

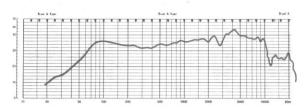
Typical Applications		Audiom		ProPower		Audiom	Hifax	
		8PA	12	Di 12	Gr12	18P	100HX	
Public Address	Indoors Outdoors		•	•	•		•	
Musical Instrument Amplification	Electronic Organs Electric Guitars Bass Guitars		•	•	•	•	:	
Discotheques			•	•	•		•	
Theatres		•	,	•		-		
Clubs		•		•	1			

Audiom 8PA

Nominal impedance: Nominal power handling: Fundamental resonance: Sensitivity (96 dB at 1 m): Recommended enclosure volume for single unit: Depth, overall: Diameter, overall: Baffle hole diameter: Fixing hole diameter: Fixing hole centres:

8 or 15 Ohms 15 Watts 85 Herz 3.5 Watts

20 Litres 90 mm 204 mm 178 mm 4 off 6 mm 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.

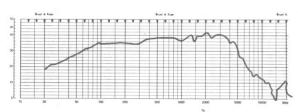


Audiom 18P

Nominal impedance: Nominal power handling: Fundamental resonance: Sensitivity (96 dB at 1 m): Recommended enclosure volume for single unit: Depth, overall: Diameter, overall: Baffle hole diameter: Fixing hole diameter: Fixing hole centres:

8 Ohms 100 Watts 45 Herz 0.6 Watts

120 Litres 222 mm 459 mm 413 mm 8 off 8 mm 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

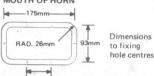
Impedance:

Nominal power handling:

Sensitivity:

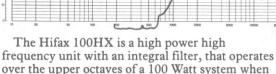
Depth, overall: Baffle hole: Fixing hole diameter: Fixing hole centres:

MOUTH OF HORN



For use with systems rated at 8 or 15 Ohms Systems rated at 100 Watts (96 dB at 1 m) 0.11 Watts 250 mm

163×81 mm 6 off 5 mm See diagram



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.



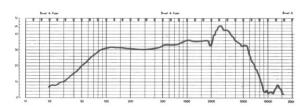
P Dwer

Nominal impedance: Nominal power handling: Fundamental resonance: Sensitivity (96 dB at 1 m): Recommended enclosure volume for single unit: Depth, overall:

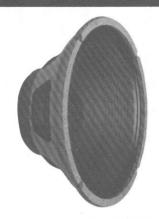
Diameter, overall: Baffle hole diameter: Fixing hole diameter: Fixing hole centres:

65 Watts 75 Herz 0.65 Watts

50 Litres 135 mm 311 mm 278 mm 4 off 8 mm 298 mm (PCD)



The ProPower 12 is the successor to the Audiom 12P, the popular "work-horse" in the Power Range but offers an increase in power handling capacity to 65 Watts.



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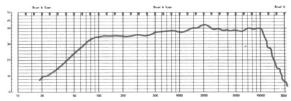
Nominal impedance: Nominal power handling: Fundamental resonance: Sensitivity (96 dB at 1 m): Recommended enclosure volume for single unit: Depth, overall: Diameter, overall: Baffle hole diameter: Fixing hole diameter:

Fixing hole centres:

8 or 15 Ohms 75 Watts 85 Herz 0.7 Watts

50 Litres 142 mm 311 mm 278 mm 4 off 8 mm 298 mm (PCD)

The ProPower Di 12, twelve inch twin cone loudspeaker succeeds the successful Audiom 12P-D and is engineered with a higher power handling capacity — 75 Watts — for a range of applications where high sensitivity and a wide



frequency response are required.

For high quality PA, either singly or in multiples to increase the directional characteristics, it may be used to reproduce music in a variety of conditions from discotheques to dance clubs and theatres. It gives good results when used for musical instrument amplification (organs, etc.) at home or at medium powers for cabaret clubs and theatre performances.



ProPower (47)2

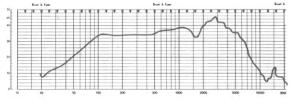
Nominal impedance: Nominal power handling: Fundamental resonance: Sensitivity (96 dB at 1 m): Recommended enclosure volume for single unit: Depth, overall: Diameter, overall: Baffle hole diameter: Fixing hole diameter:

Fixing hole centres:

8 or 15 Ohms 75 Watts 75 Herz 0.6 Watts

50 Litres 142 mm 311 mm 278 mm 4 off 8 mm 298 mm (PCD)

The ProPower Gr 12 follows the Audiom 12P-G with a frequency characteristic particularly suited to amplification of rock musical instruments and outdoor PA, but with improved power handling up to 75 Watts.



