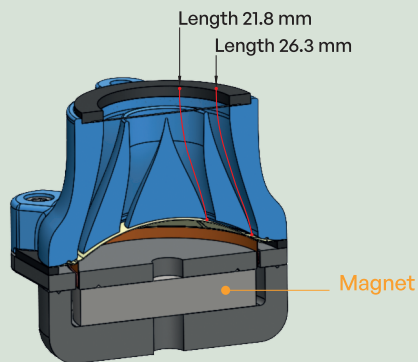


## Design Limitations

To make the driver smaller, lighter, and more affordable, we would like to put the magnet inside the voice coil.

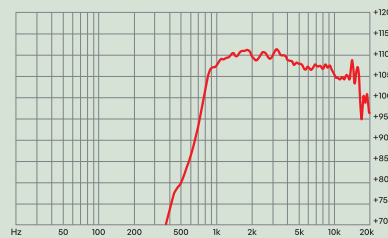
This reduces wasted space and also better contains the magnetic energy, for a more efficient motor design. In such a design sound waves can't exit the traditional way, there is no hole in the magnet for them to pass through, so energy must come off the convex side of the diaphragm opposite the magnet. This is a problem for phase plug design.



A convex diaphragm is closest to the driver exit in the middle of the diaphragm. This means channels on the inside of the phase plug must be longer than those on the outside. Standard injection molding can't support shapes that bend back on themselves (like a river), but that is exactly what we need to equalize the outer and inner path lengths. 3D printing and multi-axis machining have the required flexibility, but would make the driver too expensive.

## DH350

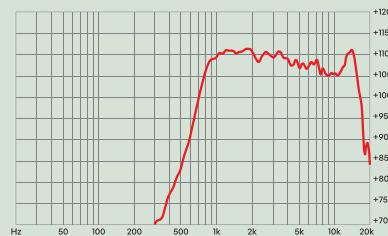
Throat diameter	25mm (1in.)
Nominal Impedance	8
Nominal Power Handling	20W
Continuous Power Handling	40W
Sensitivity	108 dB
Frequency Range	1-17 kHz
Recomm. Crossover	1.0 kHz
Voice coil diameter	36mm - 1.40 in
Flux Density	1.80
Winding material	Aluminum
Diaphragm material	HT polymer
Magnet Material	Neodymium Inside Slug
Overall Diameter	48mm (1.81 in)
Depth	46mm (1.89 in)
Net Weight	0.25 Kg (0.56 lb)



