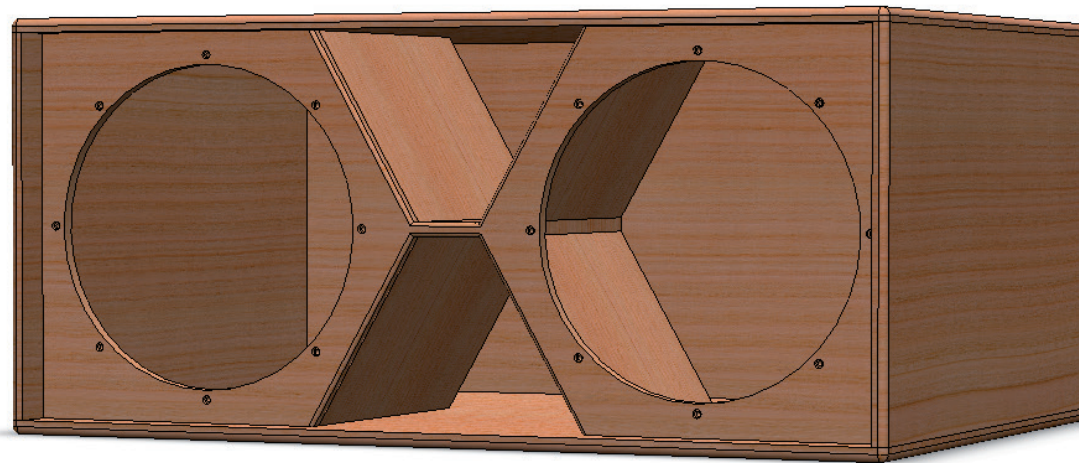




PROFESSIONAL  
LOUDSPEAKERS

## APPLICATION NOTE



18" DUAL SUBWOOFER

# KEY FEATURES

> High performance 2 x 18" subwoofer system optimized for 18TLW3000 transducer

**18TLW3000** subwoofer key features:  
 3600 W AES power handling  
 100 mm (4 In) Tetracoil dual voice coil  
 Ultra linear suspension behaviour for excellent sound clarity  
 Low noise forced air cooling desingn



18TLW3000

## GENERAL SPECIFICATIONS

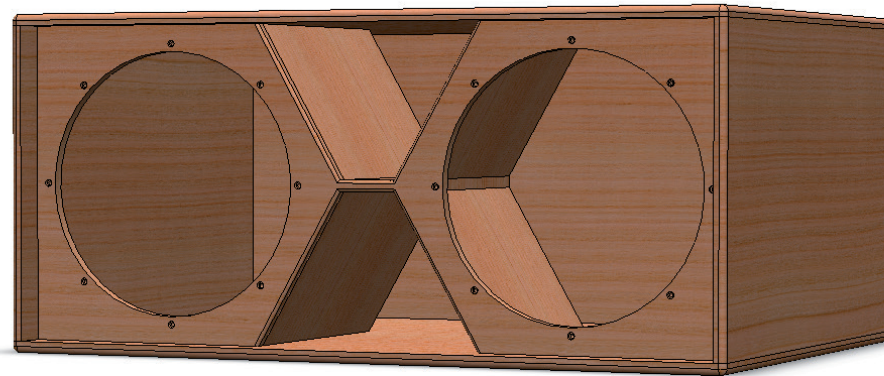
NOMINAL DIAMETER	460 mm (18 in)
RATED IMPEDANCE	8 Ohm
AES POWER	1800W
PROGRAM POWER	3600W
PEAK POWER	10000W
SENSITIVITY	95 dB
FREQUENCY RANGE	30 ÷ 2000 Hz
POWER COMPRESSION @-10dB	0.6 dB
POWER COMPRESSION @-3dB	2.0 dB
POWER COMPRESSION @0dB	3.4 dB
MAX RECOMM. FREQUENCY	300 Hz
RECOMM. ENCLOSURE VOLUME	100 ÷ 350 lt (3.53÷12.36cuft)
MINIMUM IMPEDANCE	5.7 Ohm at 25°C
MAX PEAK TO PEAK EXCURSION	45 mm (1.77 in)
VOICE COIL DIAMETER	100 mm (4 in)
VOICE COIL WINDING MATERIAL	Copper
SUSPENSION	Triple roll, Polycotton
CONE	Curvilinear fiberglass loaded cellulose

## THIELE SMALL PARAMETERS

Fs	33 Hz
Re	4.6 Ohm
Sd	0,1225 sq. mt. (189,88 sq. in.)
Qms	13.00
Qes	0.42
Qts	0.41
Vas	185 lt. (6.53 cuft)
Mms	266 gr. (0,59 lb)
BL	24.5 Tm
Linear mathematical Xmax	± 12 mm (± 0,47 in)
Le (1kHz)	1.80 mH
Ref. Efficiency 1W@1m (half space)	94.0 dB