The frequency response curve shows a rising output with a maximum at about 3 kHz. This gives "carry" and good articulation to speech in difficult Public Address situations.

The built-in high frequency lift gives good attack and a clean sharp sound when used for guitar and organ amplifiers in pop music groups. Its robust construction allows it to handle the output of amplified bass guitars particularly well especially when used in multiples.



Type of system **Drive Units**

Crossover frequency

Useful frequency range (-3 dB points) Recommended amplifier

(music) power rating Recommended amplifier impedance

Sensitivity (96 dB at 1 metre)

Weight Finishes Twin-ported reflex of 50 litres

12" bass unit Mid/HF horn

2 kHz

80 - 18,000 Hz

2-75 Watts

4 or 8 ohms

0.4 Watts

17 Kg. (37 lbs.) 380 × 620 × 305 mm

Teak effect finish brown grille

For Clubs, Discotheques and Stage Monitor Systems

High power handling

High sensitivity

Wide sound dispersion

The dB 50 is a two-way loudspeaker system in a reflex enclosure of 50 litres.

The system combines high efficiency with high power handling capacity, wide sound dispersion and a smart appearance which will make it particularly suitable for use in permanent and semi-permanent disco installations in hotels, discotheques and clubs. Its popular sound gives it great appeal for reproducing popular music for parties and at home.

Other applications include use by groups and bands in studios and as stage monitors



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

√ Nominal impedance × 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.

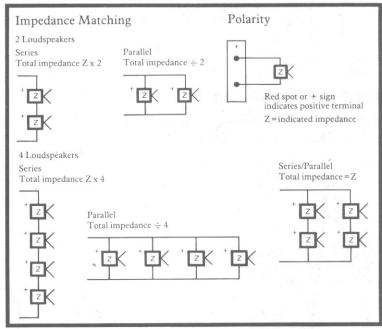
The power output may have to be reduced if the loudspeaker is to be used at ambient temperatures exceeding 20°C.

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 power 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) B	В	280	360	450	550			
	C	190	250	280	310			
A	D	178	278	356	413			
- C	Thickn	ess 12	18	18	18			
(D)	Twin Speaker Enclosure							
	E	500	700	900	1100			
E	F	380	500	650	700			
	Thickn	ess 12	18	18	24			
(P)	Four Speaker Column							
	-W	1100	1500					
z w	X	250	350					
	Y	150	230					
	Z	230	330					
X	Thickn	ess 18	18					



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, Downley Road, Havant, Hampshire PO9 2NL, England.

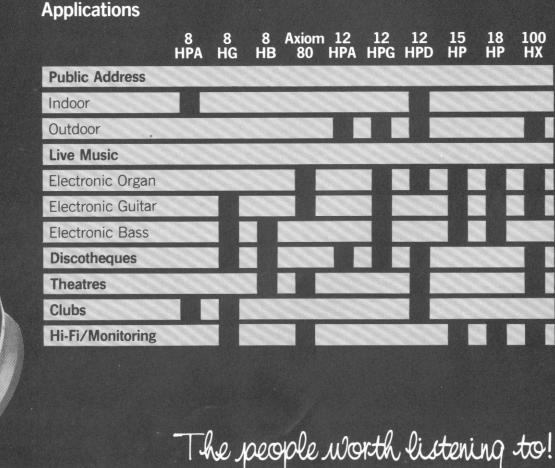
Goodmans POWER RANGE

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.

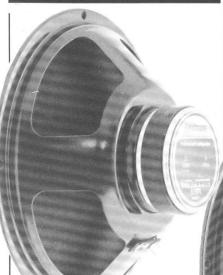


8HPA

8HG

8HB

Axiom 80 | 12 HPA



Nominal Impedance: 8 and 15 ohms

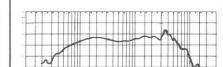
Nominal Power Handling: 35 Watts

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.



Nominal Impedance: 8 and 15 ohms

Nominal Power Handling: 60 Watts

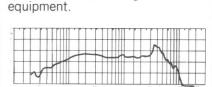


Fundamental Resonance: 40Hz

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.



This low cost, high power

specialised high temperature

powerful response. This unit

is especially suited to the

bass unit is fitted with a

coil which gives a rich,

Nominal Impedance: 8 ohms

Nominal Power Handling: 60 Watts

Fundamental Resonance: 30Hz

Sensitivity: 88dB/W/m

Frequency Response: -10dB 25-9K

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.

