

# PURE SOUND

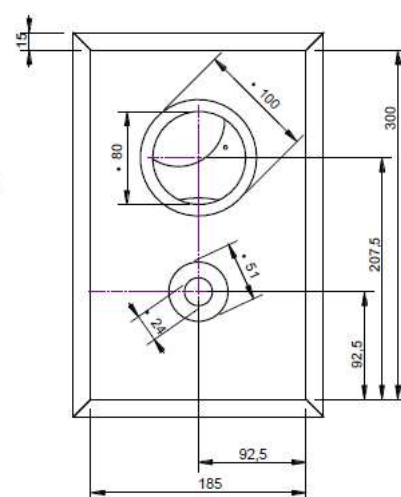
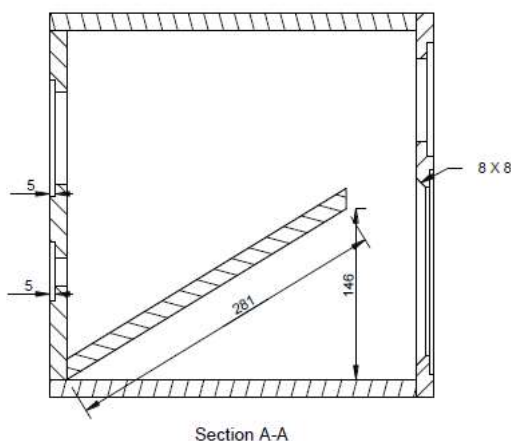
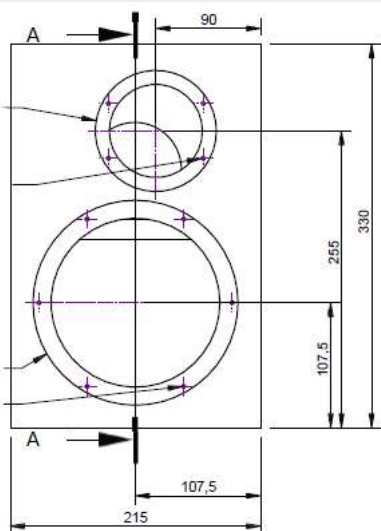
Building a Straight Wire  
to the Soul of Music

## SPK4 DEMO SPEAKER



### KEY SPECIFICATIONS

Type	Passive, 2-way, ported
Woofer	PTT6.5W04-01A
Tweeter	AMT21CM2.1
Crossover	~2.5kHz
Port tuning	~35Hz
Volume	~15L
Size	215x330x315mm



## 1 Description

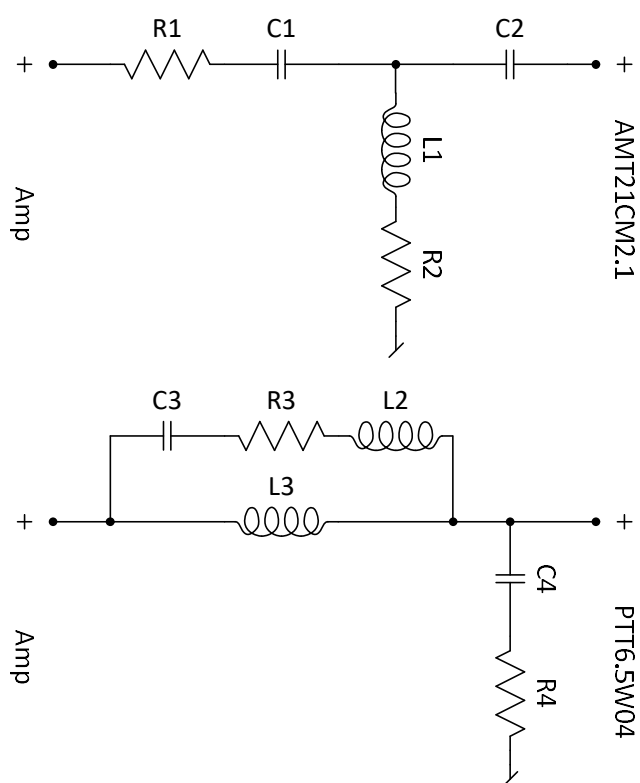
SPK4 is intended as demonstration platform for the PTT6.5W04-01A transducer.

The design is deliberately kept very simple: a small ported wooden box, traditionally shaped with no particular management of edge diffraction, and a passive cross over at ~2.5kHz. Although extremely simple, with numerous possibilities for enhancement by the skilled speaker designer, the SPK4 design very successfully demonstrates the tremendous improvements in sound quality which is possible to achieve when using the long-stroke ultra-low-distortion PTT6.5W04 woofer from PURIFI Transducer Technology.



