



**D-PAC**

# D-PAC

## - designed to be better



D-PAC is based on Dansk P.A. Center A/S's experience since 1984 in manufacturing and distribution of various professional audio brands.

Originally founded by Kurt Hansen in 1984, the beginning of a new company in a garage, sounds so traditional that it turns into a cliché. Pro-Audio market where at that time, dominated by a few very large players and the basic problems were to have the sound systems play loud enough, where sound quality was way down on the list of important issues.

In 1994 Anders Christensen and Nicolai Lambertsen joined the company, giving more options to intensify efforts within manufacturing, sales and rental business. The experience from rental business, gained in depth knowledge of every day problems and needs that were experienced at first hand, gave ability to manufacture exactly what was needed for rental. This gave a significant boost to sales.

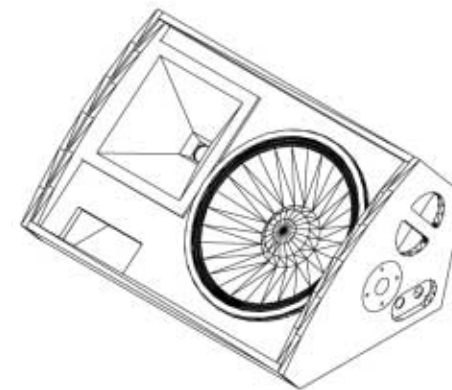
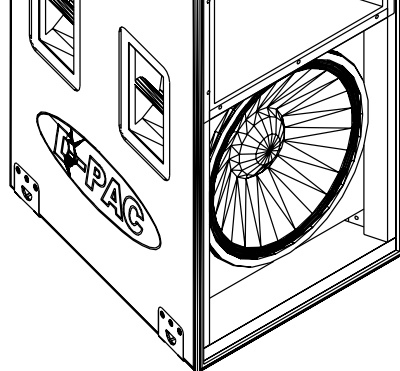
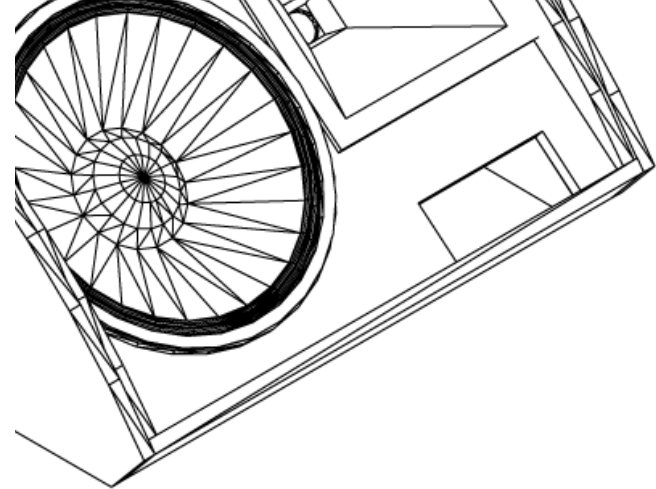
In 1999 the company was incorporated, rental business sold, flightcase manufacturing ceased, while development of a Class D amplifier module started, along with development of loudspeakers for an integrated solution

of amplifier and loudspeaker were initiated. This led at first stage to the development of the AS-2 subwoofer and AM-2 mid/high arrayable box with integrated flying system.

In 2001 the first results showed, and prototypes of AS-2 were touring the country, giving knowledge if we had designed both electronics and mechanics well enough. Torture was keyword, and the AS-2 passed the test. We continue to work with industry leaders as distributors, along with manufacturing and development of our D-PAC line of selfpowered and passive loudspeakers.

Committed to give our customers the best product available at the best price/performance ratio, we strive to keep our integrity at a high bias, giving honest and sincere information about our products and their abilities. We decline from releasing products that does not live up to our standards of quality, and will rather develop a product to final stage, than release it to the users as an incomplete solution.

When you invest in D-PAC, you invest in the best product we know how to make, and we support it with the best service possible. Please feel free to contact us regarding any of the material in this catalogue. Your comments, suggestions and experience are extremely valuable to us.



Loudspeakers are complex designs, and attention should not only be at transducers, but also cabinet, damping, cross-over, sturdiness, hardware and interconnections. If a full overview of the product is not maintained during the development, the result will not be optimum performance, but can degrade to an average loudspeaker configuration.

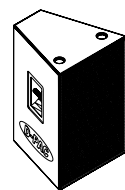
At D-PAC, we have a strong focus on all aspects of the loudspeaker, including userfriendly solutions and still maintain

must, and is the only way to deal with the shortcomings all transducers have, by means of cabinet and cross-over design.

