Thank you for purchasing a VDO Dayton subwoofer. Please follow these instructions carefully so as to fully benefit from the features that this subwoofer brings to your in car environment. This manual is produced to help give you the basic information related to this system so as to result in a trouble free installation. In the majority of cases specialist assistance will be required so as to make the most from this subwoofer and to ensure that it delivers a sonic reproduction that is as accurate as possible therefore we advise that you seek professional advice.

Important

VDO Dayton subwoofers are designed to suit a broad range of mobile audio applications to produce extended, powerful bass in a limited amount of vehicle space. The installation can require some extensive knowledge of the car environment. Although these instructions explain how to install a VDO Dayton subwoofer in a general sense, they do not show box-construction details and exact installation methods for your particular vehicle. If you do not feel you have the necessary tools or experience, do not attempt the installation yourself. Instead ask your authorised VDO Dayton dealer about professional installation options to ensure maximum subwoofer performance. Remember to keep your sales receipt with this manual in a safe place so both are available for future reference.

Think Safety First!

Please ensure that you can hear traffic at all times and that this installation in no way hinders the safe operation of the vehicle due to distraction of the driver.
VDO Dayton accepts no liability for hearing loss, bodily injury or property damage resulting from use or misuse of this product. We want you to fully enjoy this product, so please use it sensibly.

For more details:

Visit our homepage www.vdodayton.com

General information on loudspeaker installation

Recommendations

- While preparing the installation of your subwoofer, please leave it in the box so as to avoid any damage.
- Please contact your dealer for the correct mounting solution for your car so that you allow your subwoofer to perform to the maximum. For example, there must be enough room for the cone to extend to its full excursion.
- Please ensure that the subwoofer does not hinder the safe operation of the vehicle.
- Due to the weight and size of this subwoofer, it will work at its best if the correct mounting solution is custom made for your vehicle. To get the most detail and power from your loudspeaker, make sure that it has a solid mounting free from vibration. We recommend the use of an enclosure.
- To further improve the installation, we recommend the use of damping material. Please consult your dealer for details.
- Finally, ensure that the installation is completely airtight.

Adjusting subwoofer level

The subwoofer level can be adjusted to suit the environment, placement and personal preference. You should not be able to hear the subwoofer as a separate source. Its sound should be an integrated part of your total system.
Let your personal preference be the deciding factor!

Subwoofer phase

In most cars the standard in-phase connection (+ speaker to + amp) of the subwoofer will be the right one. In some cases, it sounds better if you connect it out of phase. Just change the polarity: Connect the + terminal of the subwoofer to the – terminal of the amp and the – terminal of the subwoofer to the + terminal of the amp.

Wiring

Quality and size of wire has a strong effect on the quality of sound. VDO Dayton therefore recommends a minimum specification of 2.5 sq. mm oxygen-free copper (OFC) wire, but ask your dealer for your specific installation.

Power recommendation

The power handling of VDO Dayton sub-woofers is very high. Therefore, choose an amplifier that is powerful enough to drive the speaker well. An amplifier that is too small will distort quickly. This will limit level and quality of sound and possibly cause damage to the loudspeakers.

A few words about enclosures

Your VDO Dayton subwoofer requires a sealed enclosure to realise its full low-frequency response.
Be aware that infinite-baffle or "free-air" mounting will reduce the power handling of any subwoofer compared to an application using an enclosure. Finally, any deviation from recommended enclosures should be made using dedicated enclosure design software. If this type of software is not available to you, ask your authorised VDO Dayton dealer for help.
VDO Dayton accepts no liability for damage to the product due to deviation from the recommended box designs.

YOUR CAR AND BASS REPRODUCTION

Depending on the size of the vehicle's interior listening space, reproduced bass frequencies below 80Hz are boosted by nearly 12dB per octave in the car as frequency decreases. NOTE: This effect, known as the vehicle's transfer function, plays an important part in shaping the over-all in-car response along with freespace response on the enclosed data sheet for your VDO Dayton subwoofer.