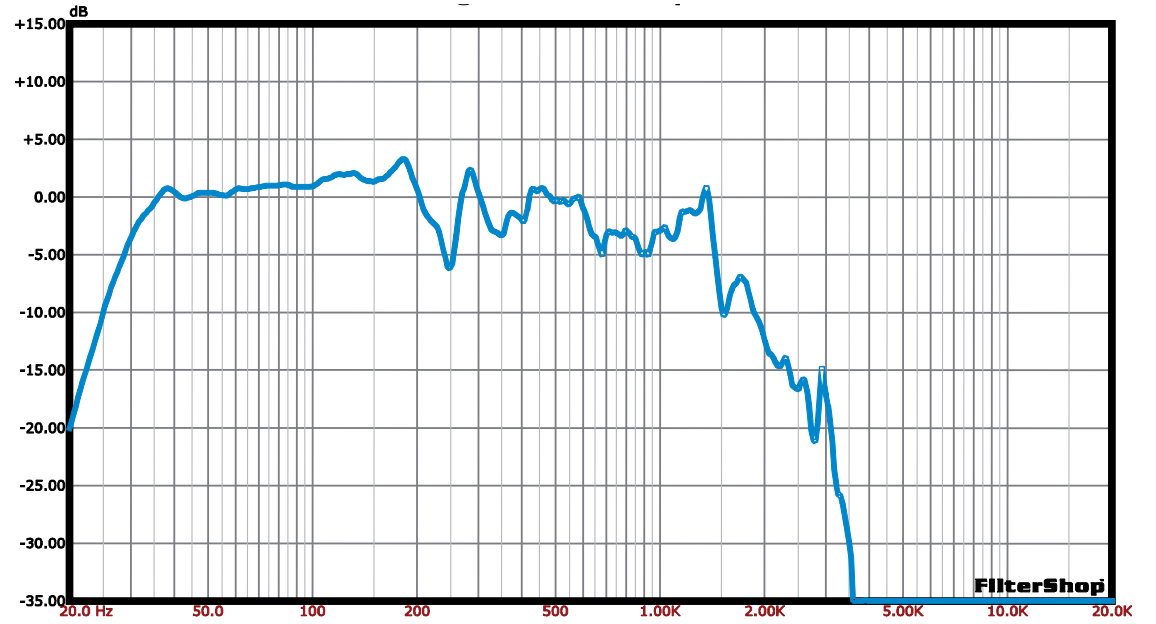
## KEY FEATURES

- > The enclosure should be made of baltic birch plywood (18mm thickness)
- > Bolts are M6x35mm (M6 T-nuts recommended)
- > Handling, rigging and connectors are user's choice
- > It's recommended to well damp the cabinet interior (an high density dampening material, such as Dacron or other synthetic fibers. Is required for better performance)