Nominal Impedance: 8 and 15 ohms

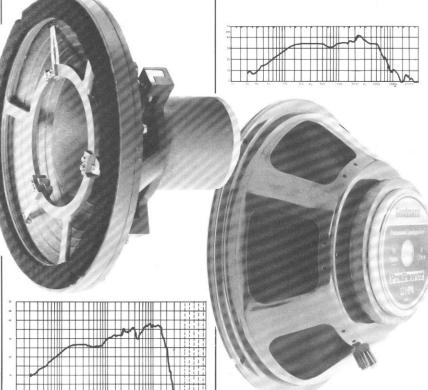
Nominal Power Handling: 90 Watts

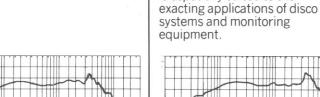
Fundamental Resonance: 75Hz

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 versality that allows use in applications as diverse as PA and club systems.





12 HPG

12HPD

15 HP

18 HP

100 HX



Nominal Impedance: 8 and 15 ohms

Nominal Power Handling: 120 Watts

Fundamental Resonance: 60Hz

Nominal Impedance: 8 ohms

Nominal Power Handling: 250 Watts

Fundamental Resonance: 40 Hz

Sensitivity: 95dB/W/m

Frequency Response: -10dB 45-5K

Nominal Impedance: 8 ohms

Nominal Power Handling: 230 Watts

Fundamental Resonance: 25 Hz

Sensitivity: 95dB/W/m

Frequency Response: -10dB 40-5 K

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

Minimum Impedance Thru x-over: 9 ohms

Nominal Power Handling: 100 Watts

Sensitivity: 98dB/W/m

Depth Overall: 250 mm

Baffle Hole: 163 × 81 mm

The Hifax 100 HX 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.

Nominal Impedance: 8 and 15 ohms

Nominal Power Handling: 120 Watts

Fundamental Resonance: 75 Hz

Sensitivity: 97 dB/W/m

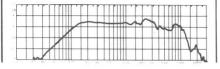
Frequency Response: -10dB 65-5K

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.

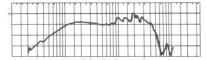


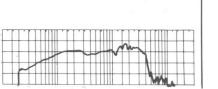
Frequency Response: -10dB 60-12K

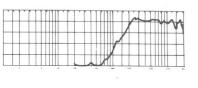
Up-rated to 120 Watts, this is an ideal speaker for the disco and theatre environments where crystal clarity plus wide frequency response are a necessity. It is particularly useful when used in columns for controlled directional displacement, especially in stereo.



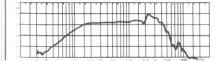
The latest addition to the range uses similar coil winding techniques as used on the 18HP. As a result of this, Goodmans have produced in the 15HP—a 15" driver of outstanding durability.











Enclosures

Enclosures

So that you can obtain the best results from your Goodmans Power Plus loud-speakers the following technical details of cabinet choice, construction and connections are intended to be used in addition to the Power Plus loudspeaker catalogue.

The cabinet dimensions have been prepared to optimise the special characteristics of Goodmans drive units and cannot be recommended for use except with the Power Plus range.

Enclosure Construction

The recommended enclosures for Goodmans Power Range should be constructed of high density chipboard or plywood (not blockboard) employing screwed and glued joints or corner reinforcements for maximum strength whilst reducing cabinets resonances. All joints should be airtight. Infinite baffle enclosures should be lined loosely with good quality acoustic fibre. All dimensions given are internal to allow for thickness of cabinet material. The dimensions may be changed but the overall volume must be the same as specified. Where ported reflex systems are employed it is essential that the distance between the rear of the port and the cabinet back wall is greater than the diameter of the port.

Selecting Enclosures

Goodmans 12. 15 and 18 inch range of loudspeakers may be used in either Infinite Baffle (sealed box) or Tuned Reflex enclosures for improved bass response. The 8 HPA and 8 HG are recommended for use in Infinite Baffle enclosures only but for high fidelity reproduction the 8HB may be fitted to a reflex system. The ideal enclosure for individual uses will depend on the performance required, cost of construction and portability. Both methods are detailed below with the dimensions. Where small size is of paramount importance, reductions in volume of up to 30% are permissible giving small losses in bass response. Reflex ports may not be used in these circumstances.

Infinite Baffle Enclosures

The recommended enclosures have been selected for optimum balance of requirements between the Jarge cabinet volumes needed for good bass response and the small sizes which permit low

frequency control, best power handling and portability. These cabinets provide lowest cost and simplest construction for housing Goodmans drive units effectively.

