

**PHILIPS**

Loudspeakers

**C3**

**1985**

**PHILIPS**

Data handbook



Electronic  
components  
and materials

**Components and  
materials**

Book C3

1985

Loudspeakers

# LOUDSPEAKERS

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## DATA HANDBOOK SYSTEM

Our Data Handbook System comprises more than 60 books with specifications on electronic components, subassemblies and materials. It is made up of four series of handbooks:

ELECTRON TUBES	BLUE
SEMICONDUCTORS	RED
INTEGRATED CIRCUITS	PURPLE
COMPONENTS AND MATERIALS	GREEN

The contents of each series are listed on pages iv to viii.

The data handbooks contain all pertinent data available at the time of publication, and each is revised and reissued periodically.

When ratings or specifications differ from those published in the preceding edition they are indicated with arrows in the page margin. Where application information is given it is advisory and does not form part of the product specification.

Condensed data on the preferred products of Philips Electronic Components and Materials Division is given in our Preferred Type Range catalogue (issued annually).

Information on current Data Handbooks and on how to obtain a subscription for future issues is available from any of the Organizations listed on the back cover.

Product specialists are at your service and enquiries will be answered promptly.

## ELECTRON TUBES (BLUE SERIES)

The blue series of data handbooks comprises:

- T1 Tubes for r.f. heating**
- T2a Transmitting tubes for communications, glass types**
- T2b Transmitting tubes for communications, ceramic types**
- T3 Klystrons, travelling-wave tubes, microwave diodes**
- ET3 Special Quality tubes, miscellaneous devices (will not be reprinted)**
- T4 Magnetrons for microwave heating**
- T5 Cathode-ray tubes**  
Instrument tubes, monitor and display tubes, C.R. tubes for special applications
- T6 Geiger-Müller tubes**
- T7 Gas-filled tubes**  
Segment indicator tubes, indicator tubes, dry reed contact units, thyratrons, industrial rectifying tubes, ignitrons, high-voltage rectifying tubes, associated accessories
- T8 Picture tubes and components**  
Colour TV picture tubes, black and white TV picture tubes, colour monitor tubes for data graphic display, monochrome monitor tubes for data graphic display, components for colour television, components for black and white television and monochrome data graphic display
- T9 Photo and electron multipliers**  
Photomultiplier tubes, phototubes, single channel electron multipliers, channel electron multiplier plates
- T10 Camera tubes and accessories**
- T11 Microwave semiconductors and components**
- T12 Vidicons and Newvicons**
- T13 Image intensifiers**
- T14 Infrared detectors**
- T15 Dry reed switches**
- T16 Monochrome tubes and deflection units**  
Black and white TV picture tubes, monochrome data graphic display tubes, deflection units

} Data collations on these subjects are available now.  
Data Handbooks will be published in 1985.

## SEMICONDUCTORS (RED SERIES)

The red series of data handbooks comprises:

- S1 Diodes**  
Small-signal germanium diodes, small-signal silicon diodes, voltage regulator diodes (< 1,5 W), voltage reference diodes, tuner diodes, rectifier diodes
- S2a Power diodes**
- S2b Thyristors and triacs**
- S3 Small-signal transistors**
- S4a Low-frequency power transistors and hybrid modules**
- S4b High-voltage and switching power transistors**
- S5 Field-effect transistors**
- S6 R.F. power transistors and modules**
- S7 Surface mounted semiconductors**
- S8 Devices for optoelectronics**  
Photosensitive diodes and transistors, light-emitting diodes, displays, photocouplers, infrared sensitive devices, photoconductive devices.
- S9 Power MOS transistors**
- S10 Wideband transistors and wideband hybrid IC modules**
- S11 Microwave semiconductors** (to be published in 1985)
- S12 Surface acoustic wave devices**

## INTEGRATED CIRCUITS (PURPLE SERIES)

The purple series of data handbooks comprises:

### EXISTING SERIES

- IC1 Bipolar ICs for radio and audio equipment
- IC2 Bipolar ICs for video equipment
- IC3 ICs for digital systems in radio, audio and video equipment
- IC4 Digital integrated circuits  
CMOS HE4000B family
- IC5 Digital integrated circuits – ECL  
ECL10 000 (GX family), ECL100 000 (HX family), dedicated designs
- IC6 Professional analogue integrated circuits
- IC7 Signetics bipolar memories
- IC8 Signetics analogue circuits
- IC9 Signetics TTL logic
- IC10 Signetics Integrated Fuse Logic (IFL)
- IC11 Microprocessors, microcomputers and peripheral circuitry

## NEW SERIES

- IC01N** Radio, audio and associated systems  
Bipolar, MOS
- IC02N** Video and associated systems  
Bipolar, MOS
- IC03N** Telephony equipment  
Bipolar, MOS
- IC04N** HE4000B logic family  
CMOS
- IC05N** HE4000B logic family uncased integrated circuits  
CMOS (published 1984)
- IC06N** PC54/74HC/HCU/HCT logic families  
HCMOS
- IC07N** PC54/74HC/HCU/HCT uncased integrated circuits  
HCMOS
- IC08N** 10K and 100K logic family  
ECL
- IC09N** Logic series  
TTL (published 1984)
- IC10N** Memories  
MOS, TTL, ECL
- IC11N** Analogue - industrial
- IC12N** Semi-custom gate arrays & cell libraries  
ISL, ECL, CMOS
- IC13N** Semi-custom integrated fuse logic  
IFL series 20/24/28
- IC14N** Microprocessors, microcontrollers & peripherals  
Bipolar, MOS
- IC15N** Logic series  
FAST TTL (published 1984)

### Note

Books available in the new series are shown with their date of publication.



## COMPONENTS AND MATERIALS (GREEN SERIES)

The green series of data handbooks comprises:

- C1 Programmable controller modules**  
PLC modules, PC20 modules
- C2 Television tuners, video modulators, surface acoustic wave filters**
- C3 Loudspeakers**
- C4 Ferroxcube potcores, square cores and cross cores**
- C5 Ferroxcube for power, audio/video and accelerators**
- C6 Synchronous motors and gearboxes**
- C7 Variable capacitors**
- C8 Variable mains transformers**
- C9 Piezoelectric quartz devices**  
Quartz crystal units, temperature compensated crystal oscillators, compact integrated oscillators, quartz crystal cuts for temperature measurements
- C10 Connectors**
- C11 Non-linear resistors**  
Voltage dependent resistors (VDR), light dependent resistors (LDR), negative temperature coefficient thermistors (NTC), positive temperature coefficient thermistors (PTC)
- C12 Variable resistors and test switches**
- C13 Fixed resistors**
- C14 Electrolytic and solid capacitors**
- C15 Ceramic capacitors\***
- C16 Permanent magnet materials**
- C17 Stepping motors and associated electronics**
- C18 D.C. motors**
- C19 Piezoelectric ceramics**
- C20 Wire-wound components for TVs and monitors**
- C21 Assemblies for industrial use**  
HNIL FZ/30 series, NORbits 60-, 61-, 90-series, input devices

\* Film capacitors are included in Data Handbook C22 which will be published in 1985. The September 1982 edition of C15 should be retained until C22 is issued.

## GENERAL

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INTRODUCTION

The data are presented -whenever possible- according to a "format", in which the following items may be stated:

Title

- APPLICATION
- TECHNICAL DATA
- DIMENSIONS IN MM
- AVAILABLE VERSIONS
- FREQUENCY RESPONSE CURVES

Besides APPLICATION other particulars may be stated, relating to frame, cone, surround (suspension or rim), gaskets, magnetic compensation and recommended enclosure.

TECHNICAL DATA include:

version

... ..

Rated impedance	$\Omega$
Voice coil resistance	$\Omega$
Rated frequency range	Hz
Resonance frequency	Hz
Cross-over frequency ( . . dB/octave slope)	Hz
Distortion	%
Power handling capacity, measured without filter, loudspeaker unmounted	W
Max. power on loudspeaker	W
Operating power (sound level . . . dB, . . . m)	W
Sweep voltage ( . . . to . . . . . Hz)	V
Filter	
Characteristic sensitivity	dB
Energy in air gap	mJ
Flux density	T
Force factor (B x l) at 1 A	Wb/m
Piston diameter	m
Piston area	m <sup>2</sup>
Total moving mass	kg
Compliance, loudspeaker unmounted	m/N
Equivalent box-volume	l
Quality factor, loudspeaker unmounted or mounted in recommended volume,	
mechanical	
electrical	
total	
Air-gap height	mm
Air-gap length	mm
Voice-coil height	mm
Rated core diameter	mm
Rated coil diameter	mm
Magnet material	
diameter	mm
mass	kg
Mass of loudspeaker	kg
Magnetic stray field according to . . . . .	mT
Connection	

DIMENSIONS, in mm (unless otherwise indicated), are shown in a drawing giving the front or rear view of the speaker and a side view, the upper half of which is usually drawn as a cross section.

AVAILABLE VERSIONS include the type number (AD . . .), and the catalogue number which is to be used for ordering. Where applicable the standard packing quantity is also mentioned.

FREQUENCY RESPONSE CURVES of the loudspeakers, mounted on an IEC baffle show the sound pressure as a function of frequency. These frequency response curves are reproduced in such a way that they can be directly compared with Bruel & Kjaer recording charts QP1124.

## CHOICE OF TYPE

It is essential to choose the correct loudspeaker for adequate acoustic results from electro-acoustic equipment.

The following factors should be considered when choosing a loudspeaker:

- shape, size and attachment with reference to the available space;
- quality and sensitivity, a compromise between fidelity of reproduction and price;
- the frequency response characteristic in relation to the kind of application;
- impedance and power handling capacity, which should be adapted to the output stage of the equipment.
- appearance and finish.

To assist customers in making their choice, our loudspeakers have been divided into the following groups:

- tweeter loudspeakers
- squawker loudspeakers
- woofer loudspeakers
- full range loudspeakers

A further selection may be made on the basis of operating power or characteristic sensitivity. High power speakers include top quality woofers, squawkers and tweeters for use in special combinations with appropriate filters and enclosures. Their excellent sound reproduction conforms in every respect to the high-fidelity standards IEC 268 and DIN 45 500. The system power handling capacity is from 10 to 250 W, the latter for theatre and outdoor applications. Full range high power loudspeakers are also available. These speakers also conform to IEC 268 and DIN 45 500 but have been designed to meet somewhat less stringent requirements. They are specially for juke boxes, musical instruments, monitoring and public address systems.

Medium power loudspeakers can be subdivided according to the application into round and oval versions, usually for radio, audio and television. For the latter application types with screened and/or compensated magnet systems are available.

Low power types are mainly used in small radios, intercoms and portable television.

## SELECTION TABLES

The loudspeakers are divided into groups as shown in the survey below. *Conversion of catalogue number to type number is given in the list following this survey.* All loudspeakers are equipped with ceramic magnets unless otherwise indicated in the column "core diameter".

## TWEETER LOUDSPEAKERS

basic part of type number	impedance  $\Omega$	resonance frequency  Hz	core diameter  mm	power handling capacity  W	max. dimensions			page
					flange		mounting depth mm	
					inch	mm		
AD00972/T4	4	2100	18 RE	10	3/4	35 $\phi$	11	25
AD0140/T.	4/8	1200	25	5	1	94,2 $\phi$	24,5	28
AD0141/T.	4/8	1450	25	6	1	94,2 $\phi$	24,5	31
AD0162/T.	4/8/15	1000	25	6	1	94,2 $\phi$	32,4	34
AD0163/T.	8/15	1300	25	6	1	94,2 $\phi$	32,4	37
AD01700/T8	8	2000	10	20	1/2	54 $\phi$	13	40
AD11700/T8						64 $\square$		
AD2000/TP	—	—	PXE	—	2	50 $\phi$	22,7	67
AD2200/TP			PXE			53 $\square$		
AD2096/T.	4/8/15	1300	14,5 TIC	3	2	50,3 $\phi$	26,8	73
AD2296/T.						53 $\square$		
AD2273/T.	4/8	1000	10	10	2 1/4	58 $\square$	27	81
AD2274/T.						42		
AD11400/T.	4/8	1500	25	6	1	82 $\square$	27,7	125
AD11410/T.								
AD11430/T.	4/8	1000	25	3,5	1	82 $\square$	40,1	129
AD11600/T.	4/8	1300	25	6	1	96 $\square$	33,6	132
AD11610/T.	4/8	1300	25	6	1	96 $\square$	33,6	135
AD11800/T.	4/8	1700	25	4	1	75 $\square$	25	138
AD11810/T.	4/8	1600	25	4	1	75 $\square$	25	142
AD11830/T.	4/8	1000	25	4	1	75 $\square$	37,4	144
AD20302/T.	4/8/15	2000	14,5	4	2	55 $\phi$	23	167
AD22302/T.						66 $\square$	26	
AD20310/T.	4/8/15	2000	14,5	4	2	55 $\phi$	30	171
AD22310/T.						66 $\square$	33	
AD20850/T.	4/8/15	1900	14,5	4	2	55 $\phi$	26	175
AD22850/T.						66 $\square$	29	
AD21600/RT8	8	—	—	10	—	134/118	44	179
AD22300/T.	4/8/15	1300	14,5	3	2	53 $\square$	23,5	183
AD22301/T.								

TIC = steel alloy; PXE = piezoelectric; RE = rare earth;  $\phi$  = diameter;  $\square$  = square.

**SQUAWKER LOUDSPEAKERS**

basic part of type number	impedance $\Omega$	resonance frequency Hz	core diameter mm	power handling capacity W	max. dimensions			page
					flange		mounting depth mm	
					inch	mm		
AD02110/Sq.	4/8	340/360	50	30	2	134 □	103	52
AD02120/Sq8	8	300	50	25	3	134 □	93	55
AD02150/Sq.	4/8	340/360	50	30	2	134 □	98	58
AD2170/Sq8	8	640	50	25	3	134 □	88	61
AD33801/Sq.	4/8/15	470	18	10	3	97 □	42	189
AD50600/Sq.	4/8	260	25	20	5	129	107	321
AD50800/Sq.	4/8	280	18	15	5	129	107	335

**WOOFER LOUDSPEAKERS**

AD4060/W.	4/8	68	25	30	4	101,9 $\phi$	51,9	95
AD5062/W.	4/8	65	25	20	5	129 $\Delta$	55	110
AD10200/W8	8	26	50	80	10	259 $\phi$	116	113
AD10250/W8	8	28	50	100	10	259 $\phi$	118,5	116
AD10600/W8	8	39	25	40	10	259 $\phi$	105,3	119
AD10650/W8	8	27	35	60	10	259 $\phi$	109,5	122
AD12200/W.	4/8	22/24	30	80	12	311 $\phi$	118,6	147
AD12250/W.	4/8	25/27	50	100	12	294 $\phi$	120,8	156
AD12650/W.	4/8	25/26	35	60	12	294 $\phi$	114,5	163
AD36510/W4	4	68	18	15	3 x 6	80 x 160	62,4	213
AD36900/P.	4/8/15	95	18	8	3 x 6	80 x 160	57,6	228
AD38901/P.	4/8/15	95	18	8	3 x 8	81,6 x 204,6	59	234
AD38902/P.	4/8/15	95	18	13	3 x 8	81,6 x 204,6	59,5	237
AD40501/W.	4/8	72	25	20	4	102 $\phi$	59,5	240
AD44900/W4 )	4	65	18	8	4	102 □	56	274
AD44901/W4 )								
AD44900/P.	4/8/15	110	18	8	4	102 □	56	278
AD51501/W4	4	62	25	20	5/4	130 □	67	338
AD51502/W4M	4	70	25	20	5/4	130 □	68,5	341
AD51610/W.	4/8	62	25	30	5/4	130 □	57,7	347
AD70602/W.	4/8	42	25	30	7	166 $\phi$	67,5	363
AD70612/W8	8	50	25	40	7	166 $\phi$	67,5	366
AD70804/W.	4/8	86	18	20	7	166 $\phi$	66,5	382
AD80110/W.	6/8	40	35	60	8	204 $\phi$	94	395
AD80111/W8	8	50	35	50	8	200	94	398
AD80400/W8	8	62	18	40	8	205 $\Delta$	75,6	401
AD80405/W8	8	50	25	35	8	204 $\phi$	81	404
AD80602/W.	4/8	42	25	50	8	204 $\phi$	85,6	407
AD80605/W6	6	50	25	40	8	204 $\phi$	79	410
AD80606/W.	4/6/8	36/40/38	25	50	8	204 $\phi$	84	413
AD80652/W.	4/8	39	25	50	8	204 $\phi$	87,6	416
AD80680/W8	8	35	35	55	8	204 $\phi$	91	419
AD80681/W.	4/8	48/47	35	50	8	200	90	422

$\phi$  = diameter; □ = square;  $\Delta$  = octagonal.

## FULL RANGE LOUDSPEAKERS

basic part of type number	impedance $\Omega$	resonance frequency Hz	core diameter mm	power handling capacity W	max. dimensions			page
					flange		mounting depth mm	
					inch	mm		
AD0198/Z.	8/15/25	500	10 TIC	0,3	1,25	31 $\phi$	14,3	43
AD01980/Y.	8/15/25	600	14,5 RE	0,3	1,33	34 $\phi$	5	36
AD01985/Y.	8/15/25	600	14,5 RE	0,3	1,5	36 $\phi$	5	49
AD1065/M.	4/8	55	25	10	10	261 $\phi$	113	64
AD2071/Z.	4/8/15/25/150	360	10	1	2,5	64 $\phi$	19,7	70
AD2099/Z.	8/15/25	420	10 TIC	0,5	2	50 $\phi$	18	77
AD3071/Y.	4/8/15/25/150	250	10	2	3	81 $\phi$	23	86
AD3371/Y.						81 $\square$		
AD3080/M4	4	170	18	6	3	87,2 $\phi$	36,5	88
AD3080/X4	4	85	18	6	3	87,2 $\phi$	36,5	91
AD4072/X.	4/8/15/25	170	10	3	4	105 $\phi$	30,5	99
AD4472/X.								
AD4074/X.	4/8/15/25	170	10	2,5	4	105 $\phi$	44	130
AD4474/X.								
AD5061/M.	4/8	85	25	10	5	128,3 $\Delta$	54,6	107
AD12202/M.	4/8	45	35	100	12	312,4 $\phi$	135	150
AD12202/P8	8	45	35	100	12	312,4 $\phi$	135	153
AD12252/HP.	4/8	55	50	150	12	312,4 $\phi$	152	157
AD26921/X.	4/8/15/25	155	14,5	5	2 x 6	57 x 160	50	186
AD33910/X4	4	85	18	12	3	87,2 $\square$	43,3	192
AD35720/X.	4/8/15/25	160	10	3	3 x 5	75 x 130	35	195
AD35740/X.						47		
AD35721/X.	4/8/15/25	160	10	2,5	3 x 5	75 x 130	35	198
AD35741/X.						47		
AD35722/X.	4/8/15/25	160	10	3	3 x 5	75 x 130	35	201
AD35741/X.						47		
AD35725/X.	4/8/15/25	160	10	5	3 x 5	75 x 130	35	204
AD35746/X.						47		
AD35726/X.	4/8/15/25	160	10	5	3 x 5	75 x 130	35	207
AD35747/X.						47		
AD35727/X.	4/8/15/25	160	10	5	3 x 5	75 x 130	35	210
AD35748/X.						47		
AD36720/X.	4/8/15/25	130	10	3	3 x 6	80 x 160	45	216
AD36740/X.				5			55	
AD36722/X.	4/8/15/25	130	10	3	3 x 6	80 x 160	45	219
AD36742/X.				5			55	
AD36725/X.	4/8/15/25	130	10	5	3 x 6	80 x 160	45	222
AD36746/X.				4,5			55	
AD36727/X.	4/8/15/25	130	10	5	3 x 6	80 x 160	45	225
AD36748/X.				4,5			55	
AD36901/X.	8/15	95	18	8	3 x 6	80 x 160	57,6	231
AD40725/X.	4/8/15/25	170	10	5	4	105 $\phi$	30,5	243
AD40745/X.						44		
AD40800/M4	4	115	18	15	4	102,2 $\phi$	45,6	247

TIC = steel alloy; RE = rare earth;  $\phi$  = diameter;  $\Delta$  = octagonal

FULL RANGE LOUDSPEAKERS

basic part of type number	impedance  Ω	resonance frequency  Hz	core diameter  mm	power handling capacity  W	max. dimensions			page
					flange		mounting depth mm	
					inch	mm		
AD40880/X.	4/8	150	14,5	6	4	102 φ	40,5	250
AD44322/X.	4/8/15	170	14,5	4	4	102 □	39,1	253
AD44400/M4	4	110	18	15	4	102 □	52,2	256
AD44401/M4								
AD44725/X.	4/8/15/25	170	10	5	4	105 φ	30,5	259
AD44745/X.							44	
AD44830/X.	4/8	140	18	8	4	102 □	42,7	262
AD44860/X.	8/15	175	14,5	4	4	102 □	39,1	265
AD44861/X.							40,5	
AD44880/X.	4/8	150	14,5	6	4	102 □	40,5	268
AD44900/M.	4/8/15/25	90	18	8	4	102 □	56	271
AD44901/M.								
AD46720/X.	4/8/15/25	130	10	4	4 x 6	102 x 154	44	280
AD46740/X.							56	
AD46721/X.	4/8/15/25	130	10	5	4 x 6	102 x 154	44	283
AD46741/X.							56	
AD46722/X.	4/8/15/25	130	10	5	4 x 6	102 x 154	44	286
AD46742/X.							56	
AD46725/X.	4/8/15/25	130	10	5	4 x 6	102 x 154	44	289
AD46746/X.							56	
AD46726/X.	4/8/15/25	130	10	5	4 x 6	102 x 154	44	292
AD46747/X.							56	
AD46727/X.	4/8/15/25	130	10	5	4 x 6	102 x 154	44	295
AD46748/X.							56	
AD46800/M8	8	150	18	6	4 x 6	102 x 154	47,5	299
AD46801/X4	4	120	18	8	3,5 x 6	96 x 155	49,8	302
AD46810/X4	4	140	18	6	3,5 x 6	96 x 155	38	305
AD46900/M.	4/8/15	150	18	6	4 x 6	102 x 154	54	309
AD46951/X.	8/15/25	130	14,5	6	4 x 6	102 x 154	52	312
AD48901/X.	4/8/15/25	110	18	10	4 x 8	96 x 210	62,9	315
AD50400/M4	4	115	18	15	5	120 φ	50,5	318
AD50720/X.	4/8/15/25	130	10	3	5,25	131 φ	43	324
AD50740/X.							55	
AD50725/X.	4/8/15/25	130	10	5	5,25	131 φ	43	327
AD50745/X.							55	
AD50800/X,M	4/8	140	18	6	5	120 φ	48,5	330
AD51600/P4	4	78	25	20	5,25	130,5	57,5	344
AD55720/X.	4/8/15/25	130	10	3	5,25	131 φ	43	351
AD55740/X.							55	
AD55725/X.	4/8/15/25	130	10	5	5,25	131	43	353
AD55745/X.							55	
AD57900/M.	4/8	100	18	10	5 x 7	132 x 182	65	356
AD57900/X.	4/8	100/105	18	18	5 x 7	132 x 182	65	359
AD70630/M.	4/8	70	25	20	7	165,5 φ	69	369

φ = diameter; □ = square.



# GENERAL

## FULL RANGE LOUDSPEAKERS (continued)

basic part of type number	impedance  $\Omega$	resonance frequency  Hz	core diameter  mm	power handling capacity  W	max. dimensions			page
					flange		mounting depth mm	
					inch	mm		
AD70720/X. AD70740/X. AD70725/X. AD70745/X.	4/8/15/25	100	10	5	7	160 $\phi$	46 58	372
AD70800/X,M AD70850/X,M	4/8	100/105	18	12/13	7	165 $\Delta$	63,5	378
AD77720/X. AD77740/X. AD77725/X. AD77745/X.	4/8	105	14,5	7	7	165 $\Delta$	61,5	385
AD77720/X. AD77740/X. AD77725/X. AD77745/X.	4/8/15/25	100	10	5	7	160 $\phi$	46 58	389
AD77720/X. AD77745/X.	4/8/15/25	100	10	5	7	160 $\phi$	46 58	392
AD80800/XMP	4/8	75 . . . 95	18	10/13	8	205 $\Delta$	73,6	425
9710/M8	8	50	34	20	8½	217 $\phi$	94	430

$\phi$  = diameter;  $\Delta$  = octagonal.

## CONVERSION LIST

Conversion of catalogue number stamped on loudspeaker to type number. See relevant data sheet for ordering number.

catalogue number	type number	catalogue number	type number
2403 256 12101	AD0198/Z25	2403 257 23601	AD3071/Y4
12102	Z15	23602	Y8
12103	Z8	23603	Y15
12401	AD01985/Y25	23604	Y25
12402	Y15	23605	Y50
12403	Y8	23606	Y150
12501	AD01980/Y25	23801	AD2071/Z4
12502	Y15	23802	Z8
12503	Y25	23803	Z15
		23804	Z25
2403 257 20001	AD35720/X4	23805	Z150
20002	X8	23806	Z50
20003	X15	24205	AD4072/X4
20004	X25	24206	X8
20101	AD35740/X4	24207	X15
20102	X8	24208	X25
20103	X15	24305	AD4074/X4
20104	X25	24306	X8
20201	AD35721/X4	24307	X15
20202	X8	24308	X25
20203	X15	24705	AD4474/X4
20204	X25	24706	X8
20301	AD35741/X4	24707	X15
20302	X8	24708	X25
20303	X15	24805	AD4472/X4
20304	X25	24806	X8
20401	AD35722/X4	24807	X15
20402	X8	24808	X25
20403	X15	25101	AD50720/X4
20404	X25	25102	X8
20501	AD35742/X4	25103	X15
20502	X8	25104	X25
20503	X15	25201	AD50740/X4
20504	X25	25202	X8
22101	AD2273/T4	25203	X15
22102	T8	25204	X25
22201	AD2274/T4	25801	AD55740/X4
22202	T8	25802	X8
23501	AD3371/Y4	25803	X15
23502	Y8	25804	X25
23503	Y15	25901	AD55720/X4
23504	Y25	25902	X8
23505	Y50	25903	X15
23506	Y150	25904	X25

# GENERAL

catalogue number	type number
2403 257 26001	AD36720/X4
26002	X8
26003	X15
26004	X25
26101	AD36740/X4
26102	X8
26103	X15
26104	X25
26401	AD36722/X4
26402	X8
26403	X15
26404	X25
26501	AD36742/X4
26502	X8
26503	X15
26504	X25
27101	AD70720/X4
27102	X8
27103	X15
27104	X25
27201	AD70740/X4
27202	X8
27203	X15
27204	X25
27801	AD77740/X4
27802	X8
27803	X15
27804	X25
27901	AD77720/X4
27902	X8
27903	X15
27904	X25
29001	AD46720/X4
29002	X8
29003	X15
29004	X25
29101	AD46740/X4
29102	X8
29103	X15
29104	X25
29201	AD46721/X4
29202	X8
29203	X15
29204	X25
29301	AD46741/X4
29302	X8
29303	X15
29304	X25

catalogue number	type number
2403 257 29401	AD46722/X4
29402	X8
29403	X15
29404	X25
29501	AD46742/X4
29502	X8
29503	X15
29504	X25
32102	AD01700/T8
32902	AD11700/T8
50001	AD35725/X4
50002	X8
50003	X15
50004	X25
50101	AD35746/X4
50102	X8
50103	X15
50104	X25
50201	AD35726/X4
50202	X8
50203	X15
50204	X25
50301	AD35747/X4
50302	X8
50303	X15
50304	X25
50401	AD35727/X4
50402	X8
50403	X15
50404	X25
50501	AD35748/X4
50502	X8
50503	X15
50504	X25
54205	AD40725/X4
54206	X8
54207	X15
54208	X25
54305	AD40745/X4
54306	X8
54307	X15
54308	X25
54705	AD44745/X4
54706	X8
54707	X15
54708	X25
54805	AD44725/X4
54806	X8
54807	X15
54808	X25

catalogue number	type number
2403 257 55101	AD50725/X4
55102	X8
55103	X15
55104	X25
55201	AD50745/X4
55202	X8
55203	X15
55204	X25
55801	AD55745/X4
55802	X8
55803	X15
55804	X25
55901	AD55725/X4
55902	X8
55903	X15
55904	X25
56001	AD36725/X4
56002	X8
56003	X15
56004	X25
56101	AD36746/X4
56102	X8
56103	X15
56104	X25
56401	AD36727/X4
56402	X8
56403	X15
56404	X25
56501	AD36748/X4
56502	X8
56503	X15
56504	X25
57101	AD70725/X4
57102	X8
57103	X15
57104	X25
57201	AD70745/X4
57202	X8
57203	X15
57204	X25
57801	AD77745/X4
57802	X8
57803	X15
57804	X25
57901	AD77725/X4
57902	X8
57903	X15
57904	X25

catalogue number	type number
2403 257 59001	AD46725/X4
59002	X8
59003	X15
59004	X25
59101	AD46746/X4
59102	X8
59103	X15
59104	X25
59201	AD46726/X4
59202	X8
59203	X15
59204	X25
59301	AD46747/X4
59302	X8
59303	X15
59304	X25
59401	AD46727/X4
59402	X8
59403	X15
59404	X25
59501	AD46748/X4
59502	X8
59503	X15
59504	X25
2404 257 32402	AD02170/Sq8
32412	AD02120/Sq8
32511	AD22301/T4
32512	T8
32513	T15
2422 256 22201	AD2099/Z25
22202	Z15
22203	Z8
32301	AD2096/T4
32302	T8
32303	T15
32311	AD2296/T4
32312	T8
32313	T15
35502	AD00972/T4
2422 257 20201	AD46810/X4
20211	AD46801/X4
20406	AD46951/X8
20407	X15
20408	X25
20411	AD46900/M4
20412	M8
20413	M15

# GENERAL

catalogue number	type number
2422 257 24602	AD44860/X8
24603	X15
24606	AD44861/X8
24607	X15
24711	AD44322/X4
24712	X8
24713	X15
25101	AD50800/X4
25102	X8
25105	M8
25106	M8
27901	AD70804/W4
27902	W8
28102	AD80405/W8
28202	AD80400/W8
29001	AD36510/W4
29101	AD36900/P4
29102	P8
29103	P15
29202	AD36901/X8
29203	X15
29311	AD26921/X4
29312	X8
29313	X15
29314	X25
30516	AD46800/M8
31411	AD12650/W4
31412	W8
31511	AD12200/W4
31512	W8
31602	AD10600/W8
31702	AD10650/W8
31802	AD10200/W8
31902	AD10250/W8
32201	AD02110/Sq4
32202	Sq8
32301	AD02150/Sq4
32302	Sq8
32511	AD22300/T4
32512	T4
32513	T15
32601	AD20302/T4
32602	T8
32603	T15
32611	AD22302/T4
32612	T8
32613	T15
32701	AD20310/T4
32702	T8
32703	T15

catalogue number	type number
2422 257 32711	AD22310/T4
32712	T8
32713	T15
33201	AD0140/T4
33202	T8
33211	AD0141/T4
33212	T8
33311	AD0162/T4
33312	T8
33313	T15
33402	AD0163/T8
33403	T15
34512	AD33910/X4
34517	AD3080/M4
34519	X4
34601	AD4060/W4
34602	W8
34703	AD40501/W4
34704	W8
34916	AD40800/M4
35303	AD5062/W4
35304	W8
35511	AD5061/M4
35512	M8
35801	AD51610/W4
35802	W8
35805	AD51600/P4
35911	AD51501/W4
35913	AD51502/W4M
36201	AD57900/X4
36202	X8
36205	M4
36206	M8
38701	AD80800/X4
38702	X8
38705	M4
38706	M8
38715	P4
40105	AD48901/X4
40106	X8
40107	X15
40108	X25
40211	P4
40212	P8
40213	P15
40301	AD38902/P4
40302	P8
40303	P15
41001	AD1065/M4
41002	M8

catalogue number	type number
2422 257 42001	AD20850/T4
42002	T8
42003	T15
42011	AD22850/T4
42012	T8
42013	T15
43301	AD11800/T4
43302	T8
43304	AD11810/T4
43305	T8
43307	AD11830/T4
43308	T8
43401	AD11400/T4
43402	T8
43404	AD11410/T4
43405	T8
43407	AD11430/T4
43408	T8
43501	AD11600/T4
43502	T8
43504	AD11610/T4
43505	T8
44101	AD44400/M4
44111	AD44401/M4
44201	AD44900/M4
44202	M8
44203	M15
44204	M25
44205	W4
44211	AD44901/M4
44212	M8
44213	M15
44214	M25
44215	W4
44305	AD44900/P4
44306	P8
44307	P15
44401	AD40880/X4
44402	X8
44411	AD44880/X4
44412	X8
44511	AD44830/X4
44512	X8
45001	AD50600/Sq4
45002	Sq8
45101	AD50800/Sq4
45102	Sq8
45318	AD50400/M4
47103	AD70630/M4
47104	M8

catalogue number	type number
2422 257 47111	AD70602/W4
47112	W8
47301	AD70850/X4
47302	X8
47311	AD70850/M4
47312	M8
47401	AD70800/X4
47402	X8
47405	M4
47406	M8
47602	AD70612/W8
48101	9710/M8
48211	AD80606/W4
48212	W8
48218	W6
48305	AD80605/W6
48311	AD80602/W4
48312	W8
48511	AD80652/W4
48512	W8
48802	AD80110/W8
48804	W6
48806	AD80111/W8
48902	AD80680/W8
50001	AD80681/W8
50003	W4
51001	AD12100/M4
51002	M8
51003	M15
51101	AD12100/HP4
51102	HP8
51103	AD12252/HP4
51104	HP8
51201	AD12202/M4
51202	M8
51204	P8
52002	AD21600/RT8
53011	AD33801/Sq4
53012	Sq8
53013	Sq15
61011	AD12250/W4
61012	W8
2422 259 20001	AD2000/TP
20002	AD2200/TP

## TERMS AND DEFINITIONS

*Unmounted:* The loudspeaker is clamped in a set-up that does not influence its radiation characteristics.

*Mounted in enclosure:* The loudspeaker is front mounted in an enclosure of the dimensions specified on the data sheet.

*Baffle:* The loudspeaker is fitted to a baffle of the dimensions specified on the data sheet (flush mounted or front mounted).

*Half free field:* The acoustic conditions on the forward side approach those of free space.

*Anechoic room:* The acoustic conditions approach those of free space (IEC Publication 268, Part 5, Section 1).

*Operating power:* This is the sinewave power input to the loudspeaker which corresponds with a sound level

- of 74 dB at a microphone distance of 0,5 m for small low power speakers;
- of 90 dB at a microphone distance of 0,5 m for standard low power speakers;
- of 96 dB at a microphone distance of 1 m for medium and high power loudspeakers.

This sound level is the average level over the rated frequency range of the loudspeaker. 0 dB corresponds with  $2 \times 10^{-5}$  N/m<sup>2</sup>.

*Maximum power:* The power of a continuous sinusoidal signal within the rated frequency range that the loudspeaker element or system can handle at an ambient temperature of 25 °C for ten minutes without any damage, e.g. either thermal or mechanical deformation.

*Characteristic sensitivity:* The sound pressure (level) in a stated frequency range referred to an input power of 1 W at a distance of 1 m on the reference axis. This characteristic sensitivity of 1W/1 m cannot be given for small low power speakers.

*Compliance:* The reciprocal of the axial stiffness of the total suspension.

## TEST METHODS AND MEASUREMENTS

The atmospheric conditions for measurement are:

Temperature :	15 to 35 °C
Relative humidity :	45 to 75 %
Pressure :	860 to 1060 hPa

### 1 Impedance

The impedance is the modulus of the lowest value of the electrical impedance in the frequency range above the bass resonance frequency of the loudspeaker as determined by the method specified in 3 below.

#### 1.1 Measuring apparatus

See under 3. In Fig. 1,  $R = 1 \Omega$ .

#### 1.2 Conditions

- The loudspeaker is unmounted.
- The power input to the loudspeaker must not exceed 0,1 x the power-handling capacity as determined in 4 below.

#### 1.3 Measuring result

Rated impedance is stated in the data sheets. The measured impedance should not be lower than 20% of the rated impedance.

### 2 Voice coil resistance

The voice coil resistance is the d.c. resistance of the voice coil.

#### 2.1 Measuring apparatus

Low current d.c. ohmmeter.

#### 2.2 Conditions

The d.c. power input to the loudspeaker must not exceed 0,1 x the power-handling capacity.

#### 2.3 Measuring result

The rated resistance is given in the data sheets, tolerance  $\pm 20\%$ .

### 3 Resonance frequency

The resonance frequency is the frequency at which the modulus of the electrical impedance has its first principal maximum in an ascending scale, the electrical input being such as to have no significant effect on the resonance frequency.



## 3.1 Measuring apparatus

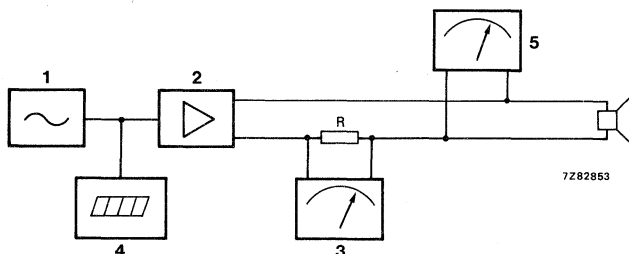


Fig. 1.

- |  |   |                       |
|--|---|-----------------------|
| <p>(1) Sinewave generator, Philips PM5126.<br/>         (2) Power amplifier.<br/>         (3) and (5) a.c. mV meter, Philips PM2454.<br/>         (4) Frequency counter, Philips PM6620.</p> | } | <p>or equivalents</p> |
|--|---|-----------------------|

$R = 0,1 \Omega$ .

## 3.2 Conditions

- the loudspeaker is unmounted.
- Resonance frequency is measured at least 24 hours after fabrication of the loudspeaker.
- No measurements or tests are carried out before measurement of the resonance frequency.
- Power on the loudspeaker: 1 W; for small low power speakers 0,1 x the power handling capacity.

## 3.3 Measuring result

The resonance frequency is that frequency at which the voltmeter indicates the first minimum deflection as the frequency is swept slowly from 0 Hz.

The resonance frequency is stated in the data sheets, tolerance  $\pm 15\%$ .

## 4 Power handling capacity

The power handling capacity is the nominal power that the loudspeaker will satisfactorily handle as checked by an accelerated life test.

### 4.1 Measuring apparatus

- Generator supplying test signal in accordance with IEC Publication 268, Part 5, Section 9.3.
- Power amplifier with an output impedance not greater than 1/3 of the rated impedance of the loudspeaker.
- Voltmeter indicating the r.m.s. value of the voltage.

### 4.2 Conditions

- A test voltage is applied to the loudspeaker for an uninterrupted period of 100 h. The r.m.s. value of this voltage corresponds to the specified power handling capacity of the loudspeaker.
- The test voltage has a frequency distribution corresponding to that of the output of a filter as specified in IEC Publication 268, Part 5, Section 9.3 when fed from a white noise source.
- If the loudspeaker is designed to operate in a restricted frequency range, the corresponding network (filter) connected to the loudspeaker during the test, is specified in the data sheet. The test voltage is measured at the input terminals of the network.

– The method of mounting is as specified in the data sheet.

**4.3 Measuring result**

To pass this test the loudspeaker has to function properly at the end of the test period. Deviation from the specified resonance frequency is allowed. Refer to 11 (Life test).

**5. Total non-linear distortion**

This is the ratio between the r.m.s. value of the harmonic content of the sound pressure to the total sound pressure over the frequency range of the loudspeaker.

The difference in dB between fundamentals and harmonics can be converted into a distortion percentage with the aid of following nomogram.

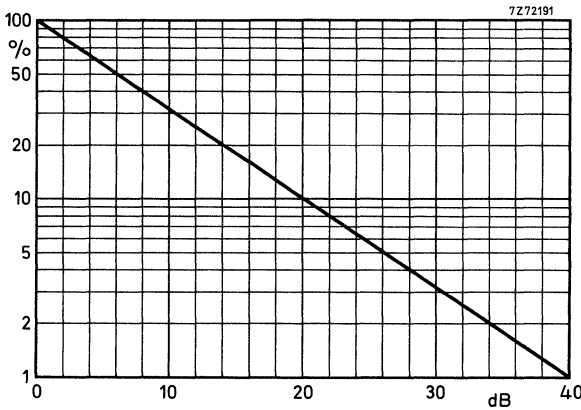


Fig. 2 Difference in dB converted into % distortion.

## 5.1 Measuring apparatus

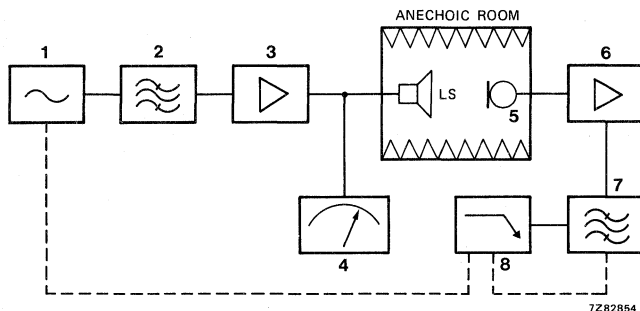


Fig. 3.

- (1) Sinewave generator, Bruel & Kjaer, type 1027.
- (2) Bandpass filter, Krohn - Hite, type 3700.
- (3) Power amplifier, Bruel & Kjaer, type 2706.
- (4) Electronic voltmeter, Bruel & Kjaer, type 2425.
- (5) Microphone, Bruel & Kjaer, type 4145.
- (6) Measuring amplifier, Bruel & Kjaer, type 2608.
- (7) Bandpass filter set, Bruel & Kjaer, type 1615.
- (8) Level recorder, Bruel & Kjaer, type 2307.

or equivalents

## 5.2 Conditions

- The loudspeaker is mounted as specified in the data sheet.
- The power input to the loudspeaker is the operating power (see under Terms and Definitions).
- The microphone distance is 1 m unless otherwise specified in the data sheet.

## 5.3 Measuring result

The distortion curve for high power loudspeakers is given in the data sheet.

## 6 Sweep voltage

The sweep voltage test involves the loudspeaker receiving a sinusoidal test signal of specified constant amplitude. The frequency of this signal is swept through the specified frequency range.

### 6.1 Measuring apparatus

- Audio-frequency sinewave generator with a constant output voltage over the range from 0 to 20 000 Hz.
- Linear amplifier with an output power appropriate to the loudspeaker under test and an output impedance not greater than  $1/3 \times$  the rated loudspeaker impedance. For power see 6.2.
- An electronic voltmeter with high input impedance.

### 6.2 Conditions

- The loudspeaker is unmounted.
- The input voltage is:
  - (a) for the *medium and low power range* such that the power input to the loudspeaker is 0,5 x the specified power handling capacity.
  - (b) for the *high power range* as specified in the data sheets.
- If the loudspeaker is designed to operate in a restricted frequency range, the corresponding network (filter) is connected to the loudspeaker during the test, is specified in the data sheet. The test voltage is measured at the input terminals of the network.

### 6.3 Measuring result

The sound reproduction must be correct and undistorted. (The faults can be classified according to the fault list mentioned in 'Procedure of inspection for loudspeakers').

## 7 Flux density

This is the magnetic flux density measured in the air gap.

### 7.1 Measuring apparatus

- Differential search coil pair.
- Galvanometer.

### 7.2 Conditions

- The distance between the centres of the two coils is equal to the air-gap height minus 1 mm.
- The two coils are put into the air gap symmetrical with respect to the pole plate.

### 7.3 Measuring result

The minimum flux density as measured on production samples is stated in the data sheet.

## 8 Frequency response

The frequency response is the graph representing the sound pressure as a function of frequency when a constant sinewave signal is applied to the loudspeaker.

### 8.1 Measuring apparatus

- Microphone, Bruel & Kjaer, type 4131, 4145.
  - Microphone amplifier, Bruel & Kjaer, type 2606, 2607, 2608.
  - Cathode follower, Bruel & Kjaer, type 2619.
  - Sinewave random generator, Bruel & Kjaer, type 1024.
  - Level recorder, Bruel & Kjaer, type 2305, 2307.
- } or equivalents

The apparatus is set as follows:

- Writing speed, 125 mm/s
- Paper speed, 3 mm/s
- Range potentiometer, 50 dB
- Lower limiting frequency, 10 Hz
- Rectifier response, r.m.s.
- Writing width, 100 mm
- Compressor speed, 300 dB/s

## 8.2 Conditions

- Sinewave signal  $V = \sqrt{P \cdot Z_r}$ ,

where:

for anechoic room measurements  $P = 50$  mW, unless otherwise stated in the data sheets.

$V$  = test voltage,

$Z_r$  = rated impedance as specified in the data sheet.

- Microphone position: in axis of loudspeaker at a distance of 0,5 m for anechoic room measurements.

## 8.3 Measuring result

A description of the sensitivity and the frequency response curve(s) are given in the data sheet.

## 9 Direction of magnetization

The magnet is so magnetized that the centre-pole is *south* for systems with a ring magnet, and *north* for systems with a slug magnet.

## 10 Polarity

The cone of the loudspeaker will move outwards when a d.c. voltage is applied to the terminals so that the red terminal or + sign is positive. The voltage applied must not exceed the "sweep voltage".

## 11 Life test

### 11.1 Measuring apparatus

- Pink noise generator, Bruel & Kjaer, type 1405 or equivalent.
- Filter and limiting circuit.
- Emitter follower.
- Power amplifier.
- Electronic r.m.s. voltmeter, Bruel & Kjaer, type 2425 or equivalent.

For tests on tweeters and squawkers a high-pass filter, as mentioned in the data sheet for power handling capacity measurement, must be used between amplifier and speaker.

### 11.2 Conditions

The output of the generator must be adjusted so that the output peak voltage of the limiter is twice the r.m.s. value.

Voltage on the loudspeaker:

$$V_{\text{rms}} = \sqrt{P \cdot Z_r}$$

$P$  = power handling capacity of the relevant loudspeaker.

