# 10W1T (individual unit)

## Drivers

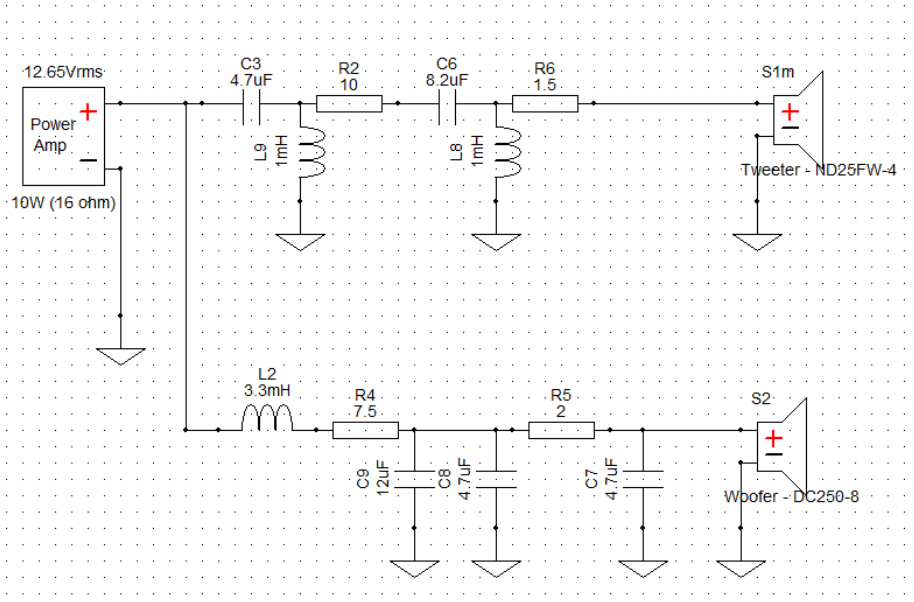
### Woofer

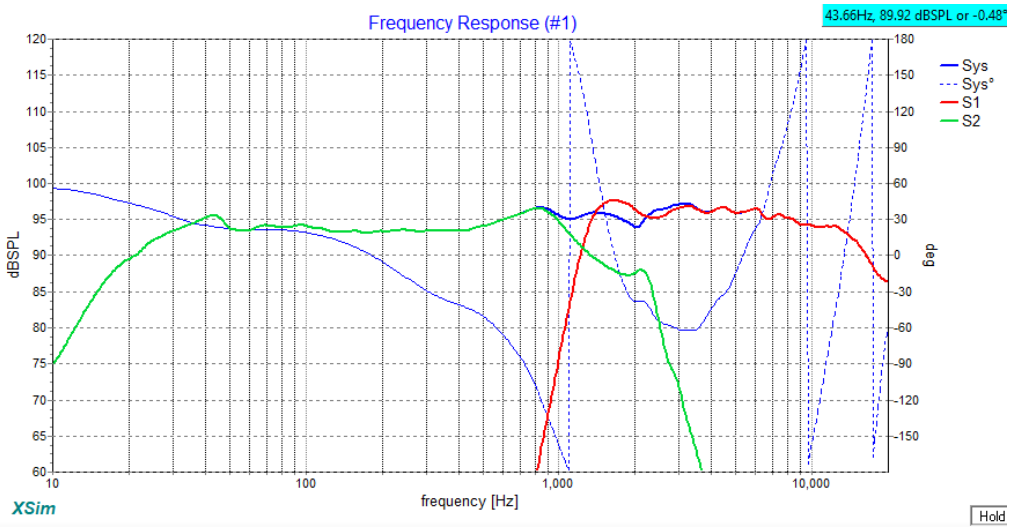
(1x) 10” paper cone woofer
https://www.wagneronline.com.au/10-classic-paper-cone-woofer/dayton-classic-series/dayton-audio/speaker-drivers/audio-speakers-pa/dc250-8-93615/1011204/pd/
DC250-8
Dayton audio
8 ohm 70 w
$109.00