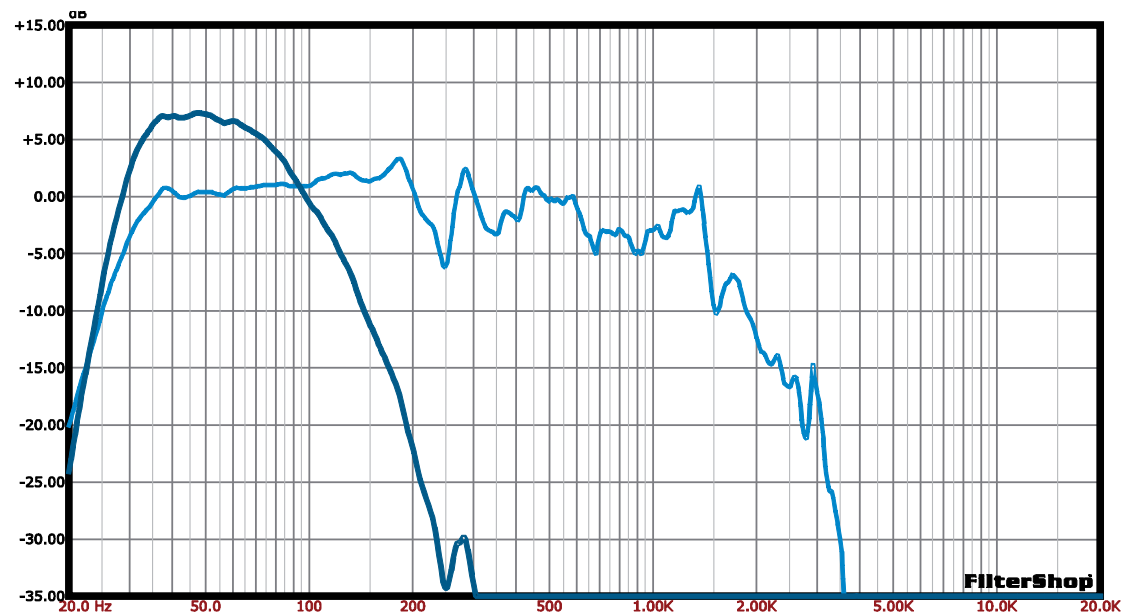


# MEASUREMENTS: MAGNITUDE RESPONSE

UNFILTERED FREQUENCY RESPONSE



UNFILTERED AND TOTAL PROCESSED RESPONSE



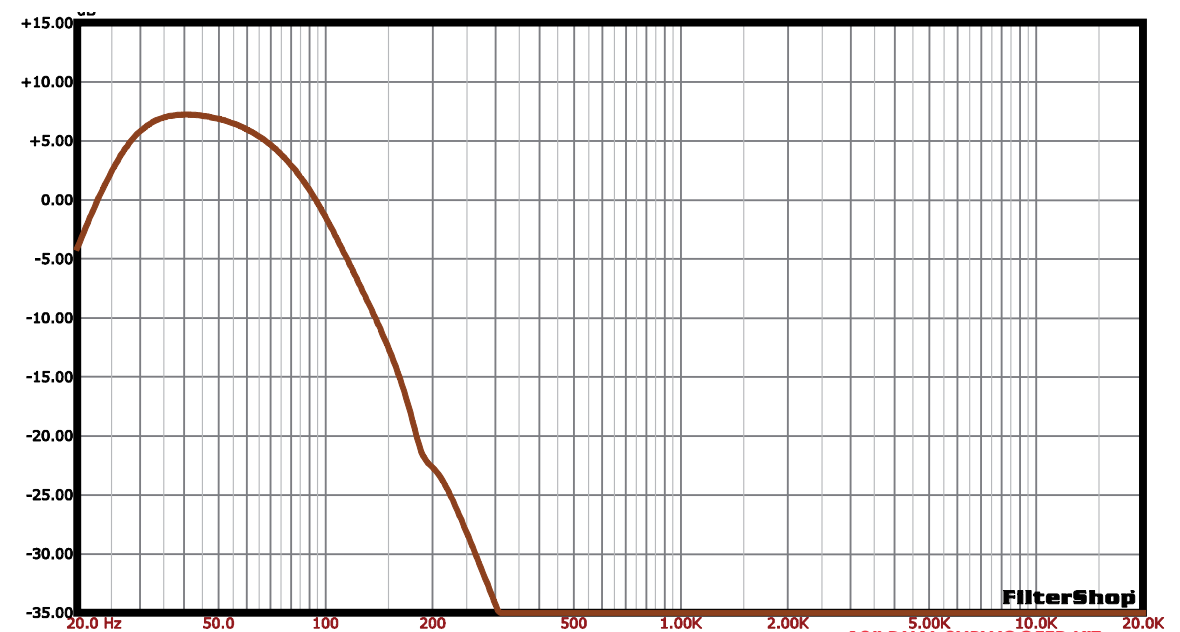
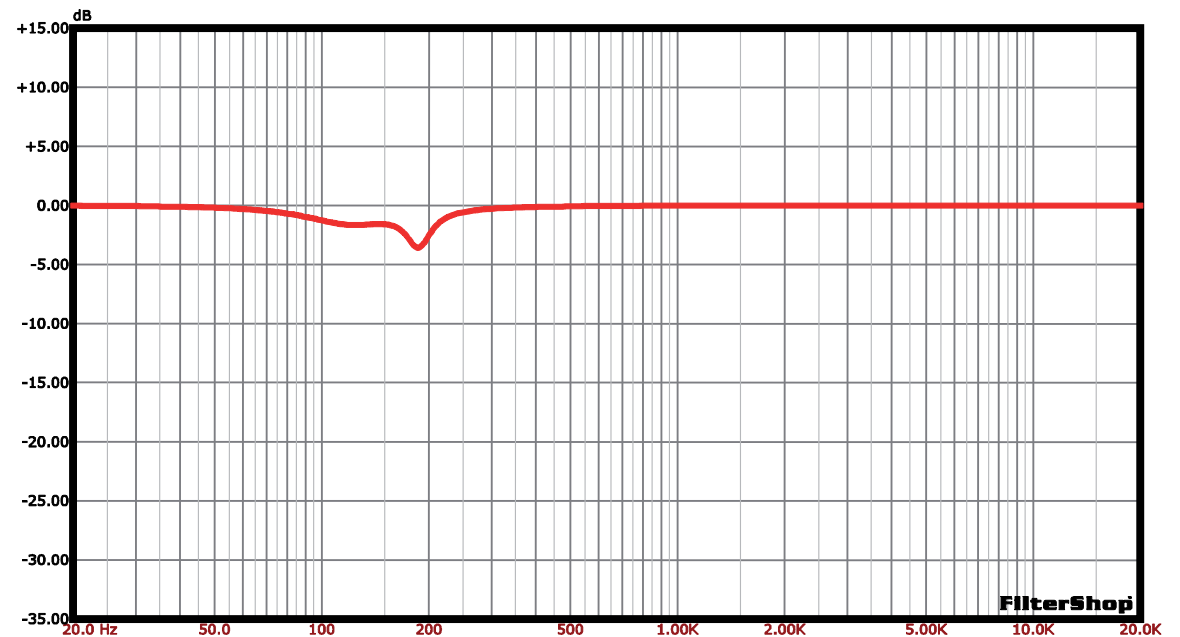
# MEASUREMENTS: EQUALIZER RESPONSE AND TOTAL PROCESSING CURVE WITH +8DB GAIN