Tuned Reflex Enclosures

Well designed reflex systems such as those shown on this page will increase the efficiency and bass response of a given cabinet size.

It is essential to follow the port dimensions exactly. Care should be taken over the matching of the signal source and drive units since at low frequencies the reflex cabinet presents little or no loading to the drive units. Without correct matching excessive cone excursions can occur shortening the life of the loudspeakers. If the maximum power handling is to be attained, with low distortion it will be necessary to fit high pass filters to the output of the amplifier in order to remove frequencies that are lower than the system resonance. Should it be decided to produce twin loudspeaker enclosures it is recommended that a dividing centre wall is fitted and a separate port used for each loudspeaker. This method will enhance cabinet stiffness whilst removing the chance of interaction between each tuned system. Four-loudspeaker cabinets are not recommended for reflex use but separate two-loudspeaker systems may be stacked and connected in series or parallel in order to make coloumns. Ports may be constructed either in the form of a tube or as a shelf at the top or bottom of the cabinet where this panel will form one side of a rectangular port. In this case the distance from the rear of the shelf to the cabinet back panel must be greater than the height of the port.

Baffle Cutout Dimensions

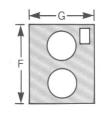
Cutout dia. No. of holes and PCD

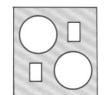
8" 178 mm 4 on 194 mm dia.

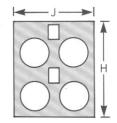
12" 278 mm 4 on 299 mm dia.

15 HP 356 mm 6 on 373 mm dia.

18 HP 413 mm 8 on 438 mm dia.







Each baffle shows suggested cutouts for 100 HX horns if required.

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

1 (1 unit)

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 an enclosure.

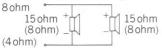
Multiple speaker combinations

Multiples of each speaker shown may be used wired in parallel or series parallel to maintain the 8 ohm impedance as shown below.

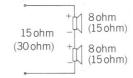
A. Single Speaker



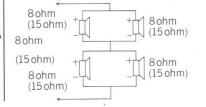
B. Two Speakers wired in parallel



C. Two Speakers wired in series



D. Four Speakers wired in series parallel



4 (4 units)

Dia. of

2 (2 units)

Recommended Components for Crossover Filters

Inductors

All air cored, d.c. resistance < 0.6 ohm. Values $\pm 5\%$.

Capacitors

Reversible type, dissipation factor <5% for values of $>6 \mu F$ and <1% for values $<6 \mu F$. Values $\pm 20\%$.

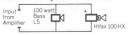
Voltage rating depends on input power:-

Power In	Voltage
(Watts)	(Volts)
100	40
200	60
300	70
500	90

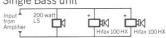
Minimum ripple current of 1 amp should be used.

Systems with Hifax 100 HX (using filter supplied)

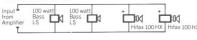
100 watt system circuit



200 watt system circuits Single Bass unit



Two Bass units



Cabinet construction

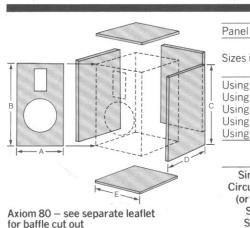
It is essential that the cabinet is airtight for sealed-box designs and that all joints are effectively sealed by means of screws and glueing. Use only seasoned timber stock and good quality, high density chipboard of 20 mm (3/4 ") minimum thickness. (24 mm for 15 " and 18").

1984 CATALOGUE

Goodmans

Goodmans Loudspeakers Ltd, Downley Road, Havant, Hampshire, PO9 2NL, England. Tel: (0705) 486344. Telex: 86296.

Designed and produced by Owen Print and Graphics Ltd



Sizes in mm A	В	С	D	Е	F	G	Н	J	baffle holes
Using 8 HPA 280	380	H H	280	+ 2 thickness	560	380	600	500	178
Using 8 HB, HG 280	380		330	2 x	560	380	600	500	178
Using all 12" 360	500	2 units units =	330	+ ਜ਼ੁੱ	730	500	750	700	278
Using all 15" 450	600	2 7	300	Anelt	900	650			356
Using 18 HP 550	630	1 &	520	pai	1100	630			413
		8 in			12	2 in		15 in	18 in
	HPA	HB	HG	HF	PA H	PG	HPD	HP	HP
Single Port Length	_	100		10	0 1	00	150	165	300
Circular Port Diameter									
(or equivalent area)	_	60	_	14	0 1	40	140	150	200
Slot Port Width	-	115	_	36	0 3	60	360	450	550
Slot Port Height	_	25	_	4	5	45	45	40	55