$Z_r$  = rated impedance as specified in the data sheet.

The loudspeaker will have been tested mounted in an enclosure, if it is mentioned in the relevant data sheet.

### 11.3 Measuring result

After 100 hours the speaker must still meet the requirements stated in the data sheet, except for the resonance frequency, which may be fall to 85% of its zero-hour value.

12 Climatic tests

test	procedure	recovery time	requirements
dry heat	7 days at + 70 °C, loudspeaker unloaded	4 h	no important changes in electrical, mechanical and acoustical properties, except for the resonance frequency
change of temperature	24 h at -25 °C      loudspeaker 8 - 12 h at + 25 °C      unloaded 24 h at + 70 °C 4 h at + 25 °C	—	
humidity cycle	12 h at + 45 °C, 85% R.H. 12 h at + 25 °C, 100% R.H., 21 days	4 h	
endurance	100 h at + 45 °C loudspeaker loaded with P.H.C. ref. IEC publ. 268-5-9	4 h	

PROCEDURE FOR INSPECTION

This procedure applies:

- for measuring the quality of loudspeakers lots, packed and ready for dispatch to a receiver/user.
- for batch acceptance.

It provides the specification of defects on loudspeakers after inspection by attributes. The types of inspection are: visual inspection, auditory inspection and several measurements. If necessary additional information can be laid down in the Specific Conditions of the Quality Agreement regarding to the deliveries between supplier and customer.

A *defect* is any non-conformance of the loudspeaker with its specified requirements.

A *major defect* is a defect that is likely to result in failure or to reduce materially the usability of the loudspeaker.

A *minor defect* is a defect that is not likely to reduce materially the usability of the loudspeaker, or is a departure from established standards having little bearing on the effective operation of the loudspeaker.

**Main rules**

All independent defects found during inspection must be used for quality evaluation. All epidemic defects must be taken into account.

When more defects appear from the same cause, only the most serious defect must be taken into account.

The evaluation must be within the limits of the specification of the loudspeaker and for unspecified characteristics must be related to an approval model or limit samples.

**Expression of non-conformance**

The extent of non-conformance can be expressed in one or more figures:

- one major and one minor figure for visual and auditory inspection together.
- separate major and minor figures for visual inspection, auditory inspection and measurements.

**Acceptability of lots or batches**

The AQLs, inspection level(s) and batch sizes are selected according to the specific conditions of the Quality Agreement between supplier and customer.

# GENERAL

## Visual inspection (workmanship and appearance)

Defects concerning packaging, labelling, and loose dirt or unusual material between the loudspeakers are not classified but reported separately.

Incorrect type or not identifiable type.

(Partly) missing, incorrect or unreadable marking.

Missing parts.

Missing plating/coating.

Partly missing plating/coating, or corrosion.

Missing connection/joint (soldering, gluing, screwing, riveting, pinning, sealing).

Missing or double polarity marking; incorrect polarity indication.

Short-circuit or chance of short-circuit

Tag terminal having poor solderability or plugability

Mounting in application impossible due to incorrect mechanical dimensions.

Dirt, stains, spots (glue, tin, ink, paint), incorrect plating/coating or damaging on car radio boxes or on that part of the loudspeaker which is visible in an open box.

Damaged or wrong parts, or incorrectly mounted parts.

Incorrect or bad connection/joint (soldering, gluing, etc.).

Dirt, stains, spots (glue, tin, ink, paint) or incorrect plating/coating which is not visible in the application.

## Auditory inspection

Inoperative or interruptions

Audible low level

Dissonance

Grating or rattling

Rustling

Shrilling

Distortion

	defects	
	major	minor
Incorrect type or not identifiable type.	X	
(Partly) missing, incorrect or unreadable marking.		X
Missing parts.	X	
Missing plating/coating.	X	
Partly missing plating/coating, or corrosion.		X
Missing connection/joint (soldering, gluing, screwing, riveting, pinning, sealing).	X	
Missing or double polarity marking; incorrect polarity indication.	X	
Short-circuit or chance of short-circuit	X	
Tag terminal having poor solderability or plugability	X	
Mounting in application impossible due to incorrect mechanical dimensions.	X	
Dirt, stains, spots (glue, tin, ink, paint), incorrect plating/coating or damaging on car radio boxes or on that part of the loudspeaker which is visible in an open box.	X	X
Damaged or wrong parts, or incorrectly mounted parts.	X	X
Incorrect or bad connection/joint (soldering, gluing, etc.).	X	X
Dirt, stains, spots (glue, tin, ink, paint) or incorrect plating/coating which is not visible in the application.		X
<b>Auditory inspection</b>		
Inoperative or interruptions	X	
Audible low level	X	
Dissonance		
Grating or rattling	X	
Rustling	X	X
Shrilling	X	X
Distortion	X	X

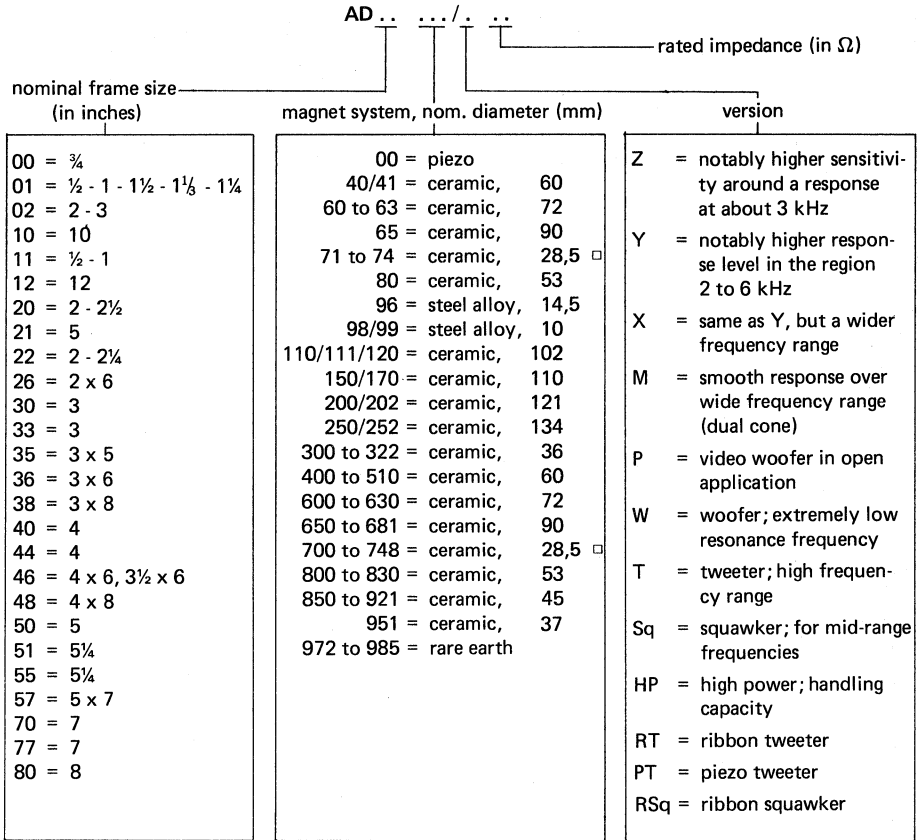
**Measurements**

(only for loudspeakers in approved hi-fi applications)

	defects	
	major	minor
<i>Resonance frequency</i>		
Deviation more than 30% from nominal value.	X	
Deviation outside tolerance.		X
<i>Voice coil resistance</i>		
Outside twice tolerance.	X	
Outside tolerance.		X
<i>Frequency response curve</i>		
Sensitivity:		
Deviation more than 2 dB from nominal value.	X	
Shape:		
Curve over a bandwidth more than one octave outside tolerance.	X	
Curve over a bandwidth more than 1/3 octave outside tolerance.		X
<i>Distortion</i>		
Outside the requirements according to DIN 45 500.	X	
<i>Incorrect polarity</i>		
P.H.C. test		
Damaged parts, loose connection/joint or any other defect mentioned under auditory inspection or measurements (except resonance frequency) appeared at the life test in a period of maximum 100 hours.	X	



TYPE NUMBER SYSTEM



## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD00972/T4

### ¾ inch HI-FI DOME TWEETER LOUDSPEAKER

#### TECHNICAL DATA

Rated impedance	4 Ω
Voice coil resistance	3 Ω
Rated frequency range	1500 to 15 000 Hz
Resonance frequency	max. 2100 Hz
Power handling capacity, measured with filter 4,7 μV	10 W
Maximum power on loudspeaker	1 W
Operating power (sound level 90 dB, 1m)	4 W
Sweep voltage (1 to 20 kHz)	2 V
Filter	4,7 μF
Energy in air gap	17,15 mJ
Flux density	0,8 T
Air-gap height	1,8 mm
Voice coil height	2 mm
Core diameter	18,11 mm
Magnet material	anisotropic cobalt samarium
diameter	17,45 mm
mass	0,005 kg
Mass of loudspeaker	0,035 kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

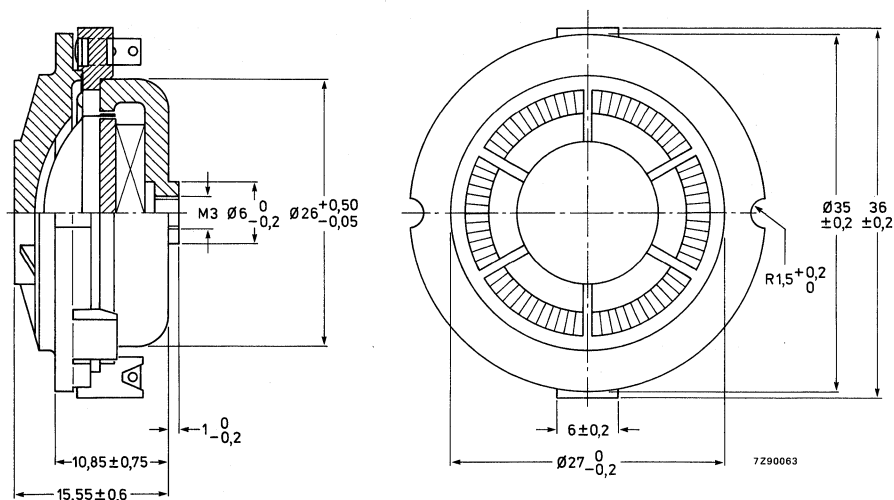


Fig. 1.

**AVAILABLE VERSIONS**

AD00972/T4 catalogue number 2422 256 35522. This number is for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2: 2nd harmonic distortion.

DEVELOPMENT SAMPLE DATA

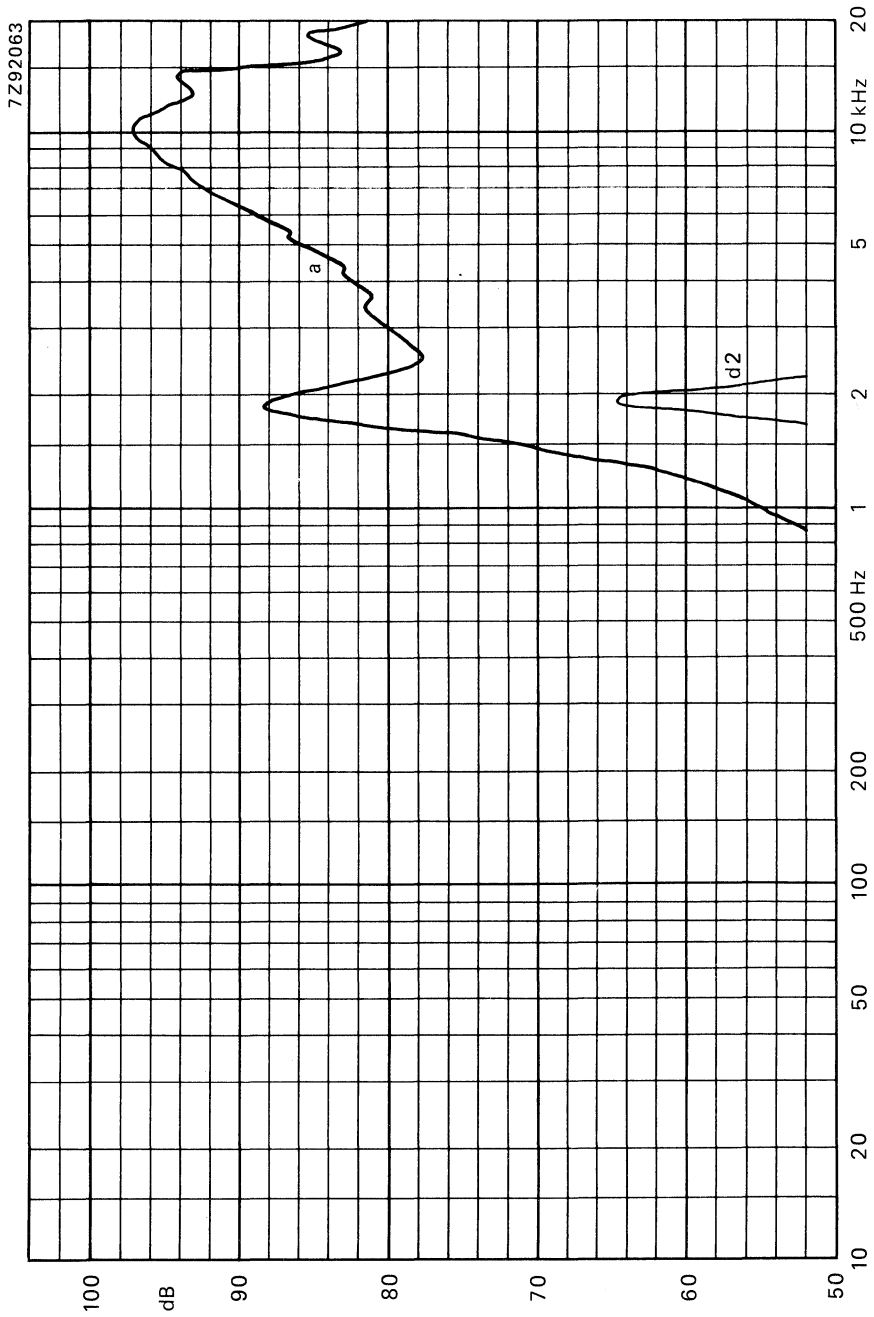


Fig. 2.

# 1 INCH HIGH POWER DOME TWEETER LOUDSPEAKER

## APPLICATION

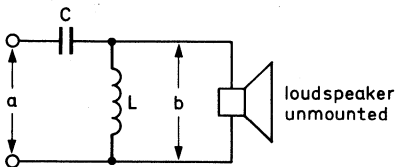
For the reproduction of audio frequencies from 1600 Hz to 22 000 Hz in multi-way high-fidelity loudspeaker systems. Minimum recommended cross-over frequency 1600 Hz with 12 dB/octave slope.

## TECHNICAL DATA

	version	
	T4	T8
Rated impedance	4	8 Ω
Voice coil resistance	3,4	6,3 Ω
Rated frequency range	1600 to 20 000 Hz	
Resonance frequency	1200 Hz	
Power handling capacity, a/b (see Fig. 1), loudspeaker mounted on IEC baffle,		
at 2000 Hz 12 μF-0,35 mH	20/4	W
at 4000 Hz 5 μF-0,2 mH	40/5	W
at 2000 Hz 8 μF-0,5 mH		20/4 W
at 4000 Hz 3,2 μF-0,35 mH		40/5 W
Operating power	4 W	
Sweep voltage (500 to 20 000 Hz) high pass filter:		
12 μF-0,35 mH	3	V
8 μF-0,5 mH		4,5 V
Energy in air gap	58,5 mJ	
Flux density	0,9 T	
Air-gap height	2,5 mm	
Voice coil height	2,4	3,2 mm
Core diameter	25 mm	
Magnet material	ceramic	
diameter	60 mm	
mass	0,1 kg	
Mass of loudspeaker	0,25 kg	

The loudspeaker has a polycarbonate dome and a voice coil of aluminium wire.

Connection to the loudspeaker is by means of 2,8 mm (0,11 inch) tag connectors or by soldering.



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Fig. 1 Measuring circuit.

a = system power handling capacity.

b = loudspeaker power handling capacity.

Dimensions in mm

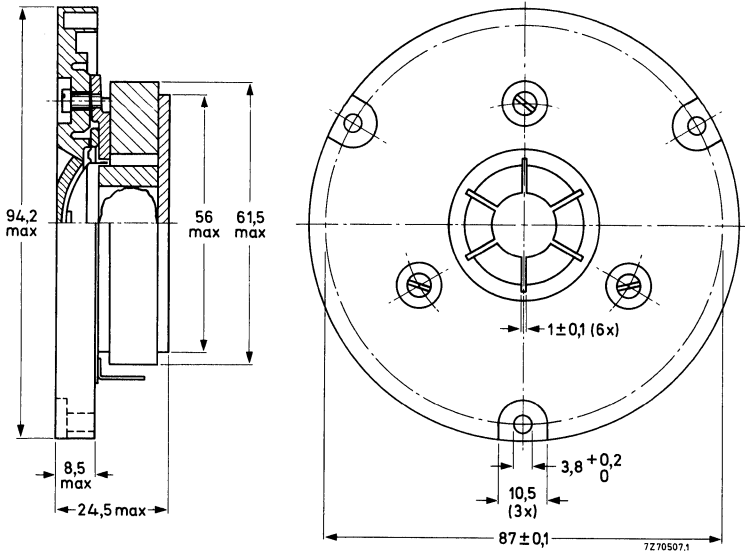


Fig. 2.

One tag is indicated by a red mark for in-phase connection. Baffle hole diameter 75 mm. Face of loudspeaker should lie in line with plane of baffle.

**AVAILABLE VERSIONS**

AD0140/T4, catalogue number 2422 257 33221  
 AD0140/T8, catalogue number 2422 257 33222

} these numbers apply to bulk packed loudspeakers, minimum packing quantity 36 per unit.

**FREQUENCY RESPONSE CURVES** (See Fig. 3)

Curve a: Sound pressure measured in half free field, input at operating power. Loudspeaker mounted on baffle, dimensions 50 x 50 mm.

Curves d2 and d3: 2nd and 3rd harmonic distortion, measured at the operating power of 4 W in anechoic room. Loudspeaker unmounted.

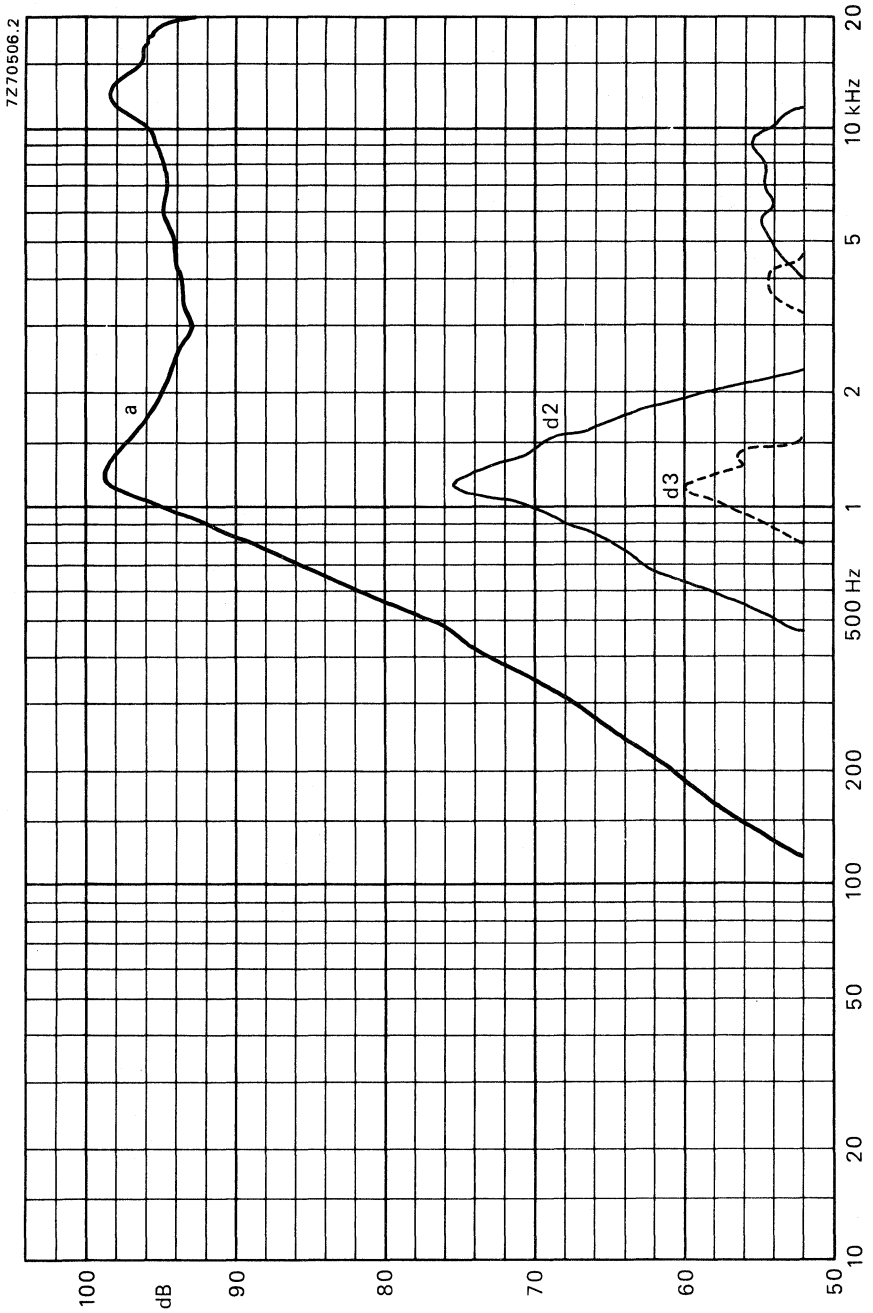


Fig. 3.

# 1 inch HIGH POWER DOME TWEETER LOUDSPEAKER

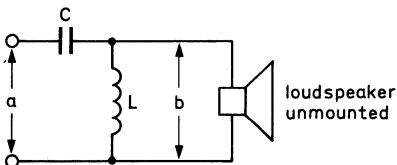
## APPLICATION

For the reproduction of frequencies from 2000 Hz to 22 000 Hz in multi-way high-fidelity loudspeaker systems. Minimum recommended crossover frequency 2000 Hz with 12 dB/octave slope.

## TECHNICAL DATA

	version	
	T4	T8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,4	6,3 $\Omega$
Rated frequency range	2000 to 20 000 Hz	
Resonance frequency	1450	Hz
Power handling capacities, a/b (see Fig.1), loudspeaker unmounted,		
at 2000 Hz; C = 12 $\mu$ F; L = 0,35 mH	20/4	W
at 2000 Hz; C = 8 $\mu$ F; L = 0,5 mH		20/4 W
at 4000 Hz; C = 5 $\mu$ F; L = 0,2 mH	50/6	W
at 4000 Hz; C = 3,2 $\mu$ F; L = 0,35 mH		50/6 W
Operating power		6 W
Sweep voltage, frequency range: 500 to 20 000 Hz high pass filter:		
12 $\mu$ F - 0,35 mH	3	V
5 $\mu$ F - 0,2 mH		4,5 V
Energy in air gap		59 mJ
Flux density		0,9 T
Air-gap height		2,5 mm
Voice coil height	2,4	3,2 mm
Core diameter		25 mm
Magnet material		ceramic
diameter		60 mm
mass		0,1 kg
Mass of loudspeaker		0,25 kg

The loudspeaker has an impregnated textile dome and a diffuser integrated in the cover. Connection to the loudspeaker is by means of 2,8 mm (0,11 inch) tag connectors or by soldering.



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Fig.1 Measuring circuit.

a = system power handling capacity.  
b = loudspeaker power handling capacity.



Dimensions in mm

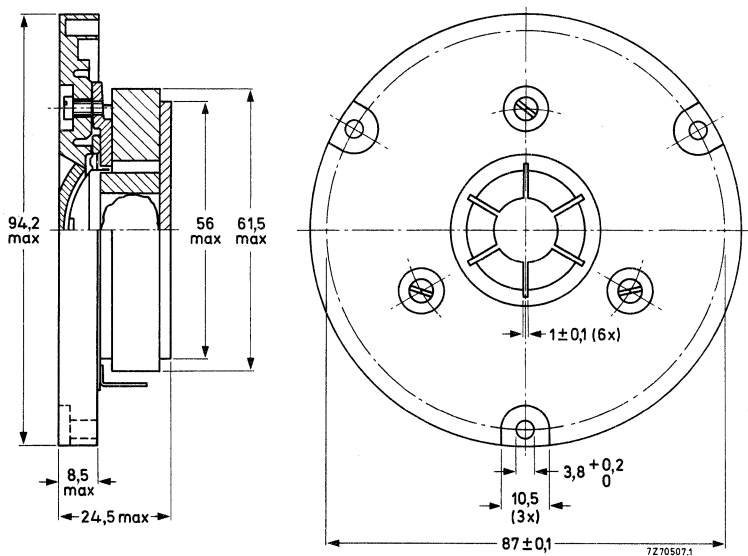


Fig. 2.

One tag is indicated by a red mark for in-phase connection. Baffle hole diameter 75 mm. Face of loudspeaker should lie in line with plane of baffle.

**AVAILABLE VERSIONS**

AD0141/T4, catalogue number 2422 257 33231  
 AD0141/T8, catalogue number 2422 257 33232

} these numbers apply to bulk packed loudspeakers, minimum packing quantity 36 per unit.

**FREQUENCY RESPONSE CURVES (See Fig. 3)**

Curve a: Sound pressure measured in anechoic room, loudspeaker unmounted.

Curves d2 and d3: 2nd and 3rd harmonic distortion, measured at the operating power of 6 W in anechoic room, loudspeaker unmounted.

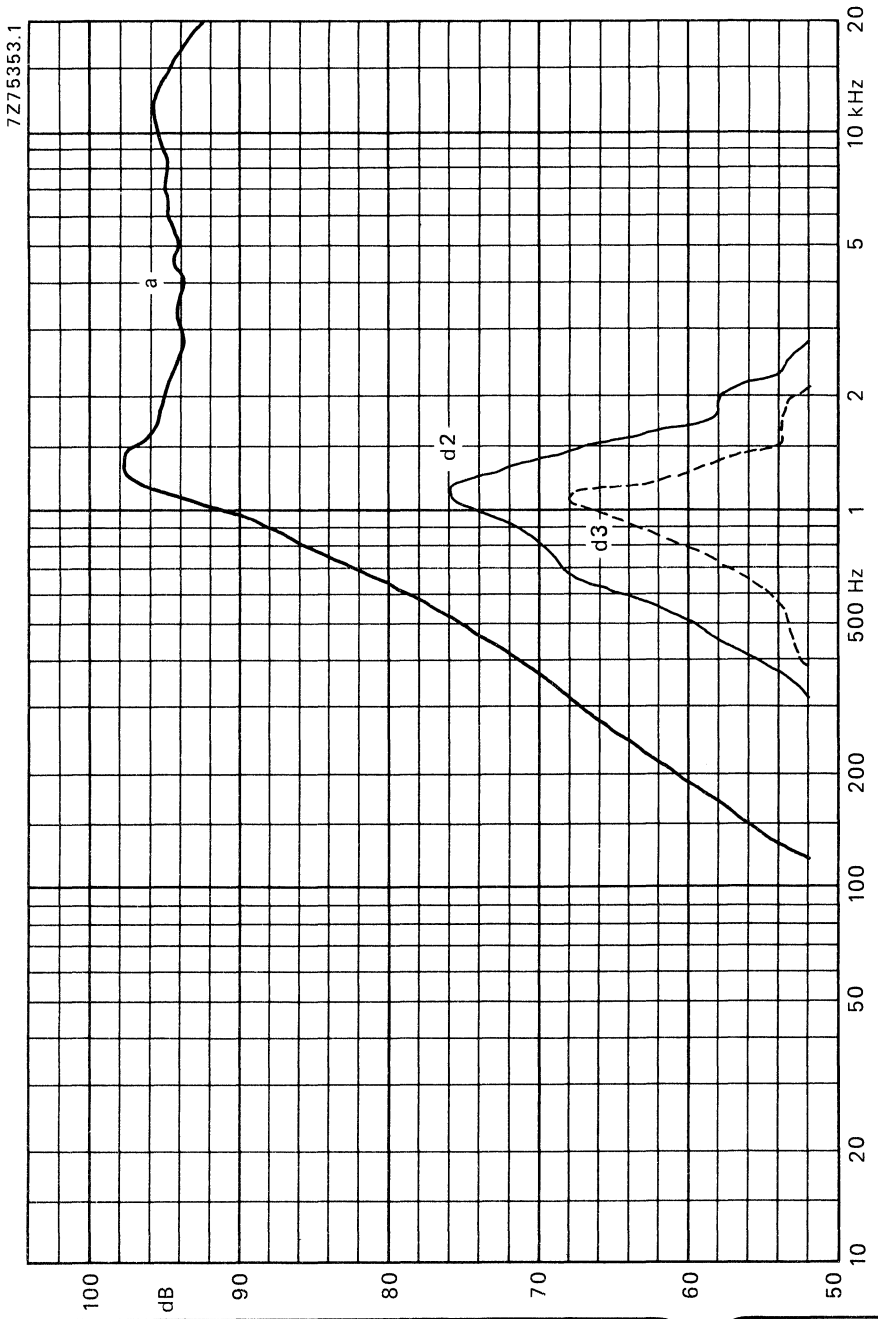


Fig.3

# 1 INCH HIGH POWER DOME TWEETER LOUDSPEAKERS

## APPLICATION

For use in direct and indirect radiating systems for reproduction of audio frequencies from 2000 Hz to 22 000 Hz with very low distortion in multi-way high fidelity loudspeaker systems in accordance with DIN 45500. Minimum recommended cross-over frequency 1600 Hz. The loudspeaker has a very high sensitivity.

## TECHNICAL DATA

	version		
	T4	T8	T15
Rated impedance	4	8	15 $\Omega$
Voice coil resistance	3,4	6,3	12,5 $\Omega$
Rated frequency range	2000 to 22 000		Hz
Resonance frequency	1000		Hz
Power handling capacities a/b (see Fig. 1)			
at 2000 Hz C = 12 $\mu$ F L = 0,35 mH	20/4		W
C = 8 $\mu$ F L = 0,5 mH		20/4	W
C = 3,3 $\mu$ F L = 1 mH			20/4 W
at 4000 Hz C = 3,2 $\mu$ F L = 0,35 mH	50/6	50/6	W
C = 1,5 $\mu$ F L = 0,8 mH			50/6 W
Operating power		2	W
Sweep voltage			
frequency range: 500–20 000 Hz			
high pass filter: 8 $\mu$ F–0,5 mH	3,2	4,5	5,5 V
Energy in air gap		75	mJ
Flux density		1,2	T
Air-gap height		2,5	mm
Voice coil height	2,4	2,4	3,4 mm
Core diameter		25	mm
Magnet material		ceramic	
diameter		72	mm
mass		0,24	kg
Mass of loudspeaker		0,5	kg

The loudspeaker has a polycarbonate dome and a diffusor integrated in the cover.

Connection to the loudspeaker by means of 2,8 mm (0,11 inch) tag connectors or by soldering.

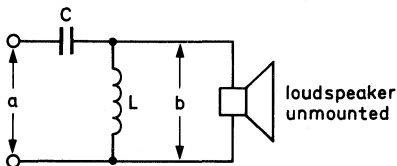


Fig. 1 Measuring circuit.

a = system power handling capacity.

b = loudspeaker power handling capacity.

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Dimensions in mm

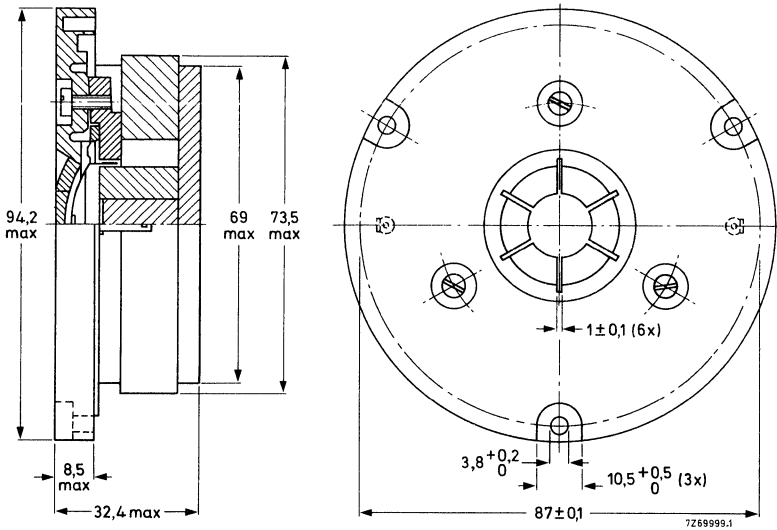


Fig. 2.

One tag is indicated by a red mark for in-phase connection.  
Face of loudspeaker should not lie behind plane of baffle.

**AVAILABLE VERSIONS**

AD0162/T4, catalogue number 2422 257 33331  
 AD0162/T8, catalogue number 2422 257 33332  
 AD0162/T15, catalogue number 2422 257 33333

} these numbers apply to bulk packed loudspeakers, minimum packing quantity 30 per unit.

**FREQUENCY RESPONSE CURVES** (See Fig. 3)

Curve a: Sound pressure, measured in anechoic room, loudspeaker unmounted.

Curve d2: 2nd harmonic distortion, measured at the operating power of 2 W in anechoic room, loudspeaker unmounted.

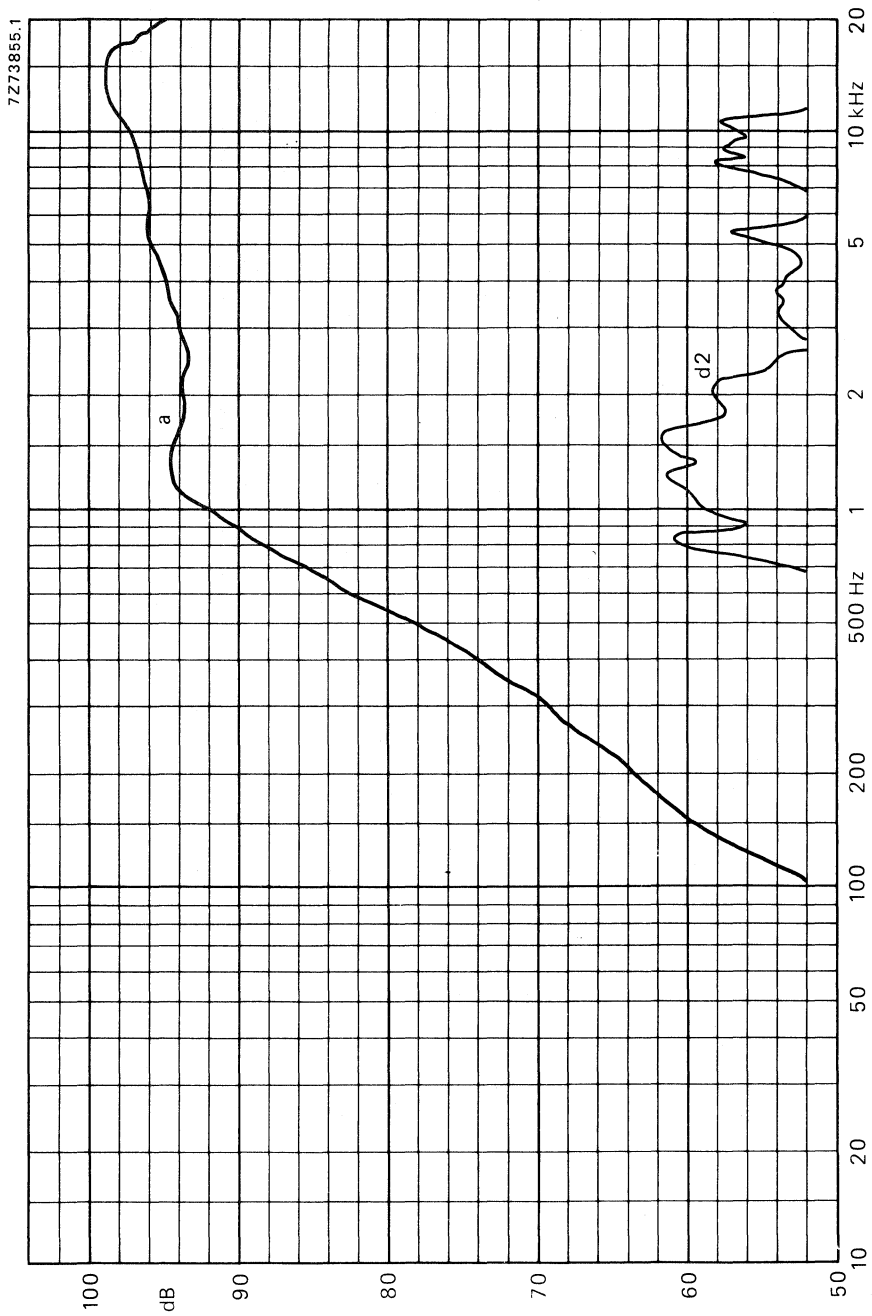


Fig. 3.

# 1 INCH HIGH POWER DOME TWEETER LOUDSPEAKER

## APPLICATION

For use in direct and indirect radiating systems for reproduction of frequencies from 2000 Hz to 22 000 Hz with very low distortion in multi-way high-fidelity loudspeaker systems in accordance with DIN 45500. Minimum recommended crossover frequency 2000 Hz. The loudspeaker has a very high sensitivity.

## TECHNICAL DATA

	version	
	T8	T15
Rated impedance	8	15 $\Omega$
Voice coil resistance	6,3	12,5 $\Omega$
Rated frequency range	2000 to 22 000 Hz	
Resonance frequency	1300	Hz
Power handling capacities, a/b (see Fig.1), loudspeaker unmounted,		
at 2000 Hz; C = 8 $\mu$ F; L = 0,5 mH	20/4	W
at 2000 Hz; C = 3,3 $\mu$ F; L = 1 mH		20/4 W
at 4000 Hz; C = 3,2 $\mu$ F; L = 0,35 mH	50/6	W
at 4000 Hz; C = 1,5 $\mu$ F; L = 0,8 mH		50/6 W
Operating power		3 W
Sweep voltage, frequency range: 500 to 20 000 Hz high pass filter:		
8 $\mu$ F – 0,5 mH	4,5	V
3,3 $\mu$ F – 1 mH		5,5 V
Energy in air gap		75 mJ
Flux density		1,2 T
Air-gap height		2,5 mm
Voice coil height	2,4	3,4 mm
Core diameter		25 mm
Magnet material		ceramic
diameter		72 mm
mass		0,24 kg
Mass of loudspeaker		0,5 kg

The loudspeaker has an impregnated textile dome and a diffuser integrated in the cover. Connection to the loudspeaker by means of 2,8 mm (0,11 inch) tag connectors or by soldering.

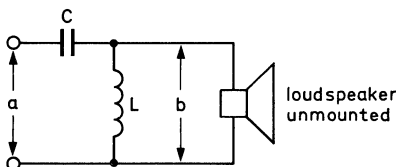


Fig.1 Measuring circuit.

a = system power handling capacity.

b = loudspeaker power handling capacity.

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Dimensions (mm)

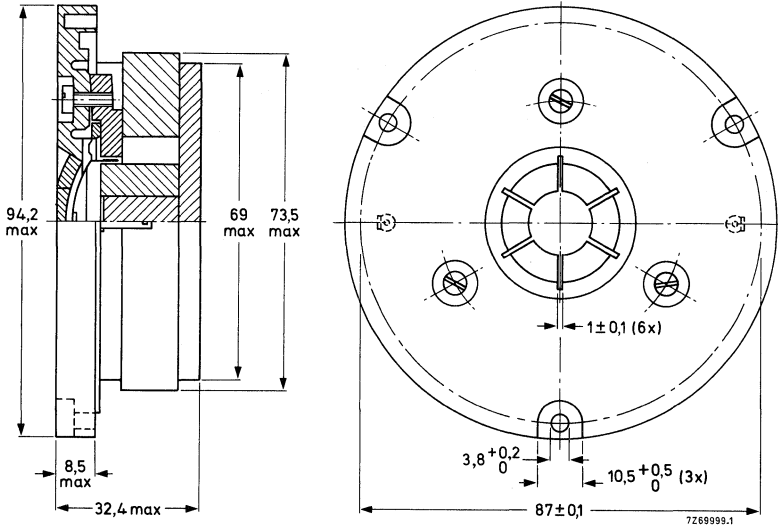


Fig. 2.

One tag is indicated by a red mark for in-phase connection. Face of loudspeaker should not lie behind plane of baffle.

**AVAILABLE VERSIONS**

AD0163/T8, catalogue number 2422 257 33422  
 AD0163/T15, catalogue number 2422 257 33423

} these numbers apply to bulk packed loudspeakers, minimum packing quantity 30 per unit.

**FREQUENCY RESPONSE CURVES (See Fig. 3)**

Curve a: Sound pressure measured in anechoic room, loudspeaker unmounted.

Curve d2: 2nd harmonic distortion, measured at the operating power of 2 W in anechoic room, loudspeaker unmounted.

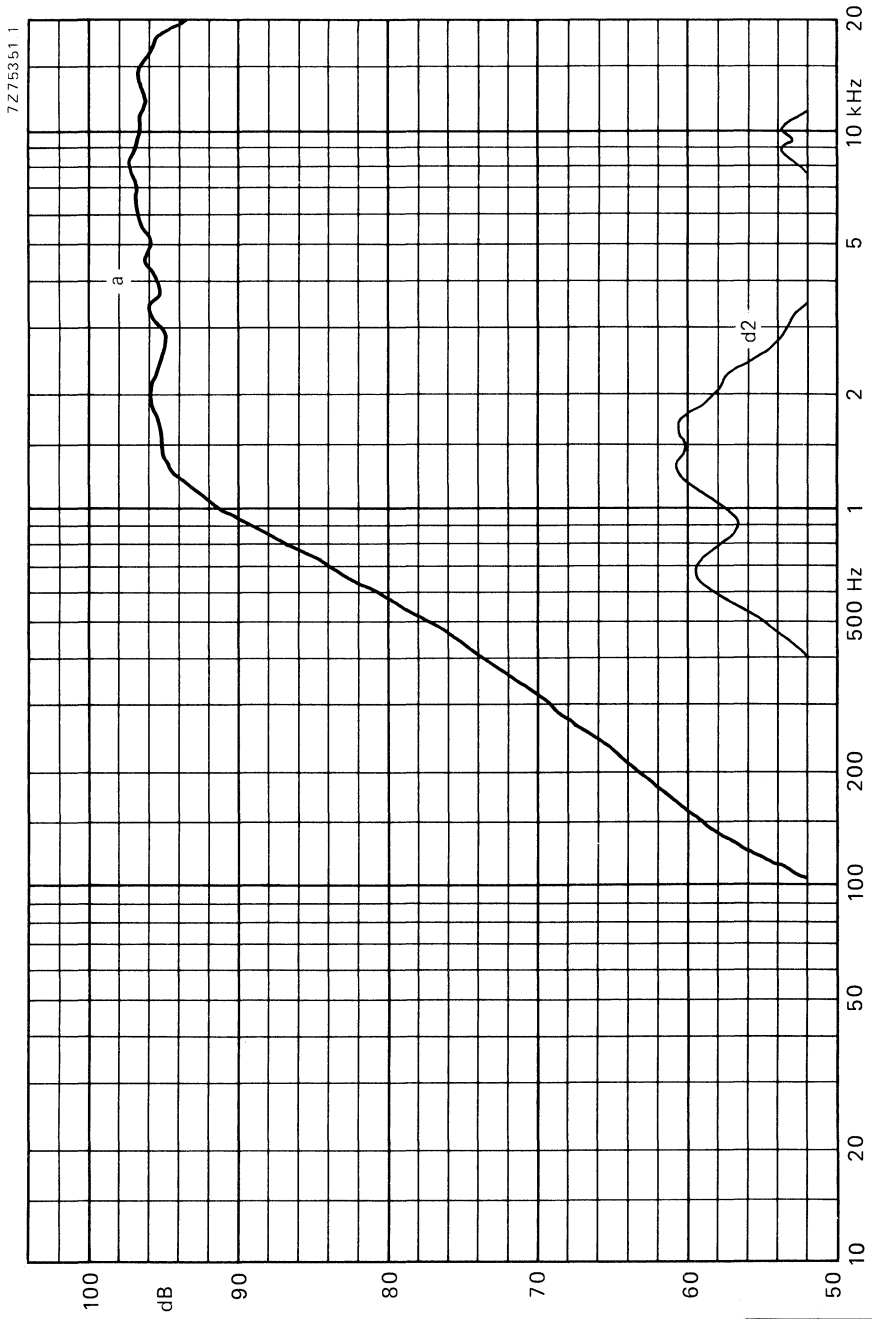


Fig. 3.



This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

## ½-inch DOME TWEETERS

### TECHNICAL DATA

Rated impedance	8 Ω
Voice coil resistance	7 Ω
Rated frequency range	2 to 20 kHz
Resonance frequency	2000 Hz
Power handling capacity, measured with C = 5 μF	20 W
Operating power (sound level 90 dB, 1 m)	1,3 W
Sweep voltage (1 to 20 kHz)	t.b.e. V
Filter	none
Energy in air gap	9,5 mJ
Flux density	1,05 T
Air-gap height	1,5 mm
Voice coil height	2 mm
Core diameter	10 mm
Magnet material	ceramic
diameter	φ 28,5 mm
mass	18 g
Mass of loudspeaker	65 g

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

One tag has a ⊕ mark to facilitate phase matching.