## NECESSARY PROCESSOR SETTINGS:

- > EQ1 = 120Hz, -1.5dB, Q: 1.5
- > EQ2 = 187Hz, -3dB, Q: 6
- > HP Filter = 28Hz, 24dB/Oct, Butterworth
- > LP Filter = 90Hz, 24dB/Oct, Linkwitz-Riley
  
- > Output GAIN = +8dB (with 32dB Amplifier Gain)
  
- > Limiter = Th.: +9dBu, Atk.: 100ms, Rel.: 100ms

Values referred to XTA DP Series DSP Processor (or equivalent)  
Suggested amplifier: Powersoft K10 or equivalent

## EQUALIZATION FILTERS



## TOTAL PROCESSING CURVE WITH EQ, CROSSOVER AND GAIN



## Alternative woofer choices and settings

### **18LW2420** woofer key features:

1300 W AES power handling  
100 mm (4 In) Interleaved voice coil (ISV)  
Single demodulating ring (SDR)



### EQUALIZATION SETTINGS SUGGESTION

Gain: +6dB

High Pass: Butterworth 24dB/Oct 28Hz

Parametric EQ:  $f_o = 155\text{Hz} / -3\text{dB} / Q = 1$

Parametric EQ:  $f_o = 35\text{Hz} / +2.5\text{dB} / Q = 2$

Low Pass: Linkwitz-Riley 24dB/Oct 90/100Hz

Input limiter : + 6dB - Atk 100ms - Rel 100ms

### **18LW2600** woofer key features:

1500 W AES power handling  
100 mm (4 In) Interleaved voice coil (ISV)  
Double magnet geometry  
Ultra long reinforced suspension  
Single demodulating ring (SDR)



### EQUALIZATION SETTINGS SUGGESTION

Gain: +7dB

High Pass: Butterworth 24dB/Oct 28Hz

Parametric EQ:  $f_o = 155\text{Hz} / -4.5\text{dB} / Q = 1$

Parametric EQ:  $f_o = 32\text{Hz} / +3\text{dB} / Q = 1.5$

Low Pass: Linkwitz-Riley 24dB/Oct 90/100Hz

Input limiter : + 7dB - Atk 100ms - Rel 100ms

### **18LW4100** woofer key features:

1500 W AES power handling  
100 mm (4 In) Interleaved voice coil (ISV)  
Super lightweight construction  
Ultra long reinforced suspension  
Single demodulating ring (SDR)



