

Goodmans Power Range

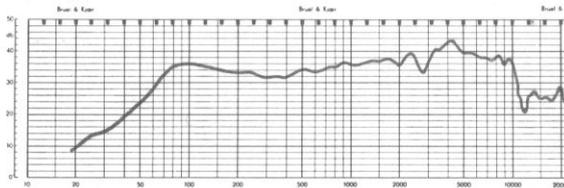
Goodmans Power Range loudspeakers are for professional use, where reliability has to complement the total sound performance. Power range loudspeakers are found in such diverse situations as acoustic research, pest control and alarm systems. The most usual applications with suggested units are shown on the table.

Dimensions of suitable cabinets are given overleaf together with advice on impedance matching, systems with high-frequency horns, and measuring conditions.

Typical Applications		Audiom		ProPower		Audiom	Hifax 100HX
		8PA	12	Di12	Gr12	18P	
Public Address	Indoors Outdoors	●	●	●	●	●	●
Musical Instrument Amplification	Electronic Organs Electric Guitars Bass Guitars		●	●	●	●	●
Discotheques			●	●	●		●
Theatres		●		●			
Clubs		●		●			

Audiom 8PA

Nominal impedance:	8 or 15 Ohms
Nominal power handling:	15 Watts
Fundamental resonance:	85 Herz
Sensitivity (96 dB at 1 m):	3.5 Watts
Recommended enclosure volume for single unit:	20 Litres
Depth, overall:	90 mm
Diameter, overall:	204 mm
Baffle hole diameter:	178 mm
Fixing hole diameter:	4 off 6 mm
Fixing hole centres:	194 mm (PCD)

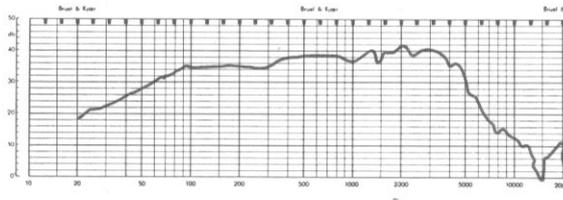


Especially developed as a low cost unit for use singly for general sound coverage or in columns with increased directional characteristics for larger sound reinforcement installations.

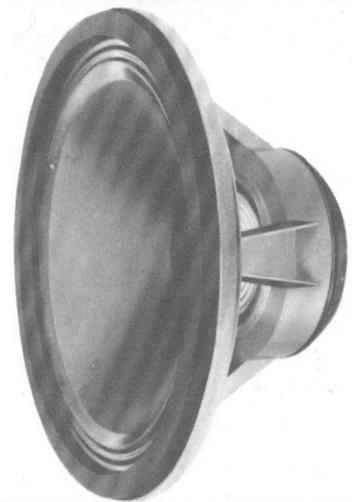


Audiom 18P

Nominal impedance:	8 Ohms
Nominal power handling:	100 Watts
Fundamental resonance:	45 Herz
Sensitivity (96 dB at 1 m):	0.6 Watts
Recommended enclosure volume for single unit:	120 Litres
Depth, overall:	222 mm
Diameter, overall:	459 mm
Baffle hole diameter:	413 mm
Fixing hole diameter:	8 off 8 mm
Fixing hole centres:	438 mm (PCD)



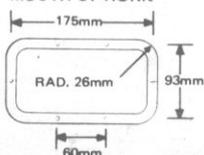
A showman's loudspeaker. It is easily able to deal with the massive response required by bass guitars and also the specialist applications in fairgrounds.



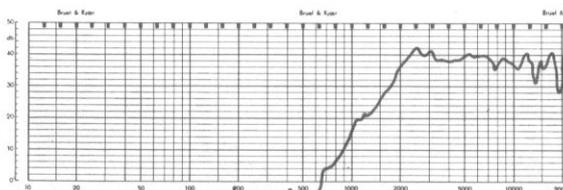
Hifax 100HX

Impedance:	For use with systems rated at 8 or 15 Ohms
Nominal power handling:	Systems rated at 100 Watts
Sensitivity:	(96 dB at 1 m) 0.11 Watts
Depth, overall:	250 mm
Baffle hole:	163 x 81 mm
Fixing hole diameter:	6 off 5 mm
Fixing hole centres:	See diagram

MOUTH OF HORN

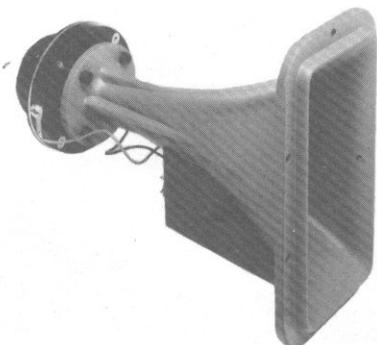


Dimensions to fixing hole centres



The Hifax 100HX is a high power high frequency unit with an integral filter, that operates over the upper octaves of a 100 Watt system when used with Goodmans Power Range loudspeakers.