### AVAILABLE VERSIONS

AD01700/T8 catalogue number 2403 257 32122

AD11700/T8 catalogue number 2403 257 32922

### FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room at the operating power.

2 inch dome tweeter

Dimensions in mm

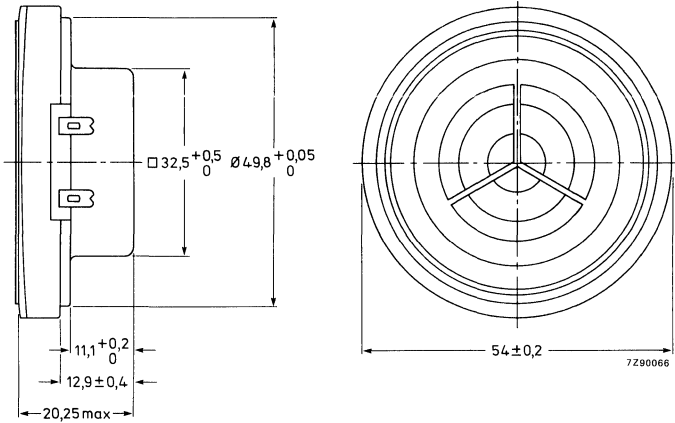


Fig. 1a Round flange type AD01700/T8.

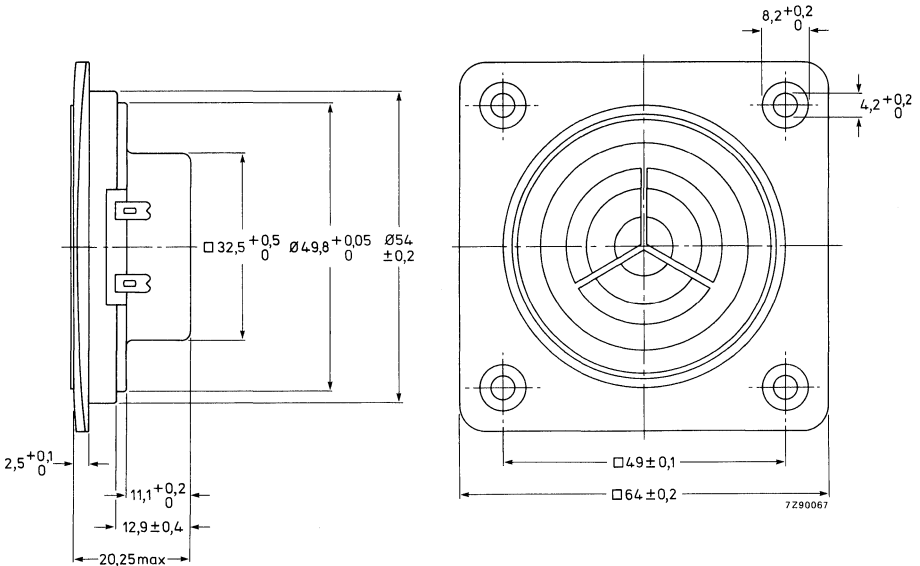


Fig. 1b Square flange type AD11700/T8.

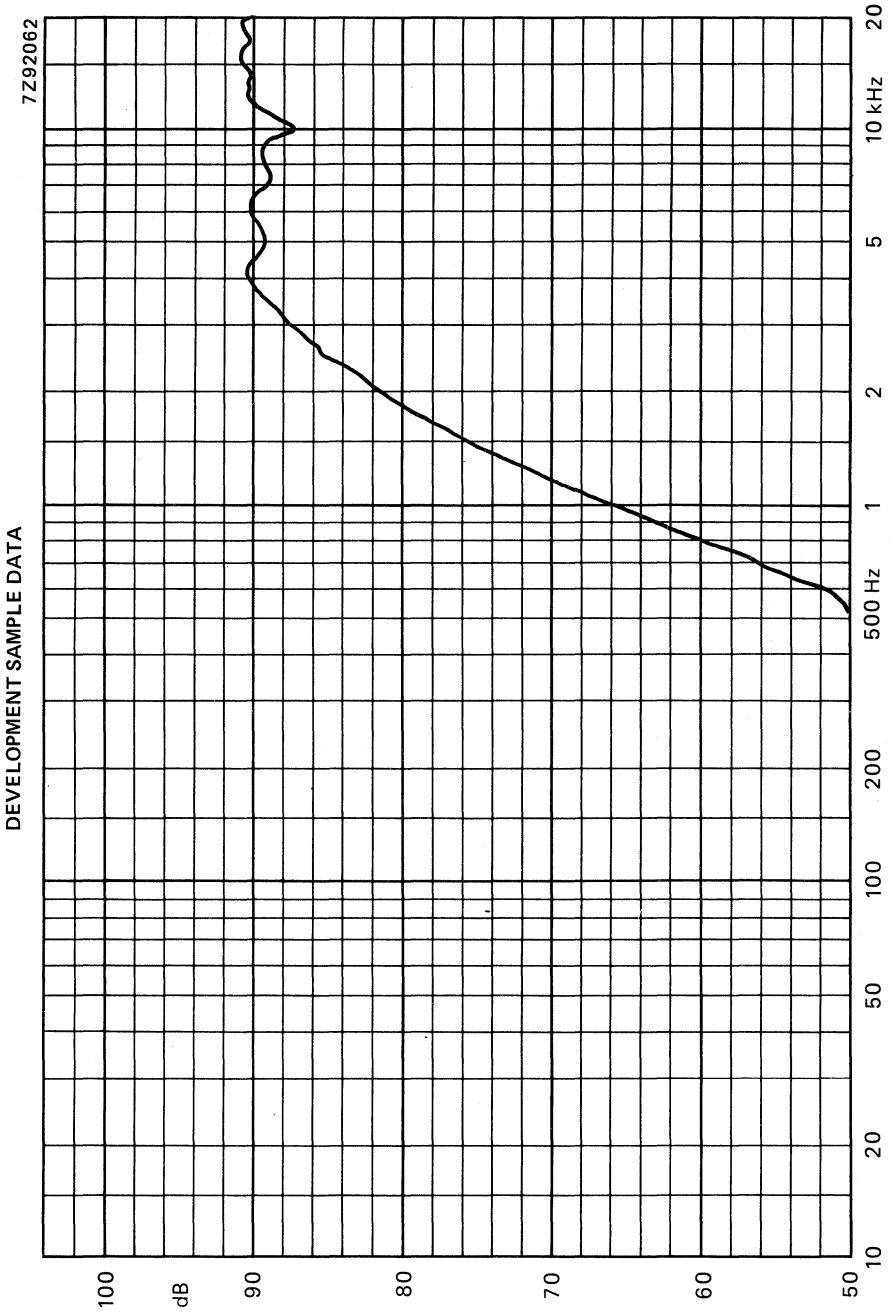


Fig. 2.

## 1¼ INCH LOW POWER LOUDSPEAKER

### APPLICATION

The absence of magnetic stray field due to steel alloy sinterpot magnet system, makes this loudspeaker suitable for use in portables, intercoms and dictation equipment where very small dimensions are required.

### TECHNICAL DATA

	version			
	Z8	Z15	Z25	
Rated impedance	8	15	25	Ω
Voice coil resistance	7,1	13,5	19,8	Ω
Rated frequency range	300 to 7000			Hz
Resonance frequency	500			Hz
Power handling capacity, loudspeaker unmounted, measured without filter	300			mW
Operating power (sound level 74 dB, 0,5 m)	90			mW
Sweep voltage (frequency range: 400 to 15000 Hz)	1,1	1,5	1,9	V
Energy in air gap	5,3			mJ
Flux density	0,5			T
Air-gap height	2,5			mm
Voice coil height	1,5	2,1	2,3	mm
Core diameter	10			mm
Magnet material	steel alloy			
diameter	10			mm
mass	0,006			kg
Mass of loudspeaker	0,017			kg

The loudspeaker has a polycarbonate cone and surround. Connection to the loudspeaker by soldering.

Dimensions in mm

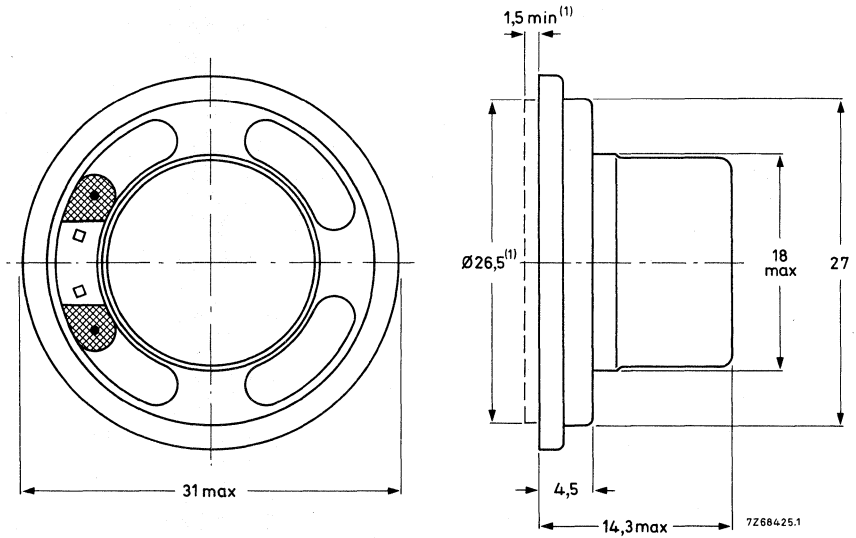


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity. One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

- AD0198/Z25, catalogue number 2403 256 12121
- AD0198/Z15, catalogue number 2403 256 12122
- AD0198/Z8, catalogue number 2403 256 12123

} these numbers apply to bulk packed loudspeakers, minimum packing quantity 228 per unit.

**FREQUENCY RESPONSE CURVE** (see Fig. 2)

Sound pressure measured in anechoic room, loudspeaker mounted on IEC baffle.

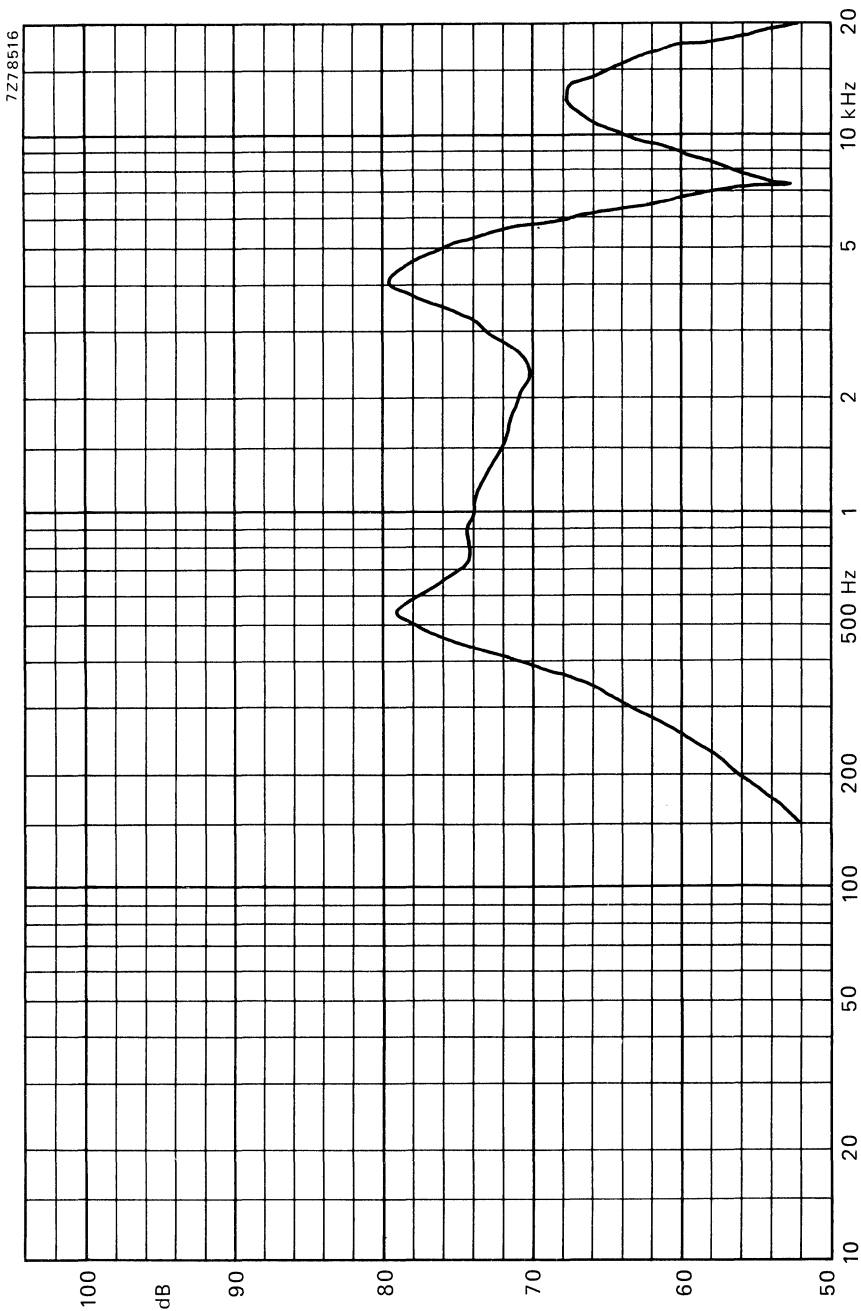


Fig. 2.

1 $\frac{1}{3}$  inch LOW POWER LOUDSPEAKER

## APPLICATION

Extremely thin loudspeaker for personal agenda intercoms, telephones, and many other professional purposes.

## TECHNICAL DATA

	version		
	8	15	25
Rated impedance	8	15	25 $\Omega$
Voice coil resistance	6,9	13,5	20,5 $\Omega$
Rated frequency range	400 to 10 000		Hz
Resonance frequency	600		Hz
Power handling capacity, measured without filter, loudspeaker unmounted	0,3		W
Operating power (sound level 74 dB, 1 m)	55		mW
Sweep voltage (40 to 15 000 Hz)	1,1	1,5	1,9 V
Characteristic sensitivity	53		dB
Energy in air gap	3,4		mJ
Flux density	0,55		T
Air-gap height	0,8		mm
Voice coil height	2,7	2,7	2,9 mm
Core diameter	14,5		mm
Magnet material	rare earth		
mass	1,5		g
Mass of loudspeaker	7		g

Connection is by soldering (max. 350 °C for 3,5 s). The loudspeaker has a plastic frame and a polycarbonate membrane.

Dimensions in mm

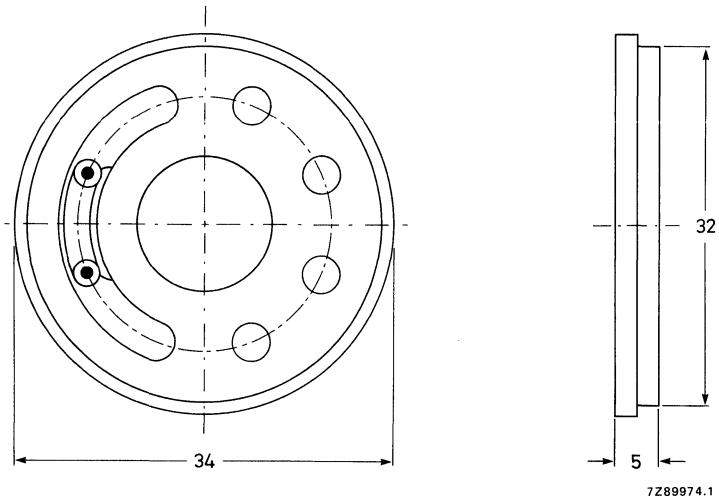


Fig. 1.

One tag has a red mark to facilitate phase matching. Recommended baffle hole:  $\phi$  29 mm.

**AVAILABLE VERSIONS**

AD01980/Y8 catalogue number 2403 256 12523  
AD01980/Y15 catalogue number 2403 256 12522 } These numbers are for bulk-packed loudspeakers.  
AD01980/Y25 catalogue number 2403 256 12521

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Curve of sound pressure, measured in anechoic room at the operating power.



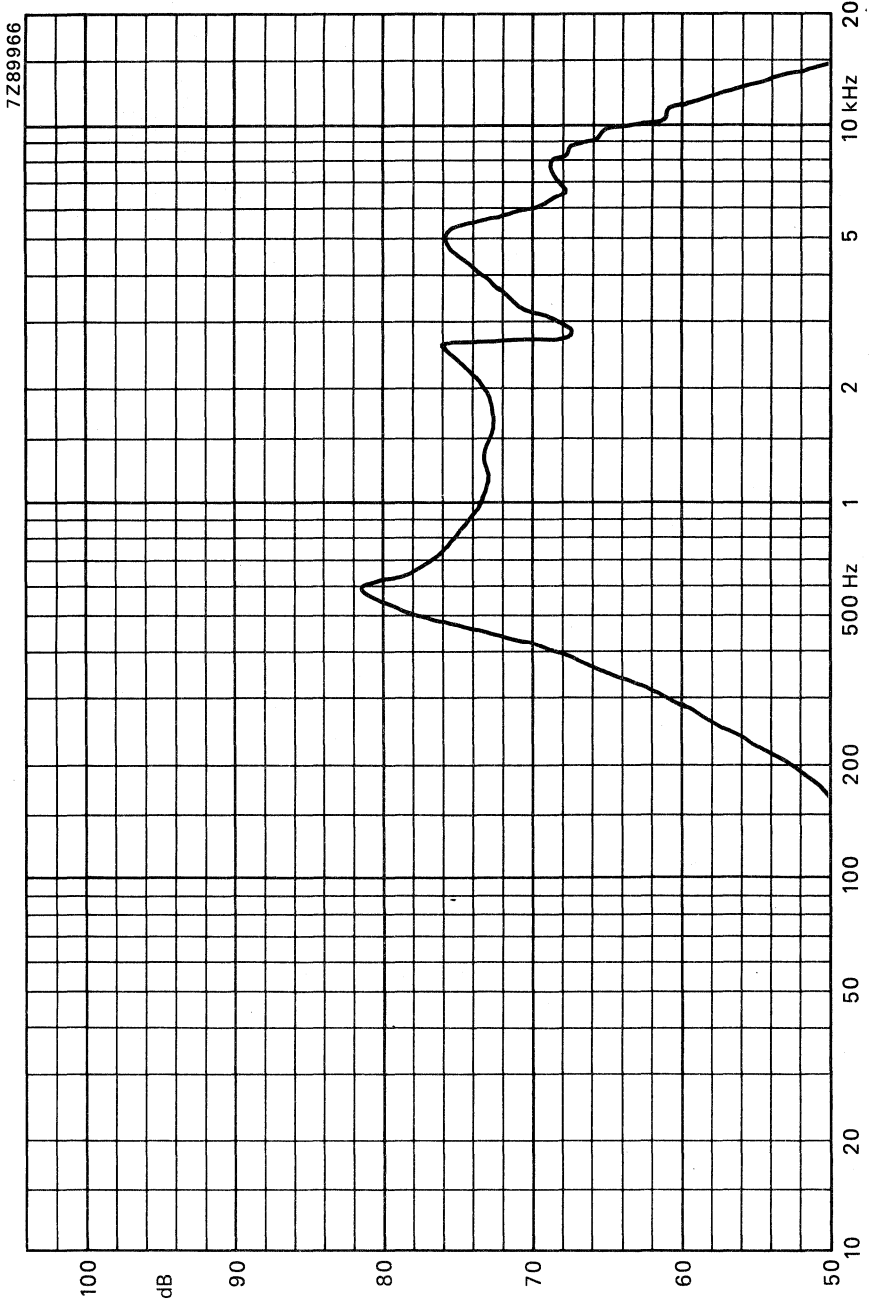


Fig. 2.

## 1½ inch LOW POWER LOUDSPEAKER

## APPLICATION

Extremely thin loudspeaker for personal agenda intercoms, telephones, and many other professional purposes.

## TECHNICAL DATA

	version		
	8	15	25
Rated impedance	8	15	25 Ω
Voice coil resistance	6,9	13,5	20,5 Ω
Rated frequency range	400 to 10 000		Hz
Resonance frequency	600		Hz
Power handling capacity, measured without filter, loudspeaker unmounted	0,3		W
Operating power (sound level 74 dB, 1 m)	50		mW
Sweep voltage (40 to 15 000 Hz)	1,1	1,5	1,9 V
Characteristic sensitivity	54		dB
Energy in air gap	3,4		mJ
Flux density	0,55		T
Air-gap height	0,8		mm
Voice coil height	2,7	2,7	2,9 mm
Core diameter	14,5		mm
Magnet material	rare earth		
mass	1,5		g
Mass of loudspeaker	7,5		g

Connection is by soldering (max. 350 °C, for 3,5 s). The loudspeaker has a plastic frame and a poly-carbonate membrane.

Dimensions in mm

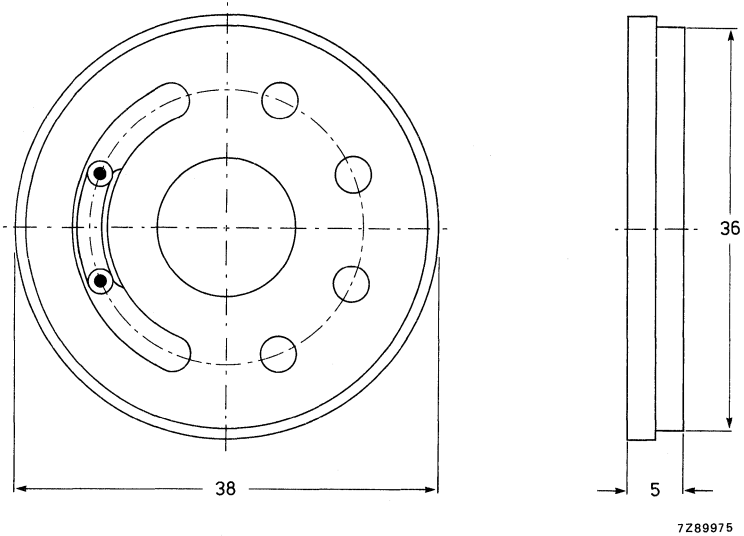


Fig. 1.

One tag has a red mark to facilitate phase matching. Recommended baffle hole:  $\phi$  33 mm.

**AVAILABLE VERSIONS**

- |             |                                 |   |
|-------------|---------------------------------|---|
| AD01985/Y8  | catalogue number 2403 256 12423 | } These numbers are for bulk-packed loudspeakers. |
| AD01985/Y15 | catalogue number 2403 256 12422 |   |
| AD01985/Y25 | catalogue number 2403 256 12421 |   |

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Curve of sound pressure, measured in anechoic room at the operating power.

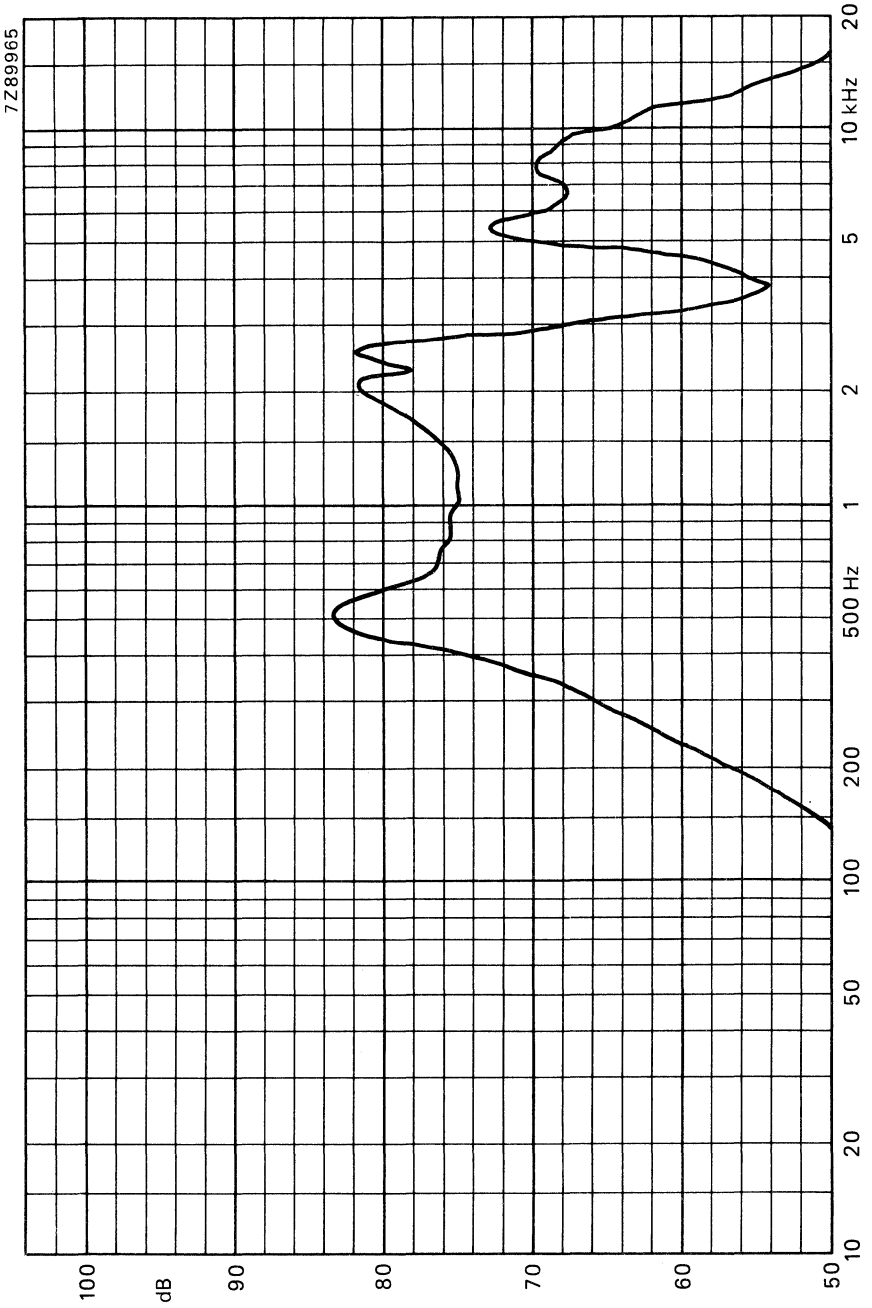


Fig. 2.

## 2 INCH HIGH POWER DOME SQUAWKER LOUDSPEAKER

### APPLICATION

For use in hi-fi enclosures. This loudspeaker has a very wide radiating pattern due to its nearly flat conical front.

### TECHNICAL DATA

	version	
	Sq4	Sq8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,4	6,9 $\Omega$
Resonance frequency	340	360 Hz
Rated frequency range	550 to 5000 Hz	
Power handling capacity,* loudspeaker mounted on IEC baffle, measured with filter		
36 $\mu$ F – 1,2 mH	30	W
18 $\mu$ F – 2,4 mH		30 W
Maximum power on loudspeaker	60	W
Operating power	4	W
Sweep voltage (100 to 10000 Hz, filter 36 $\mu$ F – 1,2 mH 18 $\mu$ F – 2,4 mH)	4	V
		5,6 V
Energy in air gap	205	mJ
Flux density	0,9	T
Air-gap height	3	mm
Voice coil height	3,3	mm
Core diameter	50	mm
Magnet material	ceramic	
diameter	102	mm
mass	0,35	kg
Mass of loudspeaker	1	kg

The loudspeaker has a textile dome and an acoustically sealed pot. No isolation is required. Connection to the squawker by means of 2,8 mm (0,11 inch) tag connectors or by soldering.

### AVAILABLE VERSIONS

AD02110/Sq4, catalogue number 2422 257 32221 } these numbers apply to bulk packed loudspeakers,  
AD02110/Sq8, catalogue number 2422 257 32222 } minimum packing quantity 8 per unit.

### FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room, loudspeaker mounted on IEC baffle at operating power. Above 500 Hz the sound pressure may not deviate more than  $\pm 1$  dB.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

\* Measured according to DIN 45573 par. 3.2.

Dimensions in mm

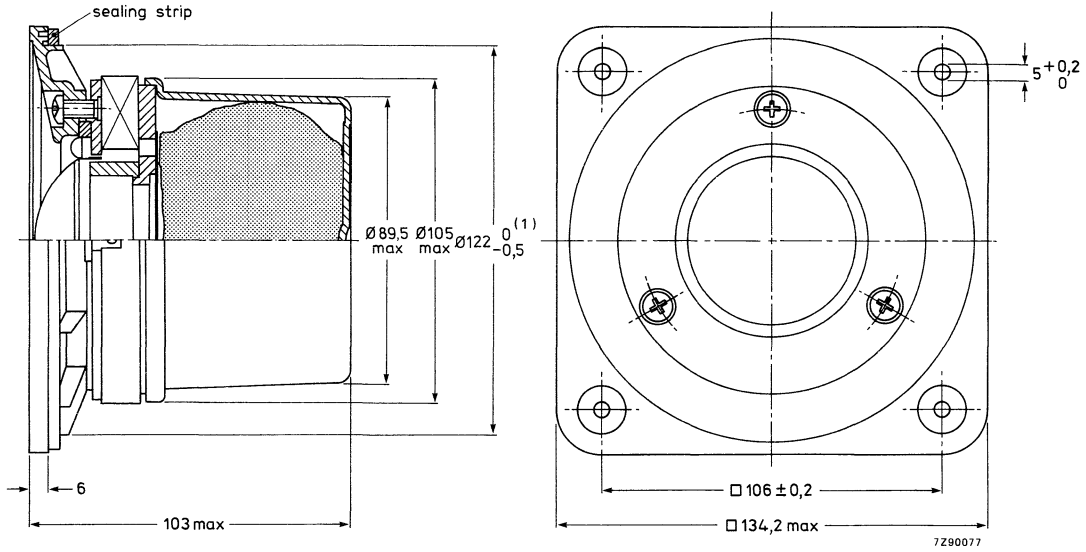


Fig. 1.

(1) Baffle hole diameter 122 mm.

One tag is indicated by a red mark for in-phase connection.

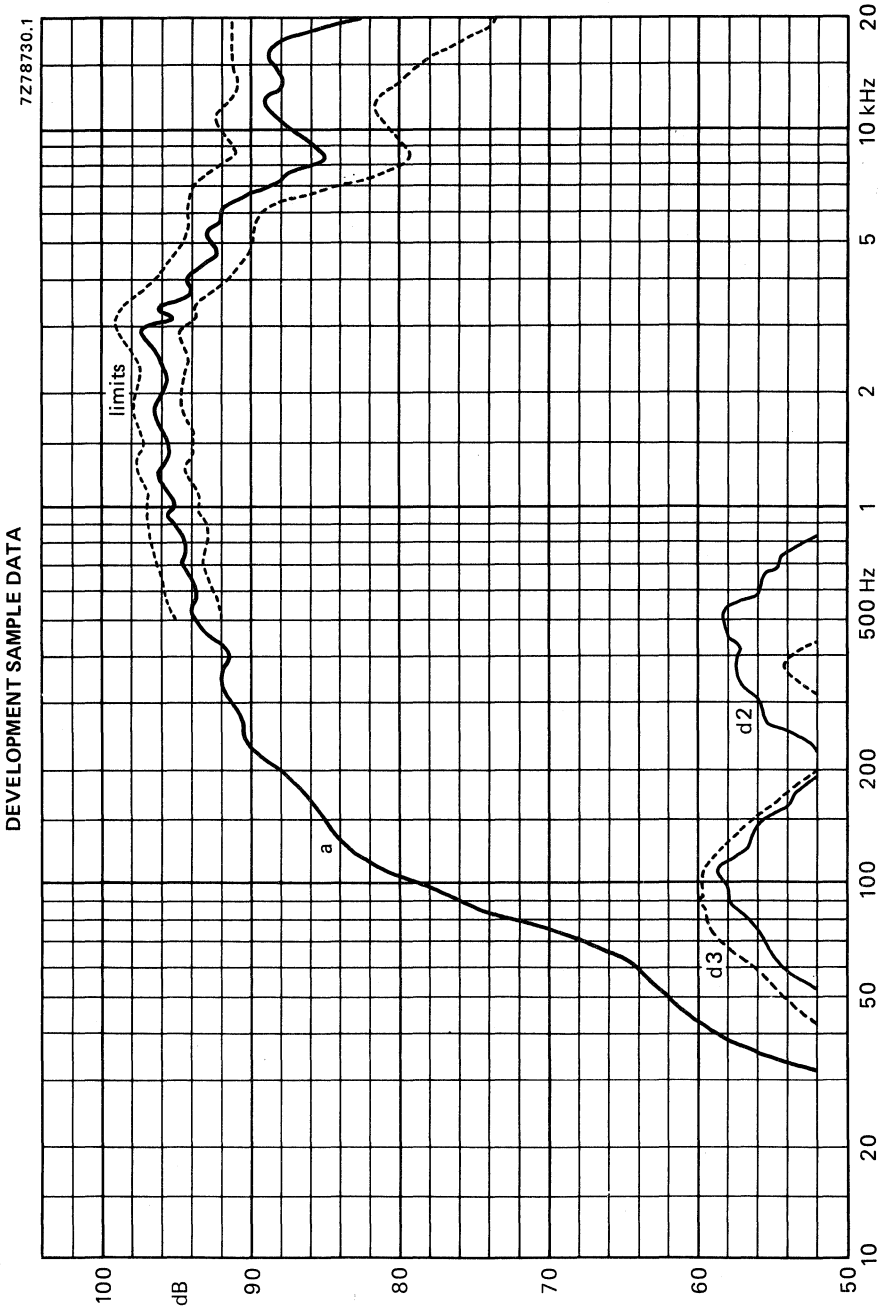


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD02120/Sq8

# 3 inch HIGH POWER FLAT MEMBRANE SQUAWKER LOUDSPEAKER

## APPLICATION

For use in hi-fi enclosures. This loudspeaker has a direct driven flat membrane.

## TECHNICAL DATA

Rated impedance	8 $\Omega$
Voice coil resistance	6,9 $\Omega$
Resonance frequency	300 Hz
Rated frequency range	750 to 5000 Hz
Power handling capacity,* loudspeaker mounted on IEC baffle, measured with filter 18 $\mu$ F — 2,4 mH	25 W
Maximum power on loudspeaker	50 W
Operating power	6 W
Sweep voltage (100 to 10 000 Hz, filter 18 $\mu$ F — 2,4 mH)	6,9 V
Energy in air gap	205 mJ
Flux density	0,9 T
Air-gap height	3 mm
Voice coil height	3,3 mm
Core diameter	50 mm
Magnet material	ceramic
diameter	102 mm
mass	0,35 kg
Mass of loudspeaker	1 kg

The loudspeaker has a flat and very stiff membrane and an acoustically sealed pot. No isolation is required. Connection to the squawker by means of 2,8 mm (0,11 inch) tag connectors or by soldering.

## AVAILABLE VERSIONS

AD02120/Sq catalogue number 2404 257 32432; this number applies to bulk packed loudspeakers, minimum packing quantity 8 per unit.

## FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room, loudspeaker mounted on IEC baffle at operating power. Above 500 Hz the sound pressure may not deviate more than  $\pm 1$  dB.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

\* Measured according to DIN 45573 par. 3.2.



Dimensions in mm

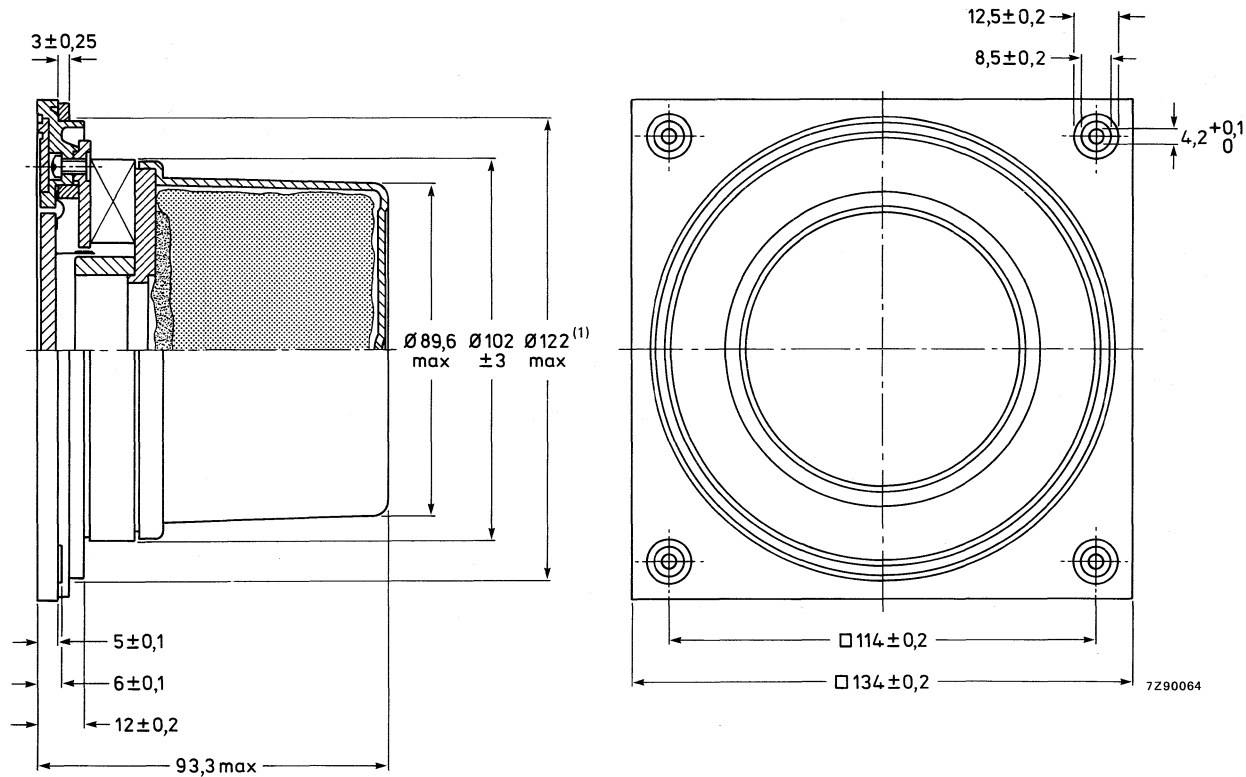


Fig. 1.

(1) Baffle hole diameter 122 mm.

One tag is indicated by a red mark for in-phase connection.

DEVELOPMENT SAMPLE DATA

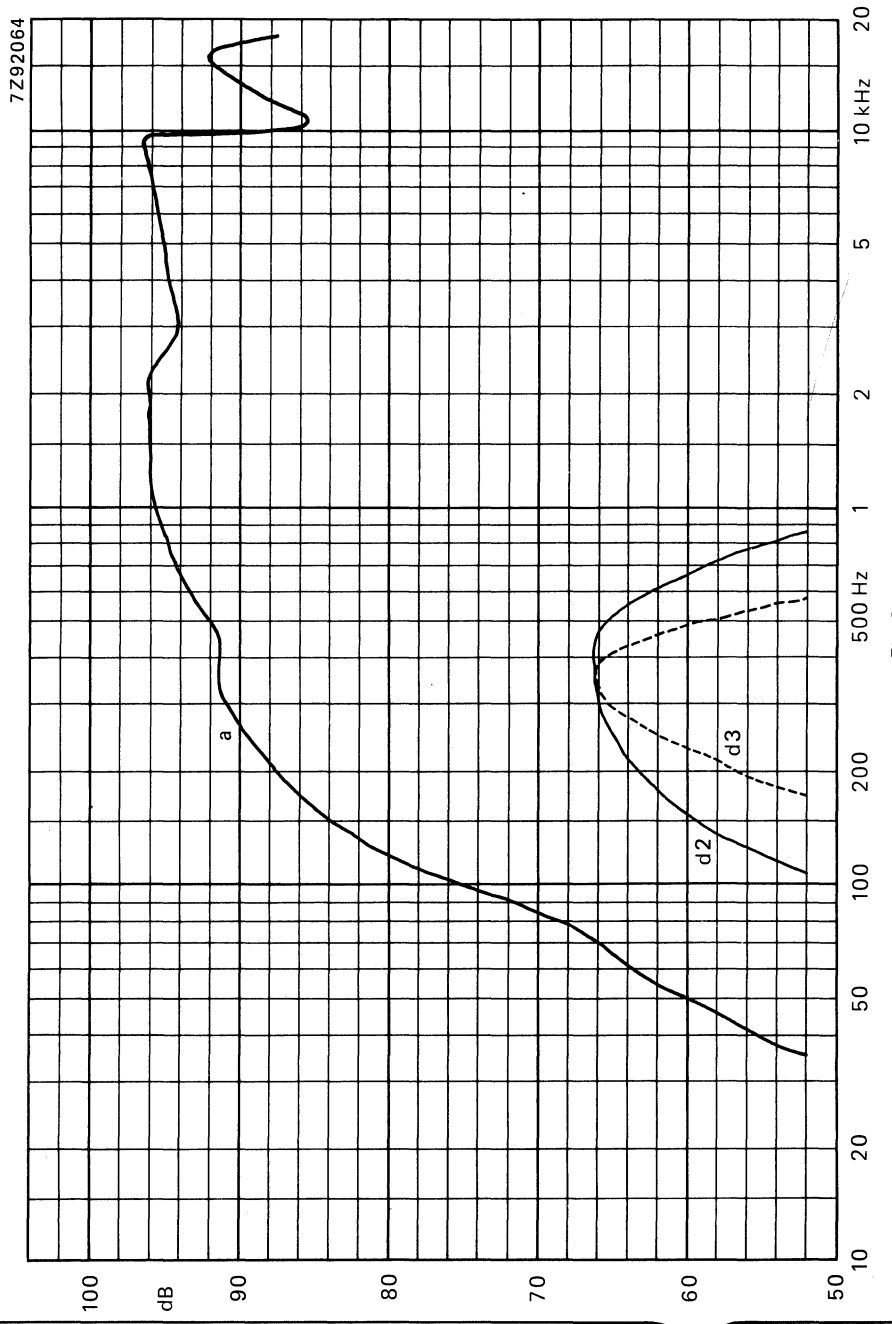


Fig. 2.

## 2 INCH HIGH POWER DOME SQUAWKER LOUDSPEAKER

### APPLICATION

For use in hi-fi enclosures. This loudspeaker has a very wide radiating pattern due to its nearly flat conical front.

### TECHNICAL DATA

	version	
	Sq4	Sq8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,4	6,9 $\Omega$
Resonance frequency	340	360 Hz
Rated frequency range	550 to 5000 Hz	
Power handling capacity, * loudspeaker mounted on IEC baffle measured with filter		
36 $\mu$ F - 1,2 mH	30	W
18 $\mu$ F - 2,4 mH		30 W
Maximum power on loudspeaker	60	W
Operating power	2,5	W
Sweep voltage (100 to 10 000 Hz, filter 36 $\mu$ F - 1,2 mH 18 $\mu$ F - 2,4 mH)	3,1	V
		4,4 V
Energy in air gap	288	mJ
Flux density	1,1	T
Air-gap height	3	mm
Voice coil height	3,3	mm
Core diameter	50	mm
Magnet material	ceramic	
diameter	110	mm
mass	0,65	kg
Mass of loudspeaker	1,5	kg

The loudspeaker has a textile dome and an acoustically sealed pot. No isolation is required. Connection to the squawker by means of 2,8 mm (0,11 inch) tag connectors or by soldering.

### AVAILABLE VERSIONS

AD02150/Sq4, catalogue number 2422 257 32321 } these numbers apply to bulk packed loudspeakers,  
 AD02150/Sq8, catalogue number 2422 257 32322 } minimum packing quantity 8 per unit.

### FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room, loudspeaker mounted on IEC baffle at operating power. Above 500 Hz the sound pressure may not deviate more than  $\pm 1$  dB.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

\* Measured according to DIN 45573 par. 3.2.

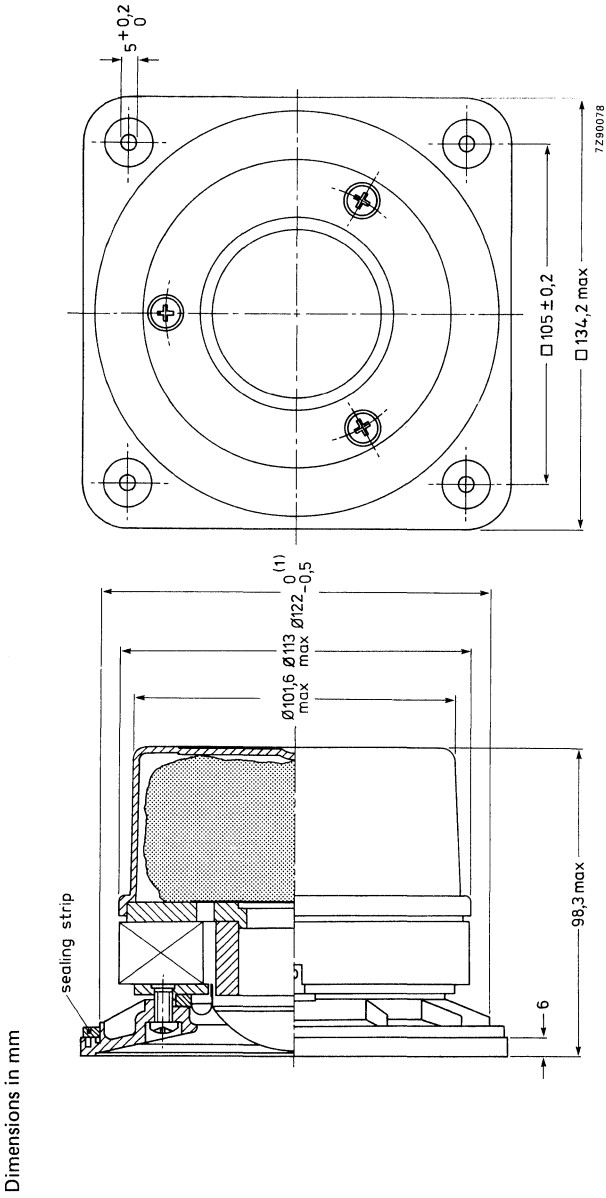


Fig. 1.