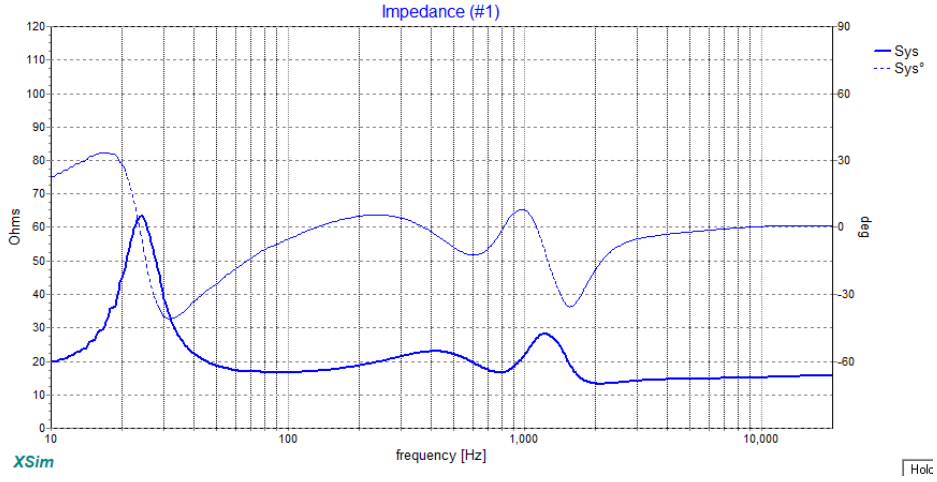
### Tweeter

(1x) 1” soft dome neodymium tweeter - With (104mm D) waveguide
https://www.wagneronline.com.au/1-soft-dome-neodymium-tweeter/dayton-nd-series/dayton-audio/speaker-drivers/audio-speakers-pa/nd25fw-4-92027/971028/pd/
ND25FW-4
Dayton audio
4 ohm 20 w
$59.95

# Crossover


12.65Vrms
Power Amp
10W (16 ohm)
C3 4.7uF
R2 10
C6 8.2uF
R6 1.5
S1m
L9 1mH
L8 1mH
Tweeter - ND25FW-4
L2 3.3mH
R4 7.5
R5 2
S2
C9 12uF
C8 4.7uF
C7 4.7uF
Woofer - DC250-8


Frequency Response (#1)
43.66Hz, 89.92 dBSPL or -0.48°
Sys
Sys°
S1
S2
dBSPL
deg
frequency [Hz]
XSim
Hold


Impedance (#1)
Sys
Sys°
Ohms
deg
frequency [Hz]
XSim
Holc

# Crossover components

## Capacitors

(3x) 4.7uF capacitor
https://speakerbug.com.au/index.php?route=product/product&path=25_28&product_id=148
$9.35

(1x) 8.2uF capacitor
https://speakerbug.com.au/index.php?route=product/product&path=25_28&product_id=152
$12.65

(1x) 12uF capacitor
https://speakerbug.com.au/index.php?route=product/product&path=25_28&product_id=154
$13.75

## Resistors

(1x) 1.5 ohm resistor
https://speakerbug.com.au/index.php?route=product/product&path=33_27&product_id=102
$6.60

(1x) 2 ohm resistor
https://speakerbug.com.au/index.php?route=product/product&path=33_27&product_id=104
$6.60

(1x) 7.5 ohm resistor
https://speakerbug.com.au/index.php?route=product/product&path=33_27&product_id=115
$6.60

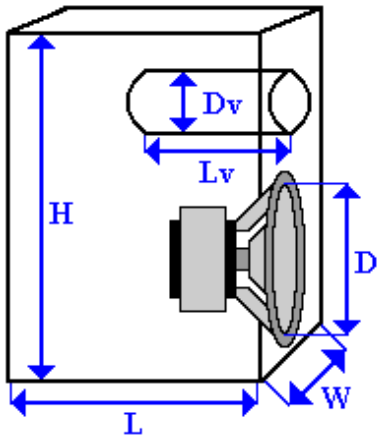
(1x) 10 ohm resistor
https://speakerbug.com.au/index.php?route=product/product&path=33_27&product_id=118
$6.60