*Figure 1 SPK4 Demonstration Speaker*

## 2 Crossover



Inductors		
L1	0.27mH	(see note)
L2	1mH	(see note)
L3	1.5mH <sup>1)</sup>	≤340mΩ
Capacitors		
C1	22μF	
C2	6.8μF	
C3	22μF	
C4	18μF	
Resistors		
R1	10Ω <sup>2)</sup>	(see note)
R2	1.8Ω	
R3	15Ω <sup>3)</sup>	(see note)
R4	1.8Ω	

1) Higher DCR can influence bass performance

2) The combined DC resistance of inductor L1 and resistor R2 should be 1.8Ω

3) The combined DC resistance of inductor L2 and resistor R3 should be 15Ω

Figure 2 Crossover

Important note:

Due to the extremely low distortion of PTT6.5W04-01A it is VERY important to choose good crossover filter components. **Inductors must be air-core type.**

### 3 Cabinet & Port

The cabinet is constructed of 15mm birch plywood with a detachable 15mm baffle made of MDF.

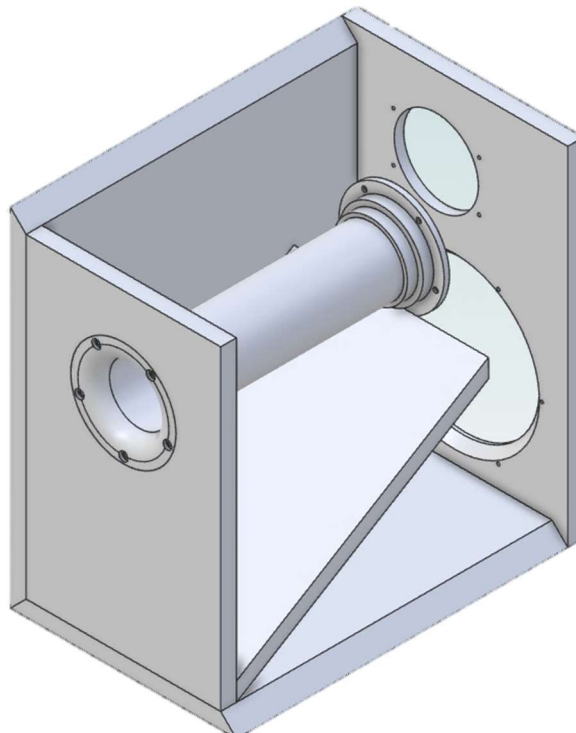
To minimize resonances the cabinet is supported by a diagonally placed 15mm MDF brace. See drawing.

The port is rear-facing and include two 3D printed flares to help minimize wind noise.

Refer to drawings section for all dimensions.

Note:

*Good sonic results have been achieved by lining the port with an ~80mm long 10mm thick foam sheet rolled to fit the inside perimeter of the port. Note that this will tune the resonance a bit lower. Experimentation recommended.*



*Table 1 Cabinet, cut-away view to visualize port and brace*

## 4 Measurements

Measurement equipment and setup:

Clio 10, 1m microphone distance, gated measurement (valid down to 330Hz)