In high power systems one Hifax 100HX is required for each nominal 100 Watts of the total power available.



Using Power Range Loudspeakers

Recommended Enclosures

The recommended enclosures for Goodmans Power Range loudspeakers should be rigidly constructed from high density chipboard or plywood (not blockboard) screwed and glued together. All joints should be airtight.

The totally sealed enclosures should be loosely lined with layers of 2" thick fibreglass making sure that it does not interfere with the loudspeaker cone. Protective bars or material across the baffle hole must be recessed or fitted so that the movements of the cone is not restricted.

All dimensions are internal to allow for choice of material thickness. The proportions can be varied but the volume must remain the same.

If Goodmans Power Range speakers are used in open baffles or reflex cabinets, the low frequency response must be controlled to prevent excessive cone excursions at low frequencies where these cabinets present little or no acoustic loading.

Connecting the Loudspeakers

Loudspeakers can be wired in series or parallel, or indeed any combination of these to obtain a convenient total load impedance for the amplifier. Do not use loudspeakers of differing impedance in one system, as this will cause uneven distribution of audio power. Observe the polarity of the connections at all times, particularly where more than one loudspeaker is housed in accordance.

Nominal Power Rating and Test Conditions

Goodmans Power Range loudspeakers have a nominal rating based on actual working conditions when used for reproducing the complex random waveforms of music and speech.

The loudspeakers are tested at 20°C in the recommended enclosure using the standard filtered noise signal as defined in DIN 45:573.

The nominal rated power, measured as a true RMS voltage across a resistance equal to the loudspeaker impedance value, is applied continuously for periods of 3 hours with a cooling time of not less than one hour between. This test is repeated for a minimum of 100 hours actual operation.

Sine wave testing should be carried out with caution and only within the frequency range from resonance to 10kHz with the loudspeaker fitted in its recommended enclosure. The maximum input voltage should not exceed

$$\sqrt{\text{Nominal impedance} \times \text{Nominal rating (Watts)}}$$

as shown in the loudspeaker label and this can be sustained for a maximum period of 1 minute. It is recommended that if the test is for a longer period, the input voltage is reduced to 0.7 of the above figure.

The power output may have to be reduced if the loudspeaker is to be used at ambient temperatures exceeding 20°C.

In multiple systems the power available to individual units must not exceed the nominal after taking into account a ±10% impedance tolerance. Where high frequency units form part of the system, the recommended filters must be used and the system power not exceeded.

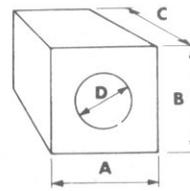
Selecting Suitable Power Loudspeakers

Loudspeakers should be chosen to handle the maximum power of the driving amplifier and this is often in excess of its rated sine wave capability due to power supply regulation and/or its overload characteristics. Instantaneous and distorted

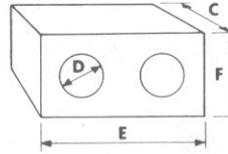
Enclosure Dimensions

NOTE: All dimensions in millimetres

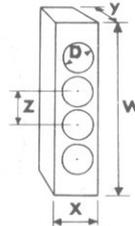
8 in. 12 in. 15 in. 18 in.



