

# DYNAUDIO®

## 30 W-54

TECHNOLOGY UNLIMITED

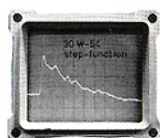
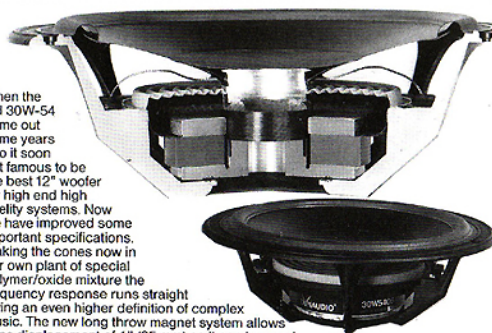
### APPLICATIONS

12" woofer for enclosures of 80 to 140 litres for 3-, 4- and 5-way systems  
 PHA cone allows midrange from 800 Hz  
 transmission line bassreflex sealed or aperiodic damped enclosures

### FEATURES

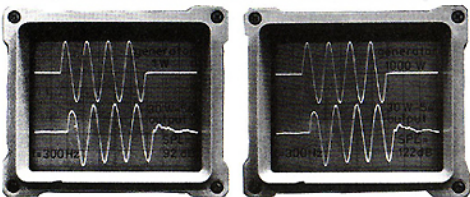
magnesium die cast basket with aerodynamic ribs very high power handling vented long throw magnet system low distortion hexacoil technique PHA-cone material (phase homogeneous area) DTL-system (dynamic transient linearity) tropic proof high BL-factor

When the old 30W-54 came out some years ago it soon got famous to be the best 12" woofer for high end high fidelity systems. Now we have improved some important specifications. Making the cones now in our own plant of special polymer/oxide mixture the frequency response runs straight giving an even higher definition of complex music. The now long throw magnet system allows cone displacement of 1" (25 mm) so it can be used even in transmission line systems. The proven basket with the aerodynamic ribs integrates the complete vented magnet system. The hexacoil technique allows high power handling and the DTL-system reduces the rise time by the factor 10!



The STEP-FUNCTION of a 12" woofer normally has a slow rise, not much steeper than the dropping due to the heavy weight of big systems. The step function to the right shows the efficiency of our pat. DTL-system. The rise time is reduced to 1/10. The copper capsule around the pole piece is extended and acts as a magnetic short circuit to the voice coil. The iron in the pole piece normally creates nonlinearities to the voice coil which now is eliminated.

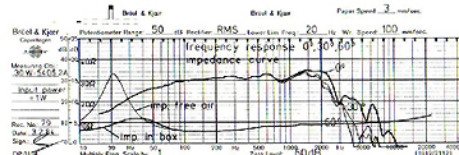
Tone bursts are the best way to obtain an accurate picture of overall acoustic performance. Regrettably they are mostly used only to test rise-time and ringing - which shows much more clearly with a step function test! With a tone burst, all the moving parts of a speaker can be loaded without burning the voice coil. With a high frequency the SPL should be 30dB higher at 1000 W input when compared with a 1 W input, if the output is linear. This test shows the driver's ability to reproduce the transients without compression. The right picture shows that even a 1000 W input is not the limit: the dynamic response is absolutely linear. Data given in catalogues (and even test reports) normally are calculated figures and not measured values.



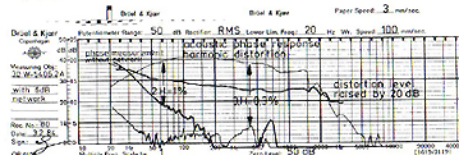
This compression effect is either under-rated or ignored very often. That is why many speakers do not produce SPL's above 100 dB, in spite of higher theoretical specifications. However this test exposes such anomalies between calculations and actual measurements.

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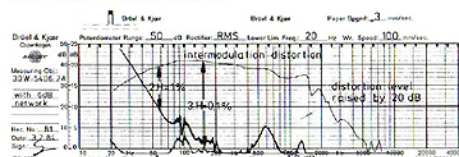
## 30W-54



The narrow impedance peak at resonance under free air measurement indicates strong magnetic damping and energy. In enclosure the impedance is flat and balanced.



With a 6dB filter the 30 W-54 is excellent usable up to 1000 Hz. The acoustic phase is linear even beyond that point.



Combining different materials together requires experience and know how about the behavior even under extrem conditions. - Here we glue aluminium former to the fabric spider. An exact amount of high temperature resistant glue is precisely placed to the spiders neck. The voice coil of the woofer survives temperature peaks of even 400 to 650° F (300-400° C). Furthermore the connection point has to withstand accelerations of some hundred miles/h altering the direction some thousand times per second.

Compliance:		Overall dimensions:		300 x 104.5 mm	
suspension	Cms	1.15 · 10 <sup>-3</sup> m/N	Power handling:	nominal	210 W
acoustic	Cas	1.85 · 10 <sup>-6</sup> m <sup>3</sup> /N	"music"	DN	350 W
equivalent volume	Vas	257 l	transient	10 ms	1000 W
Cone:	Sp	400 cm <sup>2</sup>	Q-factor:	mechanical	Qms
moving mass	Mms	416 g	electrical	Qes	2.39
lin. volume displacement	Vg	200 cm <sup>3</sup>	total	Qts	0.357
mech. resistance	Rms	2.5 kg/s	Resonance frequency free air:	fs	22 Hz
lin. excursion	P-P	7 mm			
max. excursion	P-P	25 mm			
*Frequency response:		30-3000 Hz	Sensitivity:	W/m	92 dB
Harmonic distortion:		< 1.5 %	Voice coil:		
intermodulation distortion:		< 1 %	diameter	d	54 mm
Magnetsystem:			length	h	17 mm
total gap flux		1490 Wb	layers	n	2
flux density		0.91 Tesla	inductance (1 kHz)	Le	0.25 mH
gap energy		849.4 mWs	nom. impedance	Zvc	5 Ω
force factor	B x L	9.44 Tm	min. impedance	Zmin	6.4 Ω
air gap volume	Vg	2.57 cm <sup>3</sup>	DC resistance	Re	6.25 Ω
air gap height		10 mm			
air gap width		1.55 mm	Data given are after 30 hours of running		
Net weight:		2.9 kg	*Depends on cabinet construction		

\* Thin/Small parameters are measured not statically but dynamically.