Based on experience from our rental, we know that good looking cabinets do not continue to look good if not designed properly. Also, easy handling and good reinforcement are important issues during the design phase. Hardware and transducers must be secured properly and in case of flying

As proven in the D-PAC line of speakers, it is possible to obtain a low weight and good ergonomics, while still be in the wooden cabinet territory. As an extra bonus, you do get better sound. It is also possible to repaint the wooden cabinet with our durable waterbased paint, so it will always look nice.

The internal cross-over is very important in passive loudspeakers and has to be designed for best coherent sound plus take into account the anomalies that the system



# Loudspeakers

## - build to perfection

a price/performance ratio of excellence, giving the end-user a better overall profitability.

The transducers are carefully selected from our network of suppliers, and if needed, altered for better performance to that specific application we intend it for. The vast experience we have collected, give us the background needed to narrow down the number of possibilities to a few transducers, that are evaluated and examined in all details. Consistency is a

hardware, special care has to be taken to insure that safety regulations are met or surpassed.

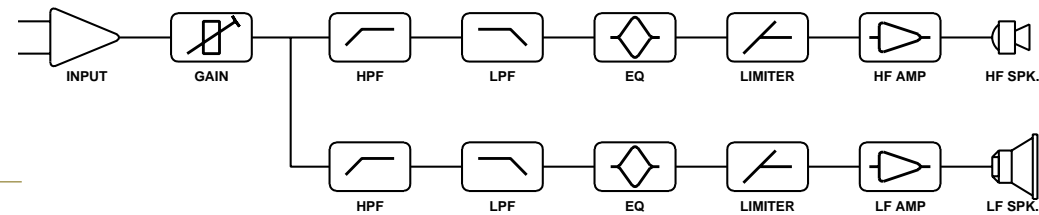
Our take on plastic cabinets, is that it does not provide the same acoustical performance as wooden cabinets, unless manufactured in pretty heavy material adding weight, and thereby eliminating the major advantage of plastic cabinets. However, we also feel that the environment is losing, as plastic is not commonly recycled and is not a natural part of the environment.

projects to the amplifier. This is why D-PAC developed the Asymmetrical Acoustical Design (AAD) cross-over, which is based on complex computer calculations and simulations, leading to actual measurements of the acoustical performance before final test with a listening panel.

The result, loudspeakers for everyday use, providing outstanding sound quality.

# Amplification

## - Cool and reliable



One of the main tasks for D-PAC where to implement electronics in the loudspeakers, as we had experienced different approaches, which all provided a number of problems and malfunctions. It were therefore our aim to eliminate all potential risks in selfpowered loudspeakers.

Starting from the input of signal and power, we have implemented a protection against high-voltage error, and in the signal chain, targeted a low-noise circuit providing a headroom releasing the potential of the transducers.

Active cross-overs gives the possibility to align the transducers and add accurate equalization for linear system performance. Limiters do provide protection to the transducers, while being transparent when not in use.

Knowing the exact gain structure and limits of the transducers, releases the full potential of the system in a noticeable way.

Knowing that the amplifier topologies available at the time of D-PAC development where subject to low efficiency, a development of a proprietary class D

amplification circuit where initiated. Class D has the advantage that efficiency can be very high (>94%), where the most efficient topologies (G/H) is around 75%. The lower efficiency, the more heat is generated and needs to be removed from the circuit, hence need for large heat-sinks and/or active fan cooling has to be provided. Fans are mechanics that can break, and heatsinks are bulky and heavy - not ideal for compact, reliable cabinets.

The D-PAC class D design eliminates the need for fan and bulky heatsink. To further improve reliability, the amplifier module is moulded into an epoxy resin, protecting it against vibrations from transport and normal use. The module is protected against short circuits, volta-

ge errors and equipped with soft start and soft clipping, along with other necessary protection in the event of malfunction.

Currently D-PAC is equipped with toroidal transformers, due to the fact, that switch mode PSU's are not efficient enough. When we design a more efficient SMPS than what is currently possible, we will change if it provides any advantage towards weight, size and costs.

The choice of conventional PSU is obvious when examining the below table, providing overall efficiency for different topologies of amplifiers with PSU. Efficiency is an average and is the common thumbrules. Conventional PSU is 95-98% effective, and SMPS is 75-80% effective (vary by design topology, but currently not useful for audio in higher efficiency).