ENCLOSURE CALCULATIONS AND BUILDING BOXES

Use the recommended box design on the enclosed data sheet. Choose cabinet dimensions to fit your vehicle, but do not change the enclosure's volume. Doing so will change the tuning frequency of the enclosure and may adversely affect final performance. If you cannot perform the necessary calculations yourself, please contact your authorised VDO Dayton dealer for help. In addition, there are a number of points you'll want to keep in mind as you construct an enclosure:

1. Use 19 mm MDF (medium-density fiber-board) or marine birch wood to build an enclosure. Enclosures for 30 cm and larger subwoofers, or small subwoofers driven by high-power amplifiers should be constructed using 26 mm material.

2. Seal all joints with glue and screws; do not use nails. We recommend "deck", "zip" or drywall screws since they have coarse threads for better grip and don't require pre-drilling holes. Once the box has been tested, seal all interior joints with silicone caulk.

POWER HANDLING LIMITATIONS

The power handling capability of any woofer is related to both its ability to dissipate heat and the maximum excursion limits of its cone. Once the voice coil moves completely outside the magnetic gap, power can no longer be converted into motion and all the amplifier's power is converted into heat in the voice coil. Voice coil heating is the largest detriment to speaker longevity, so overexcursion should be avoided. Since cone excursion is different for each type of enclosure, power handling is different for each enclosure.

Sealed enclosures exert the most control over the motion of a subwoofer, because the air inside the box acts like a spring against the motion of the woofer cone. Larger boxes allow for more excursion, thus providing more low-frequency output for the amount of power used. When placed in a sealed box larger than the Vas of the subwoofer, it will perform as if it were in an infinite-baffle installation.

- Voice coil overheating and burning due to over excursion are often caused by overdriving an amplifier into "clipping". A severely clipped signal, or square wave, contains nearly twice the power of a clean sine wave at the same level. Bass that sounds broken up and distorted at higher volumes is usually indicative of an amplifier that is clipping and being asked to deliver power beyond its rated power.

- Infinite-baffle or "free-air" mounting applications allow for greater cone excursion than subwoofers mounted in an enclosure. In order to compensate, recognise that the power rating value of the subwoofer will likely be half its rated power in this application. Therefore we do not recommend these applications.

- As long as recommended parameters are used, the subwoofer will perform properly in its enclosed environment. However, any design deviation may result in less than optimum performance, and may also subject the subwoofer to over-excursion (i.e., the voice coil leaves the gap) that can damage the speaker. For additional advice, please contact your authorised VDO Dayton dealer.
  VDO Dayton accepts no liability for damage to the product due to deviation from the recommended box designs.

Your VDO Guarantee

Dear customer, Thank you for purchasing this VDO Dayton product which has been designed and manufactured to the highest standards and subjected to rigorous testing. Provided it is properly operated and maintained it will perform well for many years.

VDO Dayton guarantees to provide free of charge labour and replacement parts in any country where VDO Dayton has authorised dealers for all serviceable VDO Dayton branded consumer electronic products purchased in those countries.

The legal responsibility for meeting any guarantee service needs for your product rests with the dealer from whom you bought it. If your dealer has no service facilities, he can arrange for any work to be carried out by a competent authorized third-party organisation.

In the event that you require service whilst in another country please contact the local VDO Dayton Help Desk whose number can be found in the relevant part of this booklet.