Single Speaker Enclosure				
A	380	500	600	710
B	280	360	450	550
C	190	250	280	310
D	178	278	356	413
Thickness	12	18	18	18



Twin Speaker Enclosure				
E	500	700	900	1100
F	380	500	650	700
Thickness	12	18	18	24



Four Speaker Column		
W	1100	1500
X	250	350
Y	150	230
Z	230	330
Thickness	18	18

Impedance Matching

2 Loudspeakers

Series

Total impedance $Z \times 2$

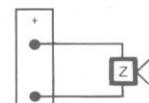


Parallel

Total impedance $\div 2$



Polarity

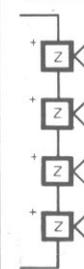


Red spot or + sign indicates positive terminal
Z = indicated impedance

4 Loudspeakers

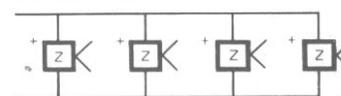
Series

Total impedance $Z \times 4$



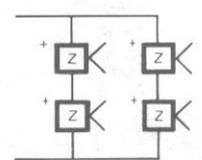
Parallel

Total impedance $\div 4$



Series/Parallel

Total impedance = Z



outputs of 1.5 times the amplifier rating are commonplace and the amplifier power should be multiplied by this factor when selecting suitable loudspeakers for use under these conditions.

Loudspeaker Life

The quality of sound from and the length of life of a loudspeaker depends largely on the performance of the amplifier with which it is used. A well designed amplifier having good stability, fast recovery from an overload condition and freedom from power consuming spurious or unwanted signals outside the loudspeaker pass band will not only give a cleaner sound but also improve the life expectation of the loudspeaker. The converse also applies.

Specifications

The specifications printed in this leaflet are correct at the time of going to press and are subject to the usual 10% manufacturing tolerances, but, as Goodmans policy is one of continual development, the right to modify them is reserved.

Goodmans

Goodmans Loudspeakers Limited,
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Goodmans POWER RANGE

It could be said that over half a century of intensive research and development have gone into the Power Plus range of Goodmans drivers. Indeed, the reputation of the company, who have sales in over 100 countries across the world is certainly a result of their continual development.

Founded as a family firm, working from a small factory complex in Wembley, Goodmans are now the largest speaker manufacturers in the UK with their purpose-built factory in Havant, Hants., turning out an extensive range of high power, high quality audio equipment from bookshelf speakers up to the most efficient public address equipment available.

Not all of this extensive factory space is devoted to the assembly lines, there is also the research division which is furnished with an anechoic chamber containing equipment which provides acoustic measurements to the highest degree of accuracy. To ensure that the products are ideally suited to the environments where they are to be used, they also have a fully furnished living room for listening to domestic sound systems.

Goodmans place the reliability of their speakers on a par with their efficiency and response. This attention to the design and development is mirrored in the quality of the products themselves.

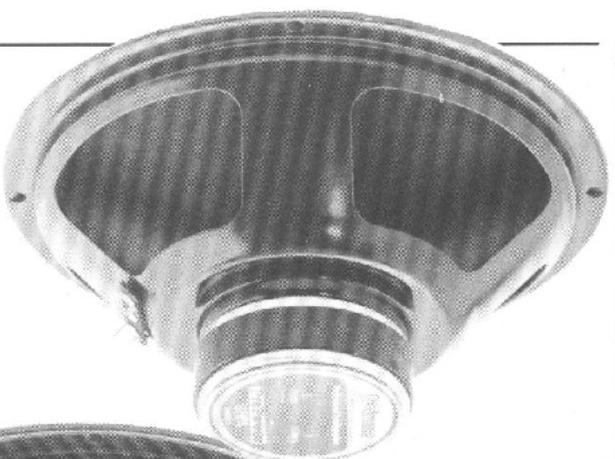


Applications

	8	8	8	Axiom 12	12	12	15	18	100
Public Address									
Indoor									
Outdoor									
Live Music									
Electronic Organ									
Electronic Guitar									
Electronic Bass									
Discotheques									
Theatres									
Clubs									
Hi-Fi/Monitoring									

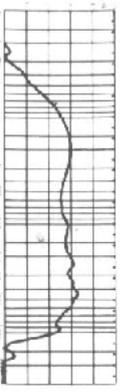
The people worth listening to!

8HPA



Nominal Impedance:
8 and 15 ohms
Nominal Power Handling:
35 Watts
Fundamental Resonance:
80Hz
Sensitivity:
89dB/W/m
Frequency Response:
-10dB 55-11K

Perhaps the most efficient 8" driver available. Exceptional clarity and response are the principle characteristics of this versatile 8" driver for general purpose use.