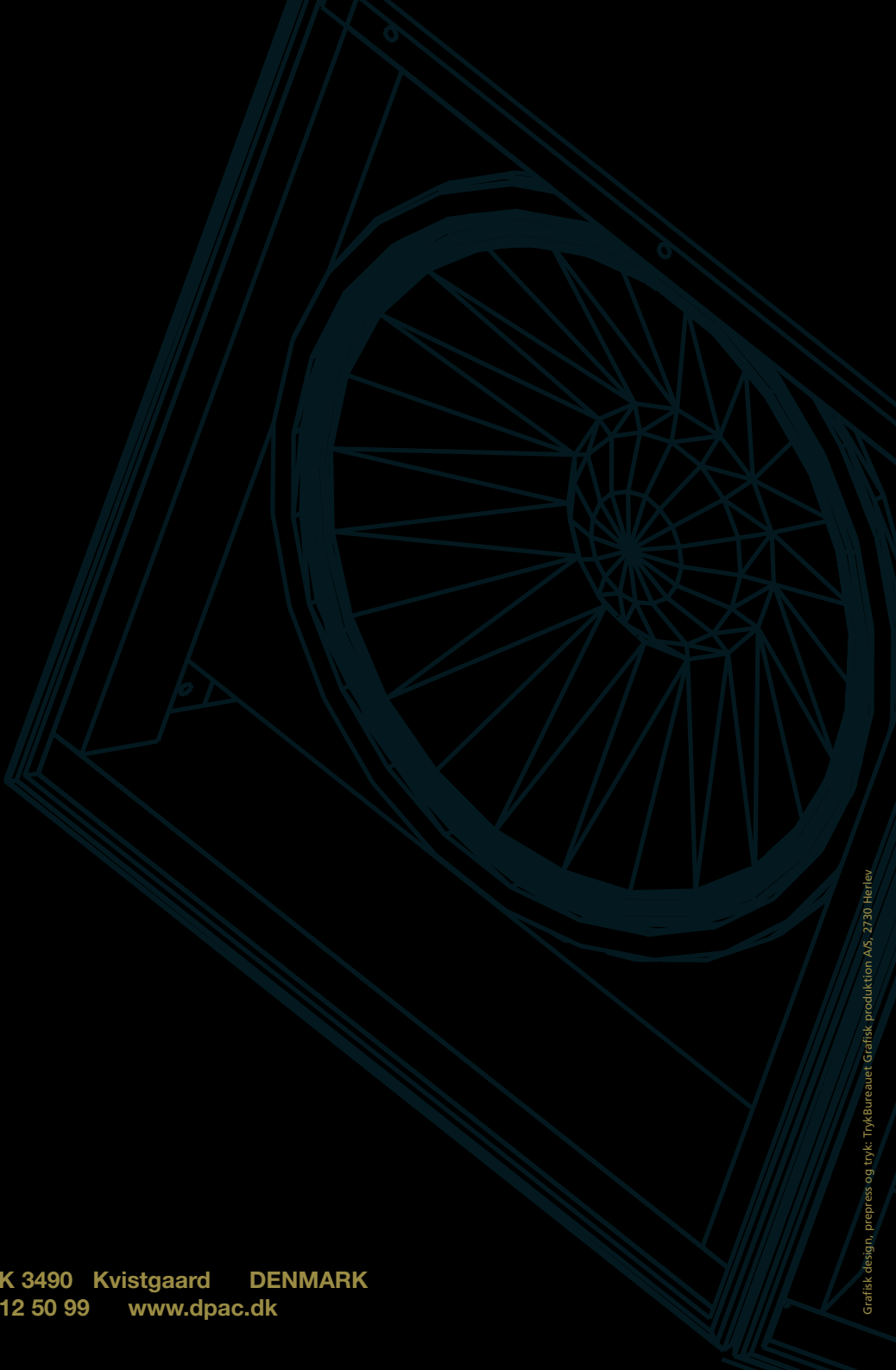
Think about it - it actually makes sense!

Type	SMPS PSU	Conventional PSU
Class AB	48%	60%
Class D	76%	89%
Class G/H	56%	70%

**Powering a 10KW P.A. sound system, would demand the following power from the AC outlet.**

Class AB	20,800 W	16,600 W
Class D	13,100 W	11,200 W
Class G/H	17,800 W	14,200 W

**Please visit [www.dpac.dk](http://www.dpac.dk) for latest news and downloads**



Dansk P.A. Center A/S    Hejreskovvej 20    DK 3490 Kvistgaard    DENMARK  
Phone: +45 49 12 50 90    Fax: +45 49 12 50 99    [www.dpac.dk](http://www.dpac.dk)

Grafisk design, prepress og tryk: Tryk Bureauet, Grafisk produktion A/S, 2730 Herlev