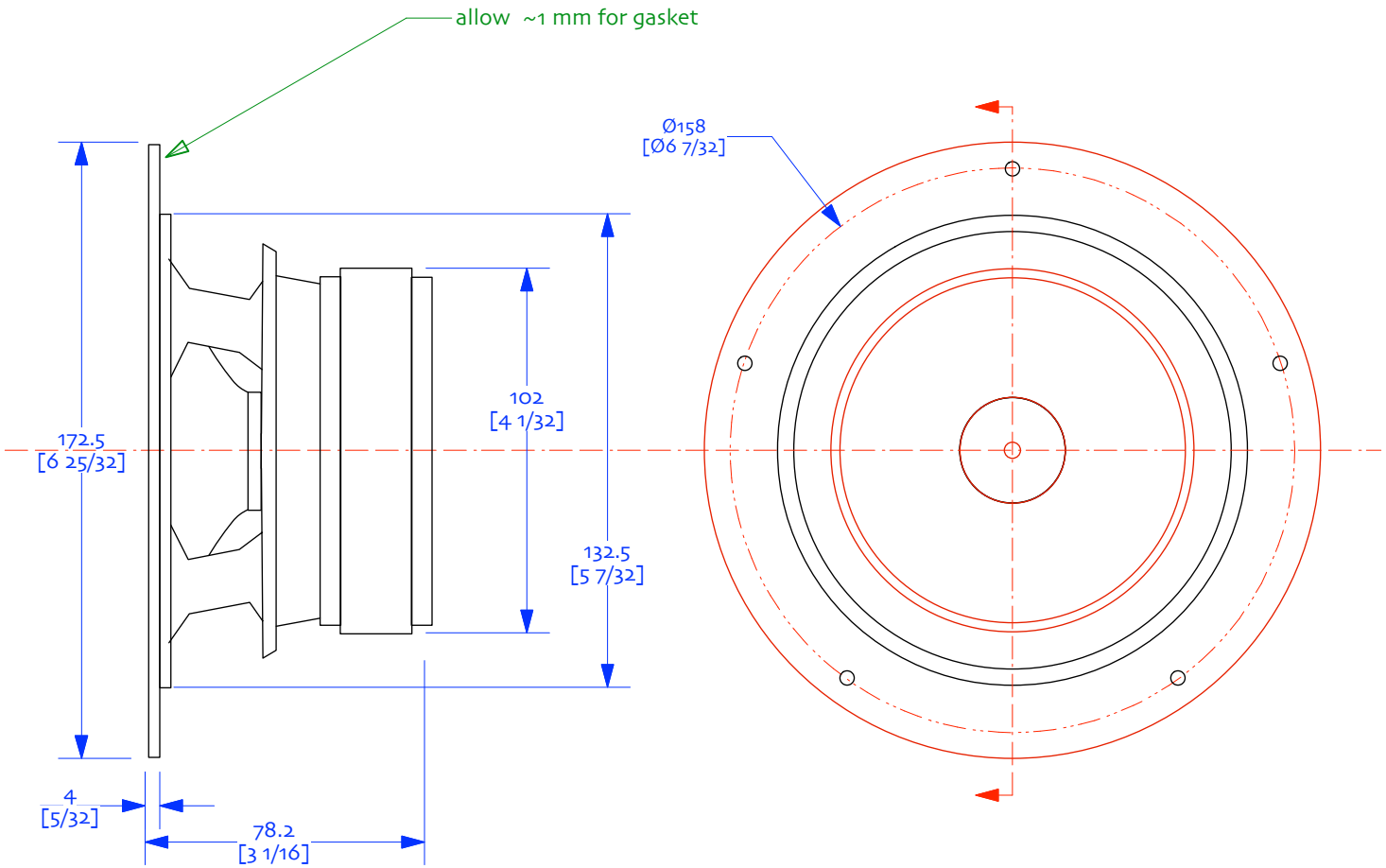
Pensil CHN-110

designed by S Lindgren drawn by dld
14-november-2019

markaudio
New Audio Fidelity



Notes:
0/ drawing uses 3/4" (19.05mm) material. 18-20mm OK. Quality multi-ply recommended
1/ stuff with 1 lbs / ft^3 (44 ounces = 1.256 kg) of polyfill
2/cleats on back to allow for removable back, useful for adjusting the stuffing
3/ bracing is optional but recommended. For bracing ideas plase see the bracing sheet in the superPensil12 plans



markaudio

CHN 110

driver dimensions
drawn by dld | 14-december-2019