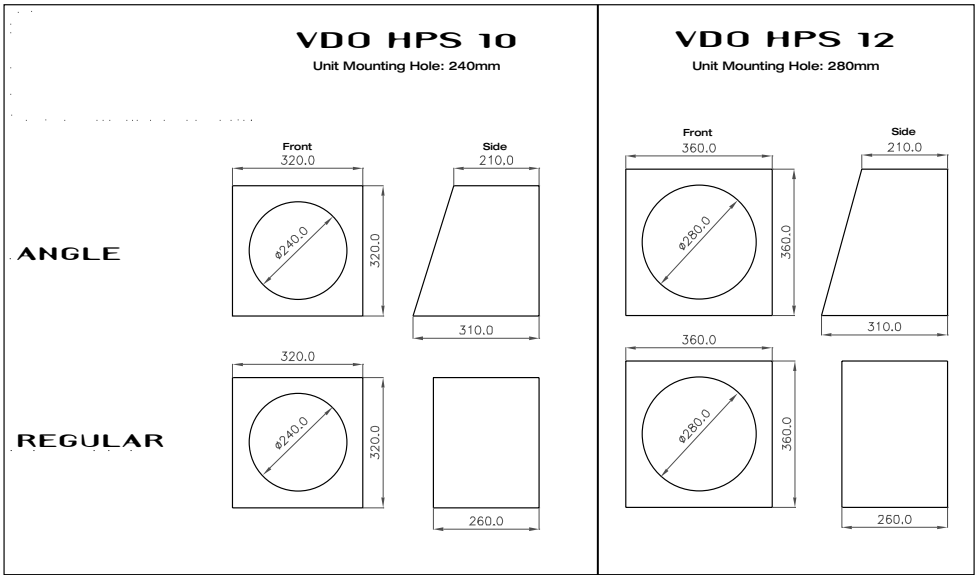
The foregoing applies during a period of 24 months from the date of purchase, provided the product is properly used in accordance with its operating instructions and upon presentation of the original invoice or cash receipt indicating the date of purchase, dealer's name with the product type and serial number.

The VDO Dayton guarantee may not apply if:

- The invoice or cash receipt has been altered in any way or made illegible.
- The type or serial number on the product has been altered, deleted, removed or made illegible.
- Repairs have been executed by unauthorised service organisations or persons.
- Damage is caused by accidents including and not limited to lightning, water or fire, misuse or neglect.
- The product requires modification or adaption to operate in any country other than the country for which it was designed and manufactured, or if any damage results from these modifications.

In order to avoid unnecessary inconvenience, we advise you to read the operating instructions carefully before contacting your dealer or service organisation.

Continuing service after the guarantee period is available but the service will be chargeable.

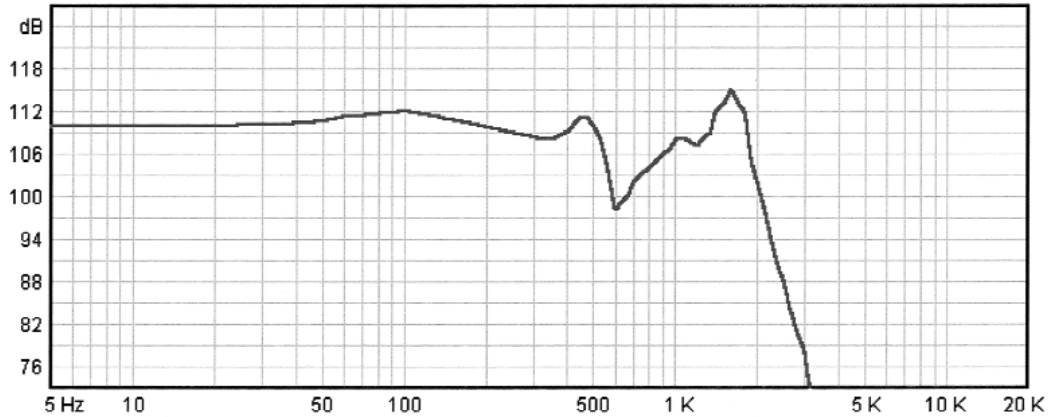


Volume:
HPS 10 = 14 liters net.
HPS 12 = 18 liters net.
(with 19 mm panel thickness)

Dimensions:
All dimensions in mm.
(Divide by 10 to get cm)