## Inductors

(3x) 1mH inductor
https://speakerbug.com.au/index.php?route=product/product&product_id=836
$9.35
(1x) 3.9mH inductor
https://speakerbug.com.au/index.php?route=product/product&path=18_46&product_id=823&limit=100
$18.92
OR
https://www.ebay.com.au/itm/253051117771
2mm (14 AWG) 99.9% copper wire to wind into inductors - approx $30 for 10m

# Woofer enclosure - initial size

https://www.diyaudioandvideo.com/Calculator/SpeakerBoxEnclosure/




**Dimensions**

**Vas = 104 lts**
**fs = 24.9 Hz**
**Qts = 0.38**
**D = 234 mm**

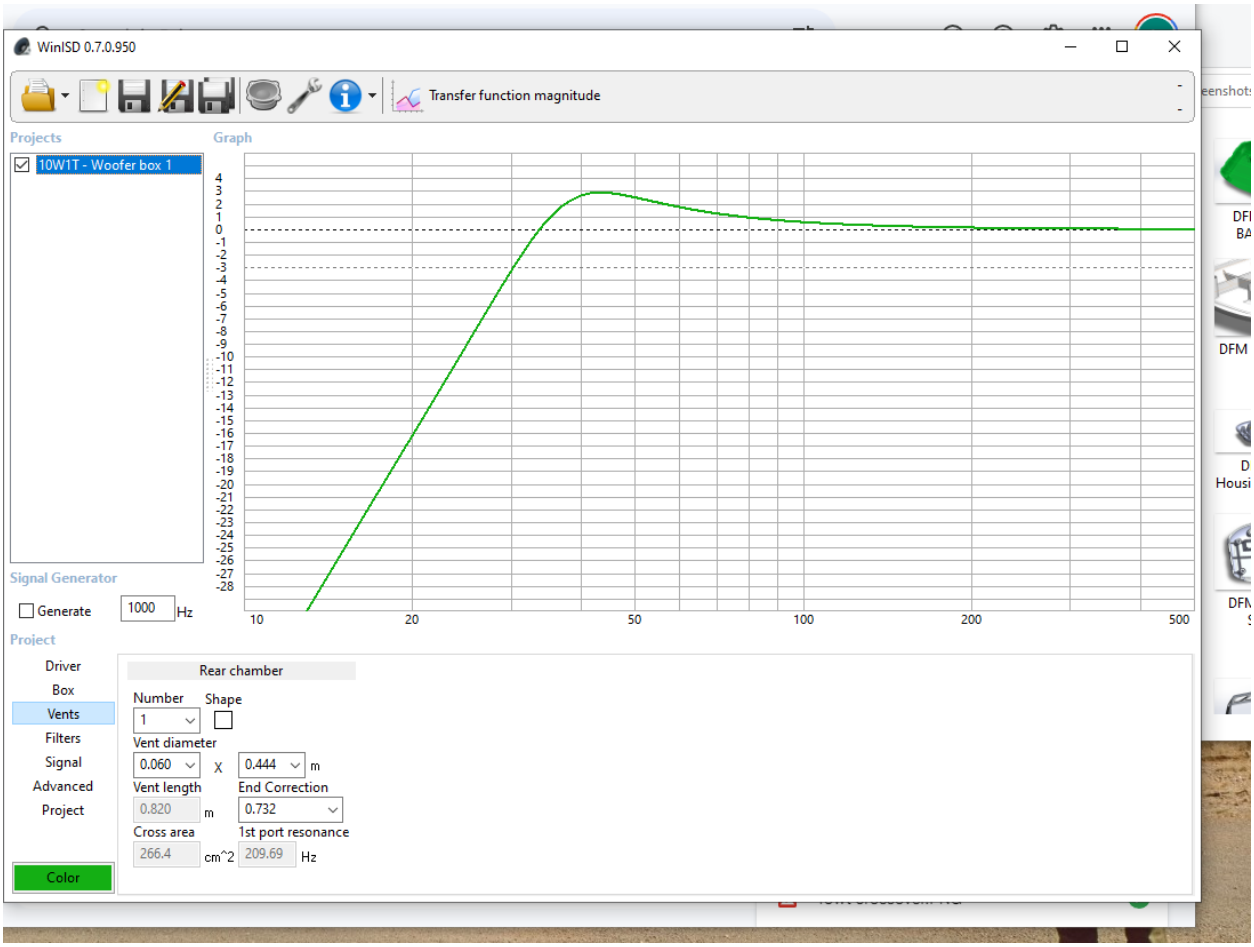
| | |
|---|---|
| **Vb** = 3.02 $ft^3$ = 85.38 lts<br>= L x W x H<br>**f3** = 27.16 Hz<br>**fb** = 26.47 Hz<br>**Dv** = 4 in = 10 cm<br>**Lv** = 12.74 in = 31.23 cm | **Vb**: Speaker Box Internal Volume<br>**f3**: 3dB Cutoff Frequency<br>**fb**: Enclosure Resonant Frequency<br>**Dv**: Port Diameter<br>**Lv**: Port Length |