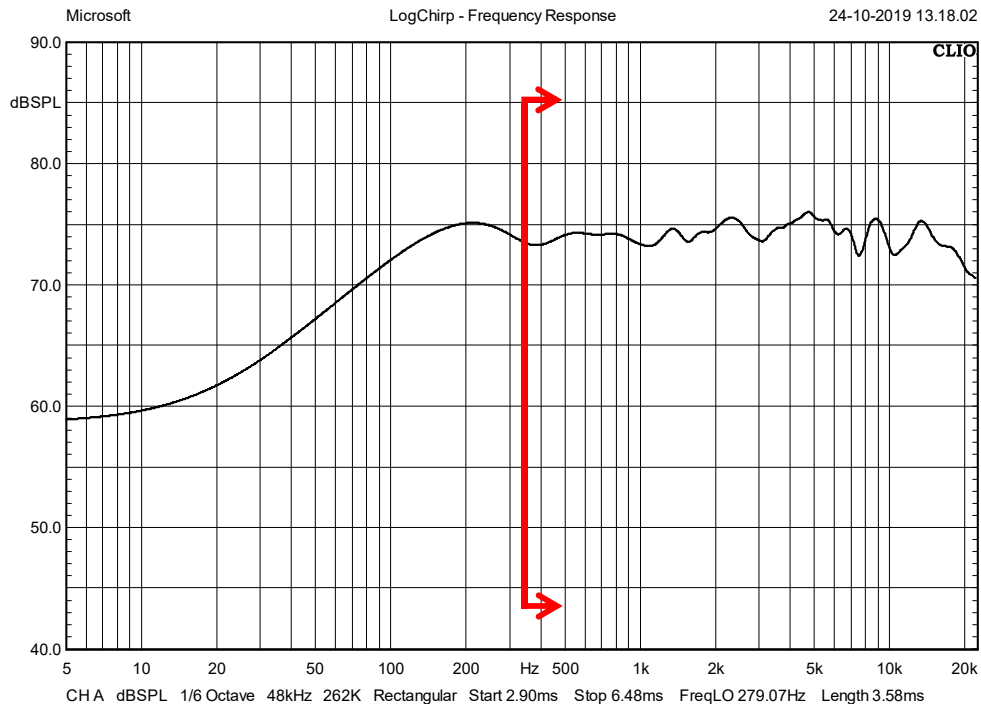


Figure 3 SPL, On-axis SPL @ 1m (with gating)

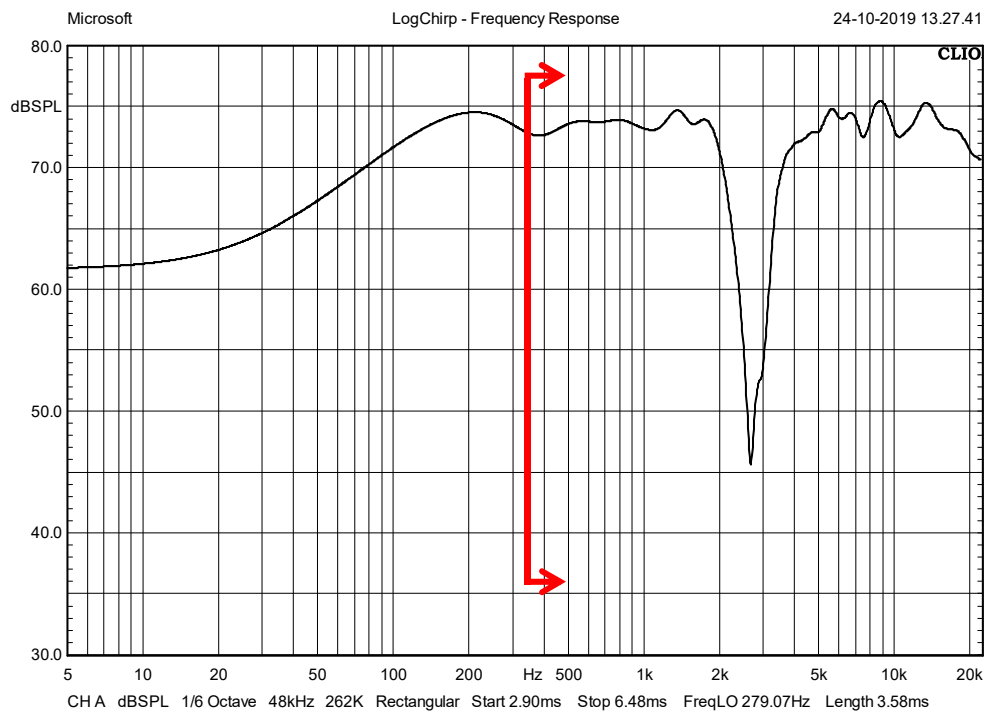


Figure 4 SPL, On-axis SPL @ 1m, inverted phase to check alignment between woofer and tweeter