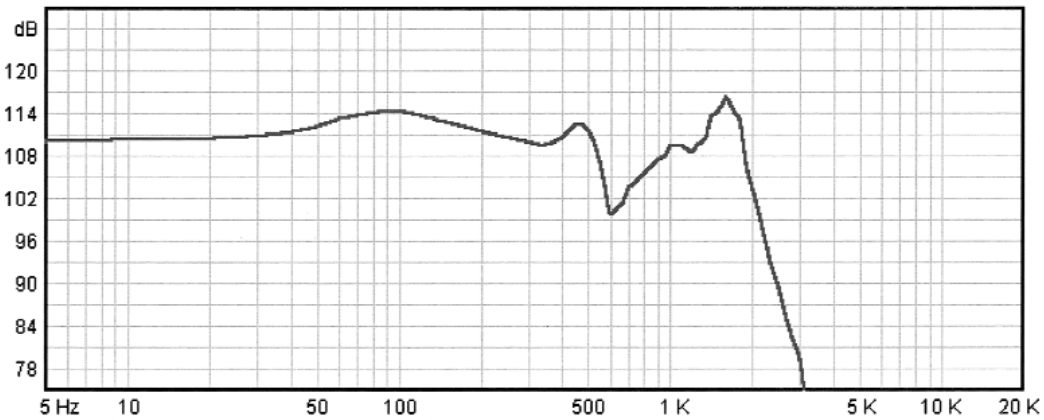
HPS 10", sealed box, 14 liters in car measurement -
Custom Amplitude Response (dB SPL/Hz at 1 m) with 300 Watts

BassBox 6 Pro



HPS 12", sealed box, 18 liters in car measurement -
Custom Amplitude Response (dB SPL/Hz at 1 m) with 300 Watts