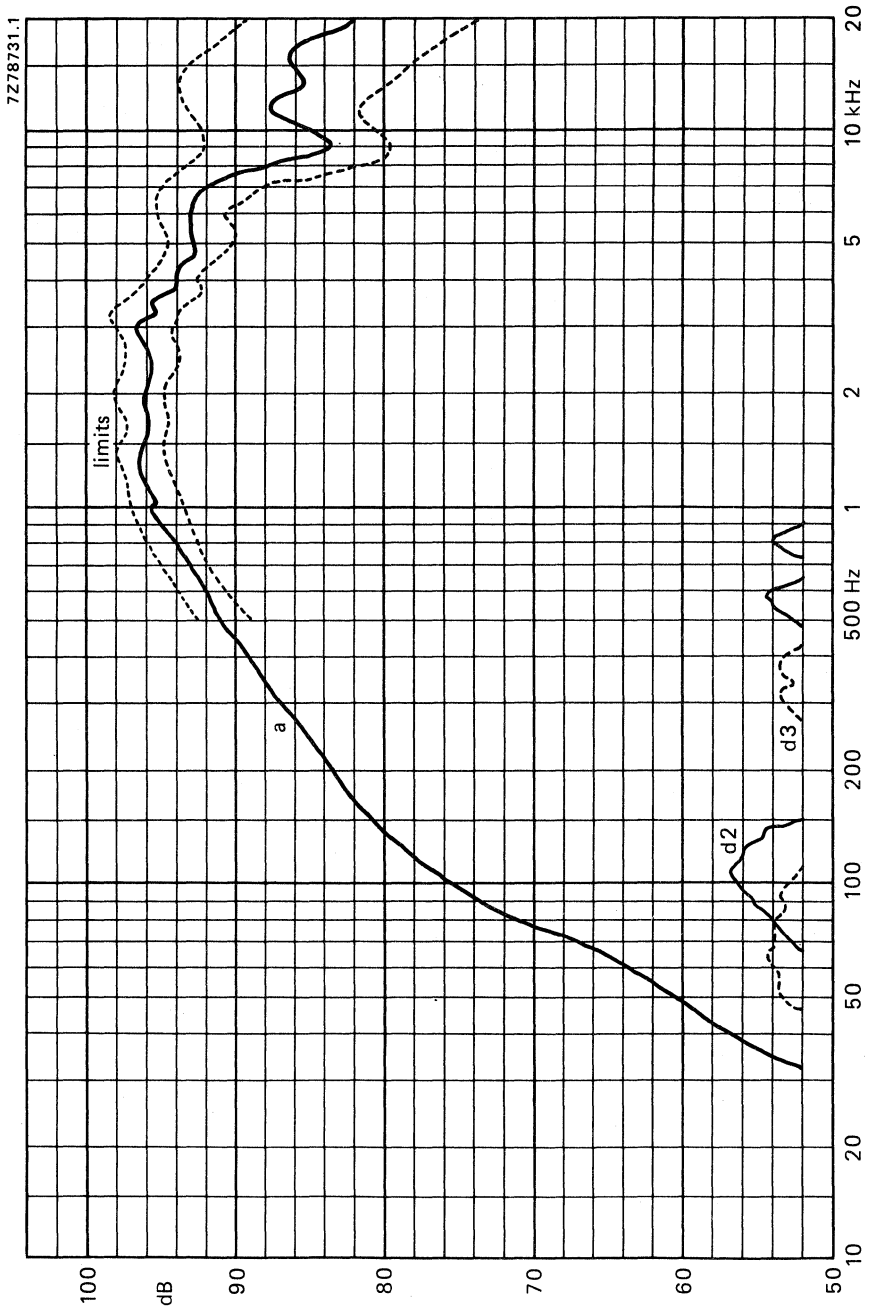


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD02170/Sq8

# 3 inch HIGH POWER FLAT MEMBRANE SQUAWKER LOUDSPEAKER

## APPLICATION

For use in hi-fi enclosures. This loudspeaker has a very wide radiating pattern due to its flat front.

## TECHNICAL DATA

Rated impedance	8 $\Omega$
Voice coil resistance	6,9 $\Omega$
Resonance frequency	640 Hz
Rated frequency range	750 to 5000 Hz
Power handling capacity,* loudspeaker mounted on IEC baffle, measured with filter 18 $\mu$ F – 2,4 mH	25 W
Maximum power on loudspeaker	50 W
Operating power	3 W
Sweep voltage (100 to 10 000 Hz, filter 18 $\mu$ F – 2,4 mH)	4,9 V
Energy in air gap	288 mJ
Flux density	1,1 T
Air-gap height	3 mm
Voice coil height	3,3 mm
Core diameter	50 mm
Magnet material	ceramic
diameter	110 mm
mass	0,65 kg
Mass of loudspeaker	1,5 kg

The loudspeaker has a flat membrane and an acoustically sealed pot. No isolation is required. Connection to the squawker by means of 2,8 mm (0,11 inch) tag connectors or by soldering.

## AVAILABLE VERSIONS

AD02170/Sq catalogue number 2404 257 32422; this number applies to bulk packed loudspeakers, minimum packing quantity 8 per unit.

## FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room, loudspeaker mounted on IEC baffle at operating power. Above 500 Hz the sound pressure may not deviate more than  $\pm 1$  dB.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

\* Measured according to DIN 45573 par. 3.2.

Dimensions in mm

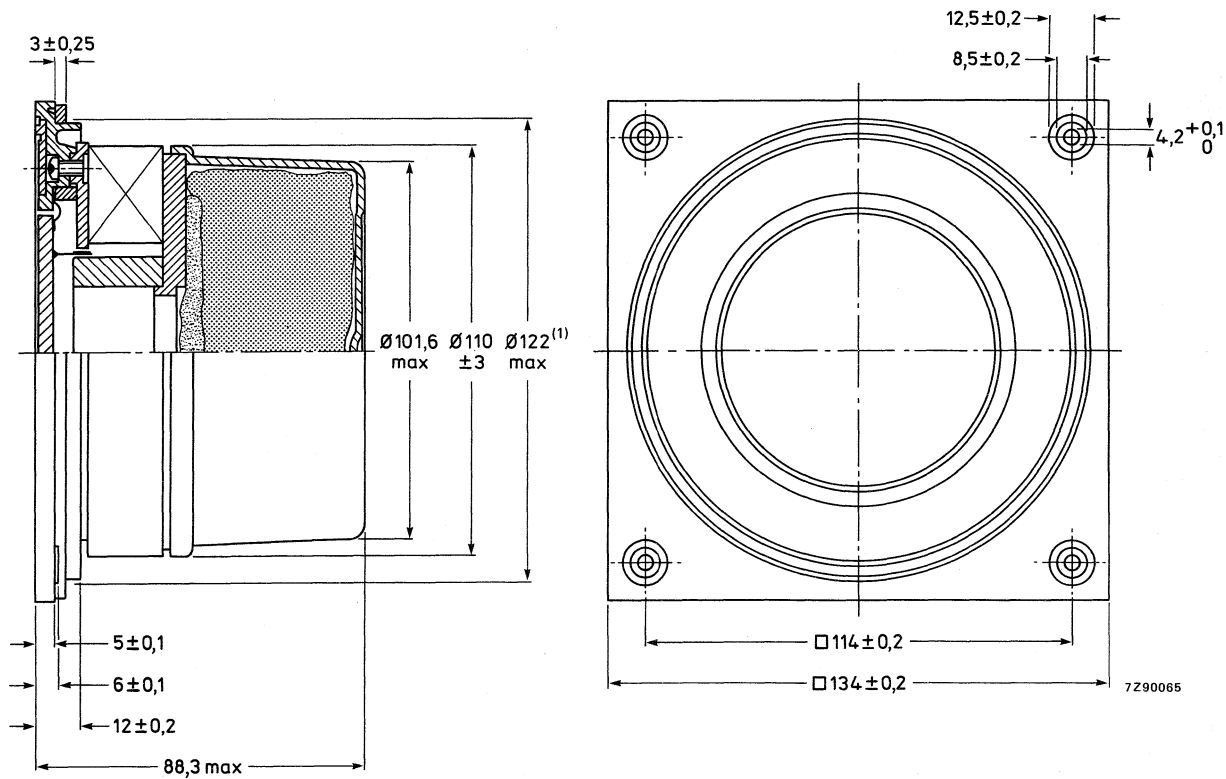


Fig. 1.

(1) Baffle hole diameter 122 mm.

One tag is indicated by a red mark for in-phase connection.

DEVELOPMENT SAMPLE DATA

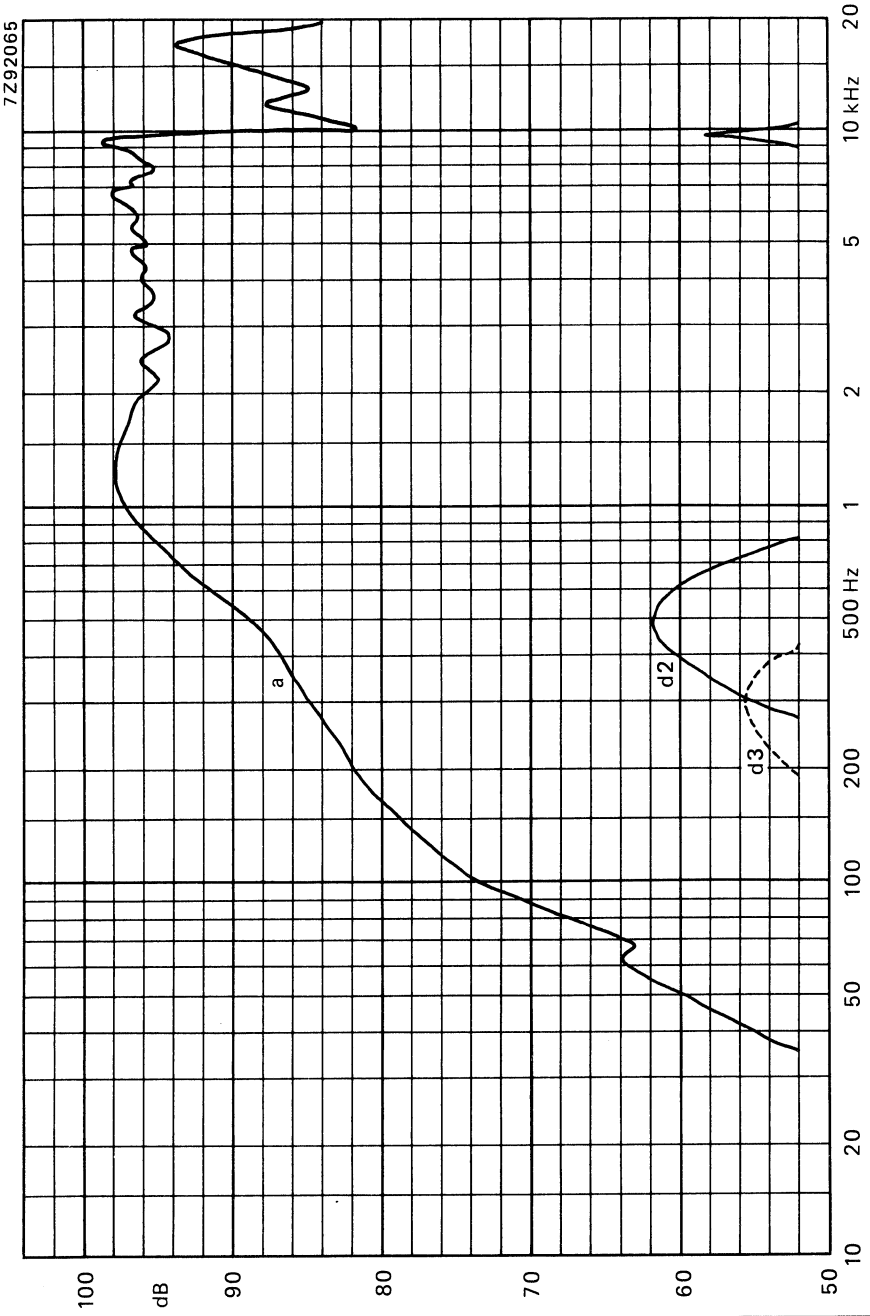


Fig. 2.



## 10 INCH HIGH POWER FULL RANGE LOUDSPEAKER

### APPLICATION

A full range loudspeaker with high sensitivity for public address systems in enclosures greater than 20 litres.

Smooth response from 60 Hz to 18 000 Hz.

### TECHNICAL DATA

	version		
	M4	M8	
Rated impedance	4	8	$\Omega$
Voice coil resistance	3,4	7	$\Omega$
Resonance frequency		55	Hz
Power handling capacity, measured without filter, loudspeaker unmounted		10	W
Operating power		1,5	W
Sweep voltage	4,5	6,3	V
Energy in air gap		225	mJ
Flux density		1,12	T
Air-gap height		5	mm
Voice coil height		6,5	mm
Core diameter		25	mm
Magnet material		ceramic	
diameter		90	mm
mass		0,45	kg
Mass of loudspeaker		1,52	kg

The loudspeaker has a paper dual cone and surround and a foam plastic gasket on the flange.

Connection to the loudspeaker by means of 6,3 mm (0,25 inch) tag connectors or by soldering.

Dimensions in mm

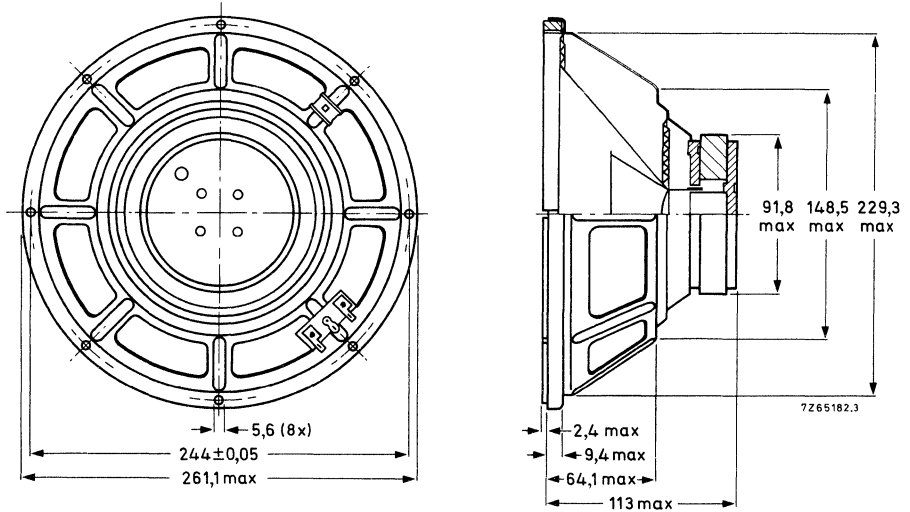


Fig. 1.

One tag is indicated by a red mark for in-phase connection.

#### AVAILABLE VERSIONS

AD1065/M4, catalogue number 2422 257 41021 } these numbers apply to bulk  
 AD1065/M8, catalogue number 2422 257 41022 } packed loudspeakers.

#### FREQUENCY RESPONSE CURVES (see Fig. 2)

Curve b: Sound pressure measured in anechoic room at operating power of 1,5 W. Loudspeaker mounted in sealed 80 l enclosure, filled with 1 kg of glass wool.

Curve c: 2nd and 3rd harmonic distortion, measured at operating power of 1,5 W in anechoic room. Loudspeaker mounted in 80 l enclosure, filled with 1 kg of glass wool.

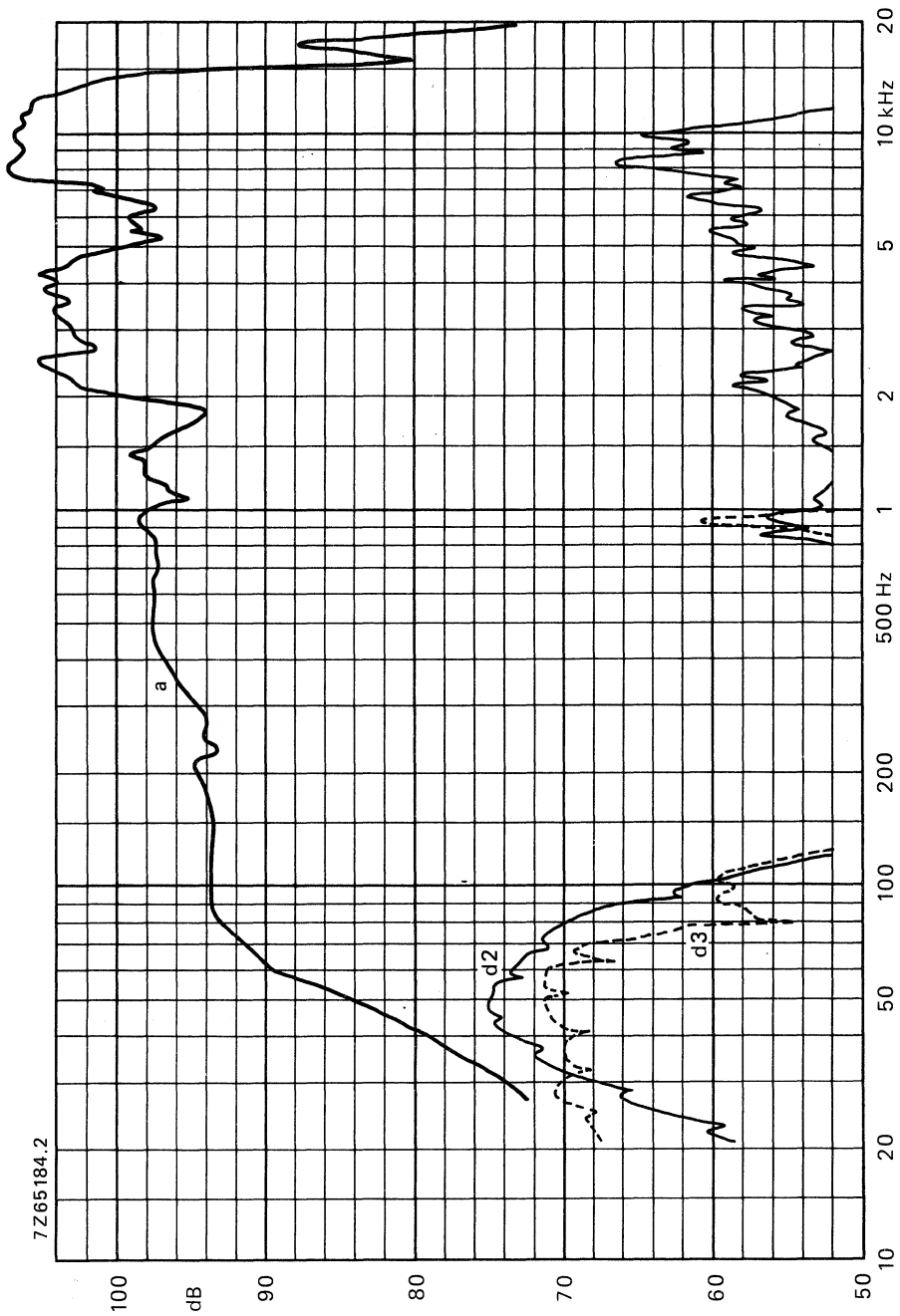


Fig. 2.

7Z65184.2

## 2 INCH PIEZOELECTRIC CERAMIC TWEETER LOUDSPEAKERS

### APPLICATION

For the reproduction of frequencies 5000 to 20 000 Hz with very low distortion. This loudspeaker may be used in television sets.

### TECHNICAL DATA

Rated frequency range	500-20 000 Hz
Voltage handling capacities, loudspeaker mounted on IEC baffle	16,7 V
Operating voltage	6,3 V
Sweep voltage frequency range 1000 to 10 000 Hz	6,3 V
Driver material	piezoelectric ceramic
Mass of loudspeaker	0,0088 kg

The loudspeakers have a paper cone. Two tinned 2,8 mm (0,11 inch) tag connectors permit connection to the tweeter by plugging or soldering.

### AVAILABLE VERSIONS

AD2000/TP catalogue number 2422 259 20021	} these numbers apply to bulk packed loudspeakers, minimum packing quantity 100 per unit.
AD2200/TP catalogue number 2422 259 20022	

### FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted on IEC baffle.

Curve a: Sound pressure.

Curve d2: 2nd harmonic distortion.

Dimensions in mm

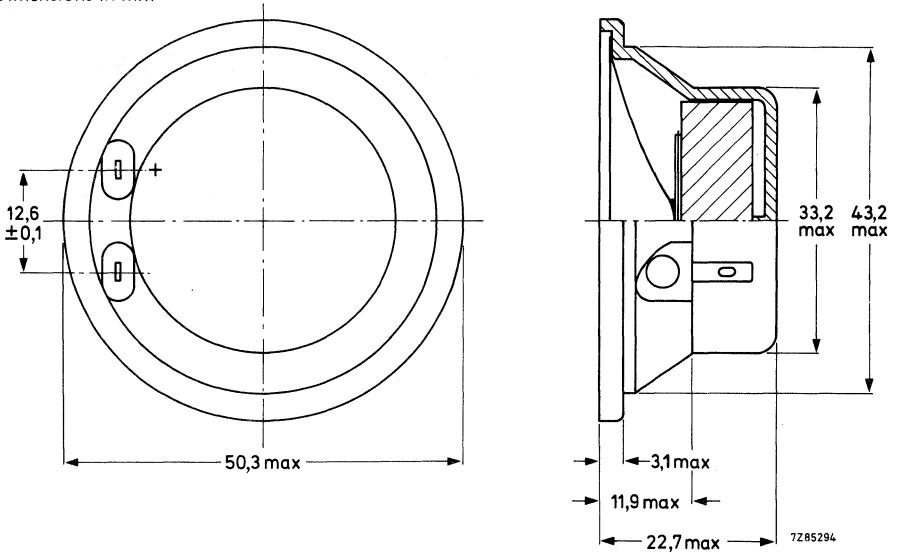


Fig. 1a Round flange type AD2000/TP.

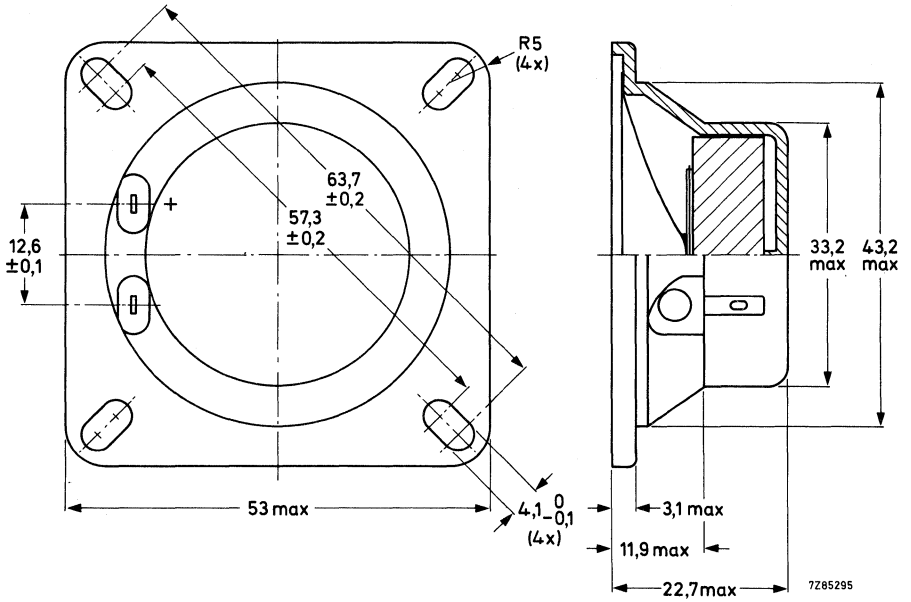


Fig. 1b Square flange type AD2200/TP.

One tag is indicated by + sign for in-phase connection.

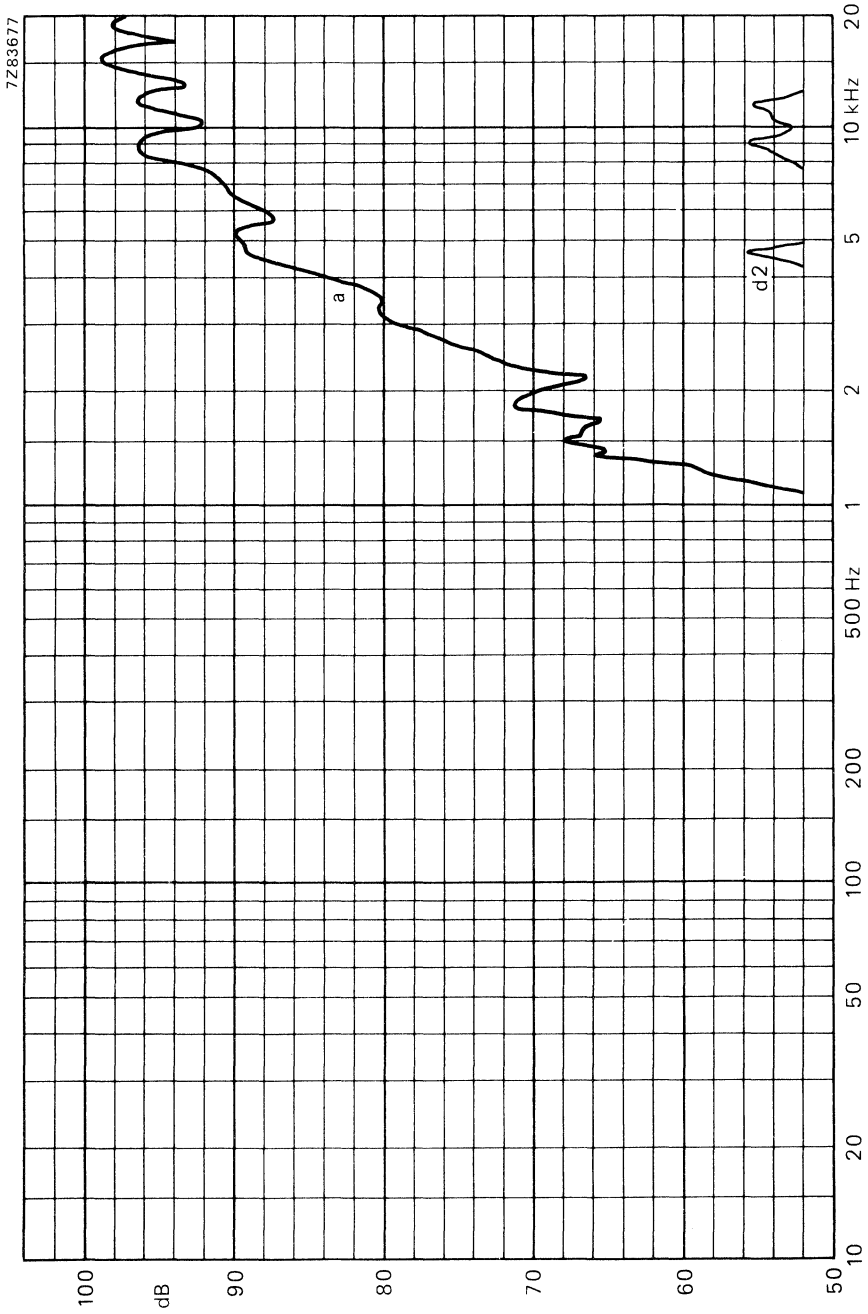


Fig. 2.

## 2½ INCH LOW POWER LOUDSPEAKER

## APPLICATION

For portable receivers and intercoms.

## TECHNICAL DATA

	Z4	Z8	version		Z50	Z150	
			Z15	Z25			
Rated impedance	4	8	15	25	50	150	Ω
Voice coil resistance	3,5	7,1	13,7	22,8	37	127	Ω
Rated frequency range			180 to 4000				Hz
Resonance frequency			360				Hz
Power handling capacity, loudspeaker unmounted, measured without filter			1				W
Operating power (sound level 90 dB, 0,5 m)			0,55				W
Sweep voltage (frequency range: 240 to 15000 Hz)	1	1,4	1,9	2,5	5	8,7	V
Energy in air gap			12,7				mJ
Flux density			0,74				T
Air-gap height			2,5				mm
Voice coil height	2,7	2,2	3,0	3,6	3,9	3,5	mm
Core diameter			10				
Magnet material			ceramic				
→ square			28,5				mm
mass			0,018				kg
Mass of loudspeaker			0,05				kg

The loudspeaker has a plastic frame, and a paper cone and surround. Connection to the loudspeaker by means of 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions (mm)

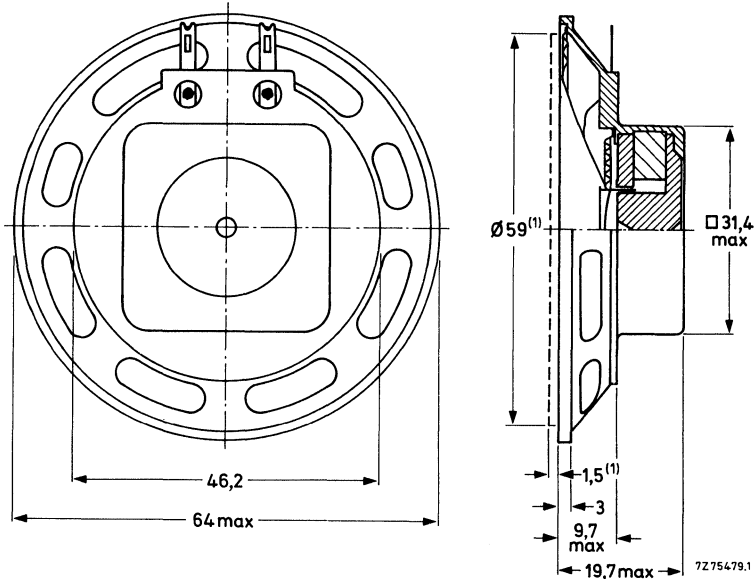


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by + sign for in-phase connection.

**AVAILABLE VERSIONS**

- AD2071/Z4, catalogue number 2403 257 23821
- AD2071/Z8, catalogue number 2403 257 23822
- AD2071/Z15, catalogue number 2403 257 23823
- AD2071/Z25, catalogue number 2403 257 23824
- AD2071/Z50, catalogue number 2403 257 23826
- AD2071/Z150, catalogue number 2403 257 23825

these numbers apply to bulk packed loudspeakers, minimum packing quantity 125 per unit.

**FREQUENCY RESPONSE CURVE** (see Fig. 2)

Sound pressure measured in anechoic room, loudspeaker mounted on IEC baffle.



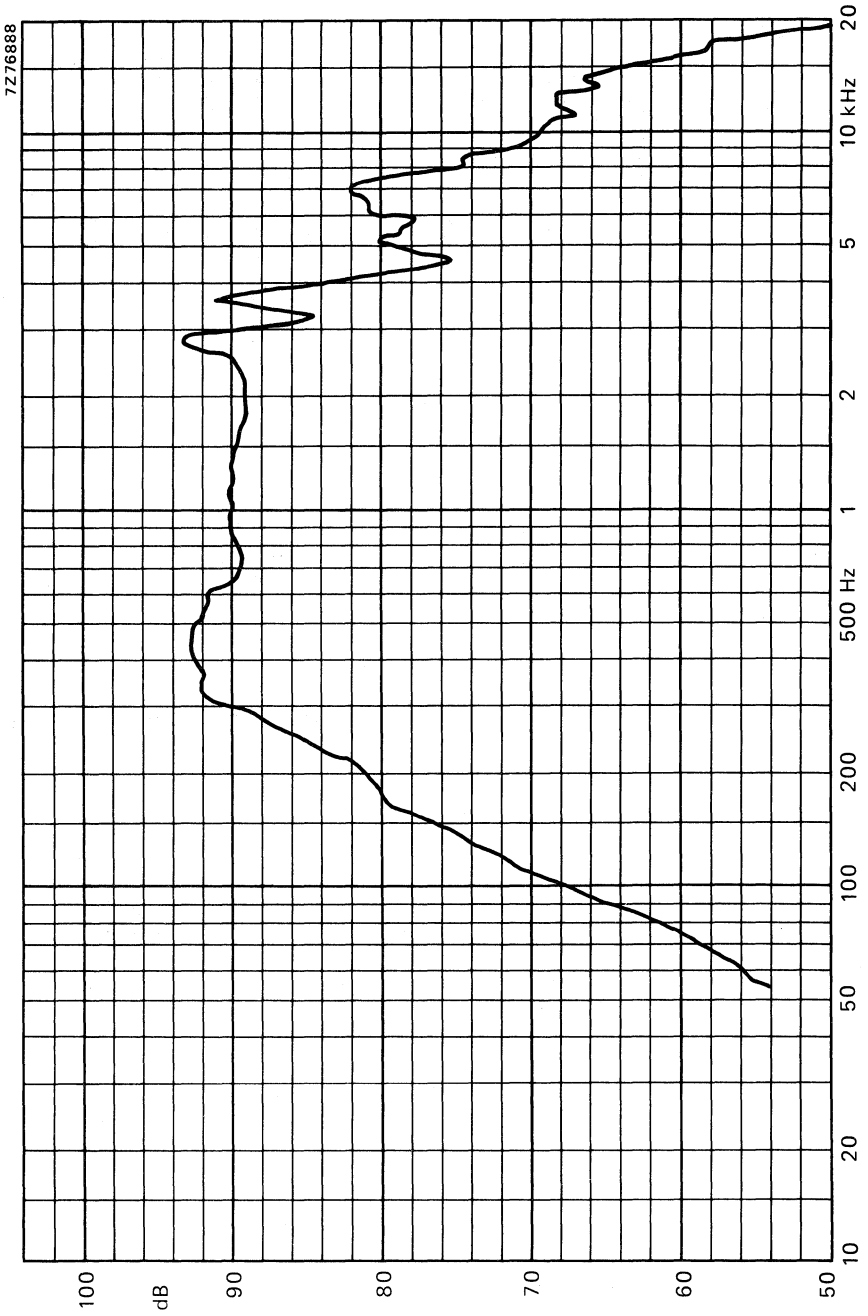


Fig.2.

## 2 INCH HIGH POWER TWEETER LOUDSPEAKERS

### APPLICATION

For the reproduction of frequencies up to 20 kHz with very low distortion in multi-way high-fidelity loudspeaker systems in accordance with DIN 45500. This loudspeaker may be used in television sets, due to absence of stray field from the tweeter magnet system.

### TECHNICAL DATA

	version		
	T4	T8	T15
Rated impedance	4	8	15 $\Omega$
Voice coil resistance	3,3	6,3	13,5 $\Omega$
Resonance frequency		1300	Hz
Rated frequency range		3000 to 20 000	Hz
Power handling capacity at + 50 °C, loudspeaker unmounted, of loudspeaker only		3	W
of system, crossover frequency 3000 Hz (-3 dB), loudspeaker in series with capacitor of	10	5	2,7 $\mu$ F
Operating power		6	W
Sweep voltage (600 to 17 000 Hz) loudspeaker in series with capacitor of	3,5 12	4,9 5	6,7 V 2,7 $\mu$ F
Energy in air gap		15,5	mJ
Flux density		0,73	T
Air-gap height		2,25	mm
Voice coil height	2,0	2,9	2,8 mm
Core diameter		14,5	mm
Magnet material		steel alloy	
diameter		14,5	mm
mass		0,013	kg
Mass of loudspeaker		0,05	kg

The loudspeaker has a paper cone and surround. Connection to the loudspeaker by means of 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

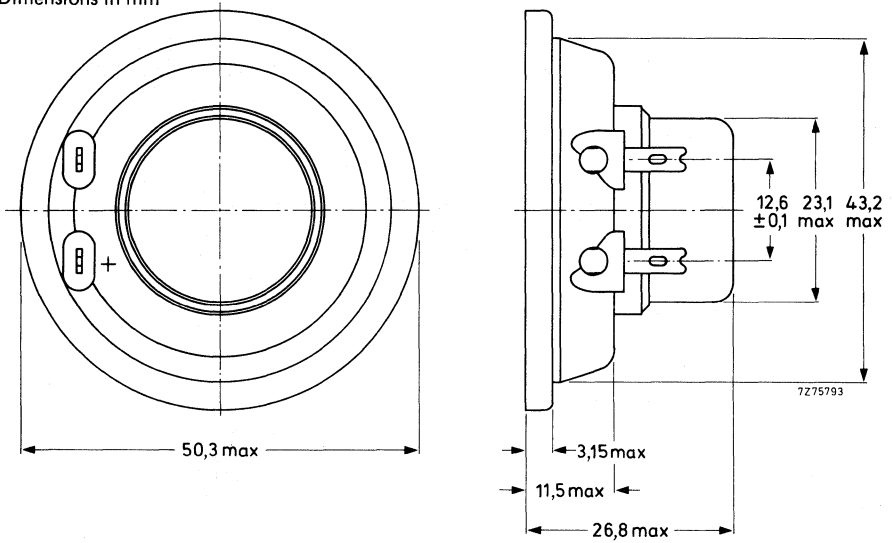


Fig. 1a Round flange type AD2096/T.

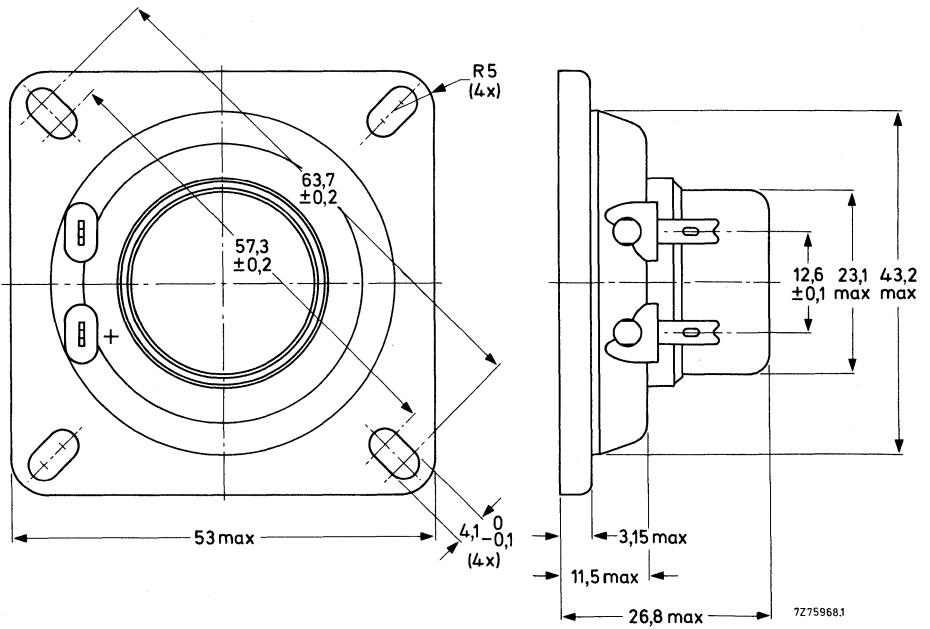


Fig. 1b Square flange type AD2296/T.

One tag is indicated by + sign for in-phase connection.

**AVAILABLE VERSIONS**

**Round flange type** (Fig. 1a)

AD2096/T4, catalogue number 2422 256 32321  
AD2096/T8, catalogue number 2422 256 32322  
AD2096/T15, catalogue number 2422 256 32323

**Square flange type** (Fig. 1b)

AD2296/T4, catalogue number 2422 256 32331  
AD2296/T8, catalogue number 2422 256 32332  
AD2296/T15, catalogue number 2422 256 32333

these numbers apply to bulk  
packed loudspeakers, minimum  
packing quantity 100 per unit.

**FREQUENCY RESPONSE CURVE** (see Fig. 2)

Measured in anechoic room at a power of 1,5 W, loudspeaker unmounted.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

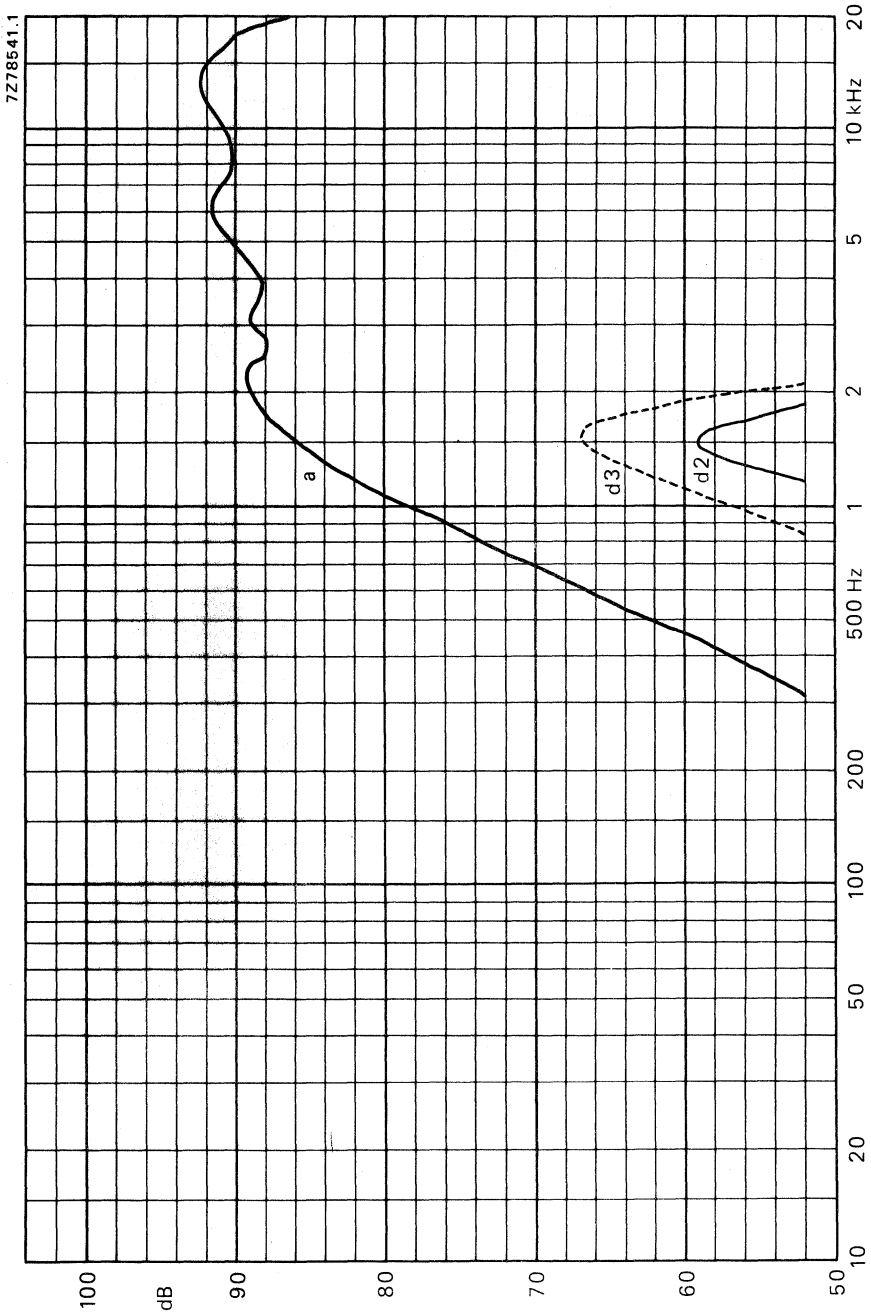


Fig. 2.

## 2 INCH LOW POWER LOUDSPEAKER

### APPLICATION

The absence of magnetic stray field due to steel alloy sinterpot magnet system, makes this loudspeaker suitable for use in portables, intercoms and dictation equipment where very small dimensions are required.

### TECHNICAL DATA

	version		
	Z8	Z15	Z25
Rated impedance	8	15	25 $\Omega$
Voice coil resistance	7,1	13,5	19,8 $\Omega$
Rated frequency range	300 to 4000		Hz
Resonance frequency	420		Hz
Power handling capacity, loudspeaker unmounted, measured without filter	500		mW
Operating power (sound level 74 dB, 0,5 m)	37		mW
Sweep voltage (frequency range: 300 to 10 000 Hz)	1,4	1,9	2,5 V
Energy in air gap	5,3		mJ
Flux density	0,5		T
Air-gap height	2,5		mm
Voice coil height	1,7	2,1	2,3 mm
Core diameter	10		mm
Magnet material	steel alloy		
diameter	10		mm
mass	0,006		kg
Mass of loudspeaker	0,021		kg

The loudspeaker has a paper cone and surround. Connection to the loudspeaker by soldering.

Dimensions in mm

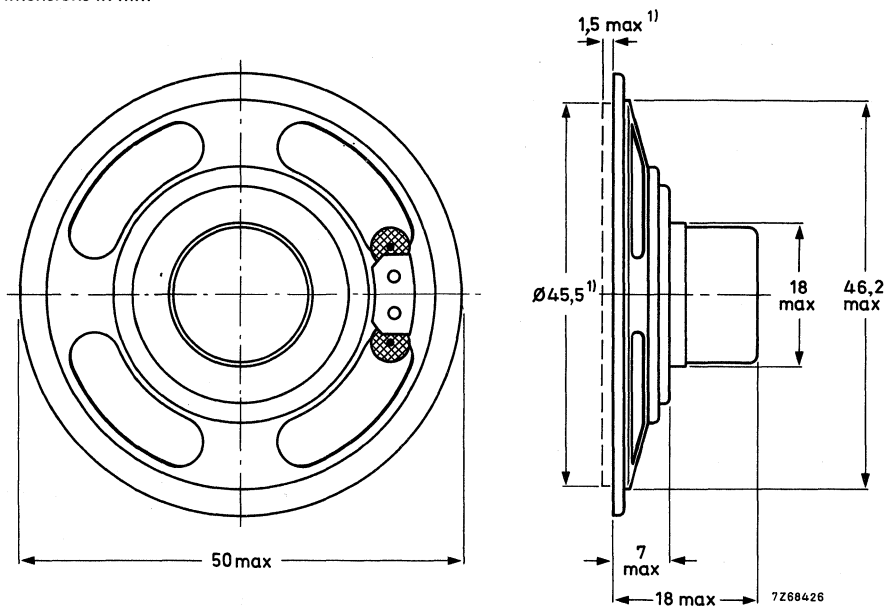


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

AD2099/Z25, catalogue number 2422 256 22221

AD2099/Z15, catalogue number 2422 256 22222

AD2099/Z8, catalogue number 2422 256 22223

these numbers apply to bulk packed loudspeakers, minimum packing quantity 100 per unit.