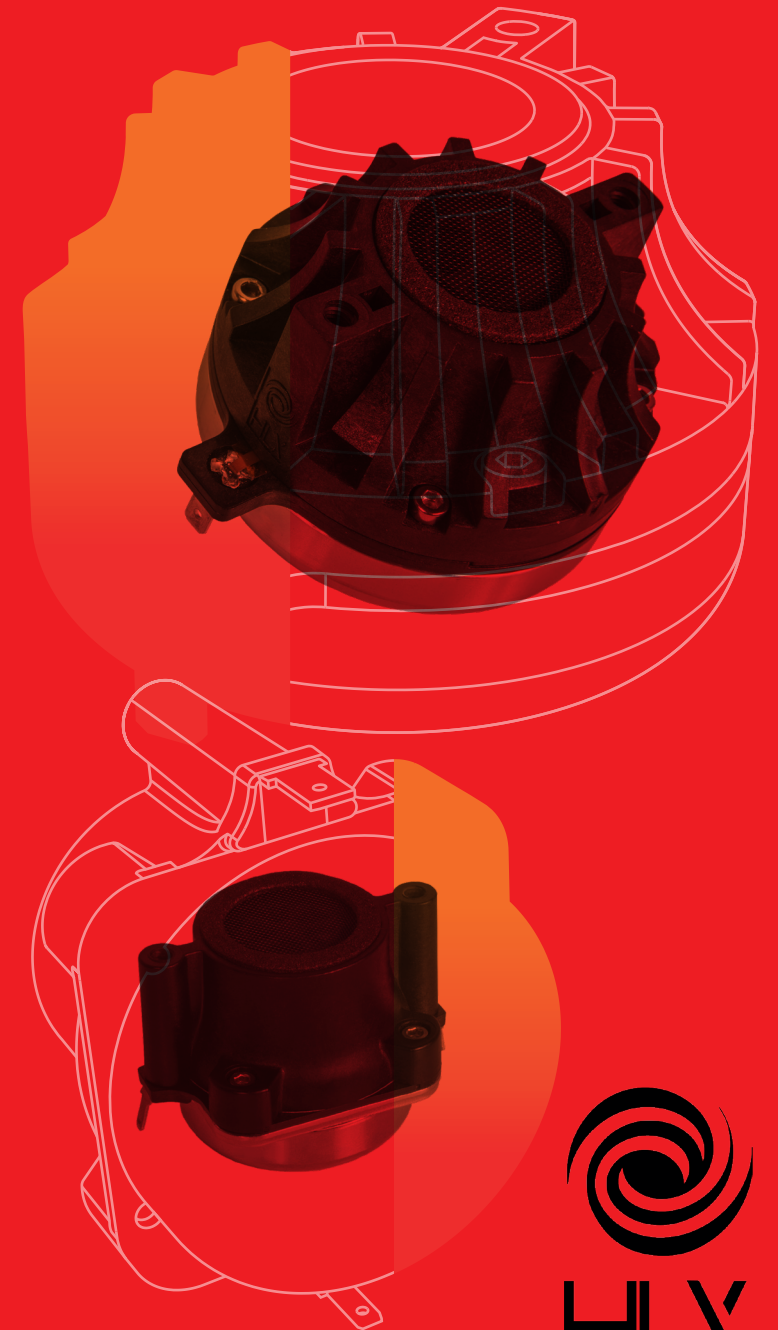
## DH450

**PRELIMINARY**

Throat diameter	25mm (1in.)
Nominal Impedance	8
Nominal Power Handling	40W
Continuous Power Handling	80W
Sensitivity	109 dB
Frequency Range	1-18 kHz
Recomm. Crossover	1.20 kHz
Voice coil diameter	44mm - 1.73 in
Flux Density	1.90
Winding material	Aluminum
Diaphragm material	HT polymer
Magnet Material	Neodymium Inside Slug
Overall Diameter	90mm (3.54 in)
Depth	48mm (1.89 in)
Net Weight	0.53 Kg (1.16 lb)

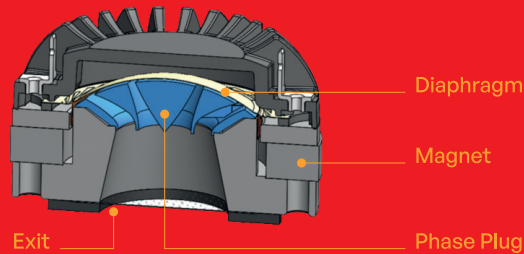


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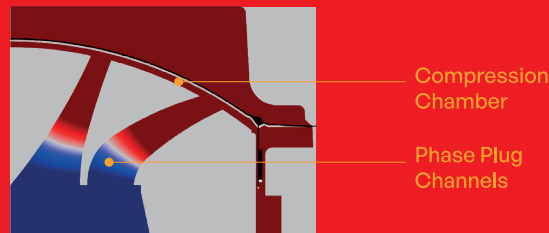


## The Conventional Approach

High frequency drivers produce the smallest waves in audio, as narrow as your thumb. The phase plug, which is critical to the driver's efficiency, sits between the diaphragm and the driver exit. Its job is to couple vibrations produced by the diaphragm into open space. Standard compression drivers have a donut-shaped magnet which sits outside the voice coil, and a concave diaphragm. Energy from the diaphragm exits through the hole in the middle of the magnet.



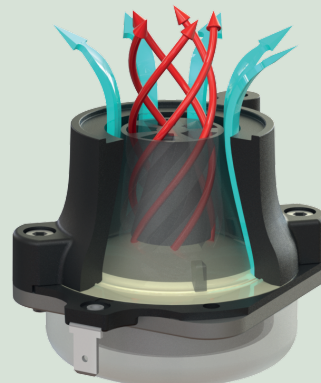
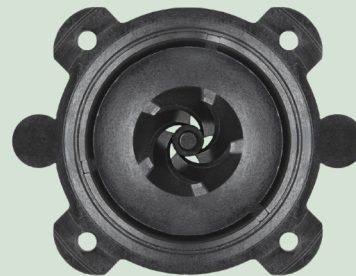
Between the phase plug and the concave diaphragm is a small compression chamber. Strategically chosen channels in the phase plug couple sound waves, without destructive interference, to the driver exit. For best acoustic performance, it is important for the phase plug channels to be of equal length and impedance.



## The Helical Approach

Our HLX™ (patent pending) phase plug has a central channel that is twisted, like DNA, to gain the length required to match the outer channels. This technique works with standard cost-effective injection mold tooling and plastics by rotating the inner die along a screw profile. The convex dome design so achieved has a number of significant advantages.

- Minimized diameter, weight, and cost
- Increased diaphragm area
- Crossover at 1kHz
- Reduced distortion, especially intermodulation
- More efficient magnetic flux use.

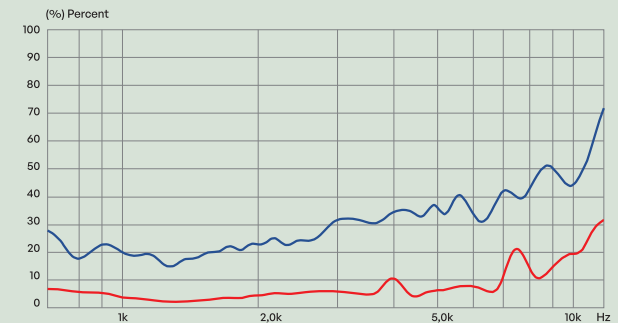


The new HLX™ series continues B&C's reputation for performance by turning the limits of traditional compression driver design on their head. HLX™: **Compression driver efficiency in miniature.**

We think this is the best sounding, highest output compact compression driver available today at any price, and hope you agree.

Please contact your B&C Speakers representative for more information.  
[www.bcspeakers.com/distributors/](http://www.bcspeakers.com/distributors/)

**Intermodulation distortion  
HLX vs Conventional**



**Max SPL -10% Distortion  
HLX vs Conventional**