Note: Port volume (inside the port) does not count toward speaker volume.

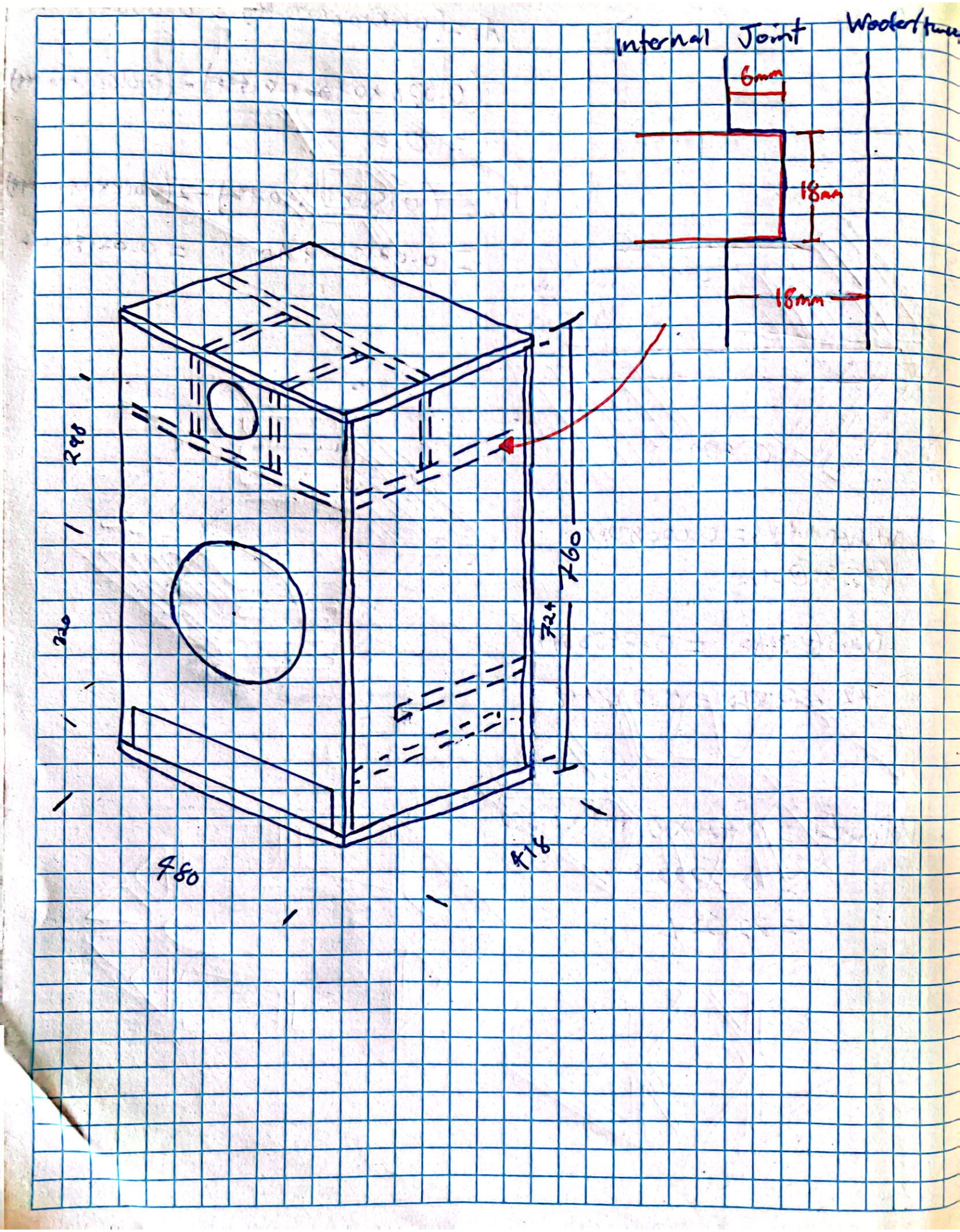
V