**FREQUENCY RESPONSE CURVE (Fig. 2)**

Sound pressure measured in anechoic room, loudspeaker mounted on IEC baffle. Above 1000 Hz the sensitivity may be, over the width of one octave, maximum 2 dB lower than indicated. Input power 50 mW.

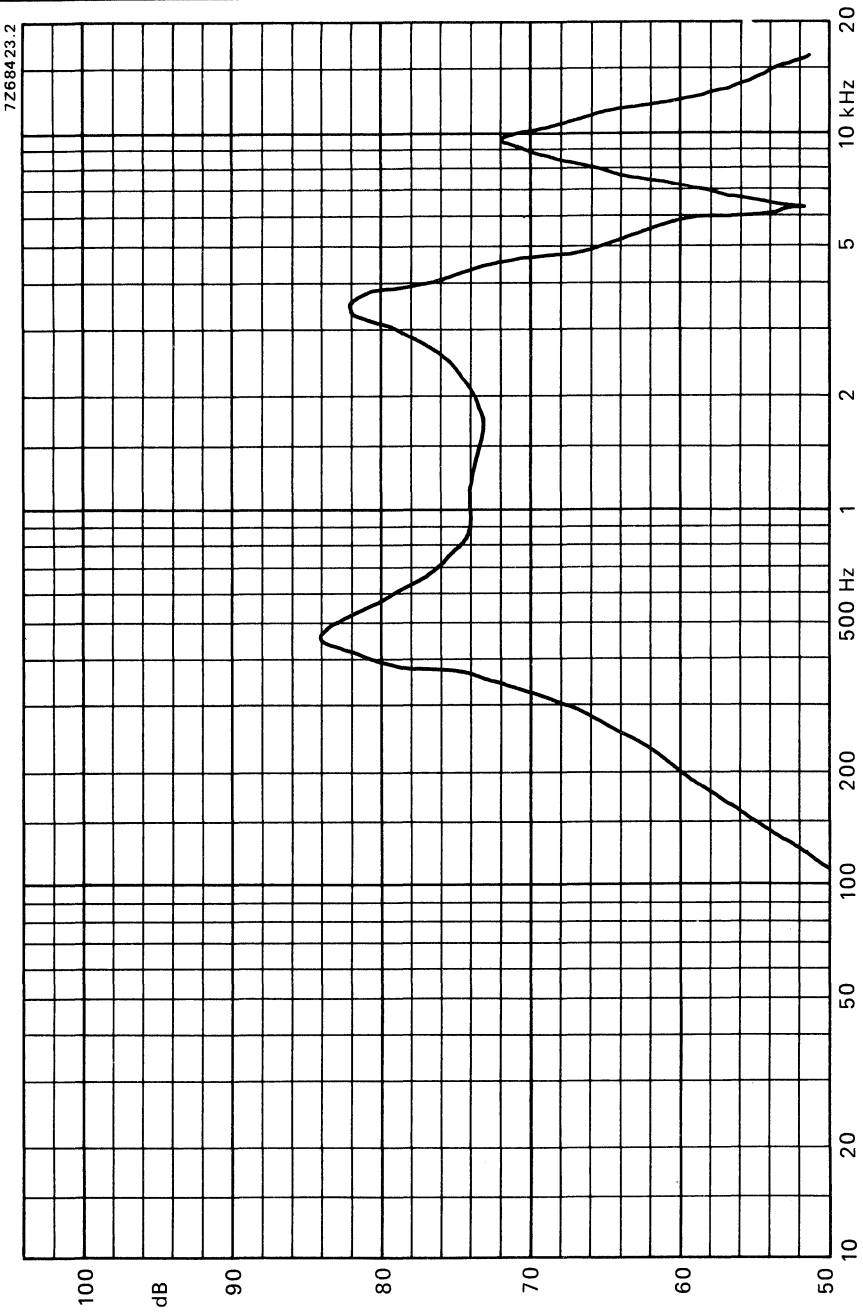


Fig. 2.





## 2¼ INCH HIGH POWER TWEETER LOUDSPEAKERS

### APPLICATION

For acoustic enclosures. Type AD2274/T. is also very suitable for television sets because this type is provided with a magnetic shield.

### TECHNICAL DATA

	versions	
	T4	T8
Rated impedance	4	8 Ω
Voice coil resistance	3,5	7,1 Ω
Rated frequency range	1500 to 15 000 Hz	
Resonance frequency	1000	Hz
Power handling capacity, measured with a series capacitor of 5 μF and a signal acc. DIN 45573 cross-over frequency 2400 Hz loudspeaker unmounted	10	W
Sweep voltage (700 to 15 000 Hz)	1,4	2 V
Energy in air gap	12,7	mJ
Flux density	740	T
Air-gap height	2,5	mm
Voice coil height	2,7	2,2 mm
Core diameter	10	mm
Magnet material	ceramic	
square	28,5	mm ←
mass	0,018	kg
Mass of loudspeaker	0,07	kg

The loudspeakers have a paper cone and surround. Connection to the loudspeakers by means of 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions (mm)

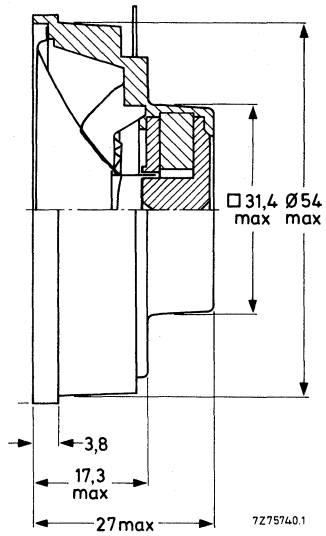
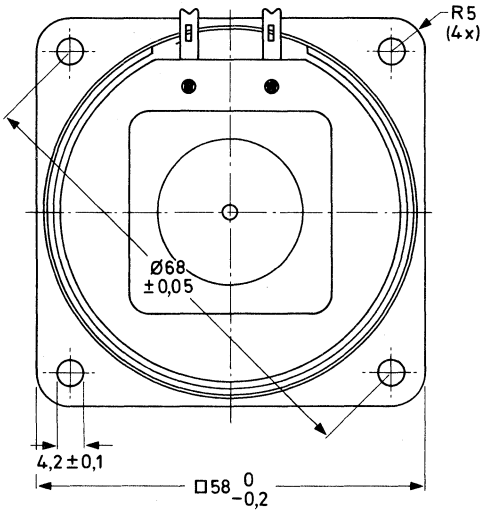


Fig. 1.

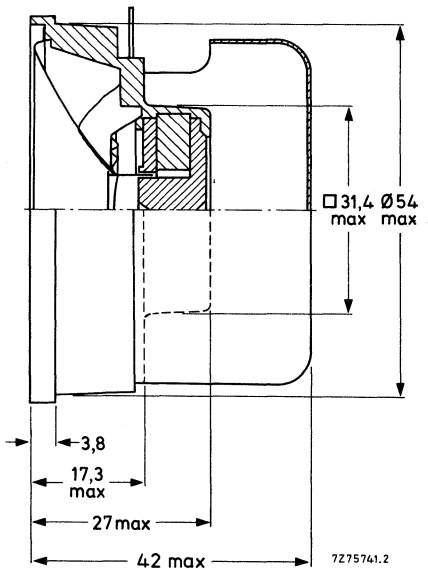
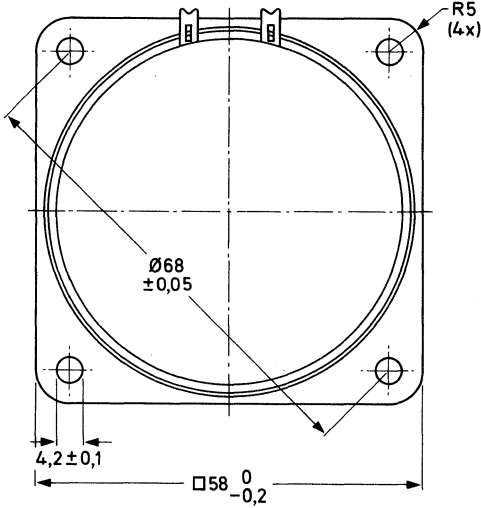


Fig. 2.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

**Without magnetic shield, Fig: 1**

AD2273/T4, catalogue number 2403 257 22121

AD2273/T8, catalogue number 2403 257 22122

**With magnetic shield, Fig: 2**

AD2274/T4, catalogue number 2403 257 22221

AD2274/T8, catalogue number 2403 257 22222

these numbers apply to bulk  
packed loudspeakers, minimum  
packing quantity 50 per unit.

**RESPONSE CURVES**

Input power 50 mW.

Sound pressure measured in anechoic room, loudspeaker unmounted.

Fig. 3 Directional curve at 10 000 Hz.

Fig. 4 Frequency response curve. Over the width of one octave, the characteristic may be maximum 2 dB lower than indicated.

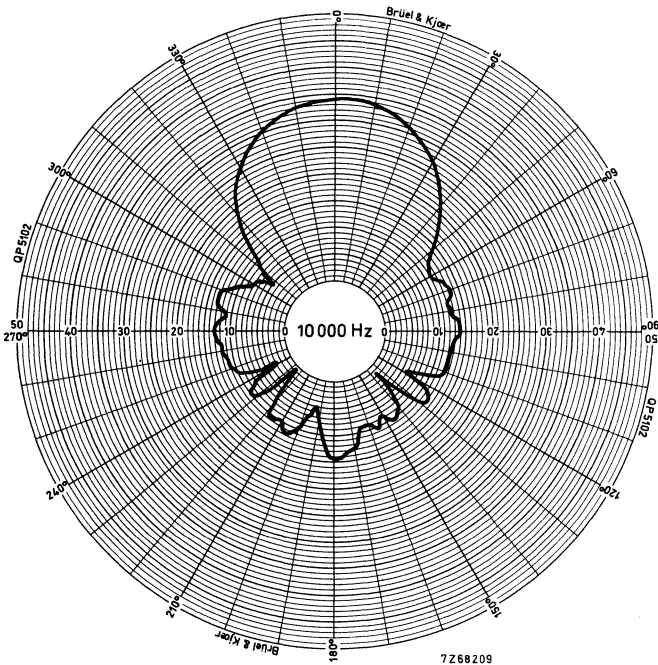


Fig. 3.

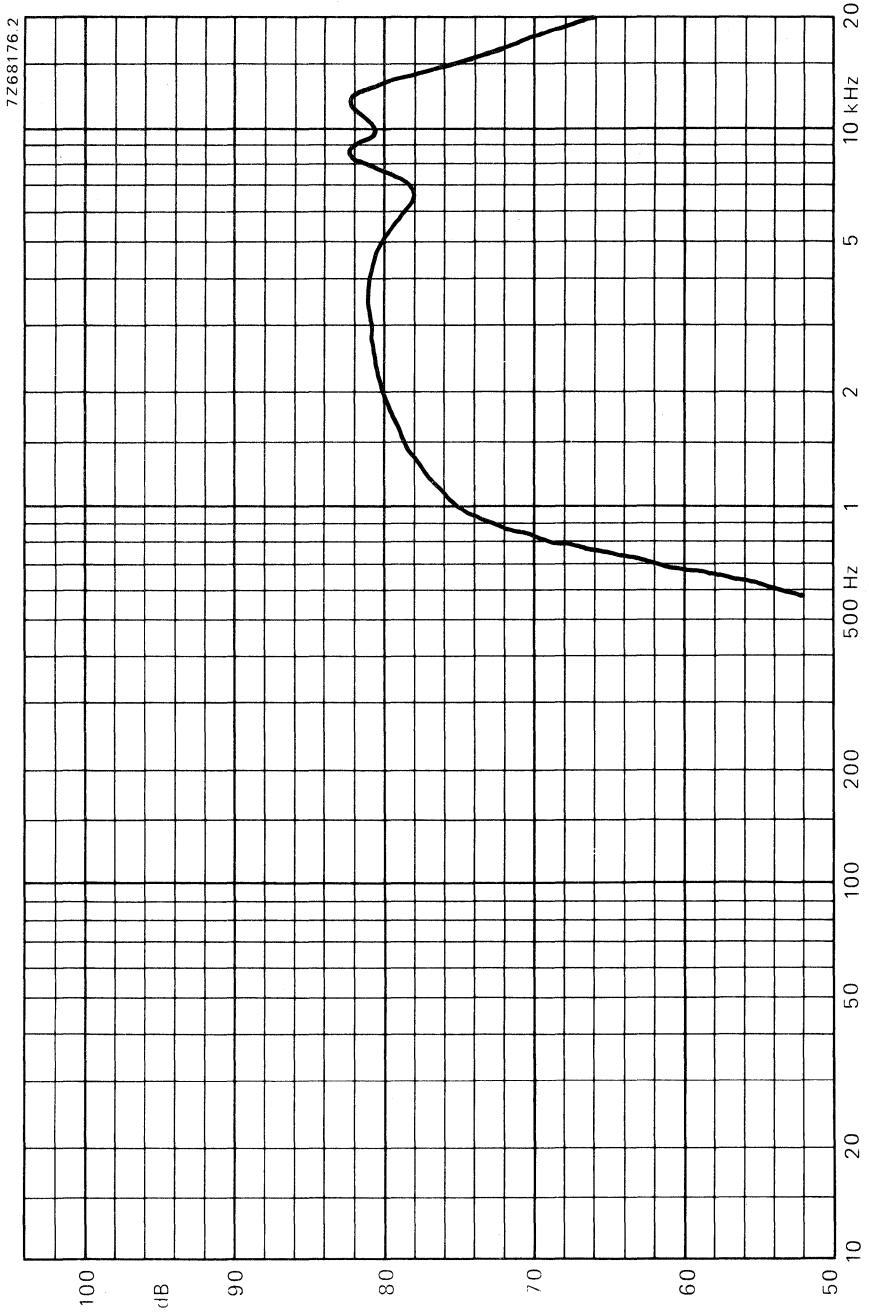


Fig. 4.

## 2 INCH LOW POWER LOUDSPEAKERS

### APPLICATION

For portable receivers and intercoms.

### TECHNICAL DATA

	version					
	Y4	Y8	Y15	Y25	Y50	Y150
Rated impedance	4	8	15	25	50	150 $\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8	45	127 $\Omega$
Rated frequency range	100 to 6000					Hz
Resonance frequency	250					Hz
Power handling capacity, loudspeaker unmounted, measured without filter	2					W
Operating power (sound level 90 dB, 0,5 m)	0,6					W
Sweep voltage (frequency range 170 to 15 000 Hz)	2	2,8	3,9	5	7,1	12,2 V
Energy in air gap	12,7					mJ
Flux density	0,74					T
Air-gap height	2,5					mm
Voice coil height	2,7	2,2	3,0	3,6	4,7	3,5 mm
Core diameter	10					mm
Magnet material	ceramic					
square	28,5					mm
mass	0,018					kg
Mass of loudspeaker	0,059					kg

The loudspeakers have a plastic frame, and a paper cone and surround. Type AD3371/Y. is provided with 4 mounting ears (dotted in Fig. 1). Connection to the loudspeakers by means of 2,8 mm (0,11 inch) tag connectors or by soldering.

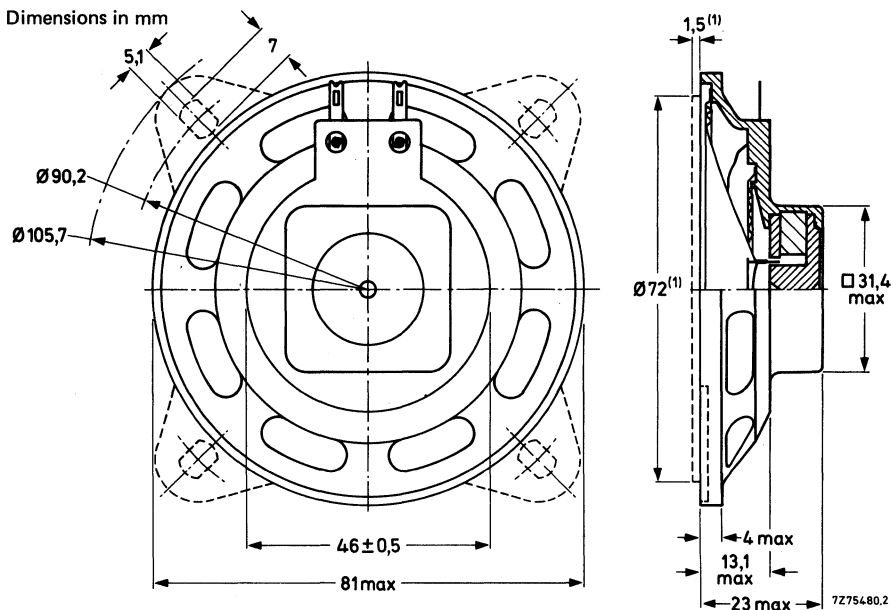


Fig. 1 Dotted mounting ears for type AD3371/Y.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by a red mark for in-phase connection.

#### AVAILABLE VERSIONS

AD3071/Y4,	catalogue number 2403 257 23621
AD3071/Y8,	catalogue number 2403 257 23622
AD3071/Y15,	catalogue number 2403 257 23623
AD3071/Y25,	catalogue number 2403 257 23624
AD3071/Y50,	catalogue number 2403 257 23625
AD3071/Y150,	catalogue number 2403 257 23626
AD3371/Y4,	catalogue number 2403 257 23521
AD3371/Y8,	catalogue number 2403 257 23522
AD3371/Y15,	catalogue number 2403 257 23523
AD3371/Y25,	catalogue number 2403 257 23524
AD3371/Y50,	catalogue number 2403 257 23525
AD3371/Y150,	catalogue number 2403 257 23526

these numbers apply to bulk packed loudspeakers, minimum packing quantity 50 per unit.

#### FREQUENCY RESPONSE CURVE (see Fig. 2)

Sound pressure measured in anechoic room, loudspeaker mounted on IEC baffle.

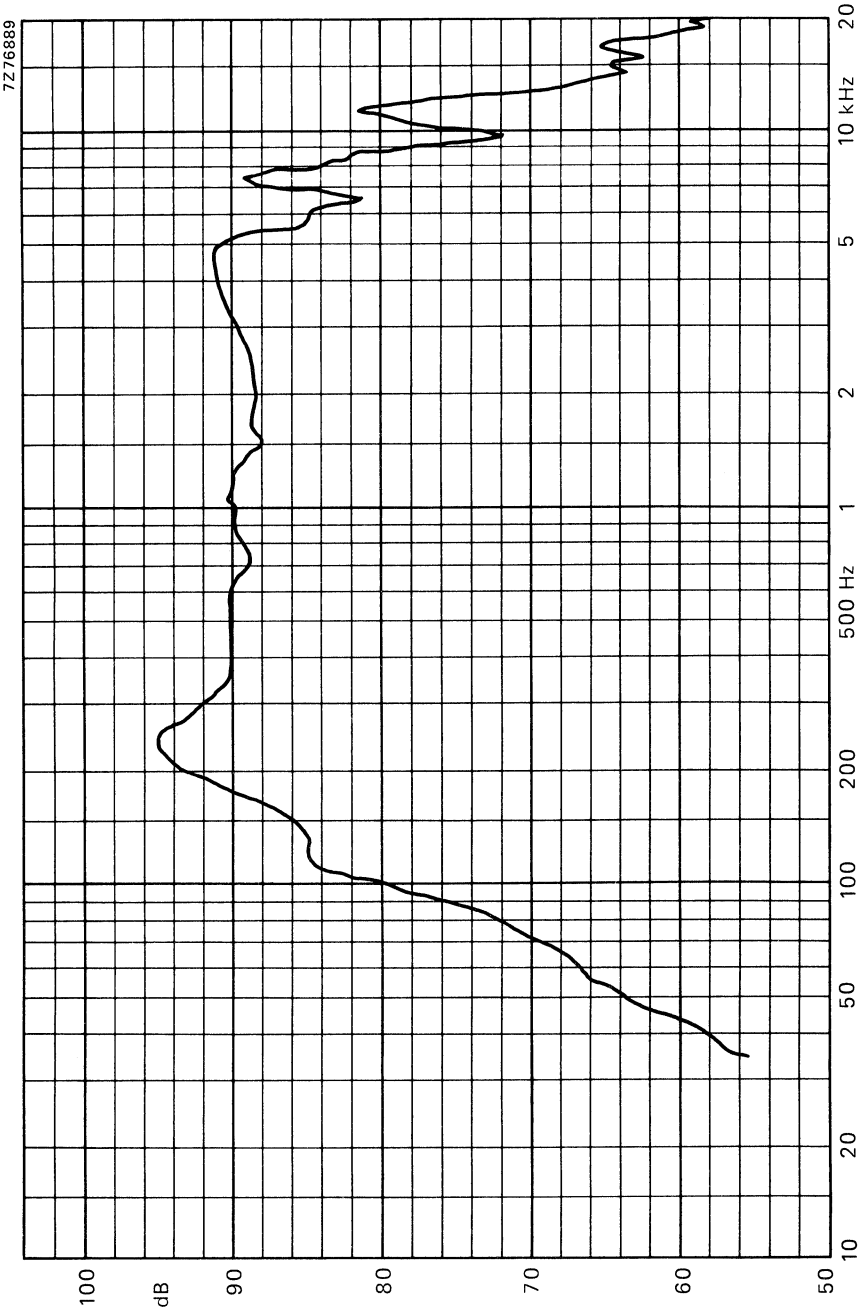


Fig. 2.



### 3 INCH MEDIUM POWER LOUDSPEAKERS

#### APPLICATION

Mainly for use with car radios.

#### TECHNICAL DATA

Rated impedance	4 $\Omega$
Voice coil resistance	3,4 $\Omega$
Rated frequency range	100 to 12 000 Hz
Resonance frequency	170 Hz
Power handling capacity, measured without filter unmounted	6 W
Operating power (sound level 90 dB, 1 m)	1,2 W
Sweep voltage, frequency range: 70 to 20 000 Hz	3,5 V
Energy in air gap	55 mJ
Flux density	1 T
Air-gap height	3 mm
Voice coil height	4,4 mm
Core diameter	18 mm
Magnet material	ceramic
diameter	53 mm
mass	0,1 kg
Mass of loudspeaker	0,22 kg

The loudspeakers have a paper dual cone and a textile surround. Connection to the loudspeakers by means of tag connectors or by soldering.

#### AVAILABLE VERSION

AD3080/M4 catalogue number 2422 257 34537

} this number applies to bulk-packed loudspeakers, minimum packing quantity 45 per unit.

#### FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room at the operating power, loudspeaker mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

Dimensions in mm

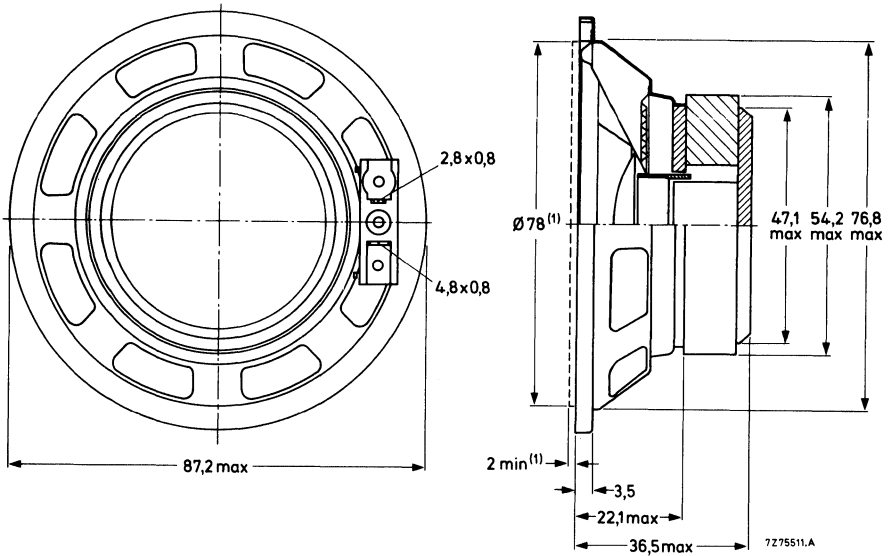


Fig. 1.

(1) Baffle hole and ( $\phi 78$  mm) and clearance depth (2 mm) required for cone movement at the specified power handling capacity.

The 4,8 mm (0,19 inch) tag should be used for in-phase connection.

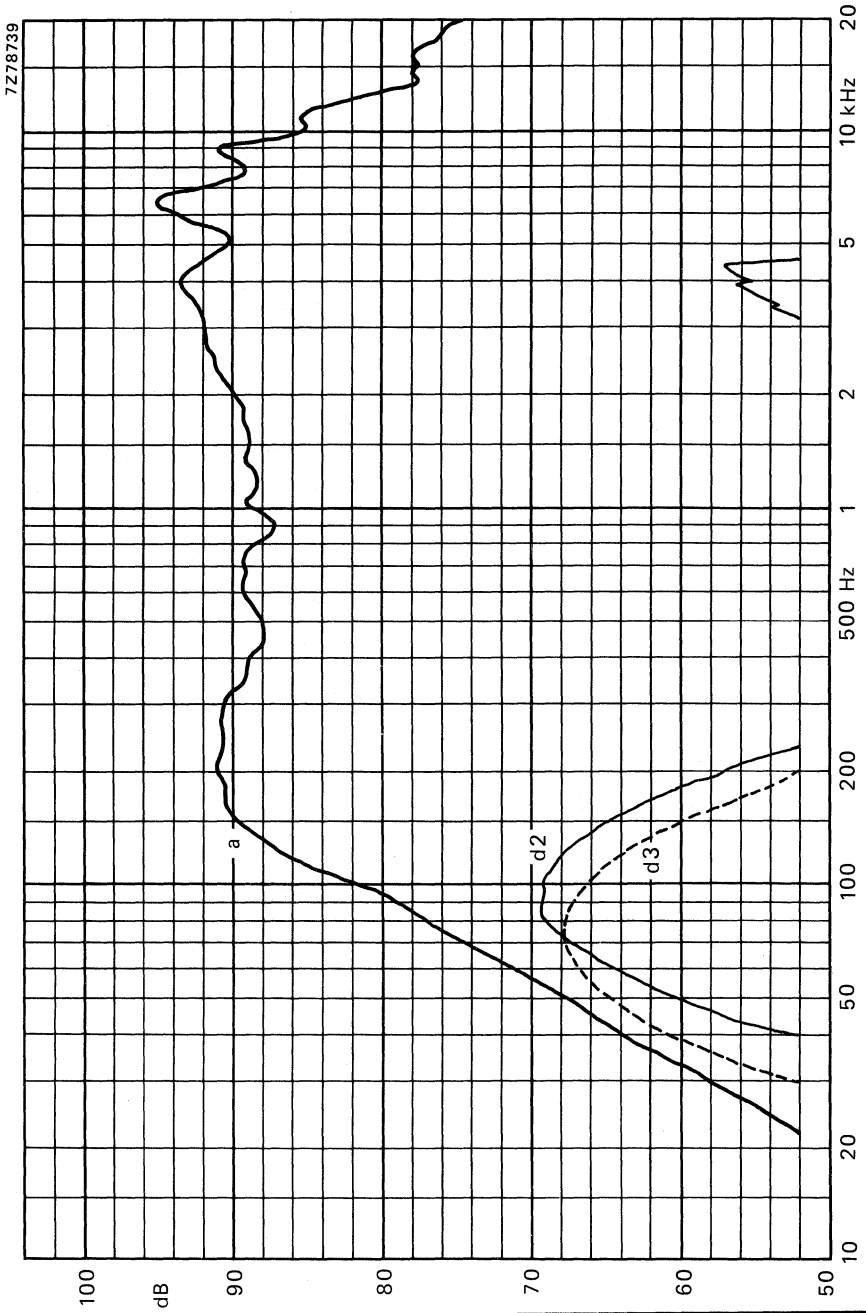


Fig. 2.

## 3 INCH MEDIUM POWER LOUDSPEAKER

### APPLICATION

Mainly for use with car radios.

### TECHNICAL DATA

Rated impedance	4 $\Omega$
Voice coil resistance	3,4 $\Omega$
Rated frequency range	35 to 15 000 Hz
Resonance frequency	85 Hz
Power handling capacity, measured without filter	
unmounted	6 W
mounted in 1 l sealed enclosure	10 W
Operating power (sound level 90 dB, 1 m)	2,5 W
Sweep voltage, frequency range: 45 to 20 000 Hz	3,5 V
Energy in air gap	55 mJ
Flux density	1 T
Air-gap height	3 mm
Voice coil height	4,4 mm
Core diameter	18 mm
Magnet material	ceramic
diameter	53 mm
mass	0,1 kg
Mass of loudspeaker	0,22 kg

The loudspeaker has a paper cone and a textile surround. Connection to the loudspeaker by means of a 4,8 mm (0,19 inch) and a 2,8 mm (0,11 inch) tag connector or by soldering.

Dimensions in mm

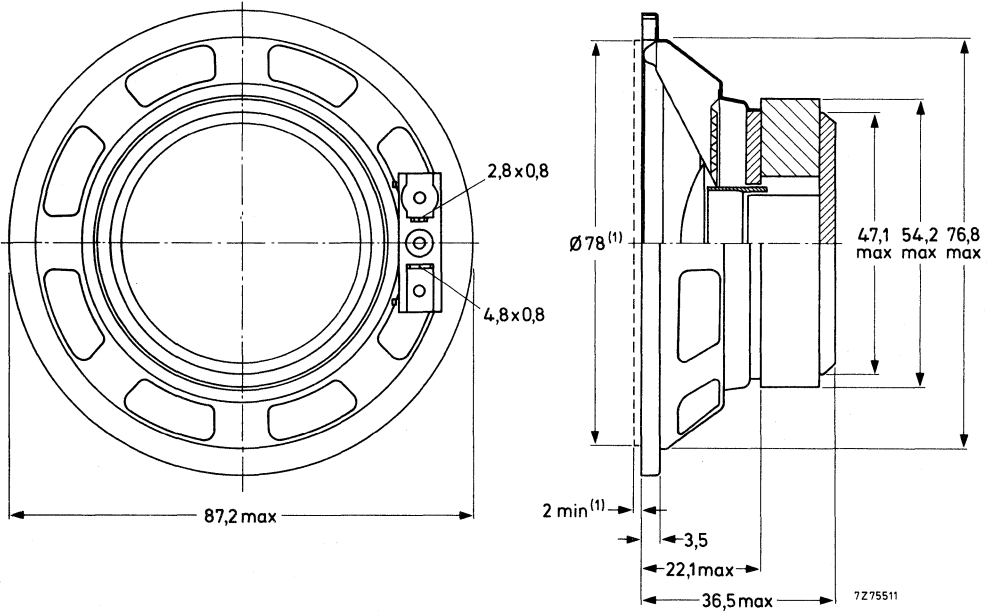


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

The 4,8 mm (0,19 inch) tag should be used for in-phase connection.

**AVAILABLE VERSION**

AD 3080/X4 catalogue number 2422 257 34538, this number applies to bulk-packed loudspeakers, minimum packing quantity 45 per unit.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

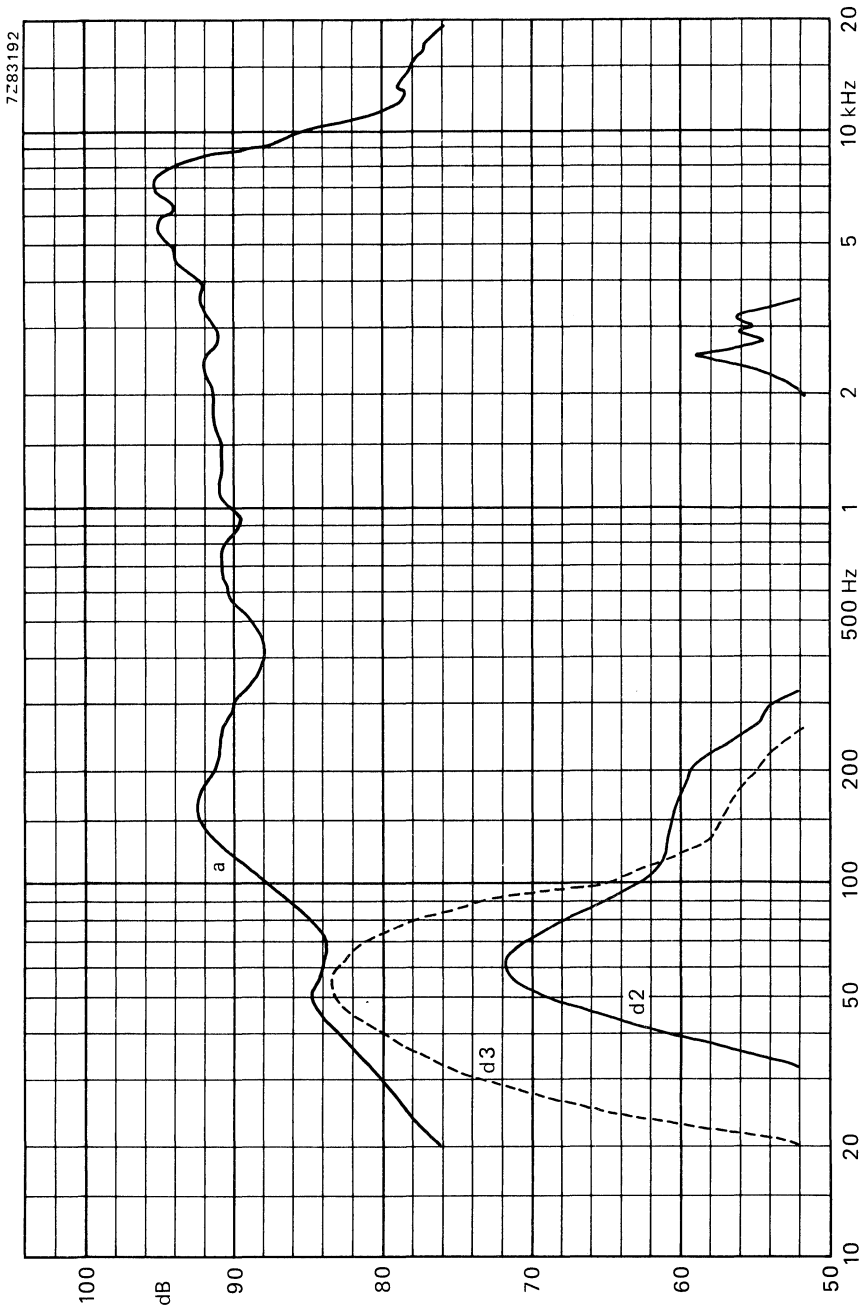


Fig. 2.



## 4 INCH HIGH POWER WOOFER LOUDSPEAKER

### APPLICATION

For use in bass reflex enclosures of maximum 5 litres.

### TECHNICAL DATA

	version	
	W4	W8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,8	6,7 $\Omega$
Rated frequency range	50 to 11 000 Hz	
Resonance frequency	68 Hz	
Power handling capacity measured without filter,		
mounted in 2 l sealed enclosure	30	W
mounted in 5 l bass reflex enclosure	15	W
Operating power	12	W
Sweep voltage, frequency range: 50 to 20 000 Hz	5,5	7,7 V
Energy in air gap	140	mJ
Flux density	0,93	T
Air-gap height	5	mm
Voice coil height	10	mm
Core diameter	25	mm
Magnet material	ceramic	
diameter	72	mm
mass	0,26	kg
Mass of loudspeaker	0,62	kg

The loudspeaker has a paper cone, a rubber surround, and a sealing strip at the rear of the gasket. Connection to the loudspeaker by means of 2,8 mm (0,11 inch) tag connectors or by soldering.



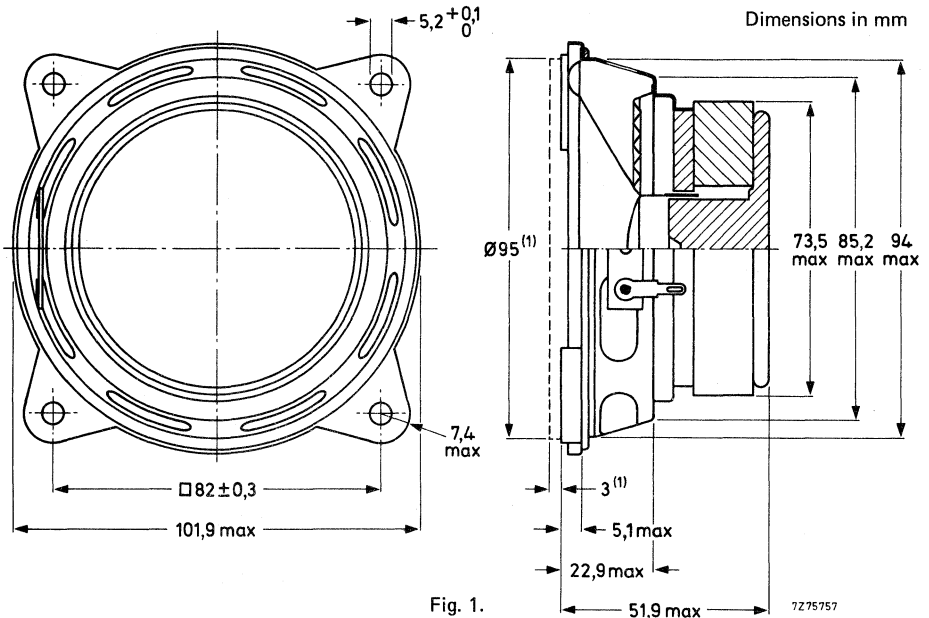


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

AD4060/W4, catalogue number 2422 257 34621  
 AD4060/W8, catalogue number 2422 257 34622

these numbers apply to bulk packed loudspeakers, minimum packing quantity 32 per unit.

**FREQUENCY RESPONSE CURVES** (See Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted on IEC baffle acc. to IEC 268-5 par. 4-4.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

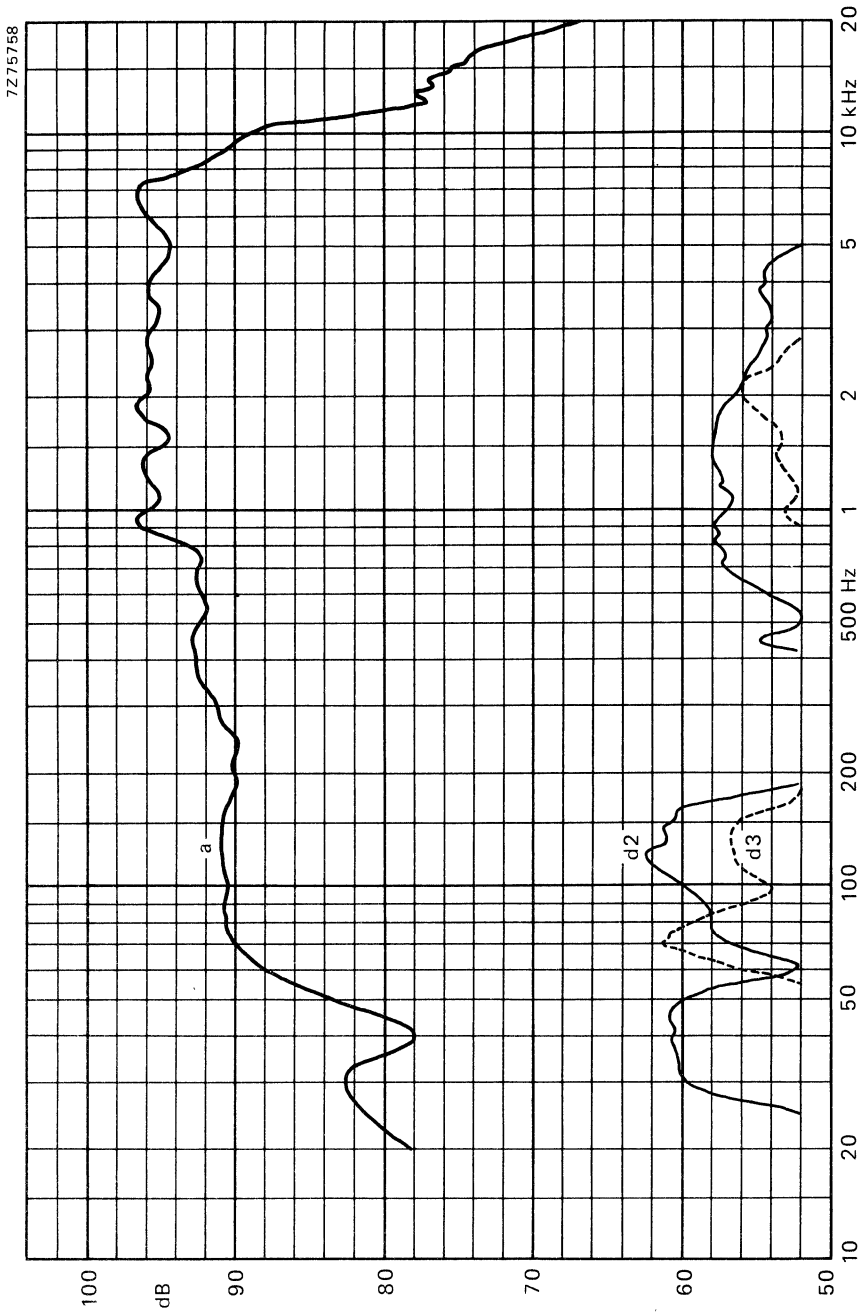


Fig. 2.



## 4 INCH LOW POWER LOUDSPEAKERS

### APPLICATION

For portable receivers and intercoms.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8 $\Omega$
Rated frequency range	80 to 15 000			Hz
Resonance frequency	170			Hz
Power handling capacity, loudspeaker unmounted, measured without filter	3			W
Operating power (sound level 90 dB, 0,5 m)	0,45			W
Sweep voltage (frequency range 100 to 20 000 Hz)	2,4	3,5	4,7	6,1 V
Energy in air gap	12,7			mJ
Flux density	0,74			T
Air-gap height	2,5			mm
Voice coil height	2,7	2,2	3,0	3,6 mm
Core diameter	10			mm
Magnet material	ceramic			
square	28,5			mm ←
mass	0,018			kg
Mass of loudspeaker,				
round flange version	0,067			kg
square flange version	0,069			kg

The loudspeakers have a plastic frame, and a paper cone and surround. Connection to the loudspeakers is by means of 2,8 mm (0,11 inch) tag connectors or soldering.

Dimensions in mm

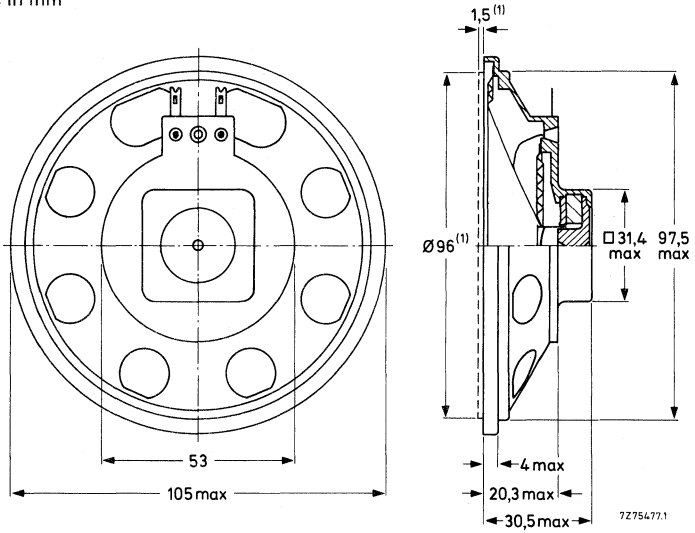


Fig. 1a.

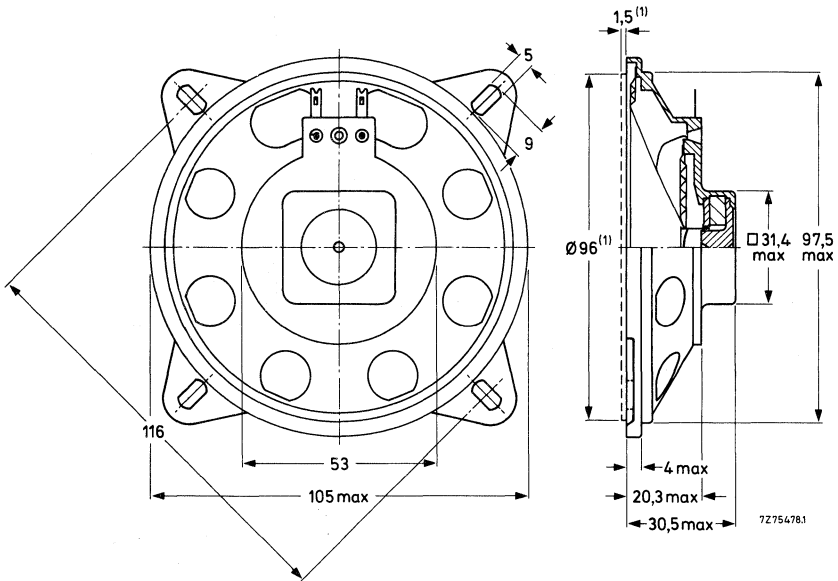


Fig. 1b.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

type according to Fig. 1a.

AD4072/X4, catalogue number 2403 257 24225

AD4072/X8, catalogue number 2403 257 24226

AD4072/X15, catalogue number 2403 257 24227

AD4072/X25, catalogue number 2403 257 24228

type according to Fig. 1b.

AD4472/X4, catalogue number 2403 257 24825

AD4472/X8, catalogue number 2403 257 24826

AD4472/X15, catalogue number 2403 257 24827

AD4472/X25, catalogue number 2403 257 24828

these numbers apply to bulk  
packed loudspeakers, minimum  
packing quantity 50 per unit.

**FREQUENCY RESPONSE CURVE** (see Fig.2)

Sound pressure measured in anechoic room, loudspeaker mounted on IEC baffle.