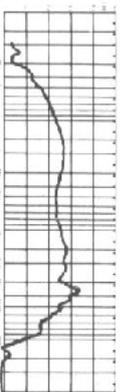


8HG



Nominal Impedance:
8 and 15 ohms
Nominal Power Handling:
60 Watts
Fundamental Resonance:
40Hz
Sensitivity:
88dB/W/m
Frequency Response:
-10dB 32-10K

The 8HG offers excellent bass response, attack and a clean, clear sound not often found in small drivers of this power.

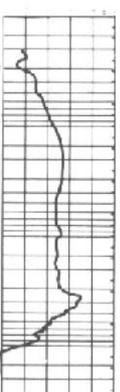


8HB

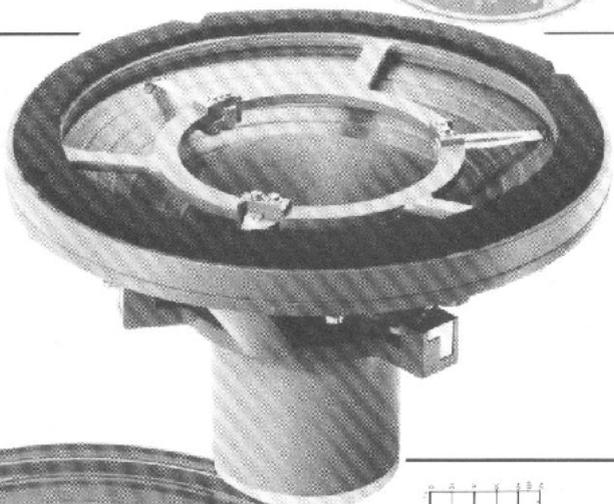


Nominal Impedance:
8 ohms
Nominal Power Handling:
60 Watts
Fundamental Resonance:
30Hz
Sensitivity:
88dB/W/m
Frequency Response:
-10dB 25-9K

This low cost, high power bass unit is fitted with a specialised high temperature coil which gives a rich, powerful response. This unit is especially suited to the exacting applications of disco systems and monitoring equipment.

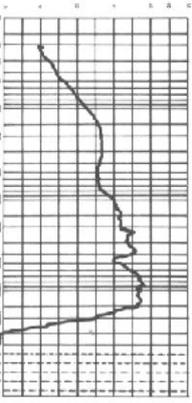


Axiom 80



Nominal Impedance:
15 ohms
Nominal Power Handling:
6 Watts
Fundamental Resonance:
20Hz
Sensitivity:
97dB/1W/1M
Frequency Response:
-10dB 20-20K

The Axiom 80 is capable of high accuracy of sound reproduction from 20Hz to 20KHz. Its high efficiency gives phenomenal output from low-power amplifiers.

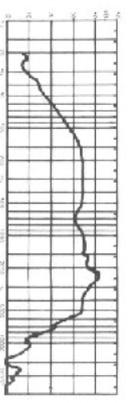


12HPA

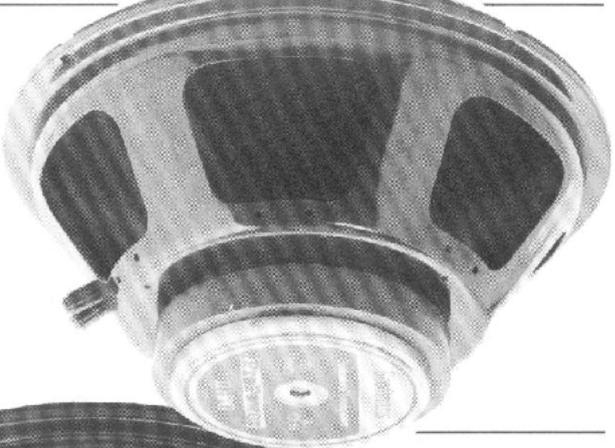


Nominal Impedance:
8 and 15 ohms
Nominal Power Handling:
90 Watts
Fundamental Resonance:
75Hz
Sensitivity:
95dB/W/m
Frequency Response:
-10dB 60-6K

The 'vented piston' technology applied to the 12HPA ensures an excellent bass response while the overall response of the unit gives a versatility that allows use in applications as diverse as PA and club systems.