# Enclosure

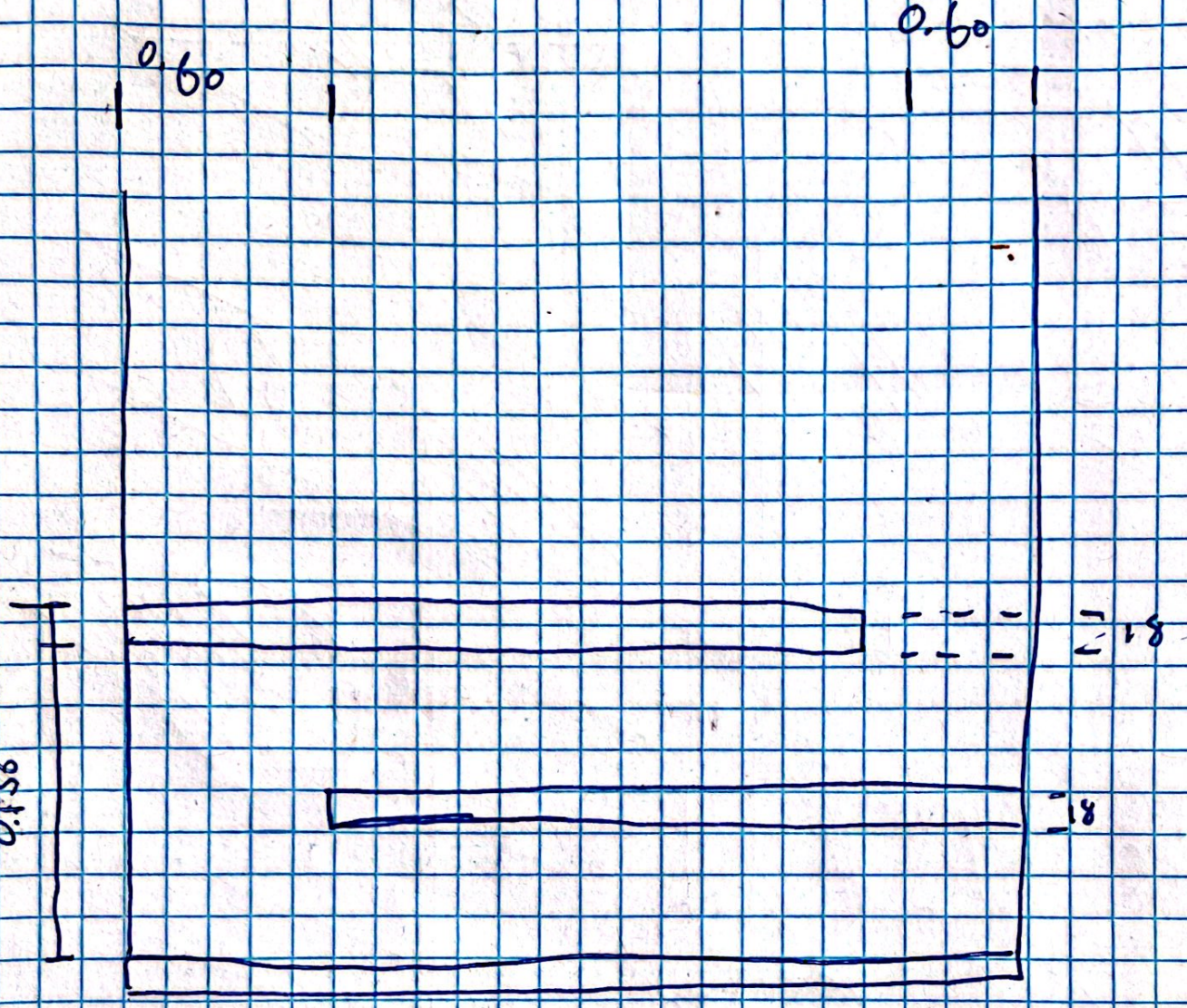
https://www.bunnings.com.au/18mm-mdf-panel-standard-2400-x-1200mm_p0590060
$53 MDF Sheet