### EQUALIZATION SETTINGS SUGGESTION

Gain: +7dB

High Pass: Butterworth 24dB/Oct 28Hz

Parametric EQ:  $f_o = 145\text{Hz} / -4\text{dB} / Q = 1$

Parametric EQ:  $f_o = 33\text{Hz} / +3\text{dB} / Q = 1$

Low Pass: Linkwitz-Riley 24dB/Oct 90/100Hz

Input limiter : + 7dB - Atk 100ms - Rel 100ms

## Voltage Limiters settings



**18LW2420**

Clip limiter:  
200V

Peak Limiter:  
160V  
Atk:25ms  
Rel:200ms

Rms Limiter:  
70V  
Atk:3sec  
Rel:6sec



**18LW2600**

Clip limiter:  
210V

Peak Limiter:  
170V  
Atk:25ms  
Rel:200ms

Rms Limiter:  
75V  
Atk:3sec  
Rel:6sec



**18LW4100**

Clip limiter:  
210V

Peak Limiter:  
170V  
Atk:25ms  
Rel:200ms

Rms Limiter:  
75V  
Atk:3sec  
Rel:6sec



**18TLW3000**

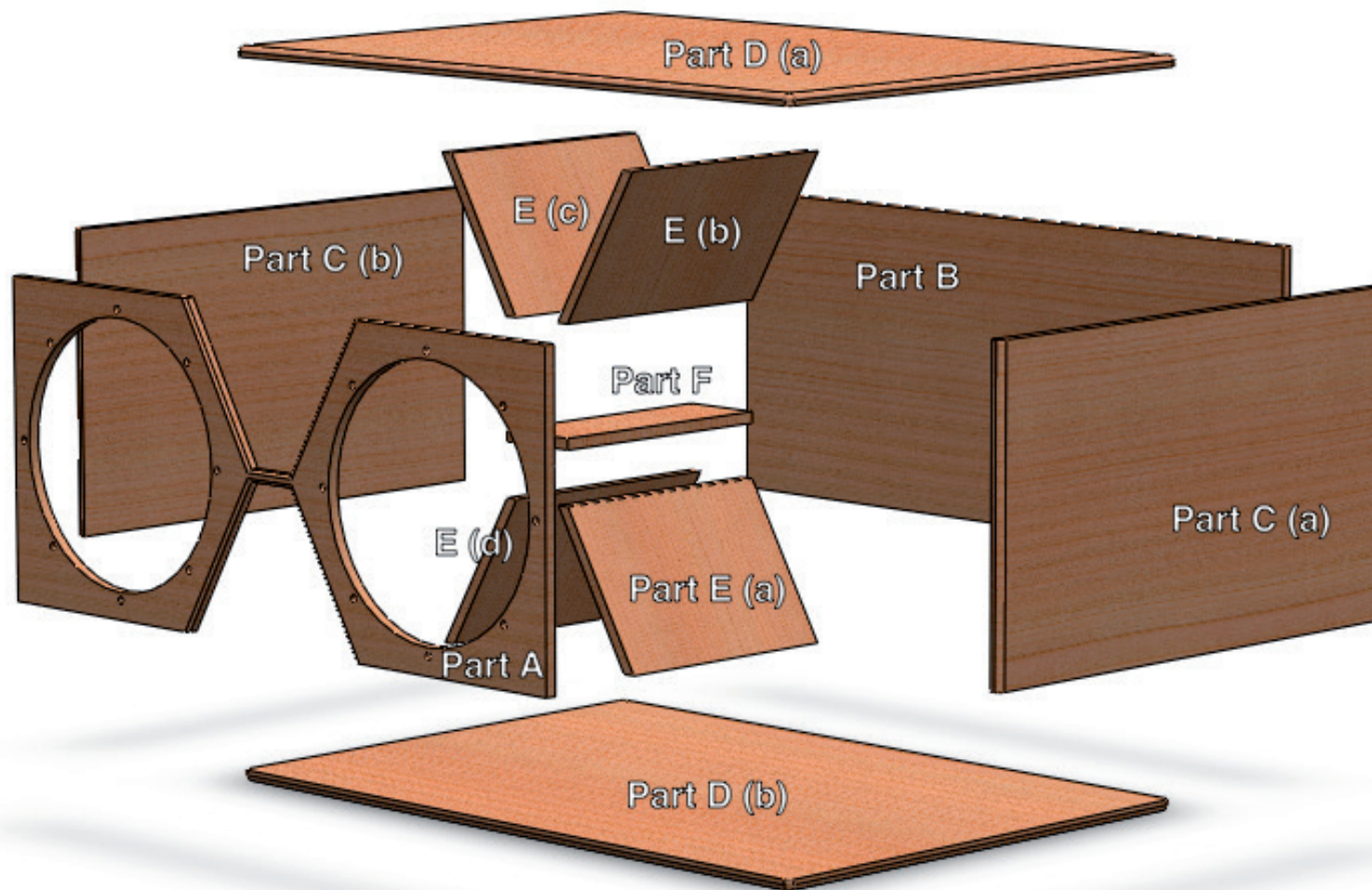
Clip limiter:  
220V

Peak Limiter:  
180V  
Atk:25ms  
Rel:200ms

Rms Limiter:  
80V  
Atk:3sec  
Rel:6sec

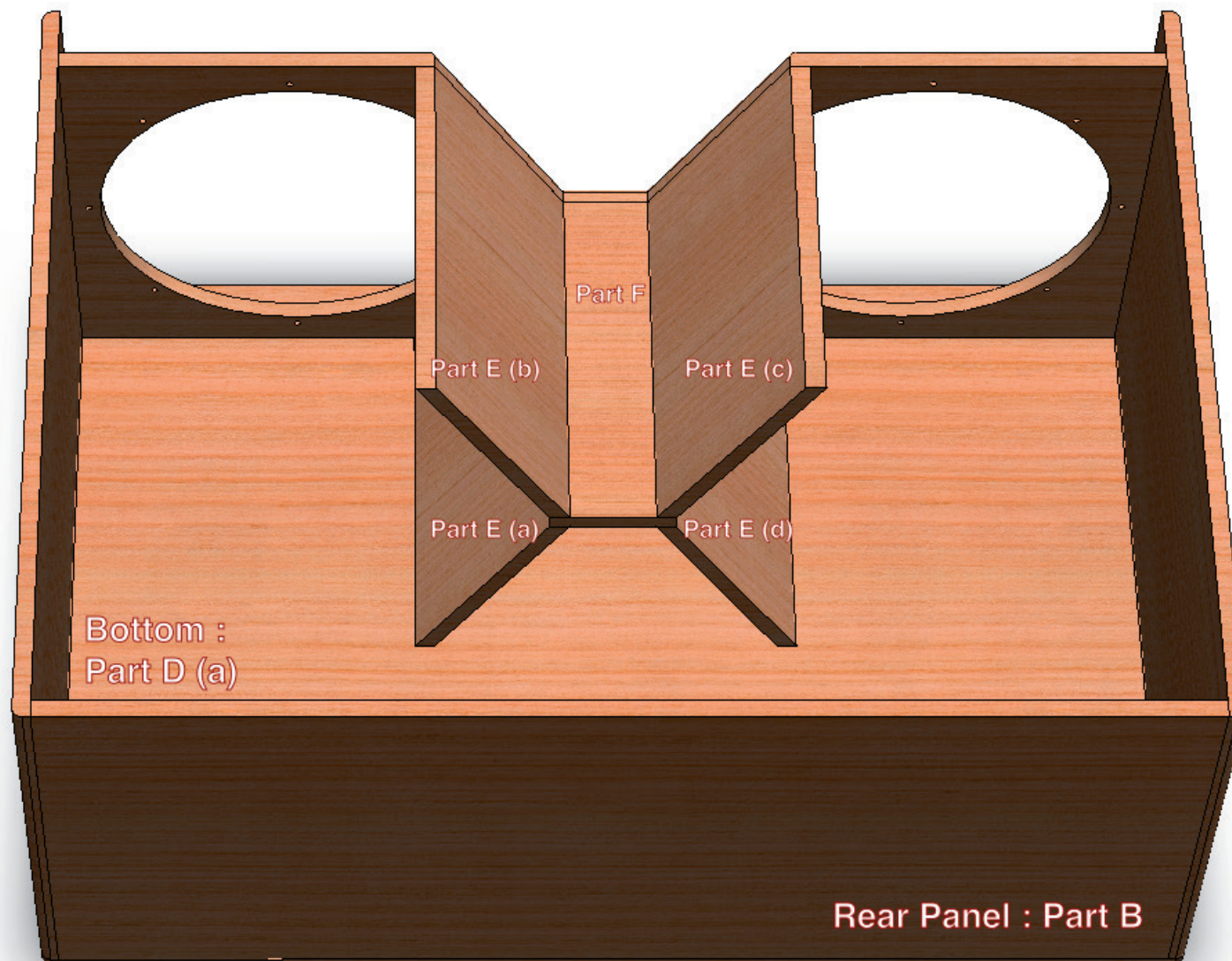


# EXPLODED VIEW

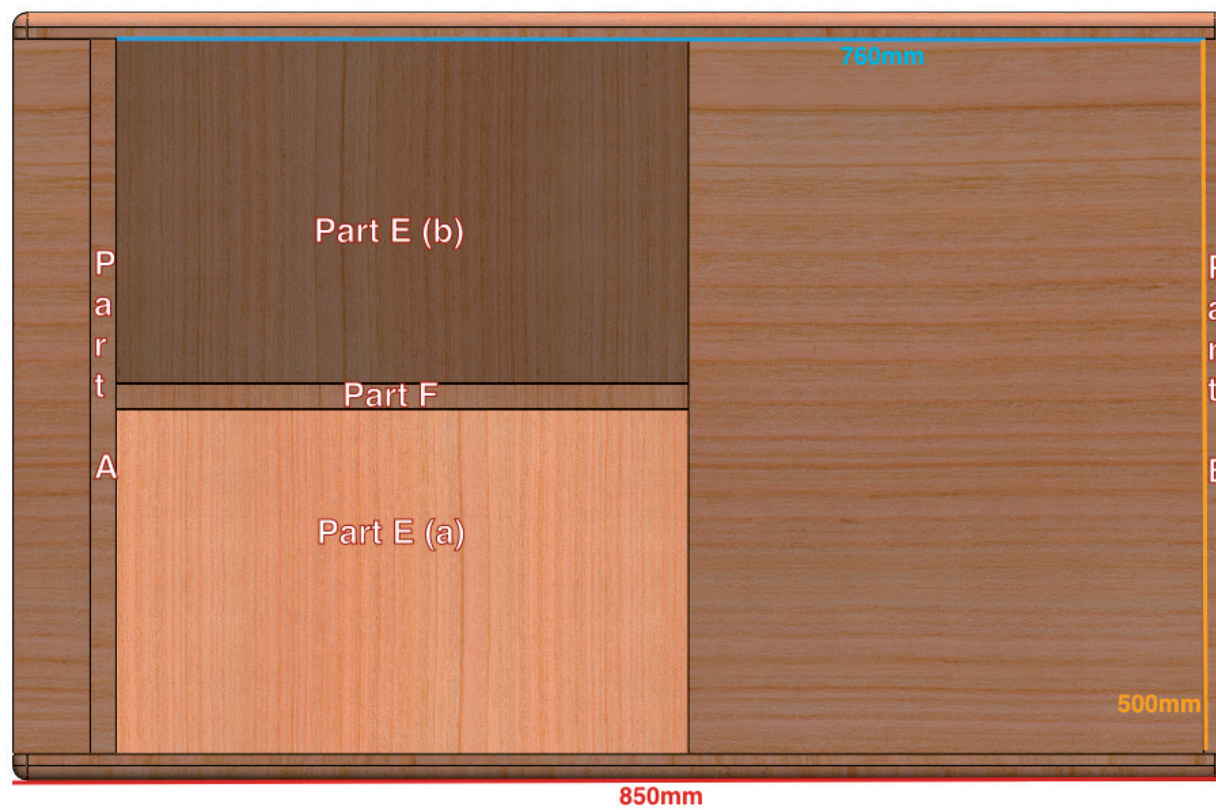




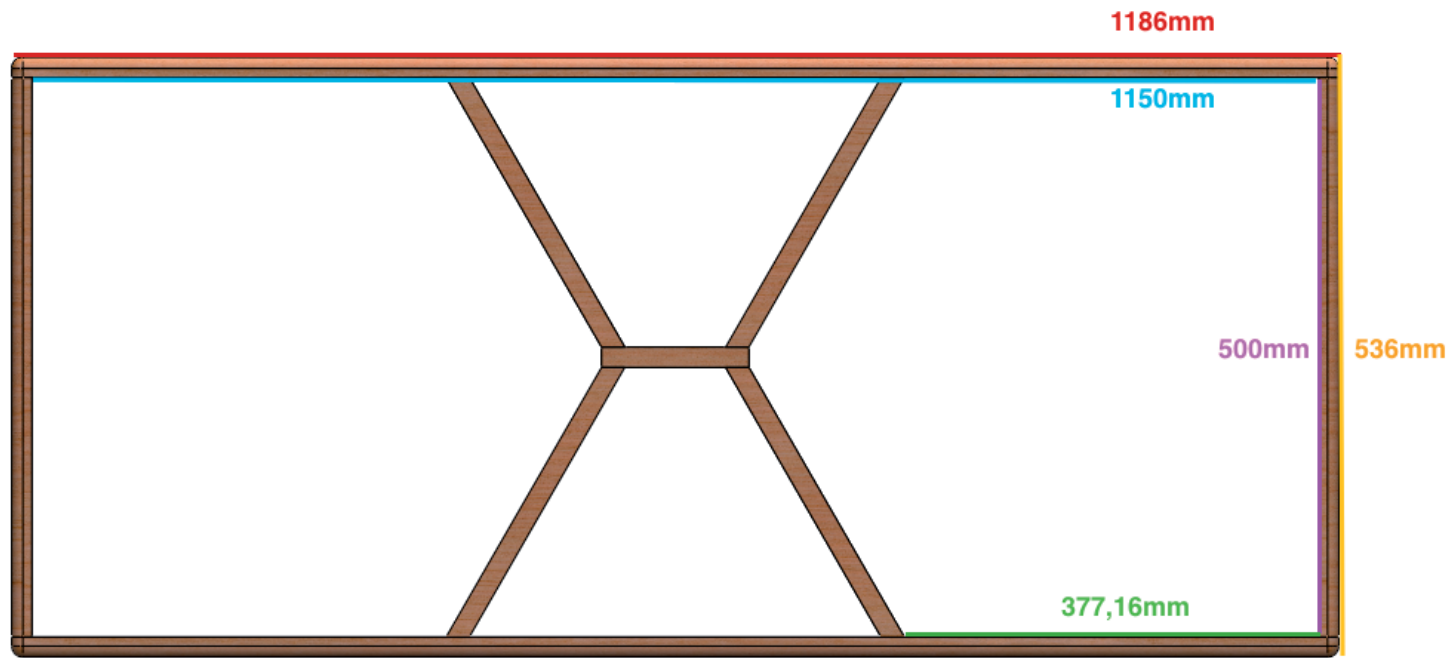
# INTERNAL VIEW



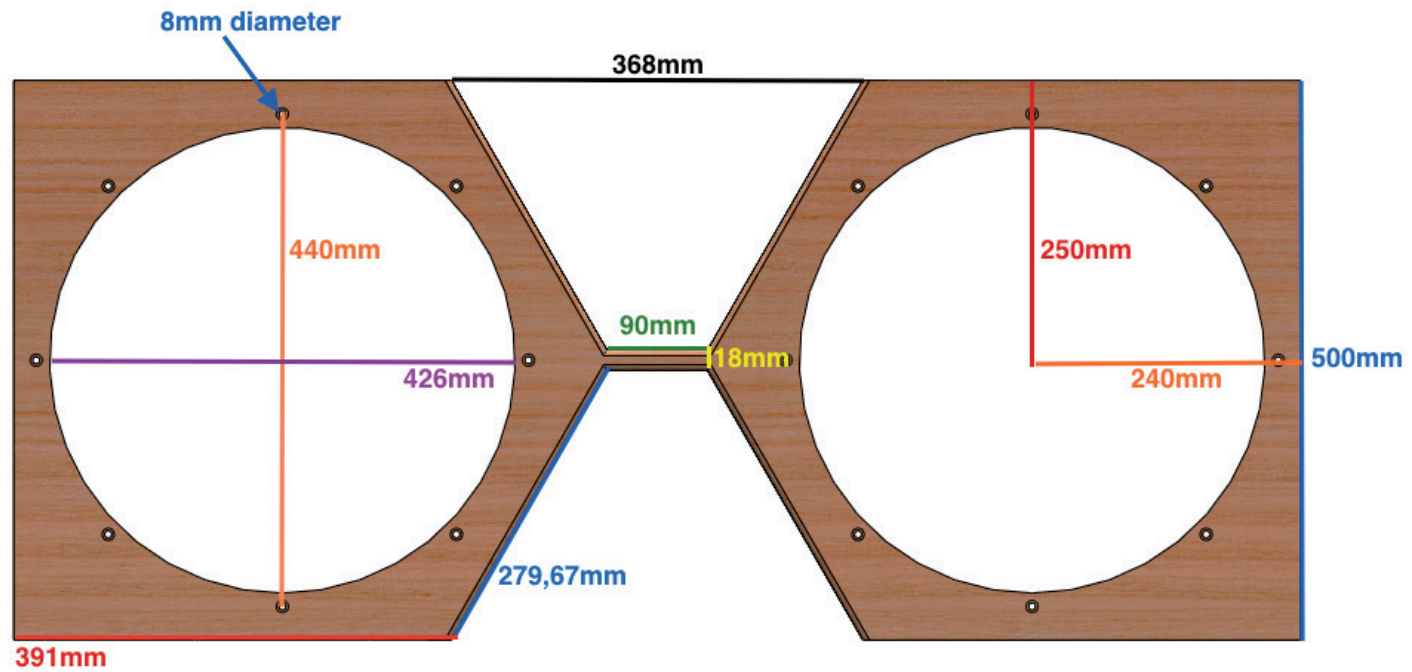
