



# 33 F-WB and /DD

## 33 F-WB, 13" High Fidelity woofer.

## 33 F-WB/DD, 13" High Fidelity woofer with Dynamic Damping.

*Chassis: aluminium alloy, injection moulded, black.*

*Surround: foam.*

*Cone: paper, edge coated.*

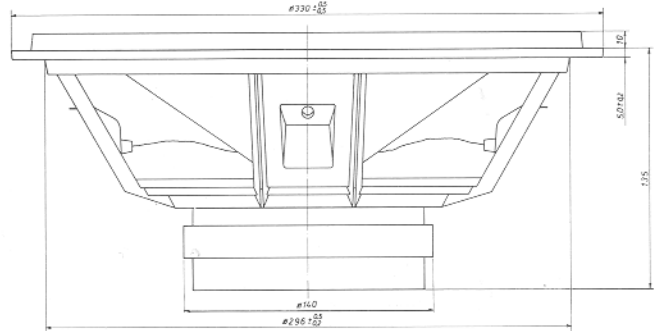
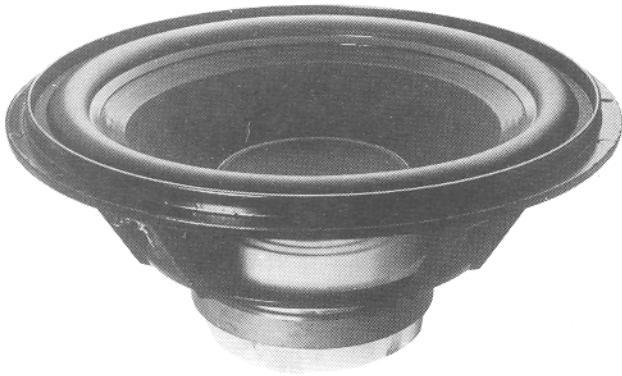
*Dust Cap: paper, inversely mounted.*

*Mounting holes: 8 x 5 mm, equispaced on PCD 319 mm*

Very high efficiency, extremely low distortion in the bass region and a good transient response characterize this driver.

The low distortion level is obtained by unconventional design of the magnet system, and the large signal transient response is optimized by the slightly progressive suspension. The woofer is designed to be used in bass reflex systems.

The DD- model, equipped with our patented «Dynamic Damping», has improved low bass transient behaviour at high power levels.