BassBox 6 Pro



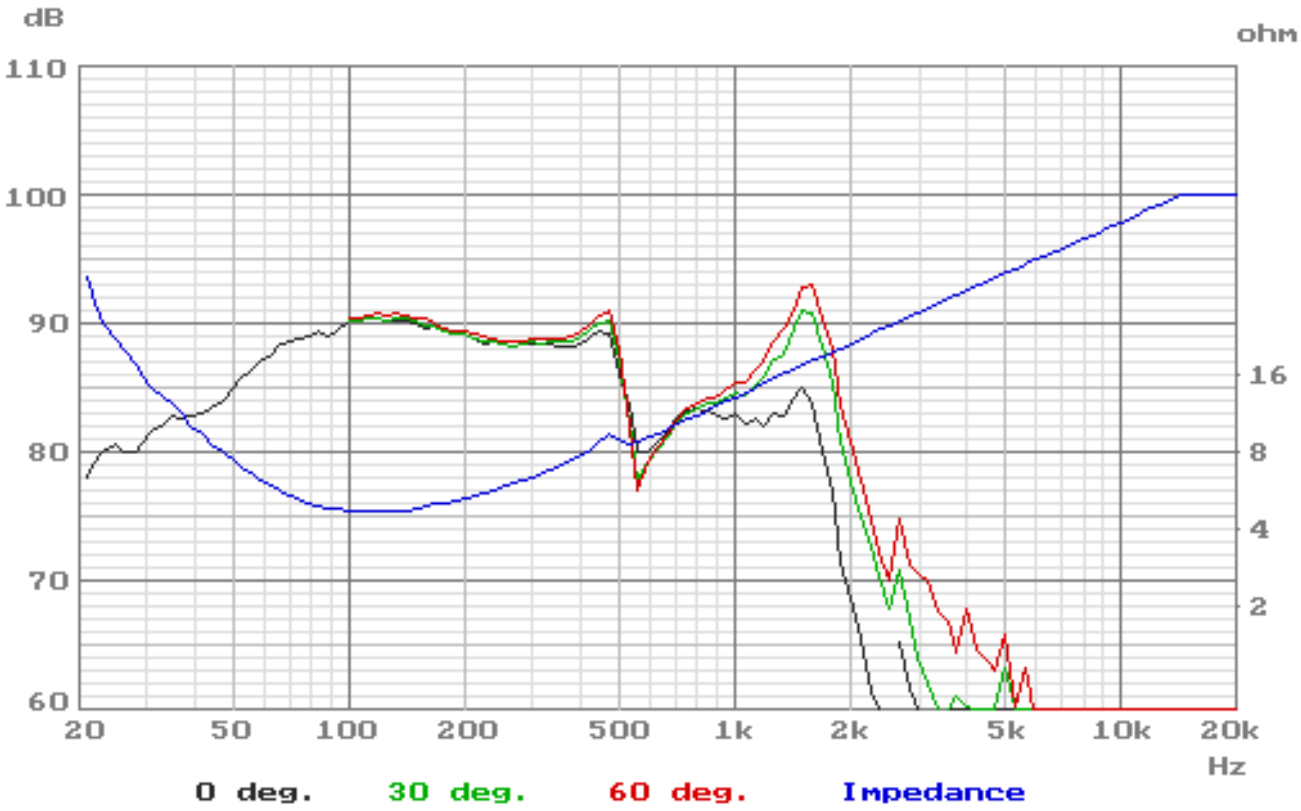
Speakers

Model	HPS10	HPS12
Description	Subwoofer	Subwoofer
Specification		
Max. Power Watts	800	1000
Nominal Power Watts	300	400
Sensitivity dB/1W/m	92	93,5
Nominal Impedance (Ohm)	4	4
Frequency Response	24-400Hz	21-400Hz
Materials		
Cone	Nomex/Kevlar/ Glassfibre Composite	Nomex/Kevlar/ Glassfibre Composite
Basket Material	Cast Aluminium	Cast Aluminium
Woofer Magnet	Strontium Ferrite	Strontium Ferrite
Voice Coil info	Aluminium	Aluminium
Connectors	Gold-plated	Gold-plated
Dimensions and Weight		
Woofer Size	250 mm	300 mm
Mounting Diameter Woofer	239 mm	277 mm
Mounting Depth	122 mm	130 mm