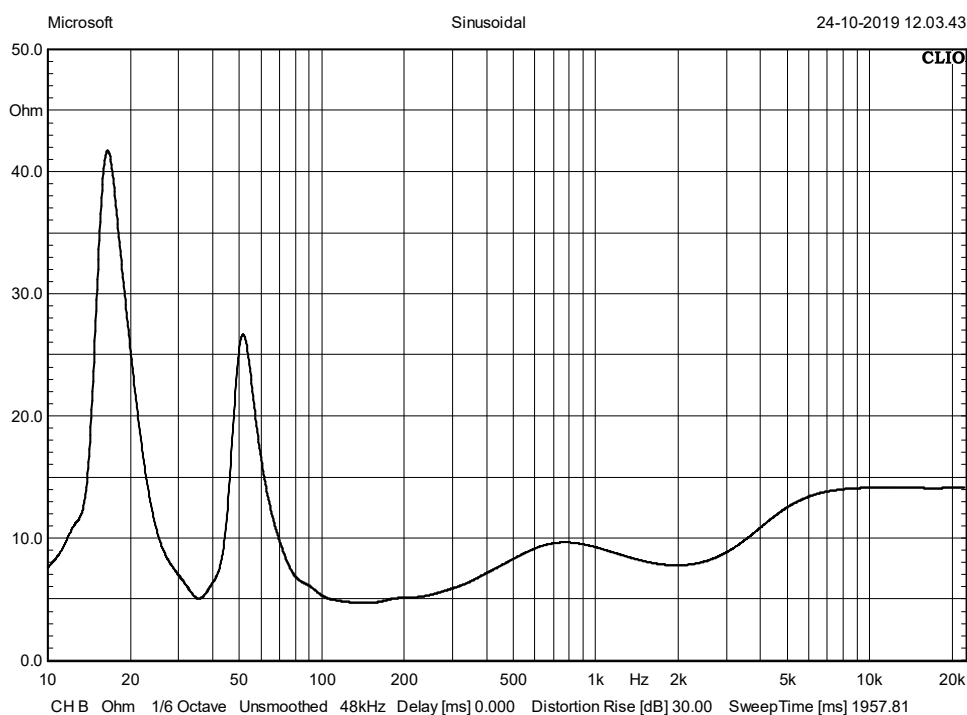
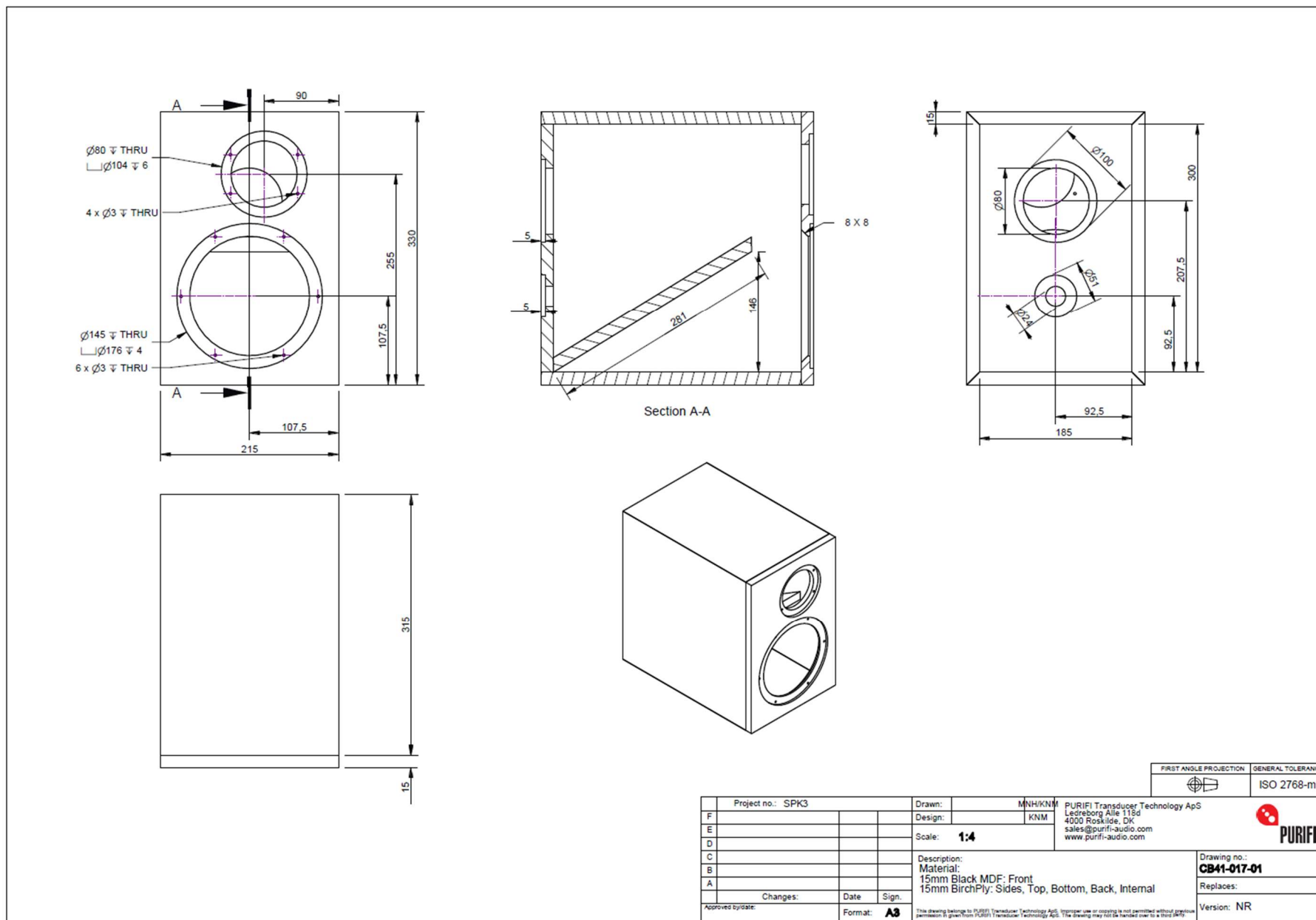
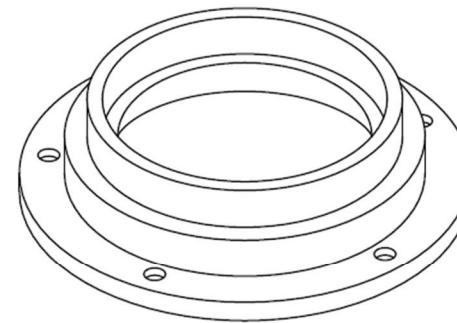
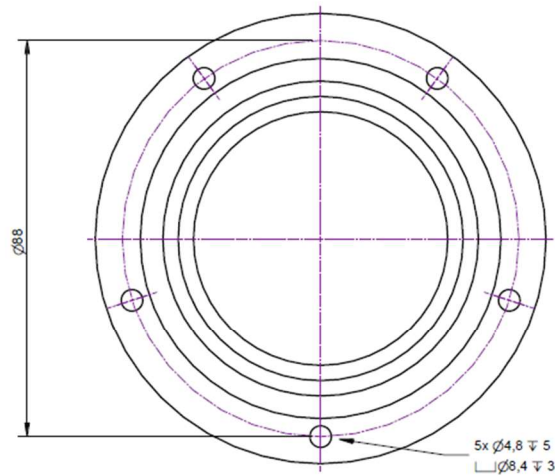
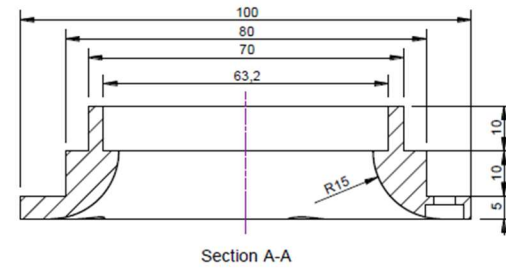
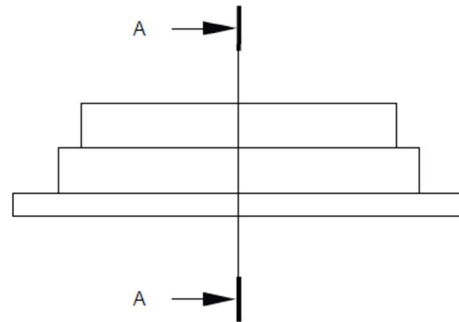