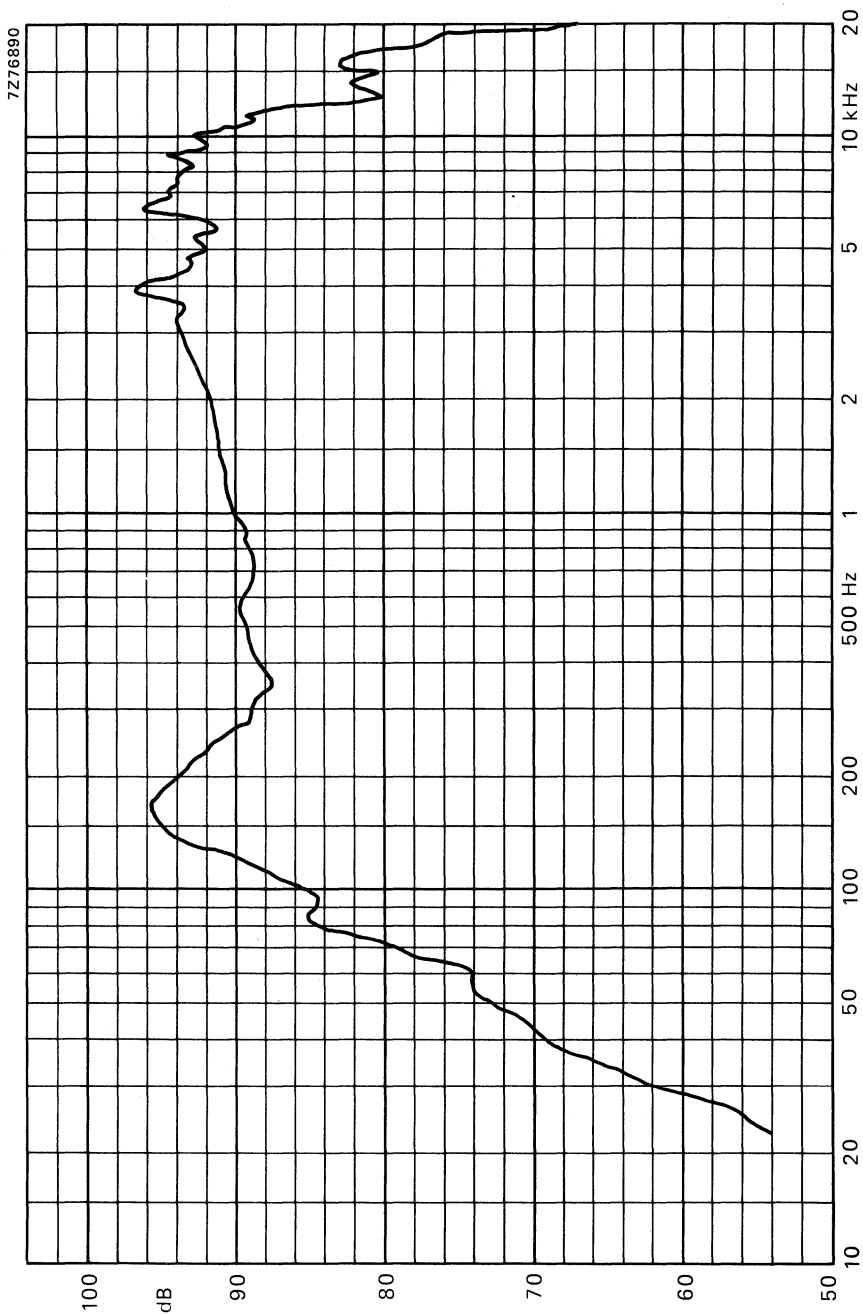


Fig.2.

## 4 INCH LOW POWER LOUDSPEAKERS

### APPLICATION

Very suitable for portable black and white, and colour television sets, because these loudspeakers are provided with a magnetic shield.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8 $\Omega$
Rated frequency range	80 to 15 000			Hz
Resonance frequency	170			Hz
Power handling capacity, loudspeaker unmounted, measured without filter	2,5			W
Operating power (sound level 90 dB, 0,5 m)	0,45			W ←
Sweep voltage (frequency range 100 to 20 000 Hz)	2,4	3,5	4,7	6,1 V
Energy in air gap	12,7			mJ
Flux density	0,74			T
Air-gap height	2,5			mm
Voice coil height	2,7	2,2	3,0	3,6 mm
Core diameter	10			mm
Magnet material	ceramic			
square	28,5			mm ←
mass	0,02			kg
Mass of loudspeaker, round flange version	0,067			kg
square flange version	0,069			kg

The loudspeakers have a plastic frame, and a paper cone and surround. Connection to the loudspeakers is by means of 2,8 mm (0,11 inch) tag connectors or soldering.



AD4074/X.  
AD4474/X.

Dimensions (mm)

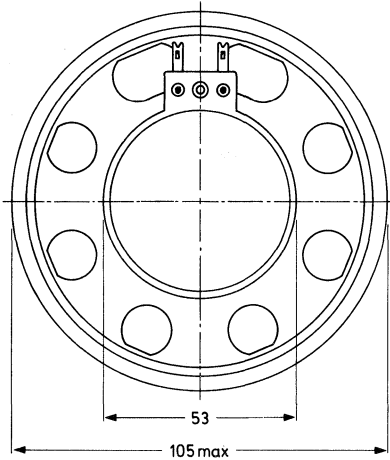


Fig. 1a.

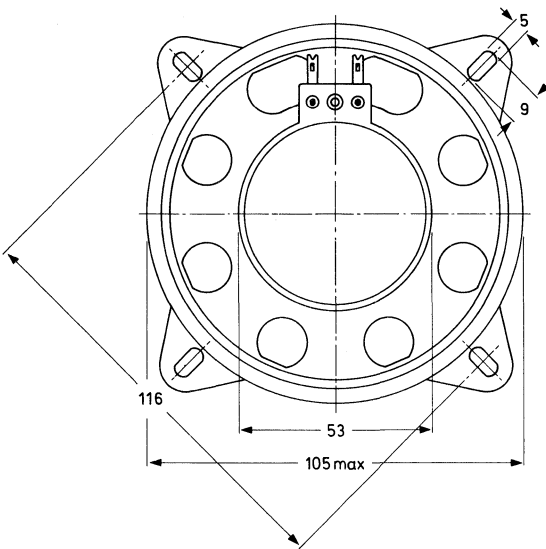
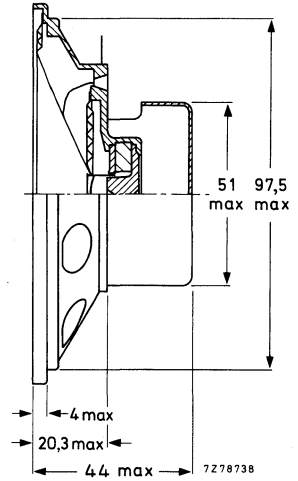
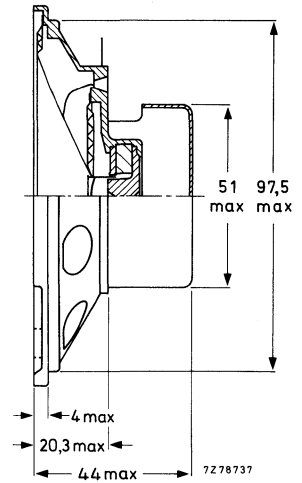


Fig. 1b.



One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

type according to Fig. 1a.

AD4074/X4, catalogue number 2403 257 24325

AD4074/X8, catalogue number 2403 257 24326

AD4074/X15, catalogue number 2403 257 24327

AD4074/X25, catalogue number 2403 257 24328

type according to Fig. 1b.

AD4474/X4, catalogue number 2403 257 24725

AD4474/X8, catalogue number 2403 257 24726

AD4474/X15, catalogue number 2403 257 24727

AD4474/X25, catalogue number 2403 257 24728

these numbers apply to bulk  
packed loudspeakers, minimum  
packing quantity 40 per unit.

**FREQUENCY RESPONSE CURVE** (see Fig. 2)

Sound pressure measured in anechoic room, loudspeaker mounted on IEC baffle.

AD4074/X.  
AD4474/X.

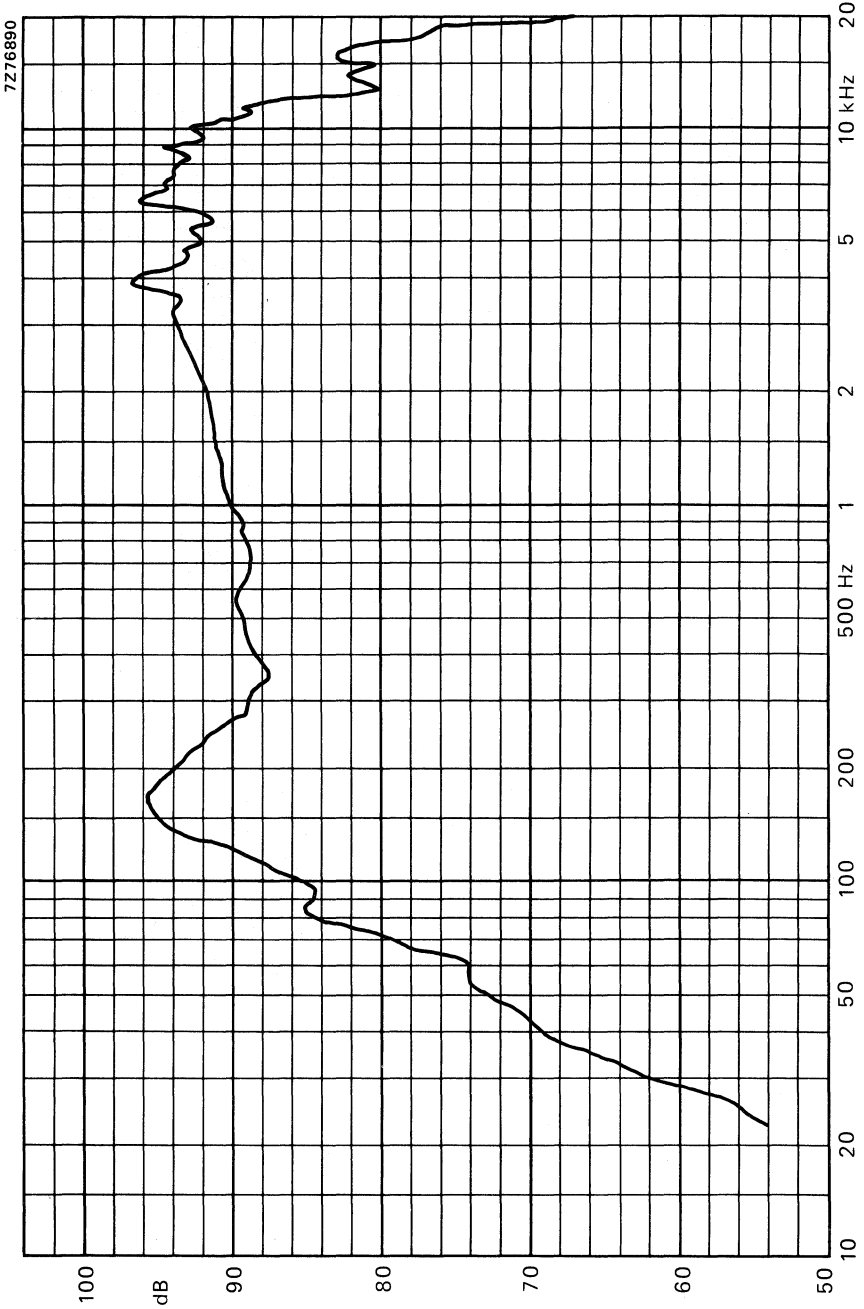


Fig. 2.

## 5 INCH HIGH POWER FULL RANGE LOUDSPEAKER

### APPLICATION

A full range loudspeaker for small sealed enclosures of maximum 7 litres and also suitable for use in bookshelves enclosures.

Extended frequency response 75 Hz – 20 kHz in 7 litres enclosures.

### TECHNICAL DATA

	version	
	M4	M8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,2	7 $\Omega$
Rated frequency range	75 to 20 000 Hz	
Resonance frequency	85	Hz
Power handling capacity measured without filter, loudspeaker unmounted	10	W
mounted in 7 l sealed enclosure	15	W
Operating power	2	3 W
Sweep voltage	3,2	4,5 V
Energy in air gap	127	mJ
Flux density	0,87	T
Air-gap height	5	mm
Voice coil height	6	6,6 mm
Core diameter	25	mm
Magnet material	ceramic	
diameter	72	mm ←
mass	0,26	kg
Mass of loudspeaker	0,6	kg

The loudspeaker has a paper cone, a textile surround and a foam plastic gasket on the flange.  
Connection to the loudspeaker by means of 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

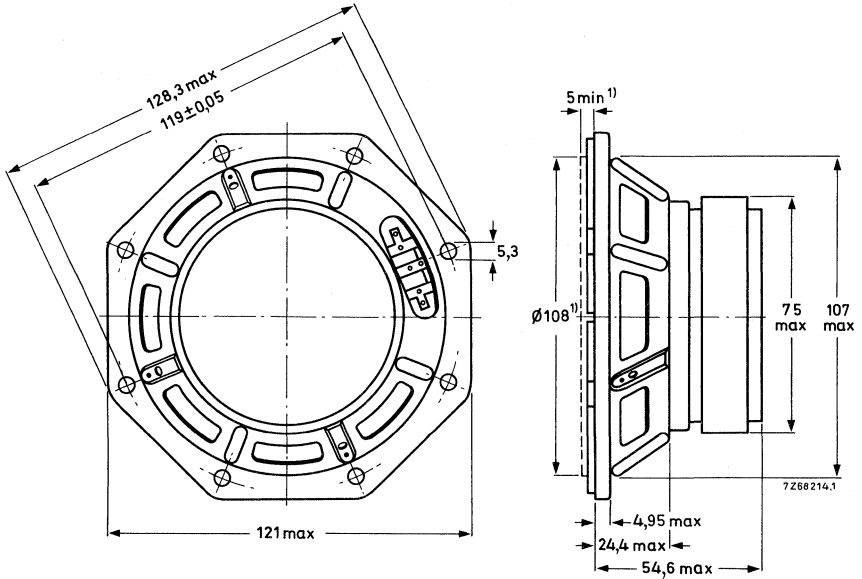


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

AD5061/M4, catalogue number 2422 257 35531  
 AD5061/M8, catalogue number 2422 257 35532

} these numbers apply to bulk packed loudspeakers, minimum packing quantity 32 per unit.

**FREQUENCY RESPONSE CURVE** (See Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

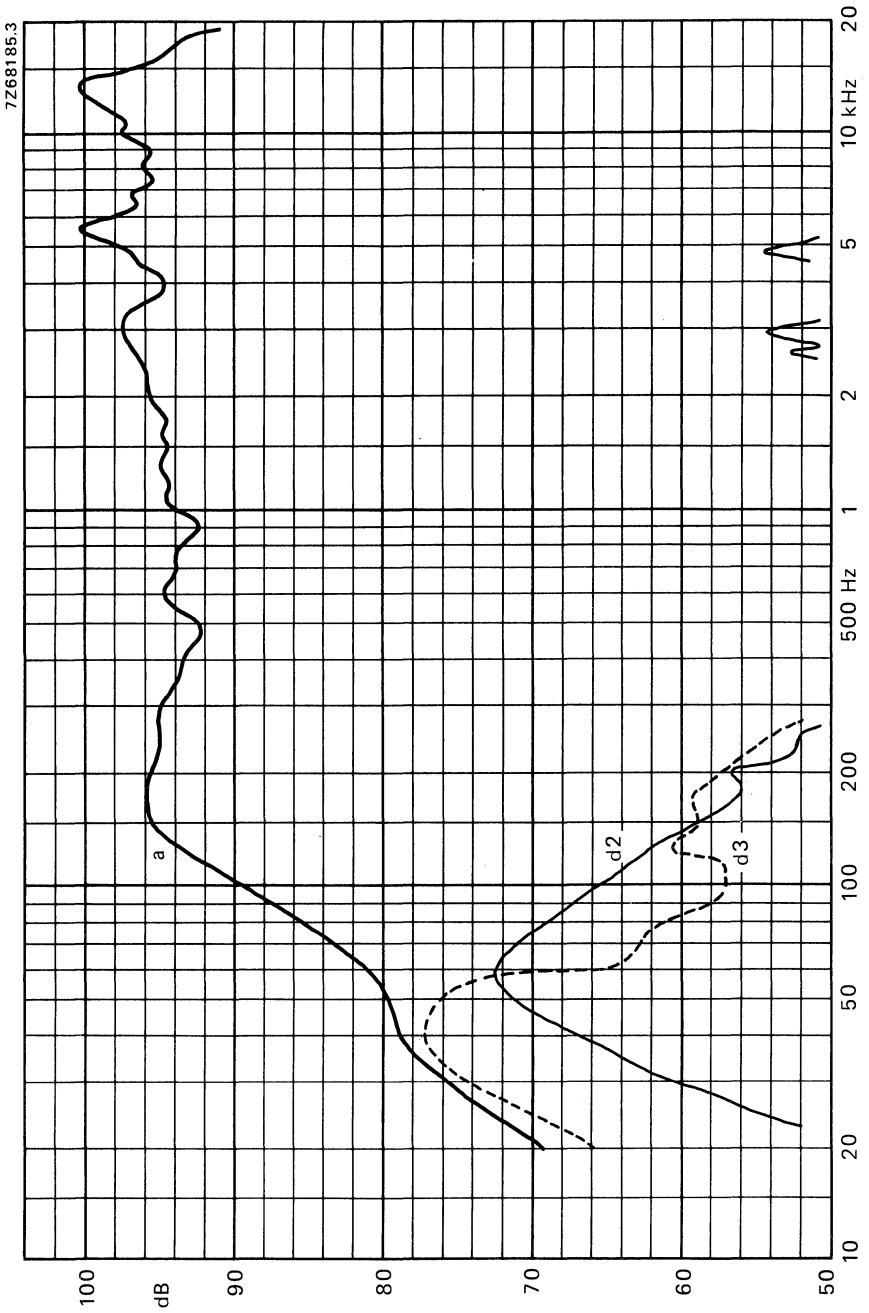


Fig. 2.

## 5inch WOOFER LOUDSPEAKER

## TECHNICAL DATA

	version	
	W4	W8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,2	7 $\Omega$
Resonance frequency	65	Hz
Power handling capacity, measured without filter, loudspeaker unmounted	20	W
Maximum power on loudspeaker	40	W
Operating power (sound level 96 dB, 1 m)	8	W
Sweep voltage (30 to 4000 Hz)	3,5	5 V
Filter	none	
Energy in air gap	140	mJ
Flux density	0,93	T
Force factor (B x l) at 1 A	3,8	5 Wb/m
Total moving mass	$6 \cdot 10^{-3}$	kg
Compliance, loudspeaker unmounted	$1,25 \cdot 10^{-3}$	m/N
Air-gap height	5	mm
Voice coil height	7	mm
Coil diameter	25	mm
Magnet material	ceramic	
→ diameter	72	mm
mass	0,23	kg
Mass of loudspeaker	0,7	kg
Recommended box volume	3	l

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

The loudspeaker has a paper cone and a rubber rim.

Dimensions in mm

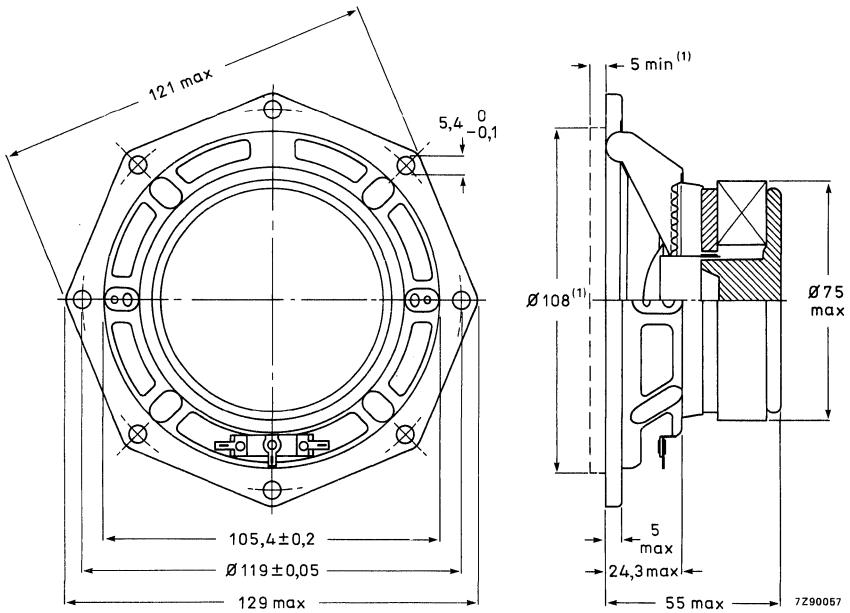


Fig. 1.

(1) Recommended baffle hole ( $\varnothing 108$  mm and clearance depth (5 mm) are required for cone movement at the specified power handling capacity.

One tag has a red mark to facilitate phase matching.

#### AVAILABLE VERSIONS

AD5062/W4 catalogue number 2422 257 35323 } These loudspeakers are for bulk-packed loudspeakers.  
 AD5062/W8 catalogue number 2422 257 35324 }

#### FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure

Curves d2 and d3: 2nd and 3rd harmonic distortion.



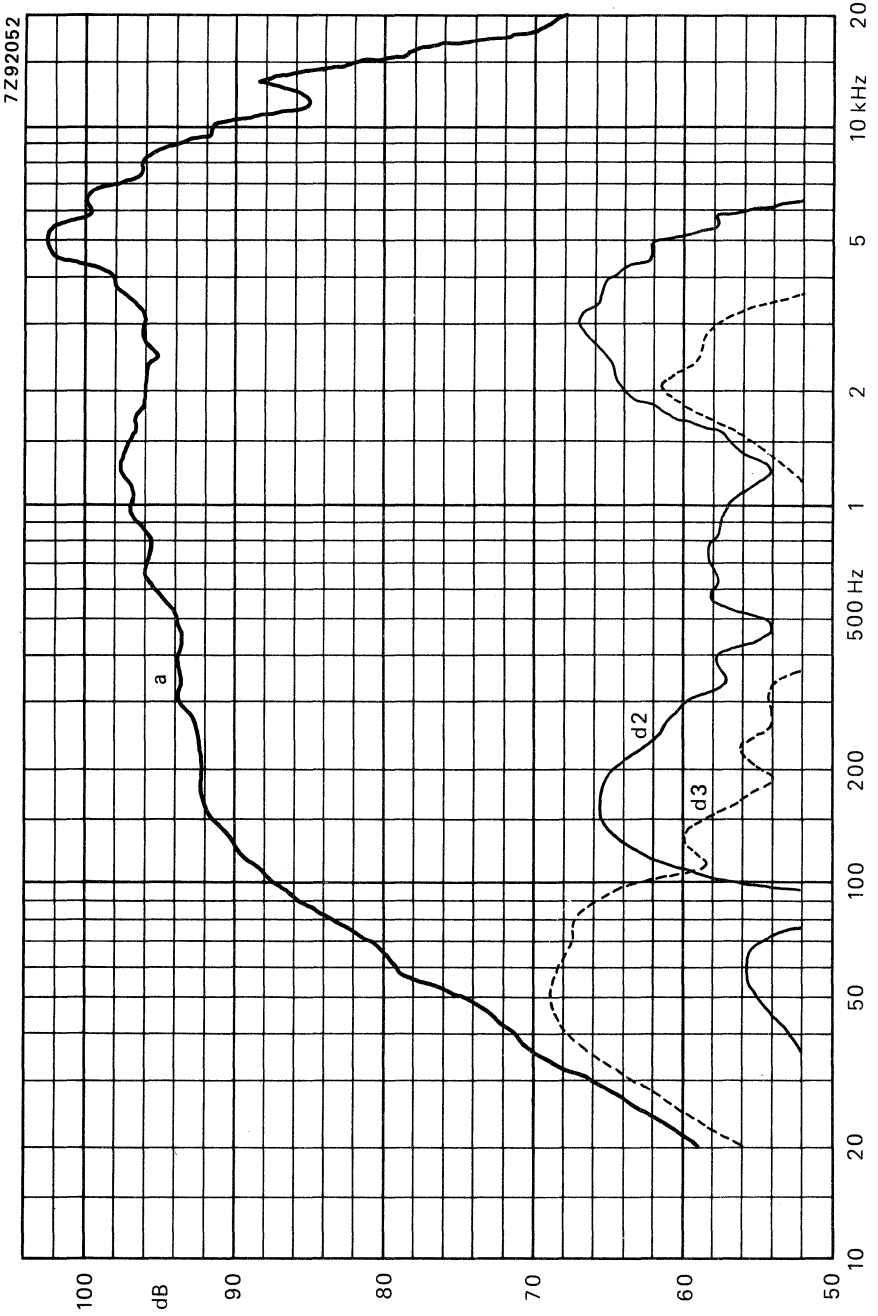


Fig. 2.

## 10 inch HIGH POWER WOOFER LOUDSPEAKER

## TECHNICAL DATA

Rated impedance	8 $\Omega$
Voice coil resistance	6,3 $\Omega$
Resonance frequency	26 Hz
Power handling capacity, measured without filter, loudspeaker mounted in a sealed 35 l box	80 W
Max. power on loudspeaker	150 W
Operating power (sound level 96 dB, 1 m)	7 W
Sweep voltage (20 to 2000 Hz)	10 V
Filter	none
Energy in air gap	508 mJ
Flux density	0,72 T
Force factor (b x l) at 1 A	13 Wb/m
Total moving mass	49 g
Compliance, loudspeaker unmounted	0,8 mm/N
Air-gap height	7 mm
Voice coil height	17 mm
Core diameter	50 mm
Magnet material	ceramic
diameter	121 mm
mass	0,85 kg
Mass of loudspeaker	2,7 kg

Connection is by 2,8 mm (0,11 inch) or by 5,1 mm (0,2 inch) tag connectors or by soldering. The loudspeaker has a paper cone and a foam plastic surround.

Dimensions in mm

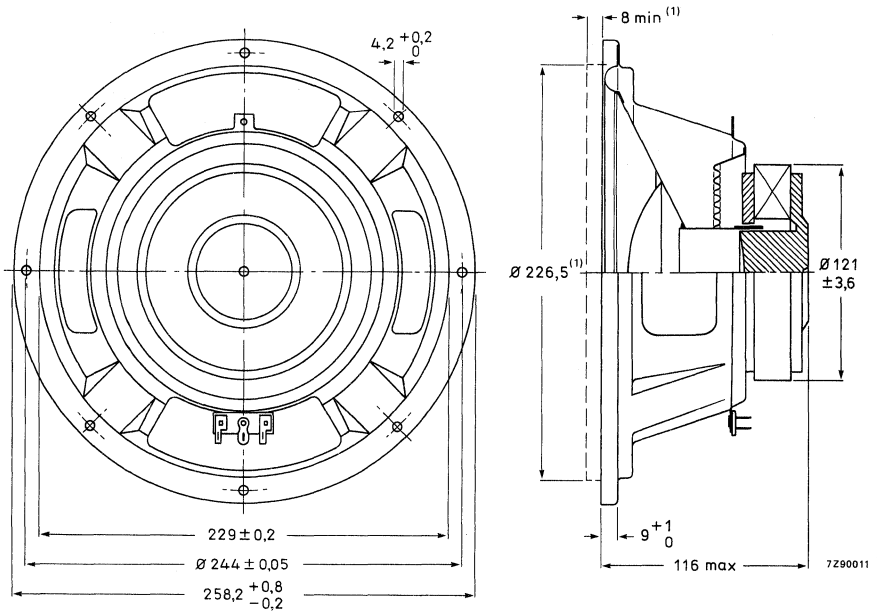


Fig. 1.

(1) Recommended baffle hole ( $\varnothing 226,5$  mm) and clearance depth (8 mm) are required for cone movement at the specified power handling capacity. Recommended box enclosure: 35 l. One tag has a red mark to facilitate phase matching.

#### AVAILABLE VERSION

AD10200/W8 catalogue number 2422 257 31822. This number is for bulk-packed loudspeakers.

#### FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted in a sealed 35 l enclosure.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

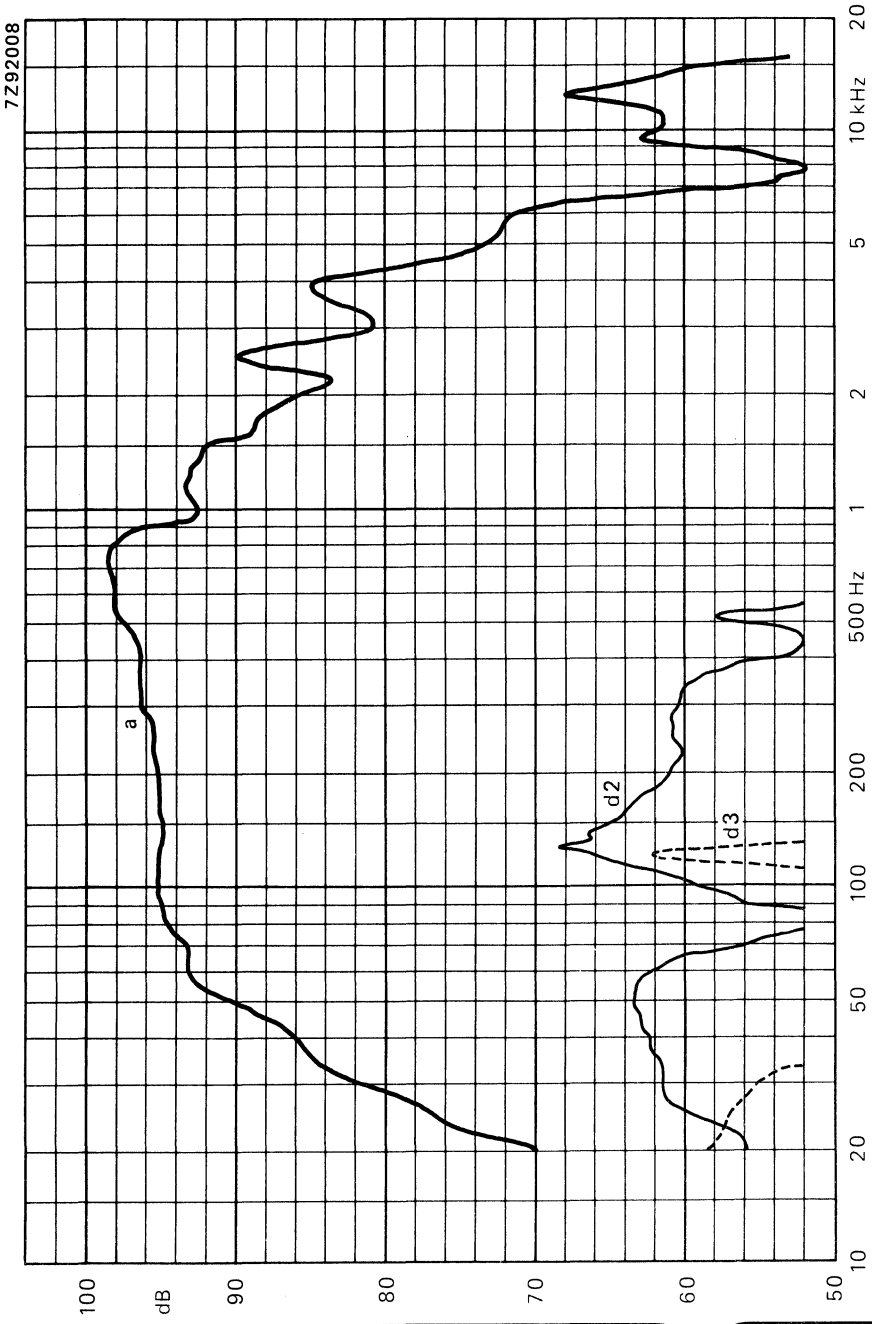


Fig. 2.

## 10 inch HIGH POWER WOOFER LOUDSPEAKER

## TECHNICAL DATA

Rated impedance	8 $\Omega$
Voice coil resistance	6,6 $\Omega$
Rated frequency range	50 to 1000 Hz
Resonance frequency	28 Hz
Power handling capacity, measured without filter, loudspeaker mounted in 35 l sealed box	100 W
Maximum power on loudspeaker	150 W
Operating power (sound level 96 dB, 1 m)	5 W
Sweep voltage (20 to 2000 Hz)	10 V
Filter	none
Energy in air gap	803 mJ
Flux density	1,02 T
Force factor (b x l) at 1 A	13 Wb/m
Total moving mass	38,5 g
Compliance, loudspeaker unmounted	0,89 mm/N
Air-gap height	8 mm
Voice coil height	24 mm
Core diameter	50 mm
Magnet material	ceramic
diameter	134 mm
mass	1,15 kg
Mass of loudspeaker	3,45 kg

Connection is by 2,8 mm (0,11 inch) or by 5,1 mm (0,2 inch) tag connectors or by soldering. The loudspeaker has a paper cone and a foam plastic surround.

Dimensions in mm

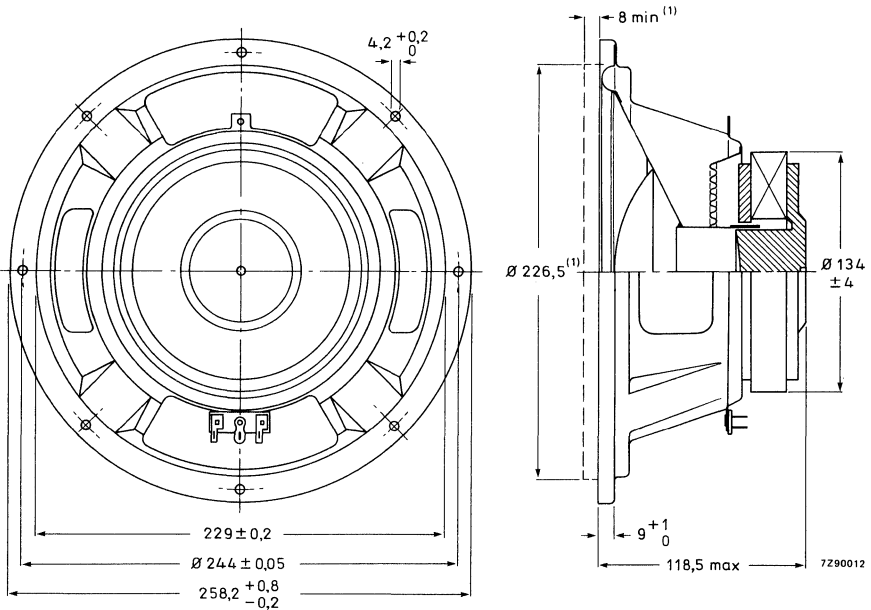


Fig. 1.

(1) Recommended baffle hole ( $\varnothing 226,5$  mm) and clearance depth (8 mm) are required for cone movement at the specified power handling capacity. Recommended box enclosure: 35 l. One tag has a red mark to facilitate phase matching.

#### AVAILABLE VERSION

AD10250/W8 catalogue number 2422 257 31922. This number is for bulk-packed loudspeakers.

#### FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted in a sealed 35 l enclosure.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

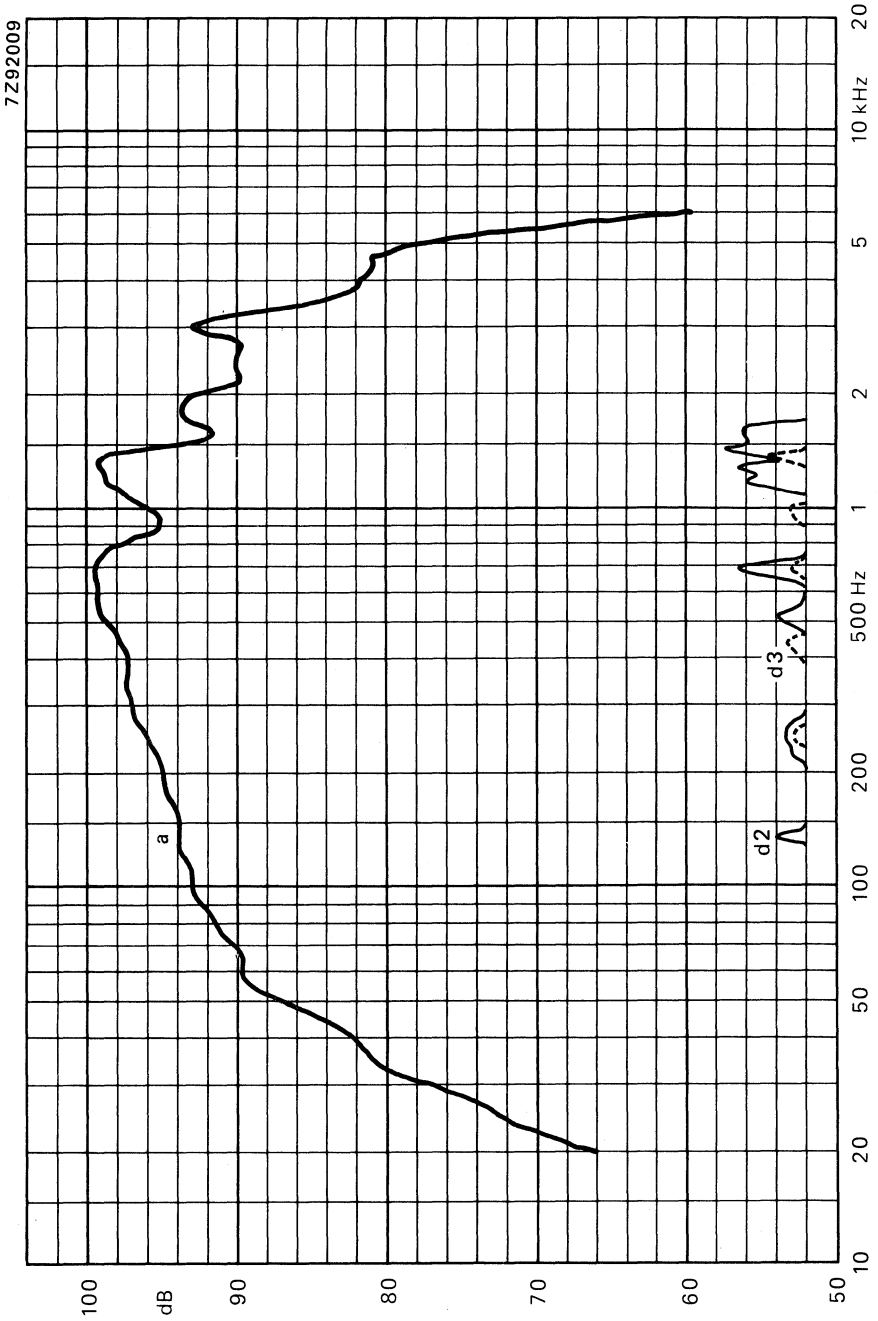


Fig. 2.

## 10 INCH HIGH POWER WOOFER LOUDSPEAKER

### APPLICATION

For high-fidelity bass reproduction in sealed acoustic enclosure. Recommended volume of enclosure 35 litres. The loudspeaker has a very low distortion.

### TECHNICAL DATA

Rated impedance	8 $\Omega$
Voice coil resistance	6,8 $\Omega$
Rated frequency range	55 to 2500 Hz
Resonance frequency	39 Hz
Power handling capacity, mounted in 35 l sealed enclosure, measured without filter	40 W
Maximum power on loudspeaker	60 W
Operating power	5 W
Sweep voltage, frequency range: 20 to 2500 Hz	7 V
Maximum excursion voltage at 20 Hz	8 V
Energy in air gap	123 mJ
Flux density	0,62 T
Force factor (B x l) at 1 A	5,9 Wb/m
Total moving mass	26 g
Compliance, loudspeaker unmounted	0,7 mm/N
Quality factor	
mechanical	8,64
electrical	2,23
total	1,77
Air-gap length	1,9 mm
Air-gap height	5 mm
Voice coil height	12 mm
Core diameter	25 mm
Magnet material	ceramic
diameter	72 mm
mass	0,29 kg
Mass of loudspeaker	1,05 kg

The loudspeaker has a paper cone and a foam plastic surround. Two tinned 5,1 mm (0,2 inch) or 2,8 mm (0,11 inch) tag connectors permit connection to the woofer by plugging or soldering.



Dimensions in mm

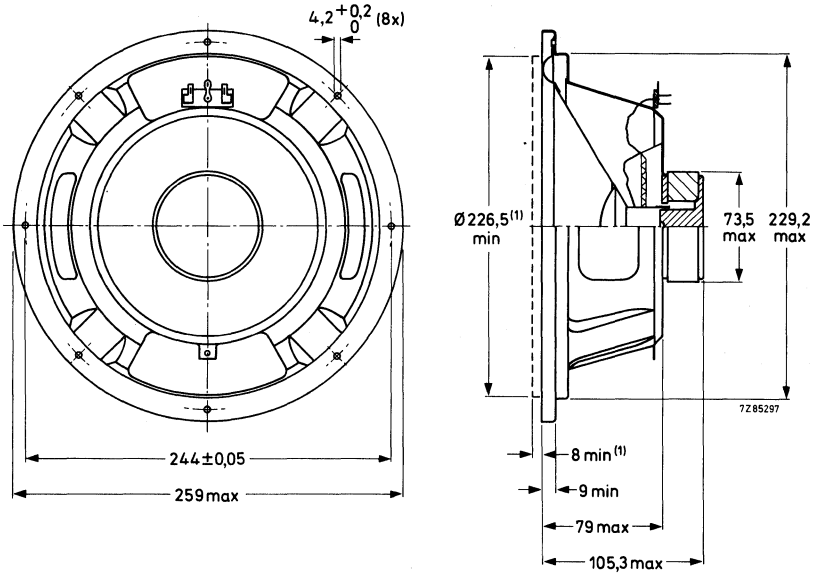


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSION**

AD10600/W8, catalogue number 2422 257 31622

this number applies to bulk packed loudspeakers, minimum packing quantity 4 per unit.

**FREQUENCY RESPONSE CURVES (See Fig. 2)**

Measured in anechoic room at the operating power. Loudspeaker mounted on IEC baffle according to IEC 268-5 par. 4-4.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

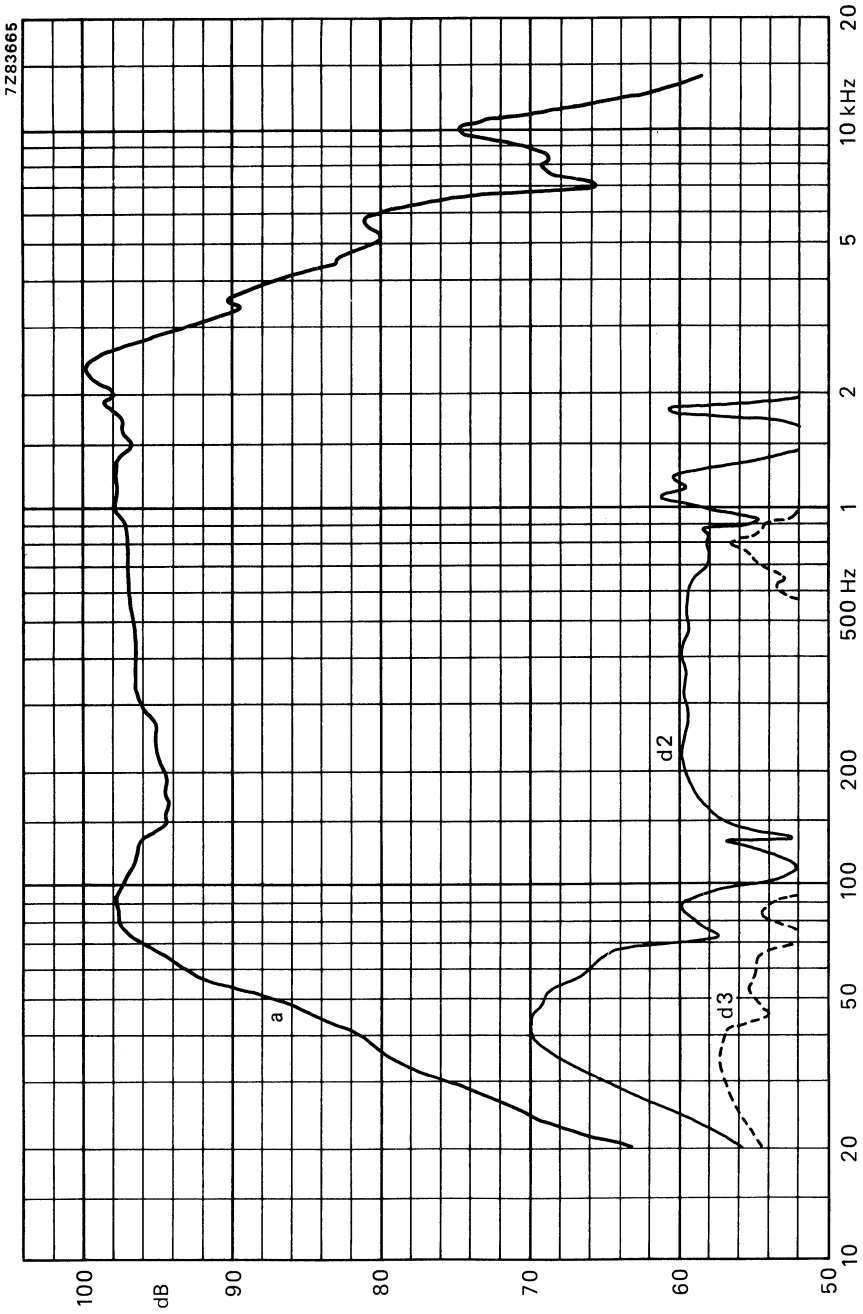


Fig. 2.

## 10 inch HIGH POWER WOOFER LOUDSPEAKER

## TECHNICAL DATA

Rated impedance	8 $\Omega$
Voice coil resistance	6,4 $\Omega$
Rated frequency range	1500 Hz
Resonance frequency	27 Hz
Power handling capacity, measured without filter, loudspeaker mounted in 35 l sealed box	60 W
Maximum power on loudspeaker	100 W
Operating power (sound level 96 dB, 1 m)	4,2 W
Sweep voltage (20 to 3000 Hz)	8 V
Filter	none
Energy in air gap	233 mJ
Flux density	0,96 T
Force factor (b x l) at 1 A	6,2 Wb/m
Compliance, loudspeaker unmounted	1,2 mm/W
Air-gap height	5 mm
Voice coil height	18 mm
Core diameter	35 mm
Magnet material	ceramic
diameter	90 mm
mass	0,53 kg
Mass of loudspeaker	1,6 kg

Connection is by 2,8 mm (0,11 inch) or by 5,1 mm (0,2 inch) tag connectors or by soldering. The loudspeaker has a paper cone and a foam plastic surround.