# SIDE SECTION VIEW



# FRONT SECTION VIEW



# FRONT PANEL - PART A





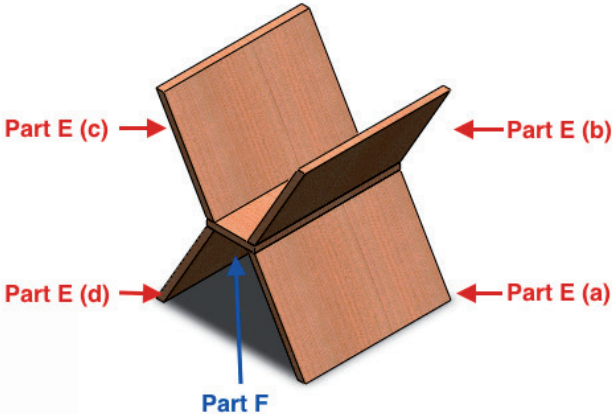
# REAR PANEL - PART B



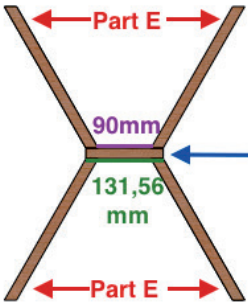
# REFLEX DUCT DETAIL (PART E AND PART F)



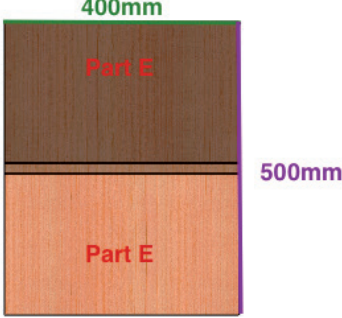
Upper view



Isometric View



Front View



Side View

Part F



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