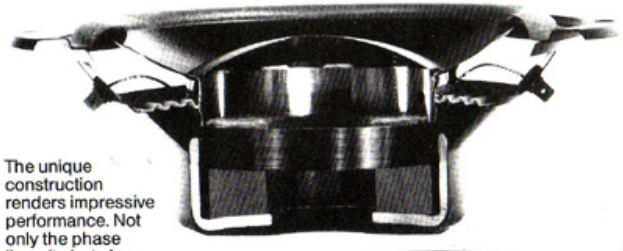
DYNAUDIO®

24 W-100

TECHNOLOGY UNLIMITED

APPLICATIONS

woofer in 2-, 3- and 4-way systems, slim towers
versatile utility: closed box, variovented box, bass-reflex, transmission line
in bigger systems as „upper bass" or „low mid"



The unique construction renders impressive performance. Not only the phase linearity but also the wide dynamic range allows an unusual precise bass reproduction. The frequency curve runs flat and drops smooth at both ends, the off axis curves show the excellent dispersion. The crips and well dissolved midrange grants splendid 2 way designs.

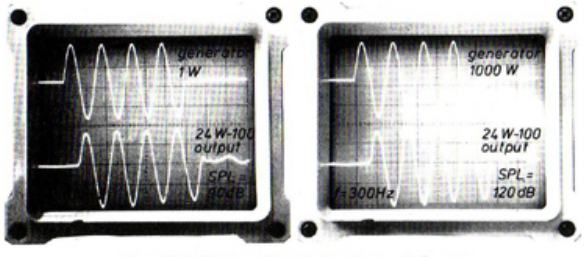
FEATURES

Unusual large 4" (100 mm)
vented center magnet motor
hexacoil technique
PHA cone material
high power handling
wide dynamic range
smooth phase response
low magnet flux leakage
no dynamic compression
stable acoustic center

The center magnet system not only exploits the magnet strength about double as good as conventional systems but also allows construction of very low leakage of the magnetic flux. Already 15 mm (0.6") off the flange there is near to none magnetic stray field against a conventional system which shows this figure only at a distance of about 150 mm (6"). This allows employment of the 24 W-100 in monitoring systems placed near to video TV screens without extra shielding.

The STEP-FUNCTION: a typical DYNAUDIO result

A few people only know about dynamic compression in loudspeakers, and most manufacturers pass over in silence about it. When program power is fed into a speaker, part of this power will be converted into heat in the voice coil. At high power levels this temperature is likely to reach appr. 250 degrees Celsius (500 degrees Fahrenheit). Under this condition the impedance figure will douple up, which in return easy can result in a compression of output of about 5 dB (!). Without any subtlety one can imagine that the result is an audible imbalance as not all drive units of the complete system will reach the same temperatur level and the same level of compression. What to do? First of all you have to choose the voice coil diameter as big as possible, still light-weight of course (using i.e. aluminium wire). Secondly the air gap width has to show a low figure in order to dissipate the heat via the iron and magnet material. Last not least the entire construction should goal to come off with temperature rises.



The BURSTS: input and output are analogous

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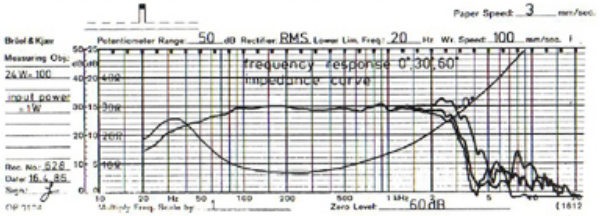
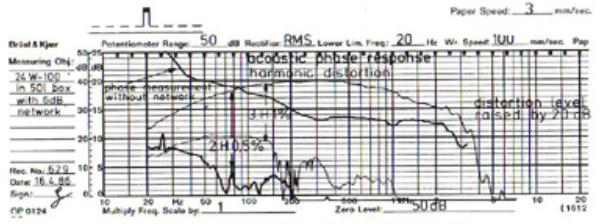
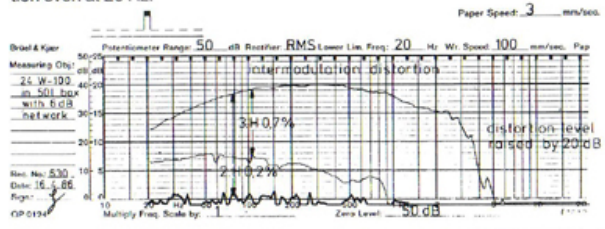


Frequency response straight up to 3 kHz allowing excellent 2-way combinations, i.e. with D 28 (AF). From 3 kHz the frequency drops with 20 dB, ideal for 6 dB filter.



HD measured in 50 liter enclosure. Exceptional is the low distortion even at 20 Hz.



An extra advantage of a big voice coil is that the forcing power is transfered to the cone at about the middle of the radius. Small voice coils have an unbalanced force transfer provoking breakups and distortions. The costs of manufacturing a big high precision DYNAUDIO hexacoil are conciderably higher than for an entire ordinary drive unit.

Compliance:			
suspension	Cms	0,93 10^{-3}	m/N
acoustic	Cas	0,45 10^{-6}	m^5/N
equivalent volume	Vas	62	l
Cone:			
eff. cone area	SD	220	cm^2
moving mass	Mms	30	g
lin. vol. displacement	Vd	176	cm^3
mech. resistance	Rms	3,5	kg/s
lin. excursion P-P	Xmax	8	mm
max. excursion P-P		26	mm
* Frequency response:		35-3000	Hz
Harmonic distortion:		< 1	%
Intermodulation distortion:		< 0,7	%
Magnetsystem:			
total gap flux		1300	µWb
flux density		0,51	Tesla
gap energy		445	mWs
force factor	BxL	6,26	Tm
air gap volume	Vg	4,27	cm^3
air gap height		8	mm
air gap width		1,68	mm
Net weight:		1,85	kg

Overall dimensions:		Ø 240 x 85 mm	
Power handling:			
* nominal	DIN	350	W
* music	DIN	450	W
transient	10 ms	1000	W
Q-factor:			
mechanical	Qms	1,6	
electrical	Qes	0,45	
total	Qts	0,35	
Resonance frequency free air:	fs	32	Hz
Sensitivity:	1 W/1 m	90	dB
Voice coil:			
diameter	d	100	mm
length	h	16	mm
layers	n	2	
inductance (1 kHz)	Le	0,73	mH
nom. impedance	Zvc	8	Ω
min. impedance	Zmin	6,4	Ω
DC resistance	Re	5,2	Ω

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* Thiele/Small parameters are measured not statically but dynamically.