Dimensions in mm

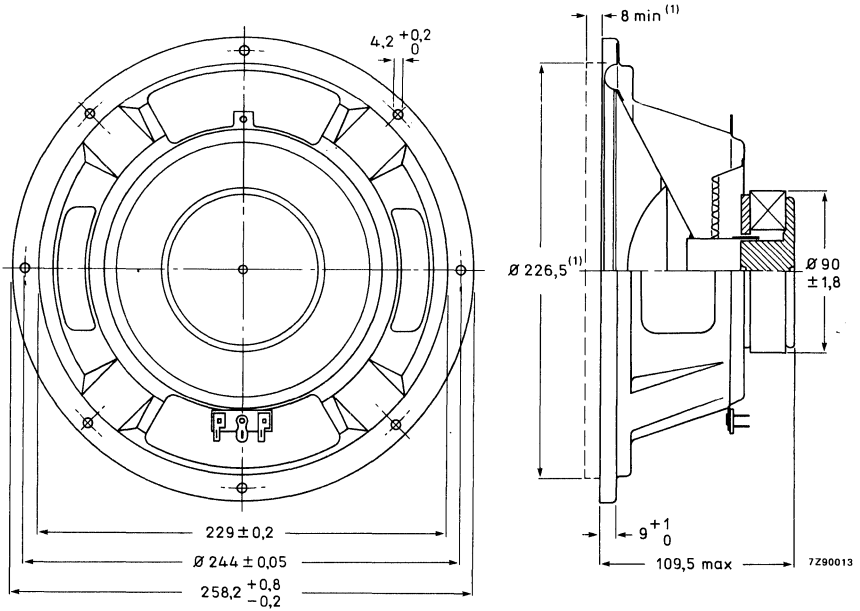


Fig. 1.

- (1) Recommended baffle hole ( $\varnothing 226,5 \text{ mm}$ ) and clearance depth (8 mm) are required for cone movement at the specified power handling capacity. Recommended box enclosure: 35 l. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSION**

AD10650/W8 catalogue number 2422 257 31722. This number is for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2).

Measured in anechoic room at the operating power. Loudspeaker front mounted in a sealed 35 l enclosure.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

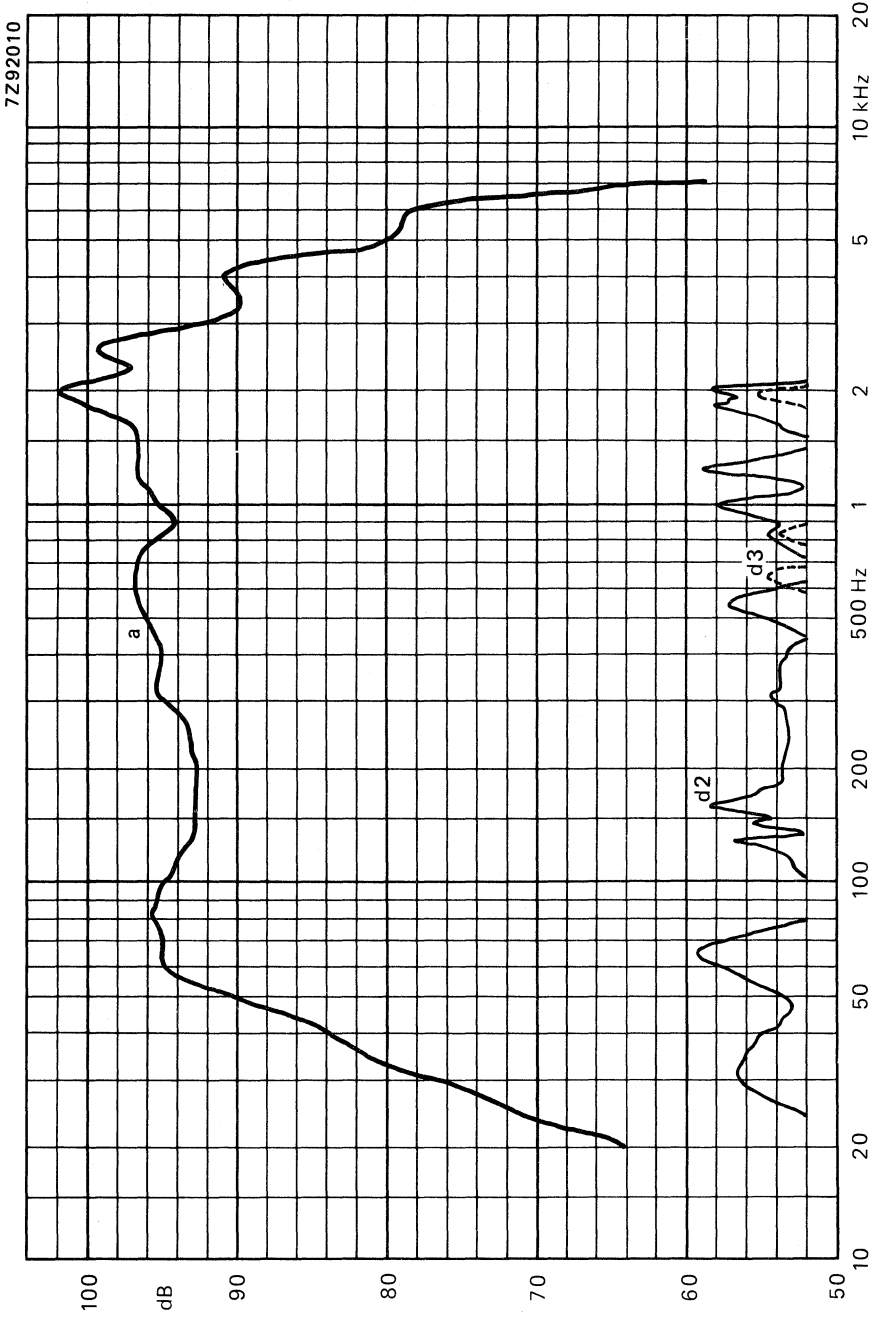


Fig. 2.

## 1 INCH HI-FI DOME TWEETER LOUDSPEAKERS

### TECHNICAL DATA

	version		
	T4	T8	
Rated impedance	4	8	$\Omega$
Voice coil resistance	3,4	6,3	$\Omega$
Resonance frequency	1500		Hz
Power handling capacity, a/b, measured with filter, see Fig. 1			
2000 Hz	12 $\mu$ F – 0,35 mH	20/4	W
	8 $\mu$ F – 0,5 mH		20/4
4000 Hz	5 $\mu$ F – 0,2 mH	50/6	W
	3,2 $\mu$ F – 0,35 mH		50/6
Operating power (sound level 90 dB, 1 m)		3	W
Sweep voltage (500 to 20 000 Hz); filter:			
12 $\mu$ F – 0,35 mH	1,5		V
8 $\mu$ F – 0,5 mH		2,1	V
Energy in air gap		66,78	mJ
Flux density		0,98	T
Air-gap height		2,5	mm
Voice coil height	2,2	2,8	mm
Core diameter		25	mm
Magnet material		ceramic	
diameter		60	mm ←
mass		0,1	kg
Mass of loudspeaker		0,29	kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeakers AD11400/T. have a textile dome; AD11410/T. have a polycarbonate dome.

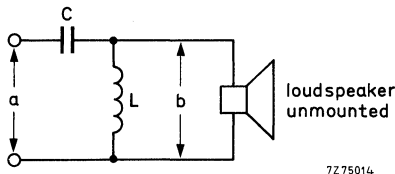


Fig. 1 Measuring circuit.  
a = system power handling capacity.  
b = loudspeaker power handling capacity.

Dimensions in mm

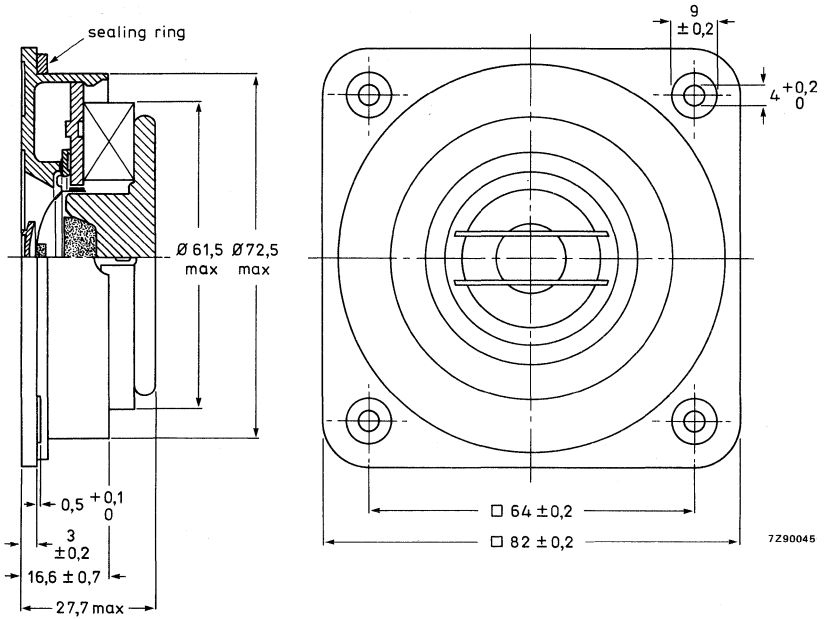


Fig. 2.

One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD11400/T4 catalogue number 2422 257 43421
- AD11400/T8 catalogue number 2422 257 43422
- AD11410/T4 catalogue number 2422 257 43424
- AD11410/T8 catalogue number 2422 257 43425

} These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 3)

Measured in anechoic room at the operating power. Loudspeaker mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

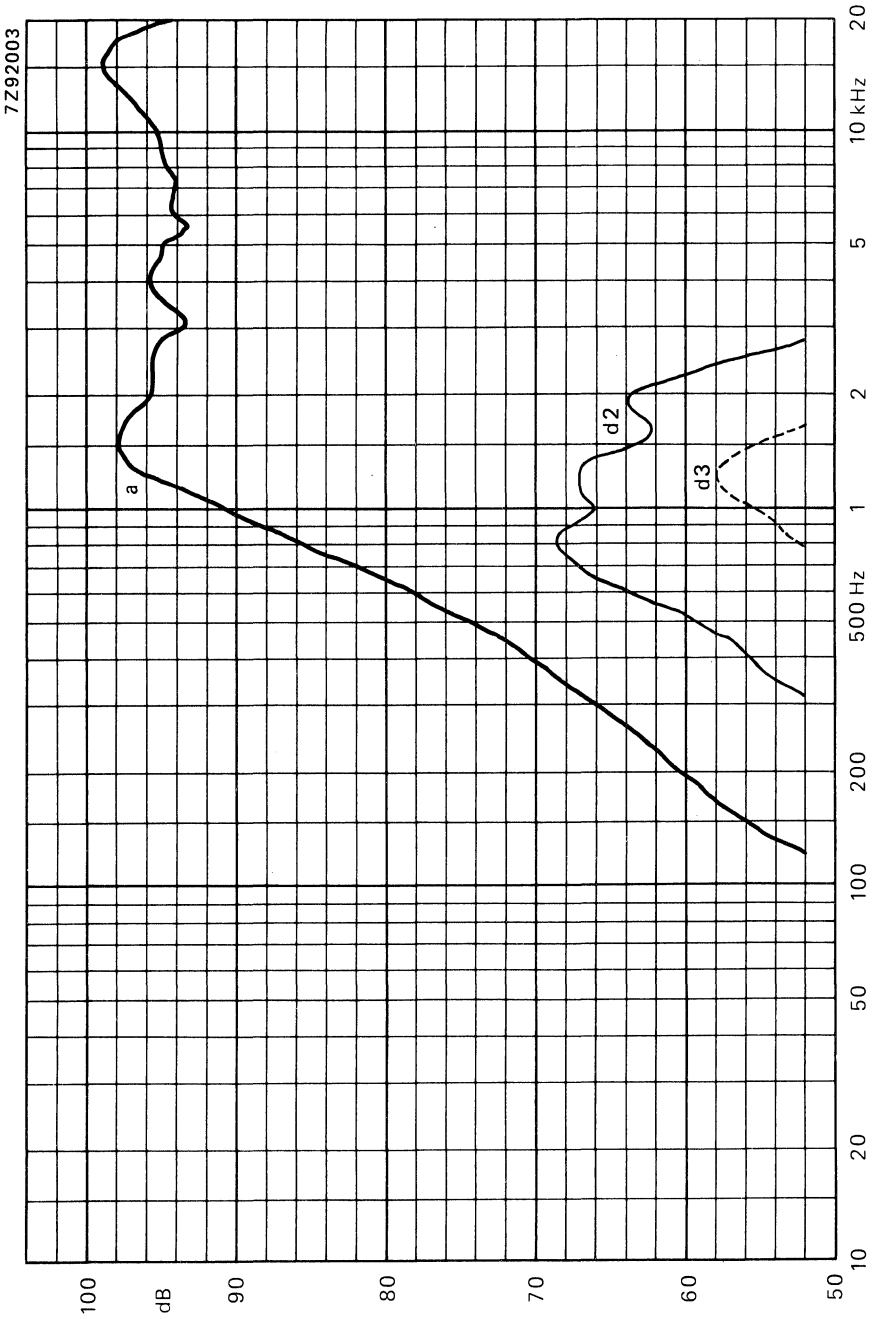


Fig. 3.





## 1 INCH HI-FI DOME TWEETER LOUDSPEAKER

## TECHNICAL DATA

	version		
	T4	T8	
Rated impedance	4	8	$\Omega$
Voice coil resistance	3,4	6,3	$\Omega$
Resonance frequency	1000		Hz
Power handling capacity, loudspeaker mounted on IEC baffle, measured with filter			
10 $\mu$ F	3,5		W
5 $\mu$ F		3,5	W
Operating power (sound level 90 dB, 1 m)		3	W
Sweep voltage (500 to 20 000 Hz); filter:			
10 $\mu$ F	1,5		V
5 $\mu$ F		2,1	V
Energy in air gap		66,78	mJ
Flux density		0,98	T
Air-gap height		2,5	mm
Voice coil height	2,2	2,8	mm
Core diameter		25	mm
Magnet material		ceramic	
diameter		60	mm ←
mass		0,1	kg
Mass of loudspeaker		0,29	kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeakers have a textile dome.

Dimensions in mm

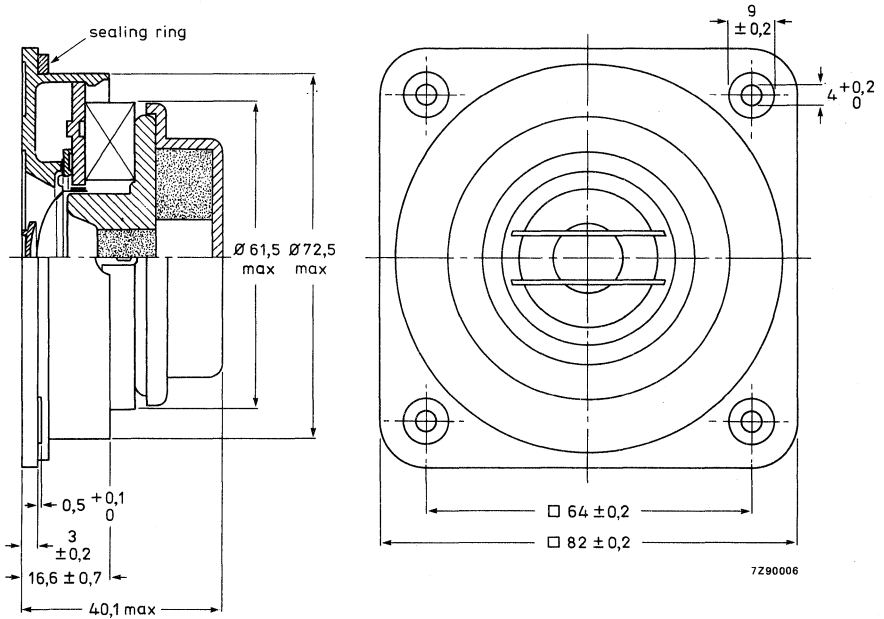


Fig. 1.

One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD11430/T4	catalogue number 2422 257 43427	}	These numbers are for bulk-packed loudspeakers.
AD11430/T8	catalogue number 2422 257 43428		

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted on IEC baffle.

Curve a: Sound pressure.

Curve d2: 2nd harmonic distortion.

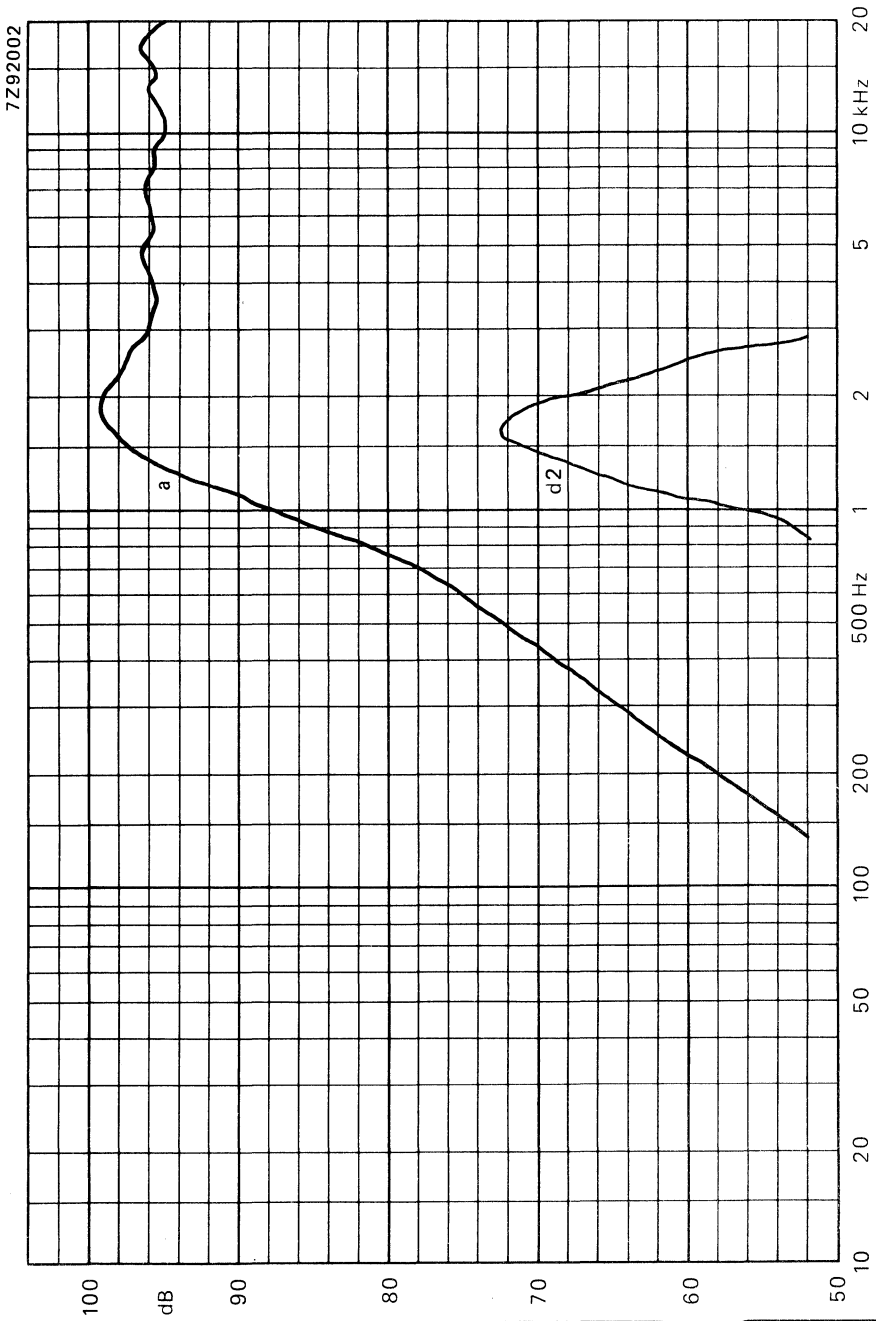


Fig. 2.

# 1 inch HIGH POWER DOME TWEETER

## APPLICATION

For reproduction of high frequencies up to 20 kHz.

## TECHNICAL DATA

	version	
	T4	T8
Rated impedance	4	8 Ω
Voice coil resistance	3,4	6,3 Ω
Rated frequency range	2500 to 20 000 Hz	
Resonance frequency	1300 Hz	
Power handling capacity, a/b, measured with filter, see Fig. 1, at 2000 Hz, C = 12 μF, L = 0,35 mH	20/4	W
at 2000 Hz, C = 8 μF, L = 0,5 mH		20/4
at 4000 Hz, C = 5 μF, L = 0,2 mH	50/6	
at 4000 Hz, C = 3,2 μF, L = 0,35 mH		50/6
Operating power (sound level 90 dB, 1 m)	1,2	W
Sweep voltage (500 to 20 000 Hz) with filter 12 μF – 0,35 mH	1,1	V
with filter 5 μF – 0,2 mH		1,5 V
Energy in air gap	117,5	mJ
Flux density	1,3	T
Air-gap height	2,5	mm
Voice coil height	2,2	2,7 mm
Core diameter	25	mm
Magnet material	ceramic	
diameter	72	mm
mass	0,24	kg
Mass of loudspeaker	0,6	kg

The loudspeaker has a textile dome. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

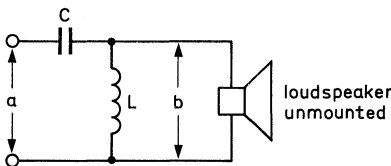


Fig. 1 Measuring circuit.

a = system power handling capacity.  
b = loudspeaker power handling capacity.

7275014

Dimensions in mm

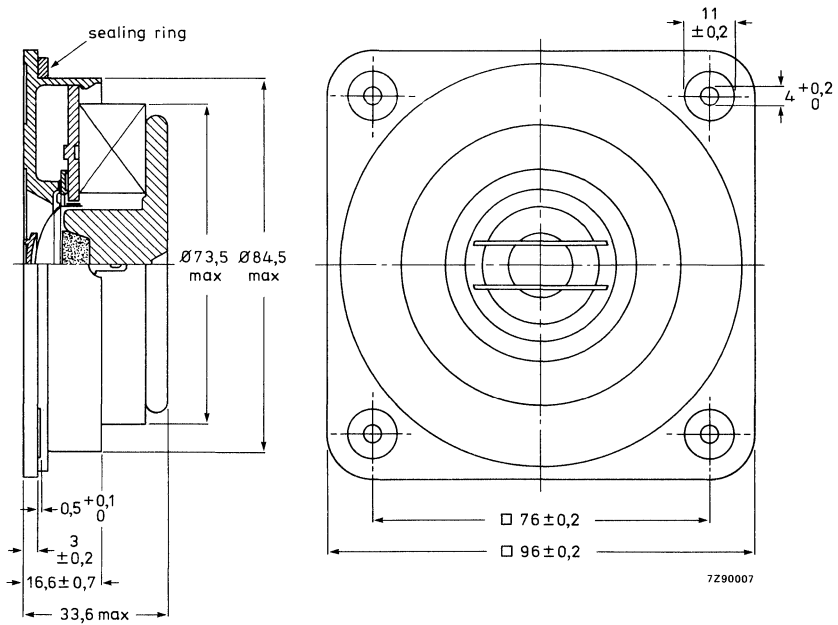


Fig. 2.

One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD11600/T4 catalogue number 2422 257 43521

AD11600/T8 catalogue number 2422 257 43522

} These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES (see Fig. 3)**

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curve d2: 2nd harmonic distortion.

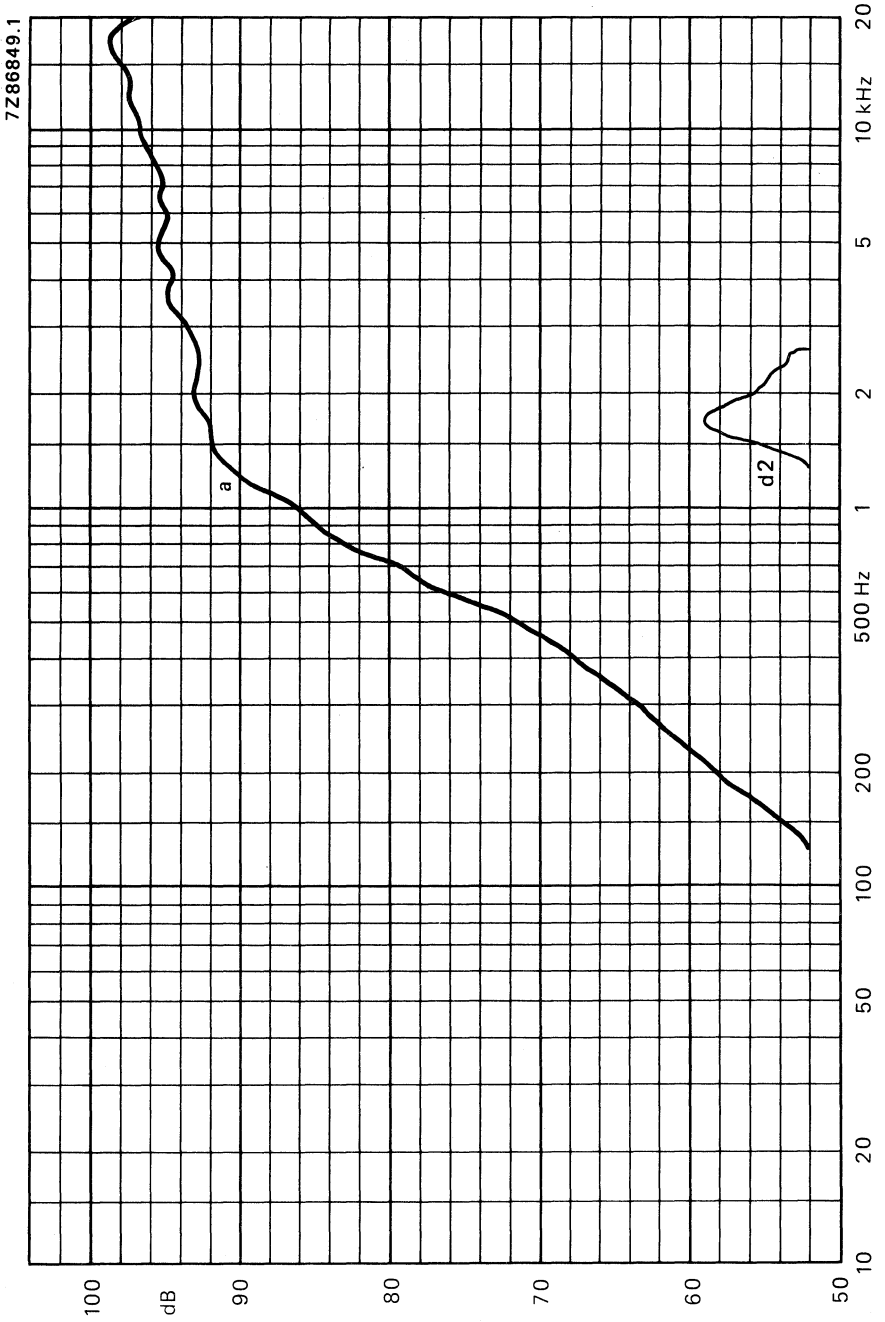


Fig. 3.

## 1 inch HIGH POWER DOME TWEETER

## TECHNICAL DATA

	version	
	T4	T8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,4	6,3 $\Omega$
Resonance frequency	1300 Hz	
Power handling capacity, a/b, measured with filter, see Fig. 1		
2000 Hz    12 $\mu$ F – 0,35 mH	20/4	W
2000 Hz    8 $\mu$ F – 0,5 mH		20/4 W
4000 Hz    5 $\mu$ F – 0,2 mH	50/6	W
4000 Hz    3,2 $\mu$ F – 0,35 mH		50/6 W
Operating power (sound level 90 dB, 1 m)	1,2 W	
Sweep voltage (500 to 20 000 Hz); filter:		
12 $\mu$ F – 0,35 mH	1,1	V
8 $\mu$ F – 0,5 mH		1,5 V
Energy in air gap	117,5	mJ
Flux density	1,38	T
Air-gap height	2,5	mm
Voice coil height	2,2	2,7 mm
Core diameter	25 mm	
Magnet material	ceramic	
diameter	72	mm ←
mass	0,24	kg
Mass of loudspeaker	0,57	kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeakers AD11400/T. have a polycarbonate dome.

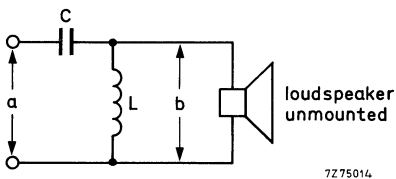


Fig. 1 Measuring circuit.

a = system power handling capacity.  
b = loudspeaker power handling capacity.



Dimensions in mm

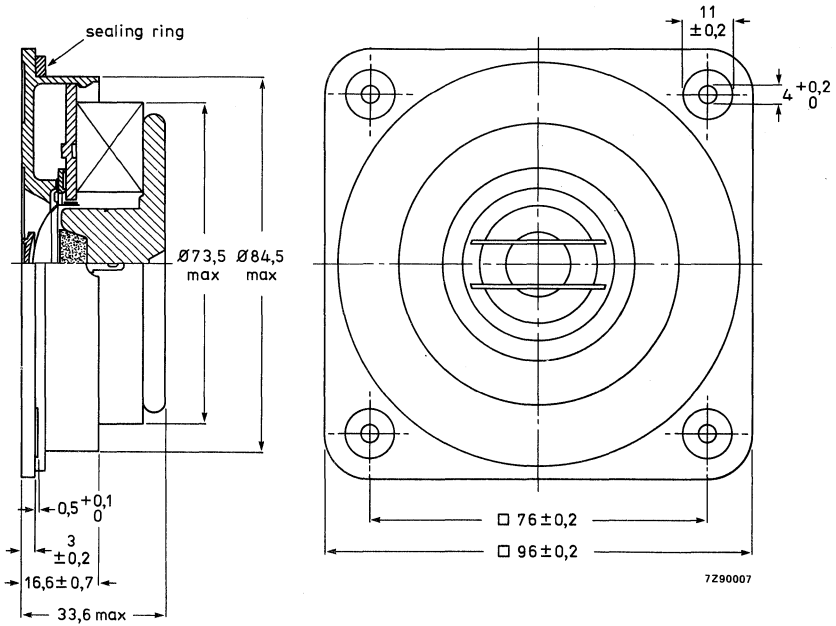


Fig. 2.

One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD11610/T4 catalogue number 2422 257 43524 }  
 AD11610/T8 catalogue number 2422 257 43525 } These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted on IEC baffle.

Curve a: Sound pressure.

Curve d2: 2nd harmonic distortion.

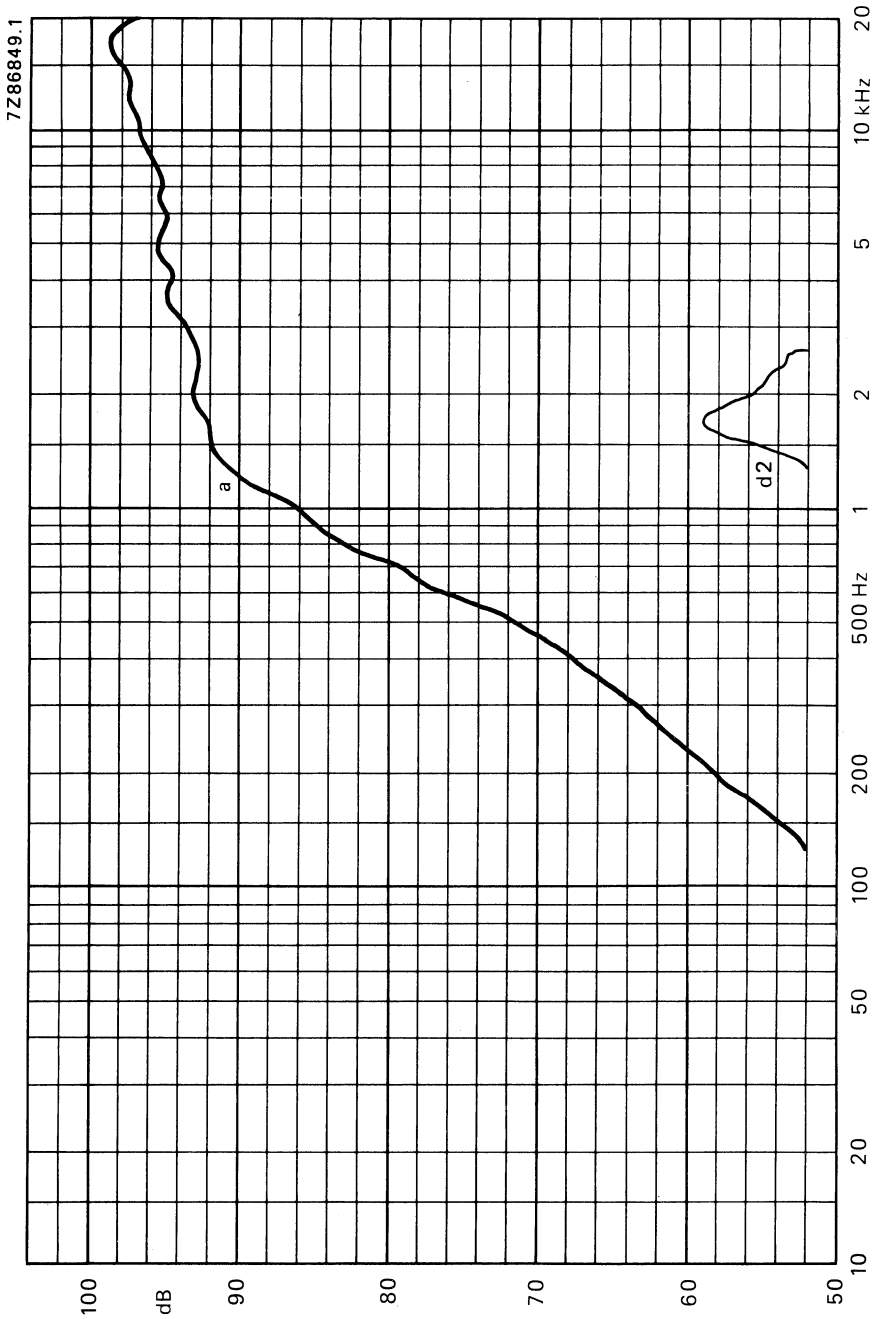


Fig. 3.

## 1 inch HIGH POWER DOME TWEETER

## APPLICATION

For reproduction of high frequencies up to 20 kHz.

## TECHNICAL DATA

	version	
	T4	T8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,4	6,3 $\Omega$
Rated frequency range	3300	to 20 000 Hz
Resonance frequency	1700	Hz
Power handling capacity, loudspeaker mounted on IEC baffie, measured with filter:		
C = 10 $\mu$ F, L = 0,3 mH	4	W
C = 5 $\mu$ F, L = 0,16 mH		4 W
Operating power (sound level 90 dB, 1 m)		6 W
Sweep voltage (500 to 20 000 Hz), with filter	2,1	3 V
Energy in air gap		37 mJ
Flux density	0,73	T
Air-gap height	2,5	mm
Voice coil height	2,2	2,7 mm
Core diameter		25 mm
Magnet material		ceramic
→ diameter		53 mm
mass		0,06 kg
Mass of loudspeaker		0,2 kg

The loudspeaker has a textile dome. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

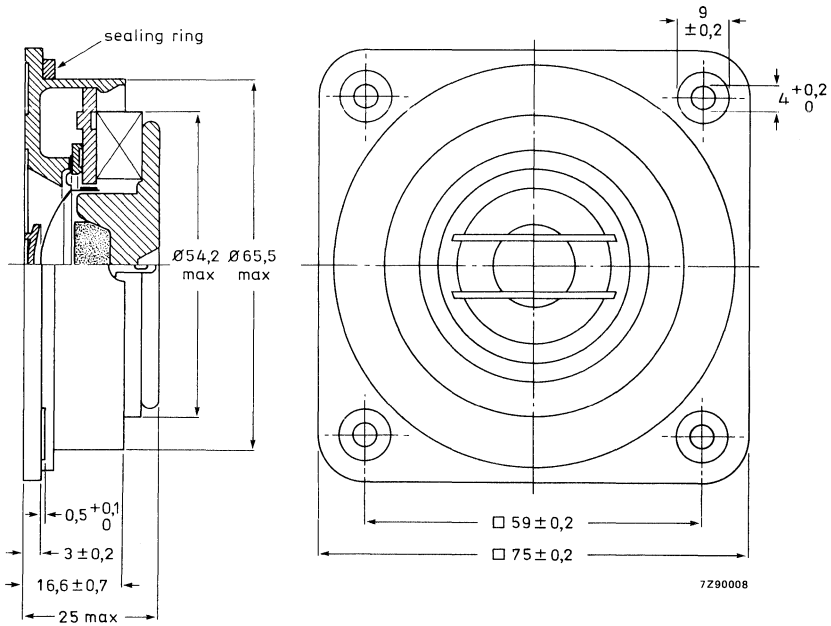


Fig. 1.

One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD11800/T4 catalogue number 2422 257 43321  
 AD11800/T8 catalogue number 2422 257 43322 } These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

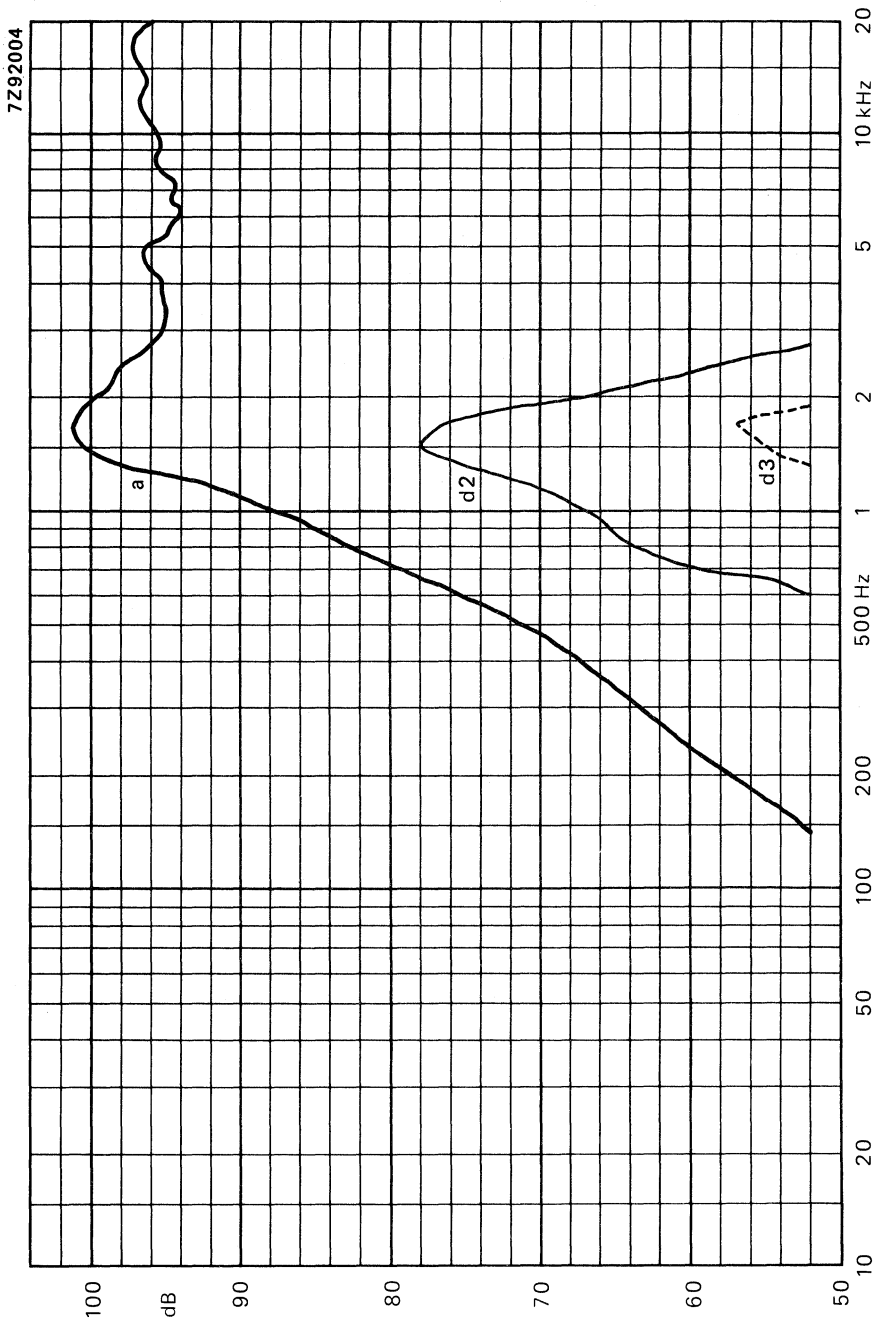


Fig. 2.

## 1 inch HI-FI DOME TWEETER LOUDSPEAKER

## TECHNICAL DATA

	version	
	T4	T8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,4	6,3 $\Omega$
Resonance frequency	1600 Hz	
Power handling capacity, loudspeaker mounted on IEC baffle, measured with filter:		
10 $\mu$ F – 0,35 mH	4	W
5 $\mu$ F – 0,6 mH		4 W
Operating power (sound level 96 dB, 1 m)		3 W
Sweep voltage (500 to 20 000 Hz); filter:		
10 $\mu$ F – 0,35 mH	2,1	V
5 $\mu$ F – 0,6 mH		3 V
Energy in air gap		37 mJ
Flux density		0,73 T
Air-gap height		2,5 mm
Voice coil height	2,2	2,7 mm
Core diameter		25 mm
Magnet material	ceramic	
diameter		53 mm ←
mass		0,06 kg
Mass of loudspeaker		0,2 kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeakers have a polycarbonate dome.

Dimensions in mm

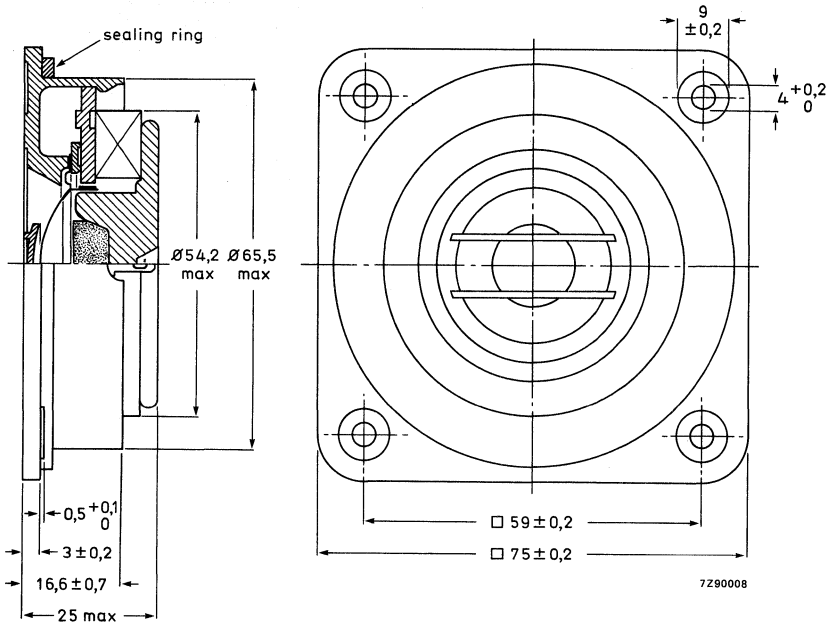


Fig. 1.

One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD11810/T4 catalogue number 2422 257 43324  
 AD11810/T8 catalogue number 2422 257 43325 } These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and d3 harmonic distortion.

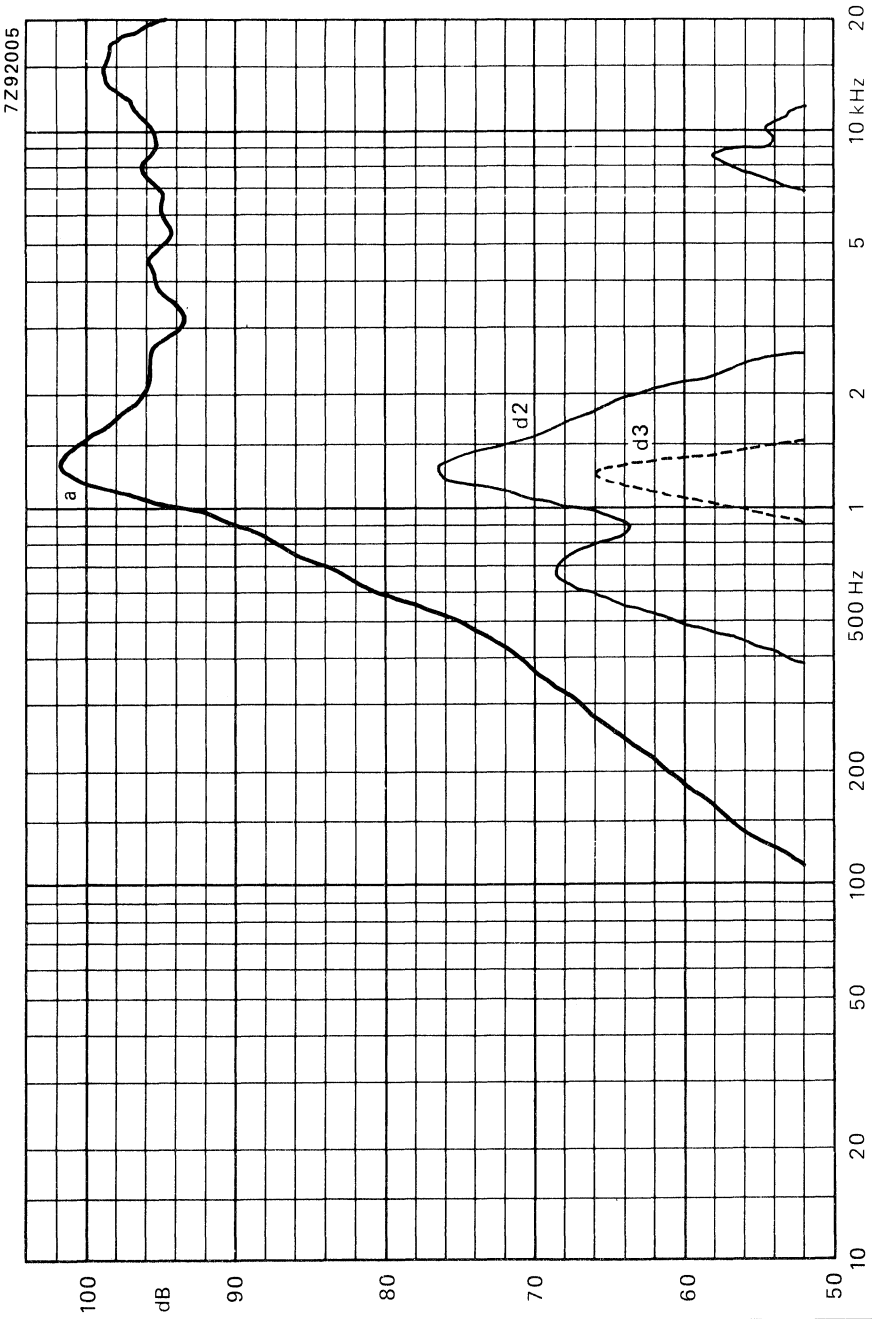


Fig. 2.