Figure 3 Impedance, no port damping

## 5 Revision History

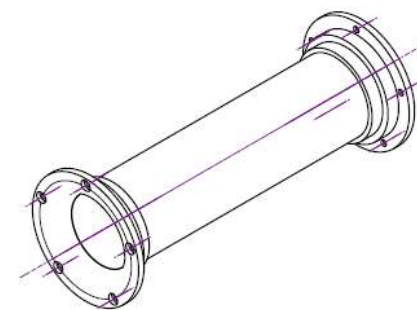
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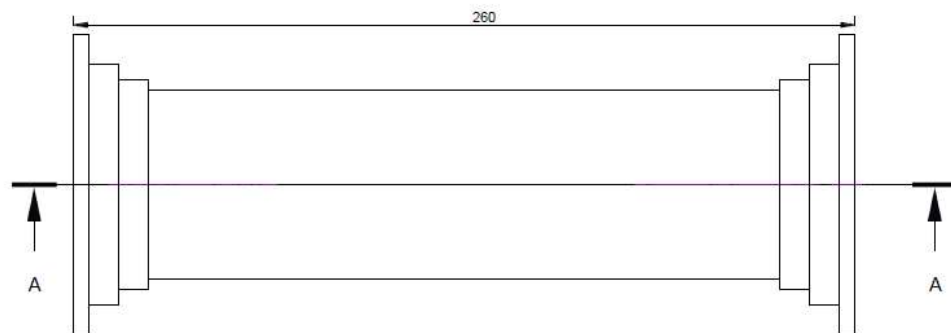



FIRST ANGLE PROJECTION				GENERAL TOLERANCES	
				ISO 2768-mK	
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E		Scale:	1:1		
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B		Changes:	Date	Sign.	Drawing no.: <b>PT45-001-01</b>
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				Version:	





Section A-A



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