Box volume, 72.25L, tuning frequency 34 Hz.



# Port Volume Calculations

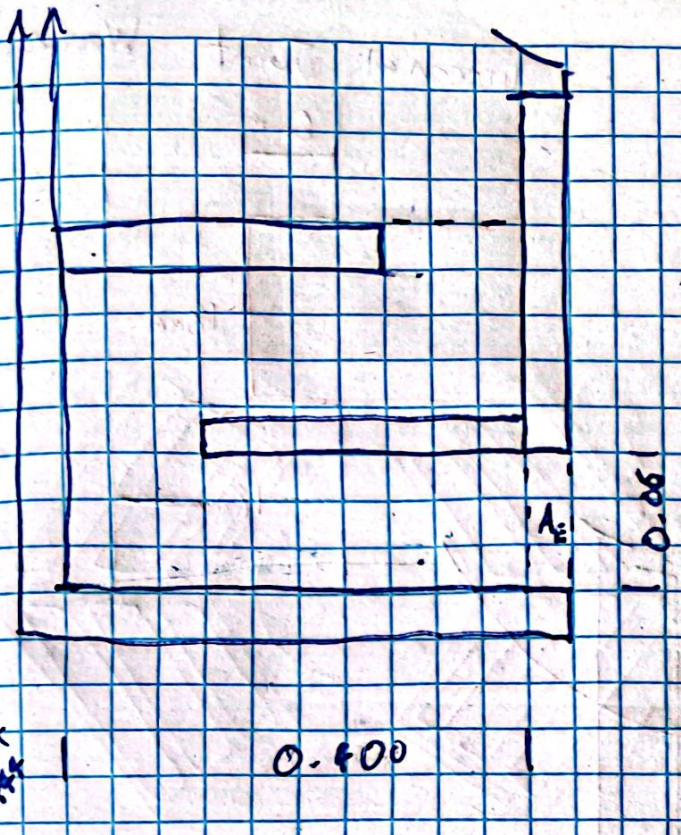



0.444

$(0.156 \times 0.444 \times 0.444) - 2(0.018 \times 0.384 \times 0.444)$

$= 0.029461536$

0.1840824




$A_E = (0.018 \times 0.006 \times 0.444) = 0.0004795 2$

$(0.078 \times 0.400 \times 0.444) - (0.018 \times 0.4 \times 0.444)$

$= 0.01$ ✗

$P_{V_a} = (0.156 \times 0.4 \times 0.444) - 2(0.018 \times 0.4 \times 0.444)$

$= 0.02312 + A_E \quad = 0.021791 52$

Win VSD Vent Vol = 0.02083248

(75.21@34hz)