### Technical data:

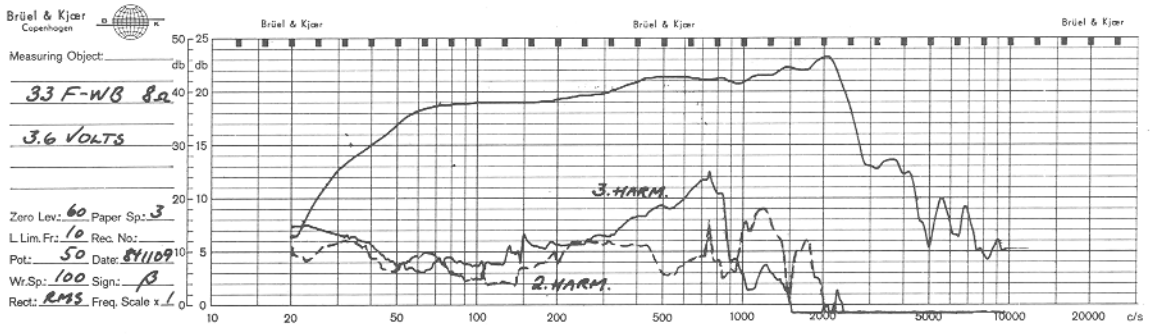
### 8 ohms

|                                     |           |        |                                  |      |                 |
|-------------------------------------|-----------|--------|----------------------------------|------|-----------------|
| Recommended frequency range         | 30 - 1000 | Hz     | Voice coil inductance            | 2,5  | mH              |
| Nominal power (DIN 45573)           | 80        | W      | Voice coil resistance            | 6,0  | ohms            |
| Music power (DIN 45 500)            | 200       | W      | Effective diaphragm area         | 550  | cm <sup>2</sup> |
| Characteristic sensitivity (1m, 1w) | 94        | dB SPL | Moving mass                      | 45   | g               |
| Operating power (DIN 45500)         | 1,6       | W      | Air load mass in baffle          | 7    | g               |
| Voice coil diameter                 | 39        | mm     | Free air resonance               | 27   | Hz              |
| Voice coil height                   | 24        | mm     | Mechanical suspension resistance | 3,3  | Ns/m            |
| Air gap height                      | 10        | mm     | Thiele - small parameters        |      |                 |
| Flux density                        | 1,2       | T      | Vas                              | 280  | litres          |
| Force factor                        | 11,5      | Wb/m   | Qms                              | 2,7  |                 |
| Recommended enclosure volumes:      |           |        | Qes                              | 0,40 |                 |
| Closed cabinet                      | 50 - 100  | litres | Qts                              | 0,35 |                 |
| Bass reflex cabinet                 | 70 - 100  | litres |                                  |      |                 |
| Weight                              | 5,1       | kg     |                                  |      |                 |
| Magnet weight                       | 1,2       | kg     |                                  |      |                 |

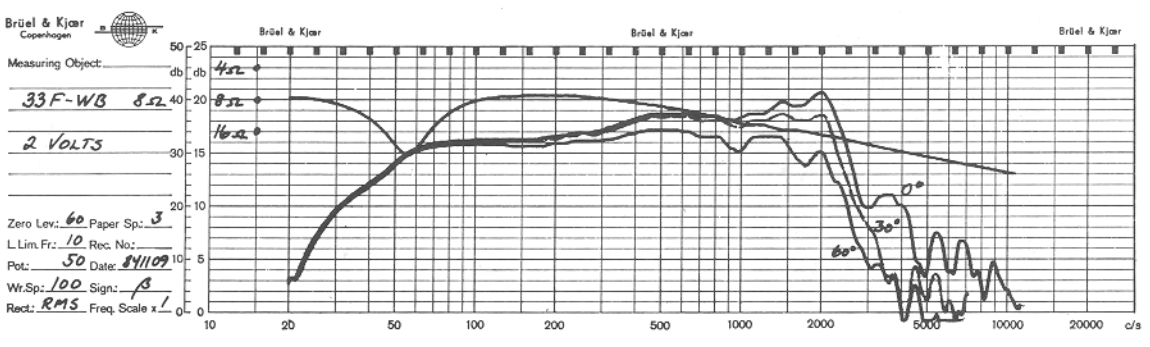
### NOTES:

Response curves recorded in anechoic chamber (Free-Field,  $4\pi$ -radiation) with 0.5 m microphone distance. The loudspeaker is mounted in a closed box of 50 l net volume:

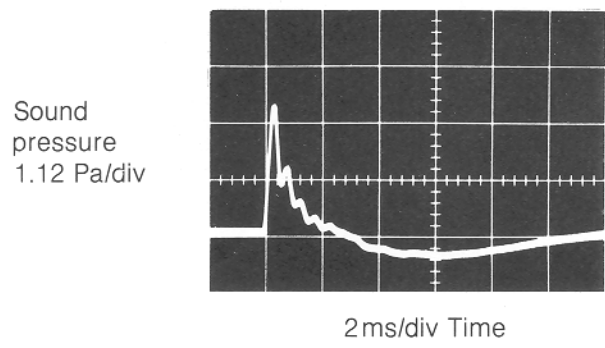
A Sound pressure on and off axis, and impedance:



B Sound pressure and distortion on axis. The distortion components are raised by 20 dB:



C Sound pressure response to 4 Volts step function:



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Note: New telex no. 78419 SEAS N from June 20. 1985