12HPG



Nominal Impedance:
8 and 15 ohms

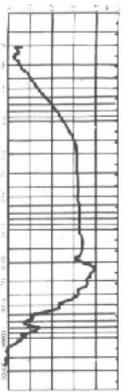
Nominal Power Handling:
120 Watts

Fundamental Resonance:
75Hz

Sensitivity:
97 dB/W/m

Frequency Response:
-10dB 65-5K

The robust construction, plus phenomenal output makes the 12HPG one of the most efficient 12" speakers available. Used singly or in multiples the 12HPG can be relied on for high power with an immaculate sound.



12HPD



Nominal Impedance:
8 and 15 ohms

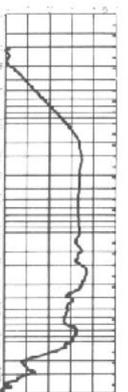
Nominal Power Handling:
120 Watts

Fundamental Resonance:
60Hz

Sensitivity:
95dB/W/m

Frequency Response:
-10dB 60-12K

Up-rated to 120 Watts, this is an ideal speaker for the disco and theatre environments where crystal clarity plus wide frequency response are a necessity. It is particularly useful when used in columns for controlled directional displacement, especially in stereo.



15HP



Nominal Impedance:
8 ohms

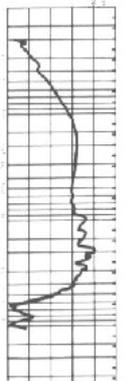
Nominal Power Handling:
250 Watts

Fundamental Resonance:
40Hz

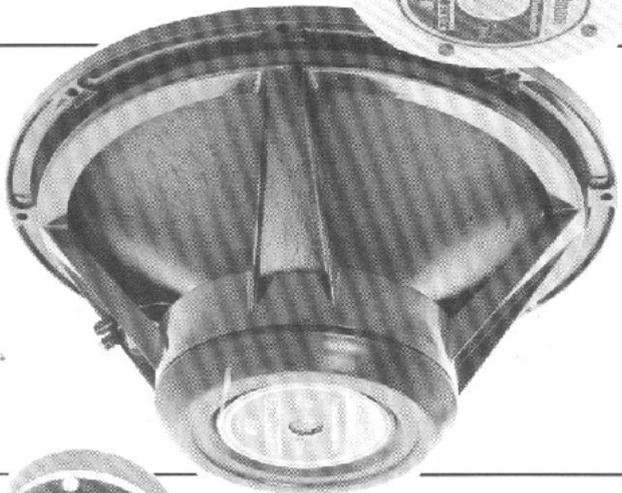
Sensitivity:
95dB/W/m

Frequency Response:
-10dB 45-5K

The latest addition to the range uses similar coil winding techniques as used on the 18HP. As a result of this, Goodmans have produced in the 15HP—a 15" driver of outstanding durability.



18HP



Nominal Impedance:
8 ohms

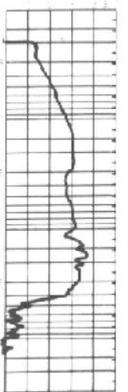
Nominal Power Handling:
230 Watts

Fundamental Resonance:
25Hz

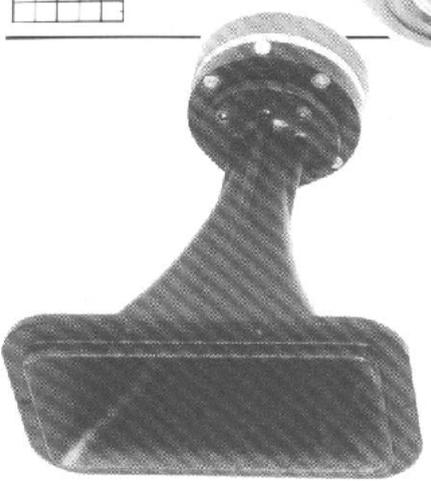
Sensitivity:
95dB/W/m

Frequency Response:
-10dB 40-5K

Extensive research and development has increased the power of the 18HP from just 100 Watts to a space filling 230 Watts. The innovative 'treated linen edge' coupled to the famous Goodmans quality gives the 18HP an unbeatable strength and reliability.



100HX



Minimum Impedance
Thru x-over:
9 ohms

Nominal Power Handling:
100 Watts

Sensitivity:
98dB/W/m

Depth Overall:
250 mm

Baffle Hole:
163 x 81mm

The Hifax 100HX is a high power, high frequency unit that operates over the upper octaves of a 100 Watt system. In high power systems, one Hifax is required for each nominal 100 Watts of the total power available.