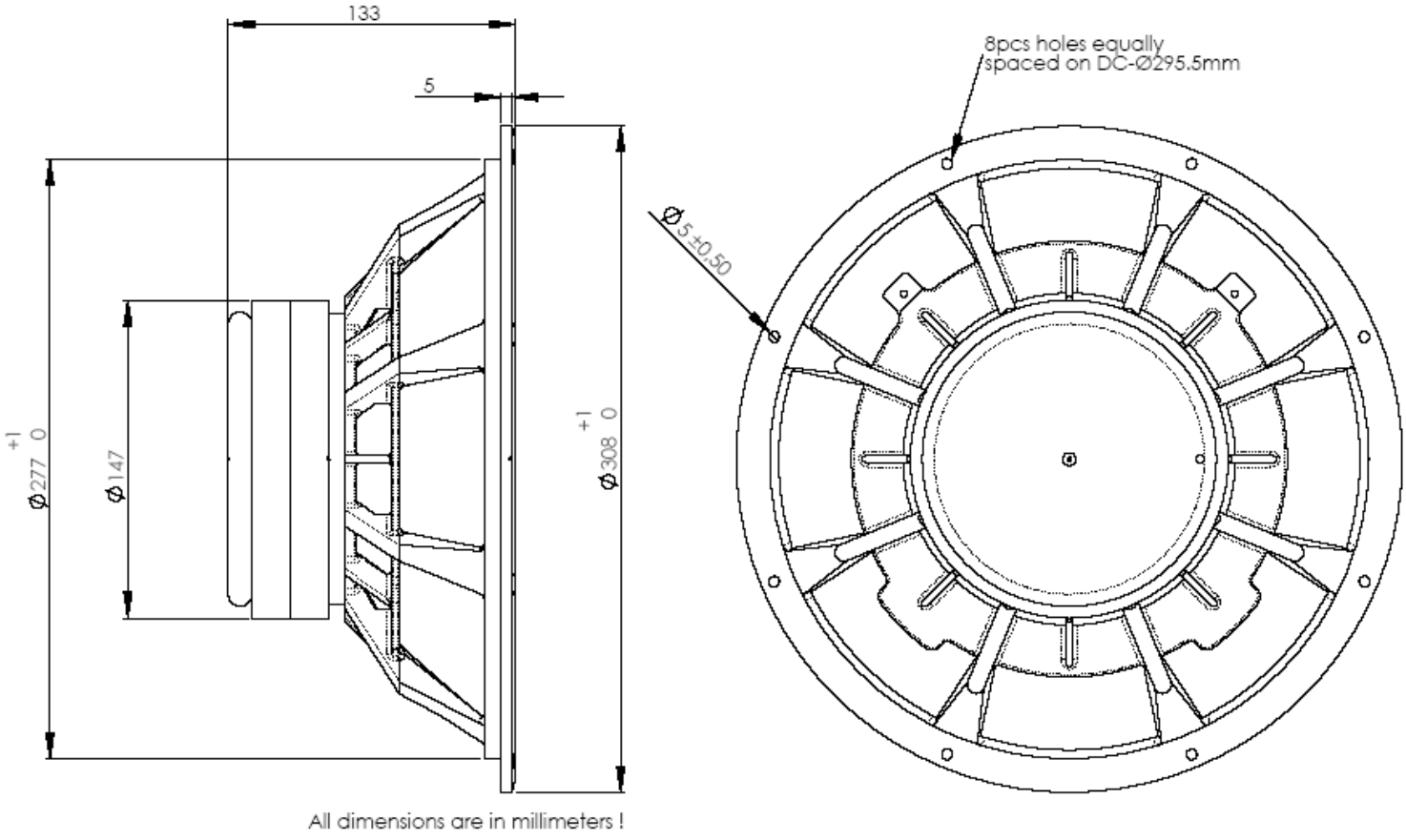
Thiele Small Parameters

		HPS 10	HPS12
Min. Impedance/ at Freq	Zmin(Ohm/ Hz)	4.0/154	4.0/133
Maximum Impedance	Zo Ohm	25.7	24.0
DC Resistance	Re Ohm	3.3	3.3
Voice Coil Inductance	Le (mH)	1.6	1.8
Capacitor in series with 4 Ohm	Cc (µF)	80	75
Resonance Frequency	fs (Hz)	46.0	38.8
Mechanical Q Factor	Qms	4.44	3.93
Electrical Q Factor	Qes	0.64	0.62
Total Q Factor	Qts	0.56	0.54
F (ratio fs/Qts)	F (Hz)	82	72
Mechanical Resistance	Rms (Kg/s)	7.38	8.09
Moving Mass	Mms (g)	113.2	130.1
Suspension Compliance	Cms (mm/N)	0.113	0.132
Effective Cone Diameter	D (cm)	21.2	24.4
Effective Piston Area	Sd (cm^2)	352	466
Equivalent Volume	Vas (ltrs)	18.1	38.8
Force Factor	Bl (N/A)	12.9	12.9
Linear Xmax Peak	Xmax (mm)	12.5	12.5
Max Mechanical Xmax Peak	Xmax (mm)	22	22
Voice Coil Diameter	d (mm)	51	51
Voice Coil Length	h (mm)	33	33
Voice Coil Layers	n	4	4
Flux Density in Gap	B (T)	1.04	1.04
Total Useful Flux	(mWb)	2.5	2.5
Height of the Gap	(mm)	8	8
Diameter of Magnet	(mm)	147	147
Height of Magnet	(mm)	35	35
Weight of Magnet	(kg)	2.42	2.42

Frequency: 830500



Mechanical Dimensions:830500



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