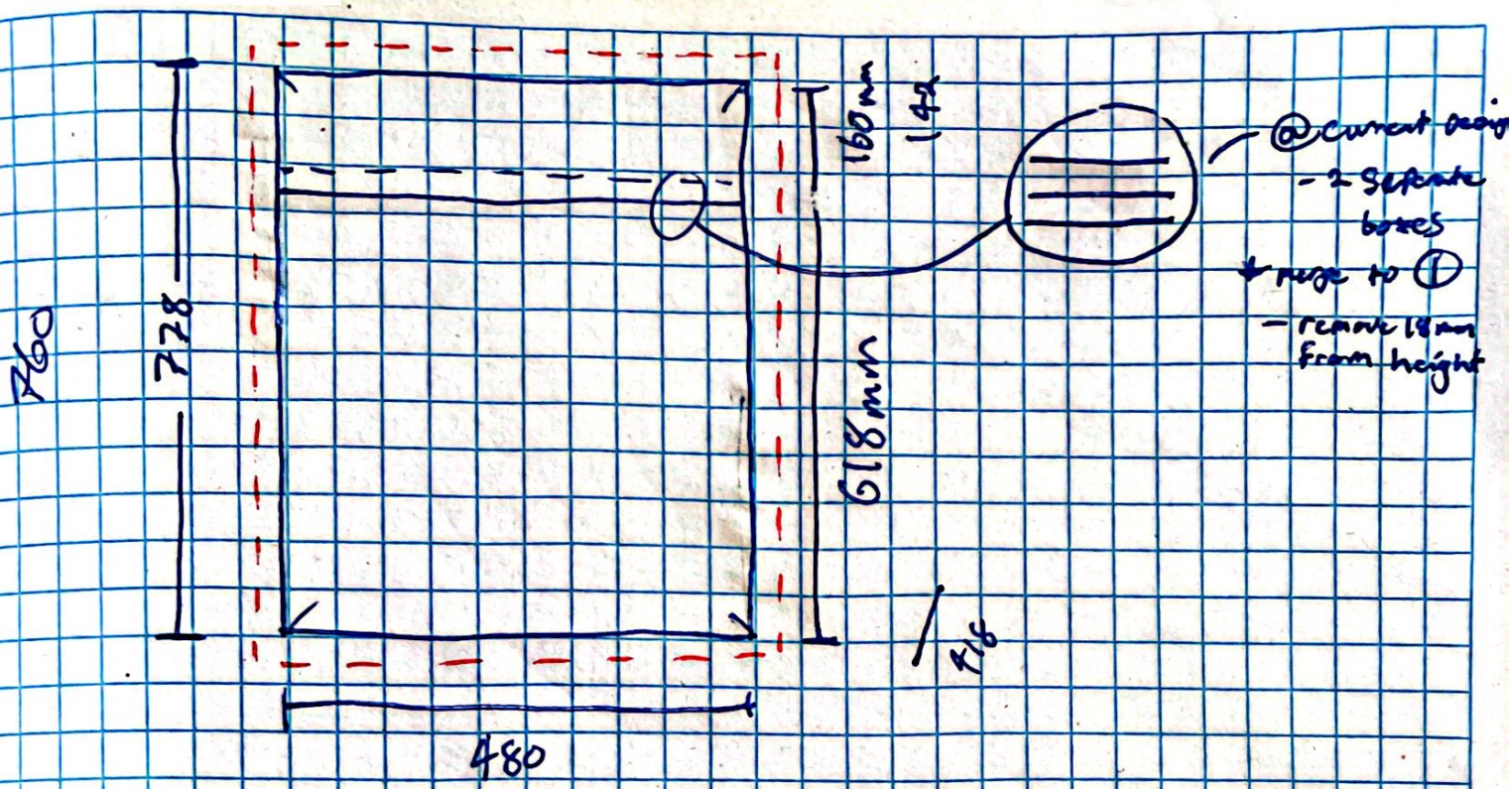
65.3@34hz = 0.245354

72.25@34hz = 0.218448

$Vol_{box} Ef = 0.426 \times 0.444 \times 0.382$

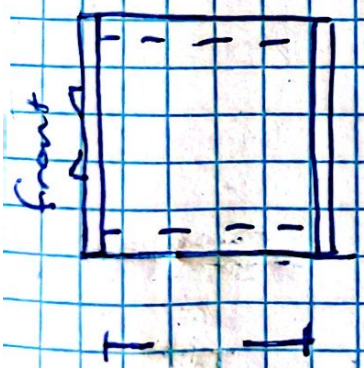
$= 0.072225$

$= 72.25 L$




Box dimensions 618 × 480 × 418

Side view




Vent 384mm

$V_{vent} = 0.022644\ m^3$