## 1 inch HI-FI DOME TWEETER LOUDSPEAKER

## TECHNICAL DATA

	version	
	T4	T8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,4	6,3 $\Omega$
Resonance frequency		1000 Hz
Power handling capacity, loudspeaker mounted on IEC baffle, measured with filter		
10 $\mu$ F	4	W
5 $\mu$ F		4 W
Operating power (sound level 96 dB, 1 m)		6 W
Sweep voltage (500 to 20 000 Hz); filter:		
10 $\mu$ F	2,1	V
5 $\mu$ F		3 V
Energy in air gap		37 mJ
Flux density		0,73 T
Air-gap height		2,5 mm
Voice coil height	2,2	2,7 mm
Core diameter		25 mm
Magnet material		ceramic
diameter		53 mm ←
mass		0,06 kg
Mass of loudspeaker		0,21 kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeakers have a textile dome.

Dimensions in mm

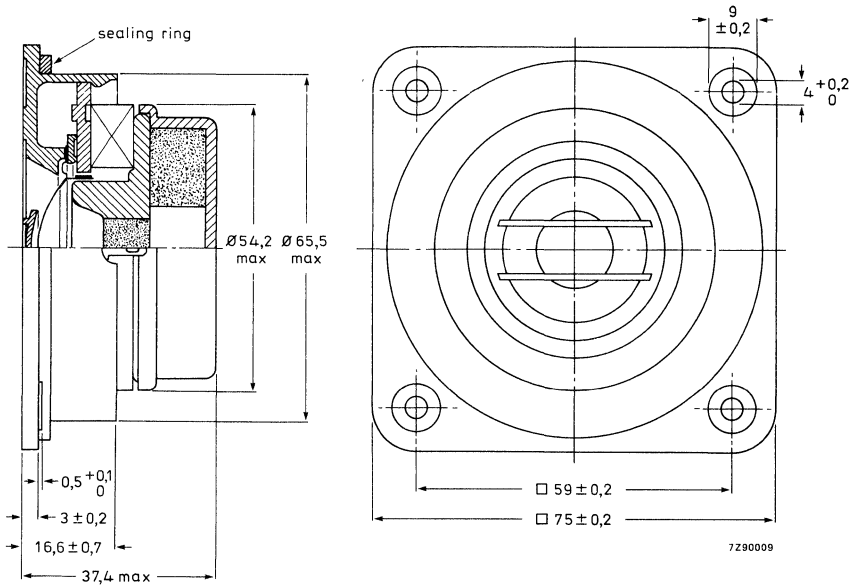


Fig. 1.

One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD11830/T4 catalogue number 2422 257 43327  
 AD11830/T8 catalogue number 2422 257 43328 } These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

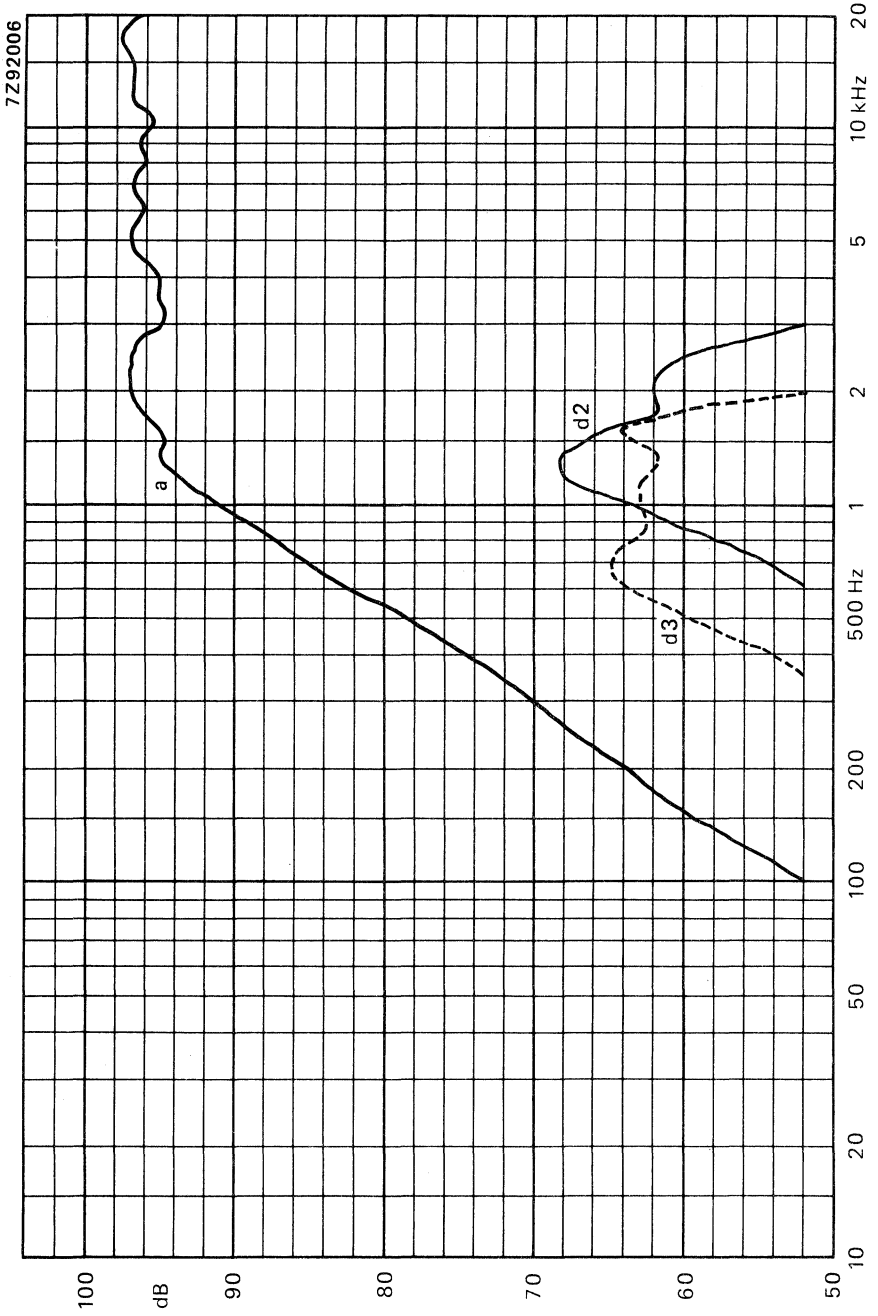


Fig. 2.

## 12 INCH HIGH POWER WOOFER LOUDSPEAKER

### APPLICATION

For high-fidelity bass reproduction in sealed acoustic enclosure. Recommended volume of enclosure 80 litres. The loudspeaker has a very low distortion.

### TECHNICAL DATA

	version	
	W4	W8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,3	6,7 $\Omega$
Rated frequency range	35 to 1800 Hz	
Resonance frequency	22	24 Hz
Power handling capacity, mounted in 80 l sealed enclosure, measured without filter		80 W
Maximum power on loudspeaker		150 W
Operating power		5 W
Sweep voltage, frequency range: 35 to 2000 Hz	7	10 V
Characteristic sensitivity		88 dB
Energy in air gap	485	508 mJ
Flux density	0,65	0,72 T
Force factor (B x l) at 1 A	9,5	13 Wb/m
Total moving mass	$67 \times 10^{-3}$	$62 \times 10^{-3}$ kg
Compliance, loudspeaker unmounted	$0,8 \times 10^{-3}$	$0,76 \times 10^{-3}$ m/N
Air-gap height		7 mm
Voice coil height		17 mm
Core diameter		50 mm
Magnet material		ceramic
diameter		121 mm ←
mass		0,85 kg
Mass of loudspeaker		3 kg

The loudspeaker has a paper cone, a rubber surround and black foam gaskets. Connection to the loudspeaker by means of 5,1 mm (0,2 inch) or 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

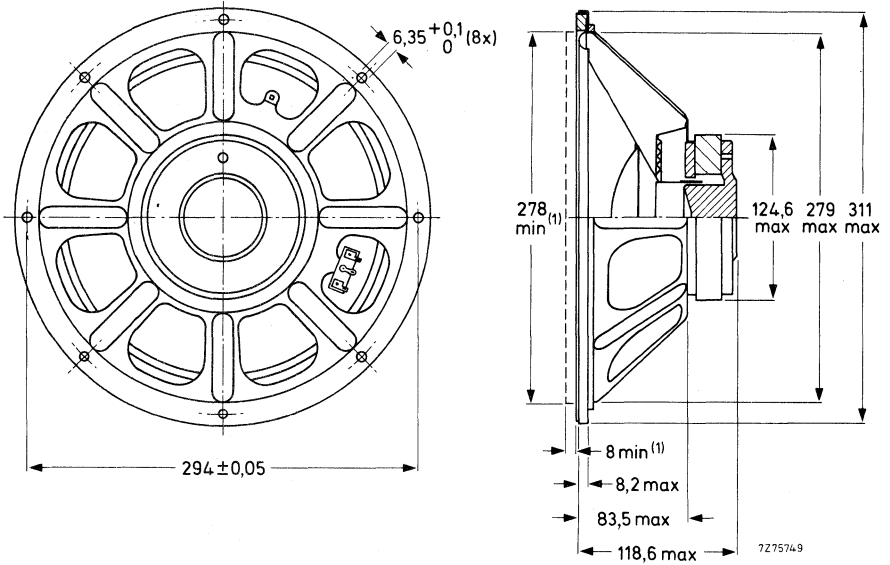


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

AD12200/W4, catalogue number 2422 257 31531  
 AD12200/W8, catalogue number 2422 257 31532

} - these numbers apply to bulk packed loudspeakers, minimum packing quantity 4 per unit.

**FREQUENCY RESPONSE CURVES** (See Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted in sealed 80 l enclosure, filled with 0,5 kg of glass wool.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

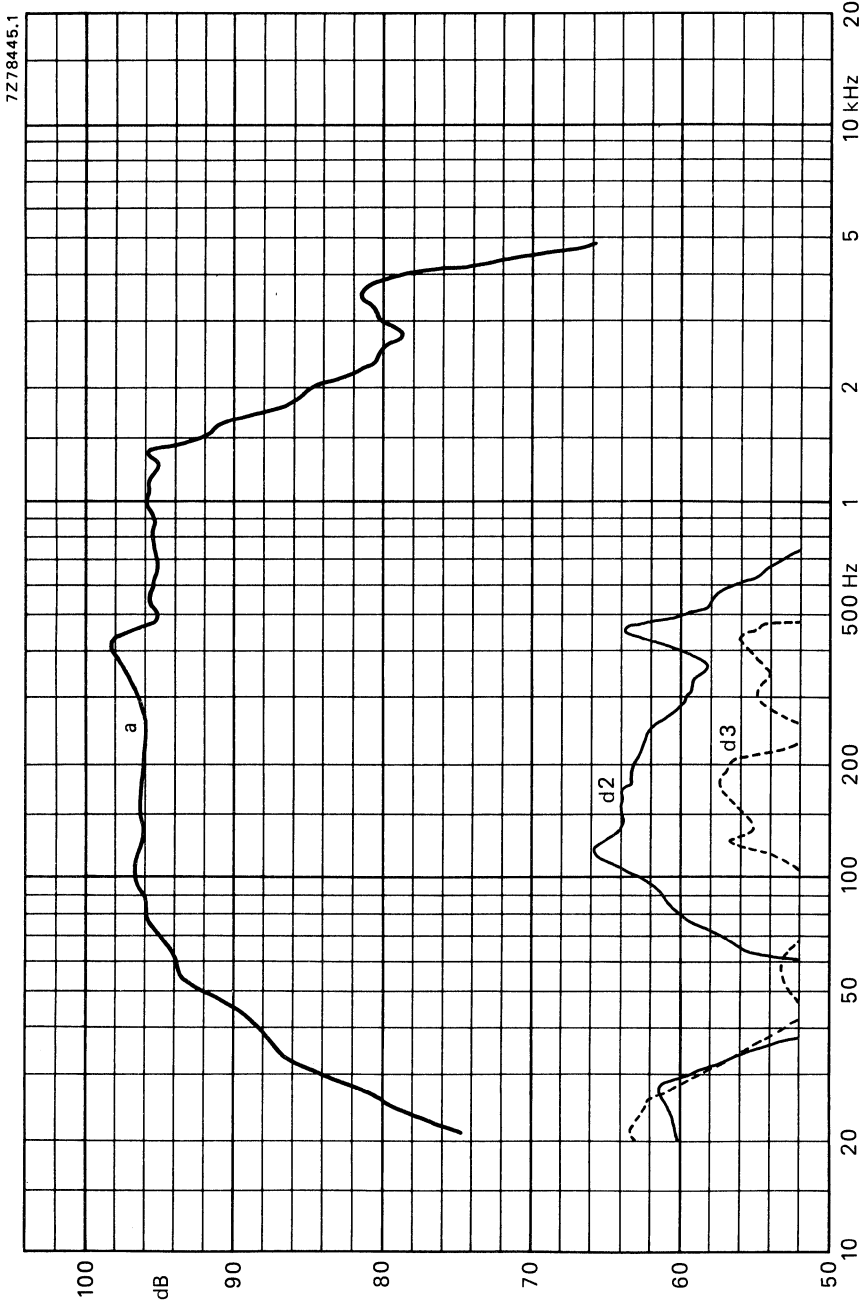


Fig. 2.

## 12 inch HIGH POWER FULL RANGE LOUDSPEAKERS

### APPLICATION

A dual-cone loudspeaker with extremely high sensitivity for power applications such as public address systems, discotheques and other enclosed with recommended volume of 80 litres, or open baffles.

### TECHNICAL DATA

	version	
	M4	M8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,5	6 $\Omega$
Rated frequency range	50 to 12 000 Hz	
Resonance frequency	45	Hz
Power handling capacity, loudspeaker unmounted measured without filter	100	W
Maximum power on loudspeaker	150	W
Operating power	0,78	0,5 W
Characteristic sensitivity	t.b.a.	98 dB
Sweep voltage, frequency: 35 to 20 000 Hz	6,3	9 V
Energy in air gap	499	498 mJ
Flux density	1,10	1,11 T
Force factor (B x L) at 1 A	9,4	9,3 Wb/m
Total moving mass	32	g
Compliance, loudspeaker unmounted	0,46	0,4 mm/N
Quality factor, loudspeaker mounted in 80 l enclosure		
mechanical	4,14	4,29
electrical	0,57	0,97
total	0,50	0,80
Air-gap length	1,15	mm
Air-gap height	8	mm
Voice coil height	9,7	mm
Core diameter	35	mm
Piston diameter	0,25	m
Piston area	0,049	m <sup>2</sup>
Magnet material	ceramic	
diameter	121	mm
mass	0,99	kg
Mass of loudspeaker	1,65	kg
Equivalent box volume	122	l

The loudspeaker has a paper dual cone, a textile rim and a foam gasket on the flange.

Connection to the loudspeaker by means of 5,1 mm (0,2 inch) or 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

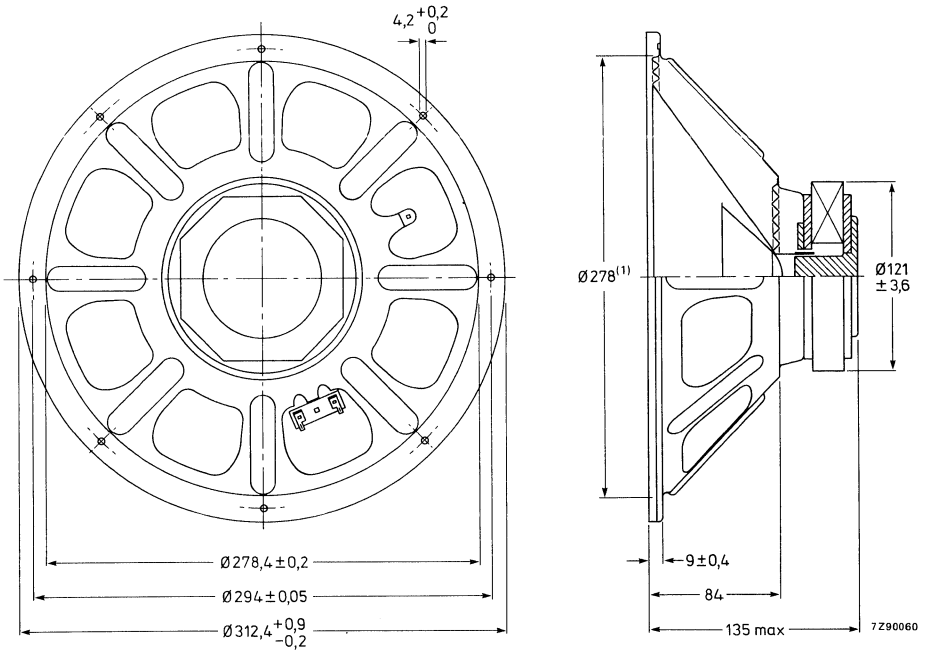


Fig. 1.

(1) Baffle hole-diameter.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

AD12202/M4 catalogue number 2422 257 51221 } These numbers are for bulk-packed loudspeakers,  
 AD12202/M8 catalogue number 2422 257 51222 } minimum packing quantity 4 per unit.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted in sealed 80 l enclosure.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.



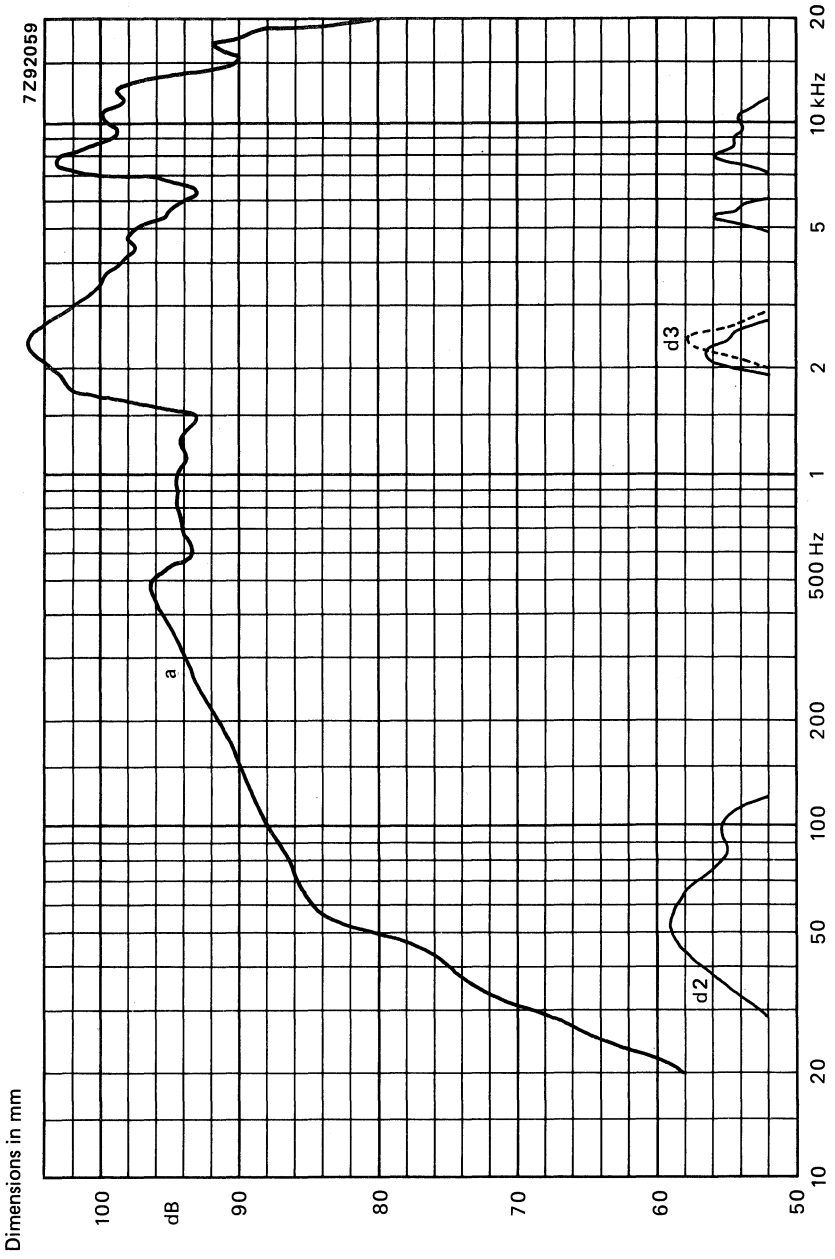


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD12202/P8

### 12 inch FULL RANGE LOUDSPEAKER

- frame: metal, black lacquered
- come: paper black
- surround: textile
- magnetic compensation: none
- recommended enclosure: 80 l

#### TECHNICAL DATA

Rated impedance	8 $\Omega$
Voice coil resistance	6 $\Omega$
Rated frequency range	60 – 6000 Hz
Sensitivity, 1 W/1 m	98 dB
Resonance frequency	45 Hz
Power handling capacity, measured without filter, loudspeaker unmounted	100 W
Maximum power on loudspeaker	150 W
Operating power (sound level 96 dB, 1 m)	0,8 W
Sweep voltage (20 to 20 000 Hz)	9 V
Filter	none
Characteristic sensitivity	dB
Energy in air gap	498 mJ
Flux density	1,11 T
Force factor (Bxl) at 1 A	9,3 Wb/m
Piston diameter	0,25 m
Piston area	0,049 m <sup>2</sup>
Total moving mass	32 x 10 <sup>-3</sup> kg
Compliance, loudspeaker unmounted	0,4 x 10 <sup>-3</sup> m/N
Equivalent boxvolume	112 l
Quality factor, loudspeaker mounted in recommended volume	
mechanical	4,83
electrical	0,98
total	0,81
Air-gap height	8 mm
Air-gap length	1,15 mm
Voice coil height	9,7 mm
Rated core diameter	35 mm
Rated coil diameter	35 mm
Magnet material	ceramic
diameter	121 mm
mass	0,99 kg
Mass of loudspeaker	1,65 kg

Connection is by 2,8 mm x 0,5 mm tag connectors or by soldering.

Dimensions in mm

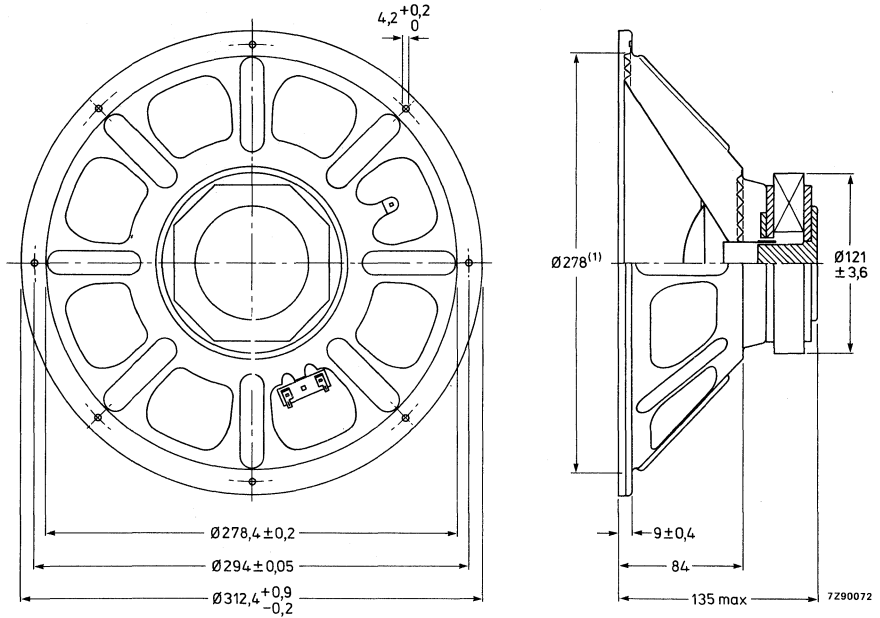


Fig. 1.

- (1) Recommended baffle opening ( $\varnothing 278$  mm) and mounting clearance ( $5$  mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSION**

AD12202/P8, catalogue number 2422 257 51224

This number is for bulk-packed loudspeakers. Minimum packing quantity: 4 per unit.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

DEVELOPMENT SAMPLE DATA

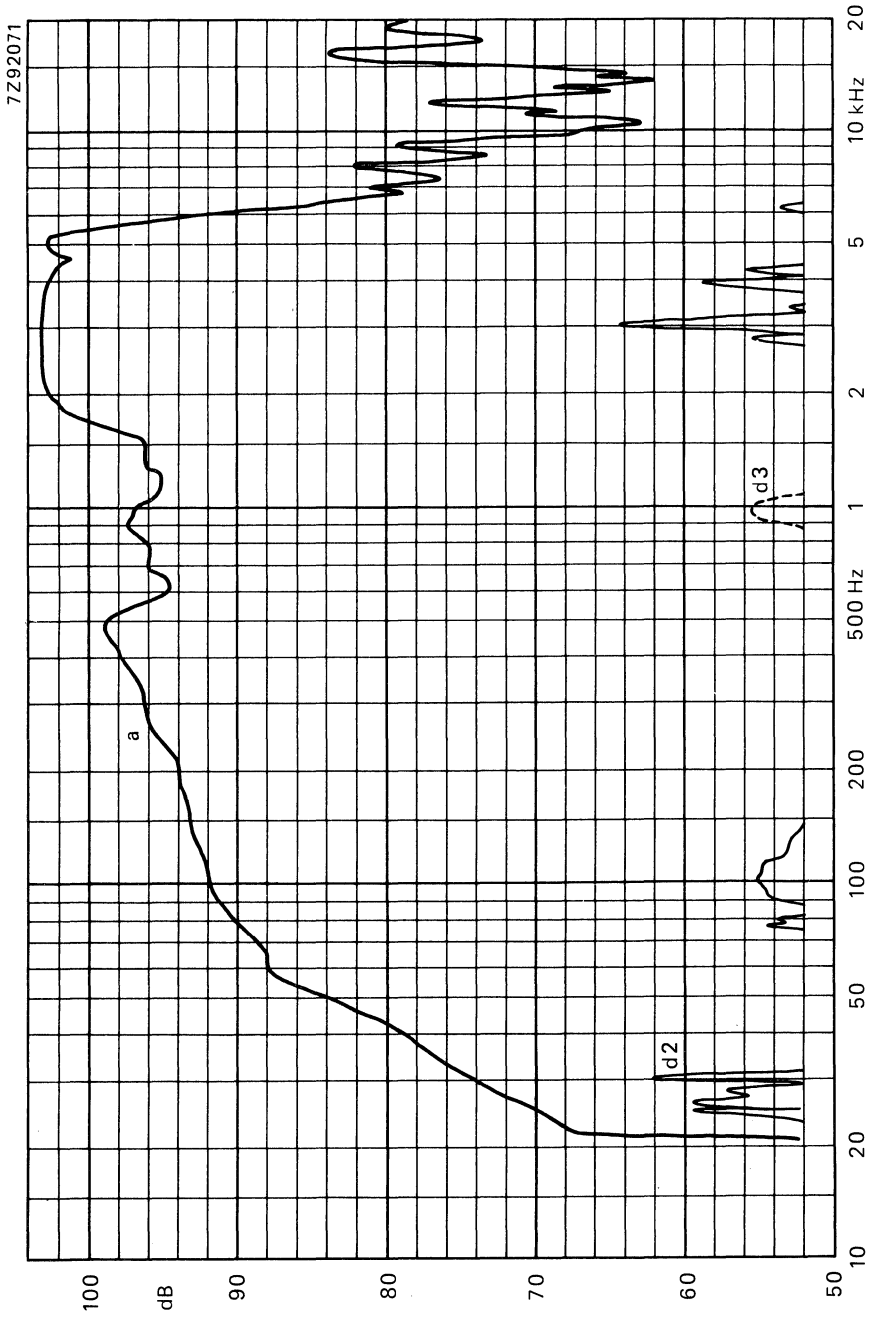


Fig. 2.

## 12 INCH HIGH POWER WOOFER LOUDSPEAKER

## APPLICATION

For high-fidelity bass reproduction in sealed acoustic enclosure. Recommended volume of enclosure 80 litres. The loudspeaker has a very low distortion.

## TECHNICAL DATA

	version	
	W4	W8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,4	6,6 $\Omega$
Rated frequency range	40 to 1800 Hz	
Resonance frequency	25	27 Hz
Power handling capacity, mounted in 80 l sealed enclosure, measured without filter	100	W
Maximum power on loudspeaker	150	W
Operating power	2,9	W
Sweep voltage, frequency range: 35 to 2000 Hz	7	10 V
Characteristic sensitivity	91,0	91,3 dB
Energy in air gap	803	mJ
Flux density	1,02	T
Force factor (B x l) at 1 A (air mass included)	9,5	13 Wb/m
Total moving mass	$56 \times 10^{-3}$	$54 \times 10^{-3}$ kg
Compliance, loudspeaker unmounted	$0,77 \times 10^{-3}$	$0,70 \times 10^{-3}$ m/N
Air-gap height	8	mm
Voice coil height	24	mm
Core diameter	50	mm
Magnet material	ceramic	
→ diameter	134	mm
mass	1,15	kg
Mass of loudspeaker	3,8	kg

The loudspeaker has a paper cone and a rubber surround. Connection to the loudspeaker by means of 5,1 mm (0,2 inch) or 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

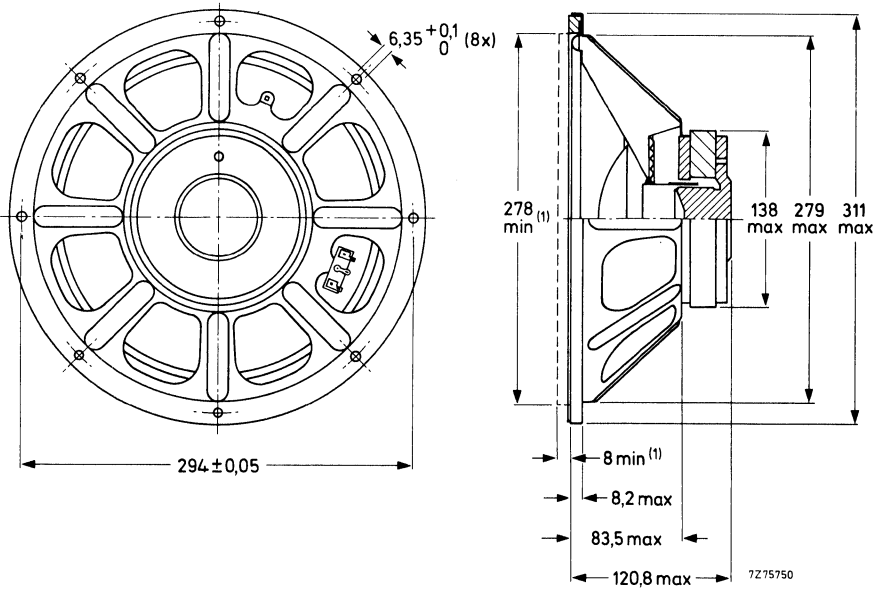


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by a red mark for in-phase connection.

#### AVAILABLE VERSIONS

AD12250/W4, catalogue number 2422 257 61031

AD12250/W8, catalogue number 2422 257 61032

these numbers apply to bulk packed loudspeakers, minimum packing quantity 4 per unit.

#### FREQUENCY RESPONSE CURVES (See Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted in sealed 80 l enclosure, filled with 0,5 kg of glass wool.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

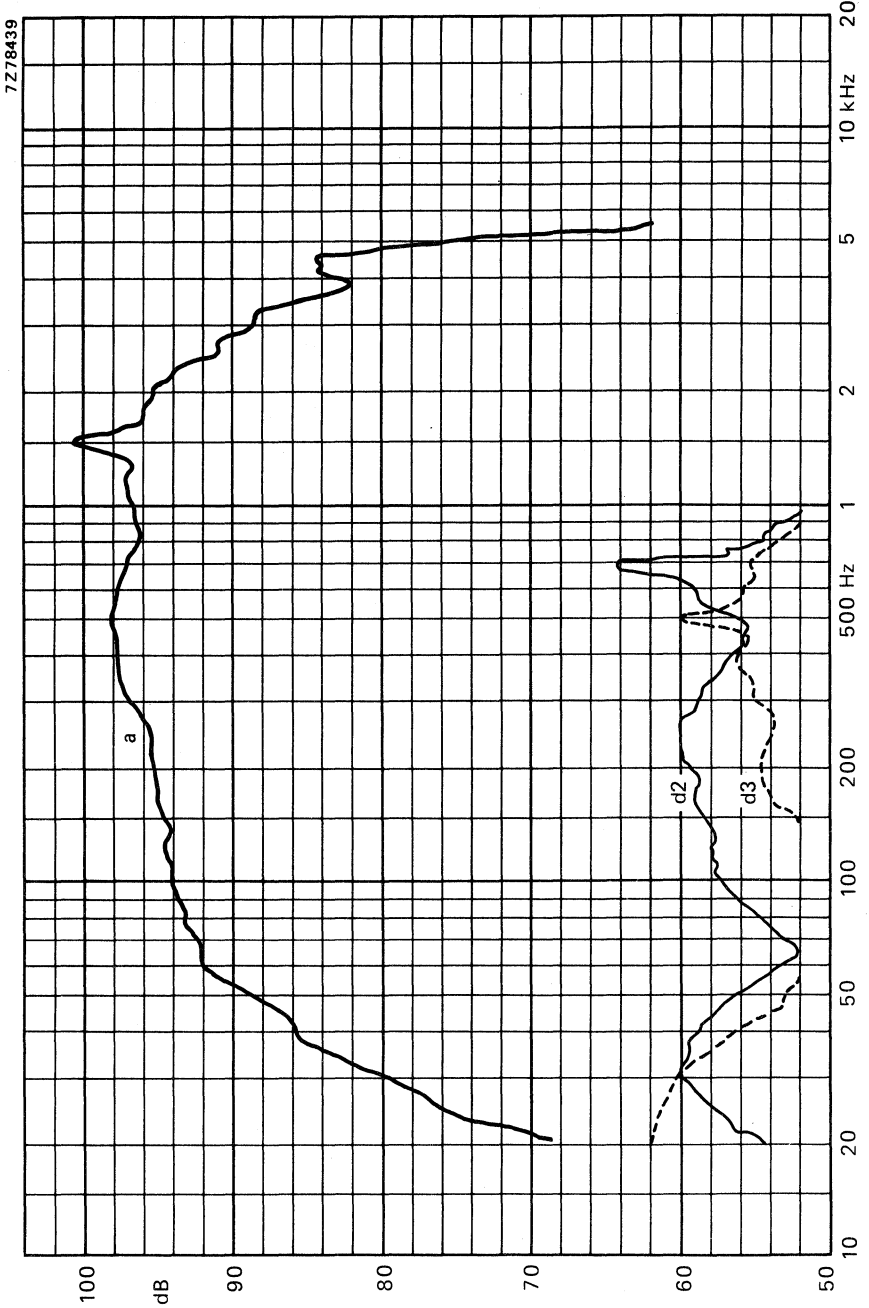


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD12252/HP.

## 12 INCH HIGH POWER FULL RANGE LOUDSPEAKER

- frame : metal, black lacquered
- cone : paper, black
- rim : textile
- application : public address
- gaskets : PVC profile
- magnetic compensation : none
- recommended enclosure : 80 l

### TECHNICAL DATA

	version		
	HP4	HP8	
Rated impedance	4	8	Ohm
Voice coil resistance	3,6	7,2	Ohm
Rated frequency range	50 to 7000		Hz
Resonance frequency	55		Hz
Power handling capacity, measured without filter, loudspeaker unmounted	150		W
Max. power on loudspeaker	200		W
Operating power (sound level 96 dB, 1 m)	1,1		W
Sweep voltage (20 to 20000 Hz)	10	14	V
Filter	none		
Characteristic sensitivity	t.b.e.		dB
Energy in air gap	848		mJ
Flux density	1,12		T
Force factor (Bxl) at 1 A	10,2	12,8	Wb/m
Piston diameter	0,25		m
Piston area	0,049		m <sup>2</sup>
Total moving mass	42 x 10 <sup>-3</sup>		kg
Compliance, loudspeaker unmounted	0,4 x 10 <sup>-3</sup>		m/N
Equivalent boxvolume	111		l
Quality factor, loudspeaker mounted in recommended volume			
mechanical	4,61	4,62	
electrical	0,65	0,81	
total	0,57	0,69	
Air-gap height	7		mm
Air-gap length	1,5		mm
Voice coil height	13,7		mm
Nominal coil diameter	50		mm
Magnet material	ceramic		
diameter	134		mm
mass	1,15		kg
Mass of loudspeaker	3,65		kg

Connection is by 2,8 mm x 0,5 mm tag connectors or by soldering.



Dimensions in mm

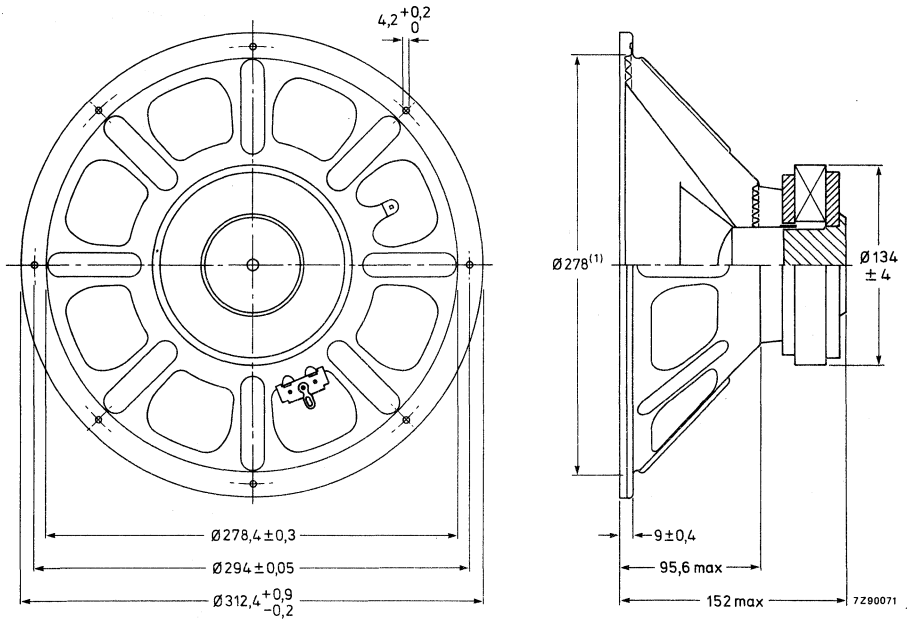


Fig. 1.

Recommended baffle opening ( $\varnothing 278 \text{ mm}$ ) and mounting clearance ( $5 \text{ mm}$ ) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD12252/HP4 catalogue number 2422 257 51123 } These number are for bulkpacked loudspeakers,  
 AD12252/HP8 catalogue number 2422 257 51124 } minimum packing quantity: 4 per unit.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curve d3: 3rd harmonic distortion.

DEVELOPMENT SAMPLE DATA

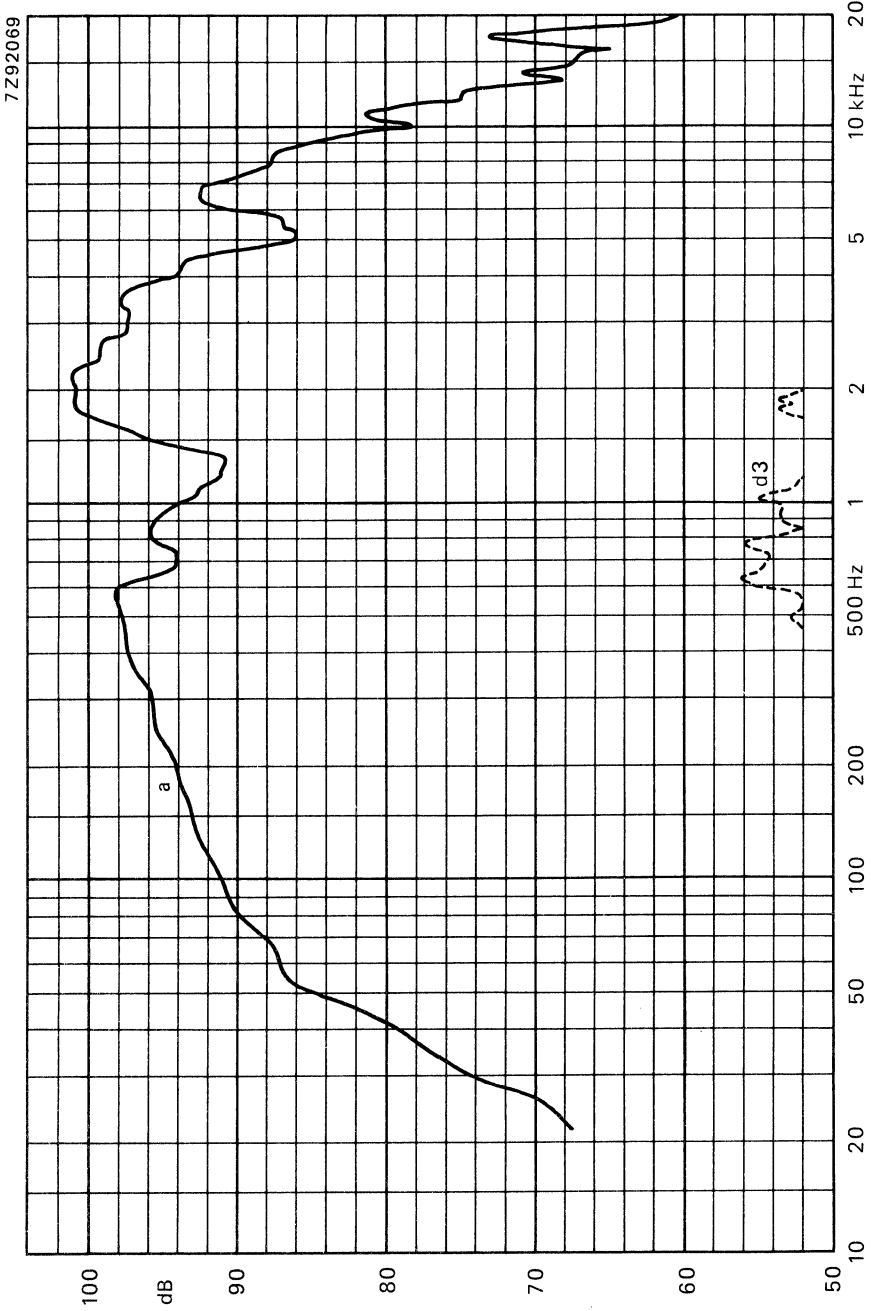


Fig. 2.



## 12 INCH HIGH POWER WOOFER LOUDSPEAKER

### APPLICATION

For high-fidelity bass reproduction in sealed acoustic enclosure. Recommended volume of enclosure 80 litres. The loudspeaker has a very low distortion.

### TECHNICAL DATA

	version	
	W4	W8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3	5,9 $\Omega$
Rated frequency range	35 to 2000 Hz	
Resonance frequency, tolerance $\pm 3$ Hz	25	26 Hz
Resonance frequency, mounted in 80 l sealed enclosure	49	50 HL
Power handling capacity, mounted in 80 l sealed enclosure, measured without filter	60	W
Maximum power on loudspeaker	100	W
Operating power	5	4 W
Sweep voltage, frequency range: 35 to 3500 Hz	7,5	8,5 V
Maximum excursion voltage at 20 Hz	11	14 V
Characteristic sensitivity	87	88 dB
Energy in air-gap	229	248 mJ
Flux density	0,68	0,72 T
Force factor (B x l) at 1 A	6,3	7,7 Wb/m
Total moving mass	52	49 g
Compliance, loudspeaker unmounted	0,86	0,85 mm/N
Quality factor		
mechanical	8,16	6,25
electrical	1,2	1,53
total	1	1,23
Air-gap length	5	mm
Air-gap height	2,35	2,15 mm
Voice coil height	16	mm
Core diameter	35	mm
Magnet material	ceramic	
diameter	90	mm
mass	0,53	kg
Mass of loudspeaker	1,8	kg

The loudspeaker has a paper cone and a rubber surround. Two tinned 5,1 mm (0,2 inch) or 2,8 mm (0,11 inch) tag connectors permit connection to the woofer by plugging or soldering.

Dimensions in mm

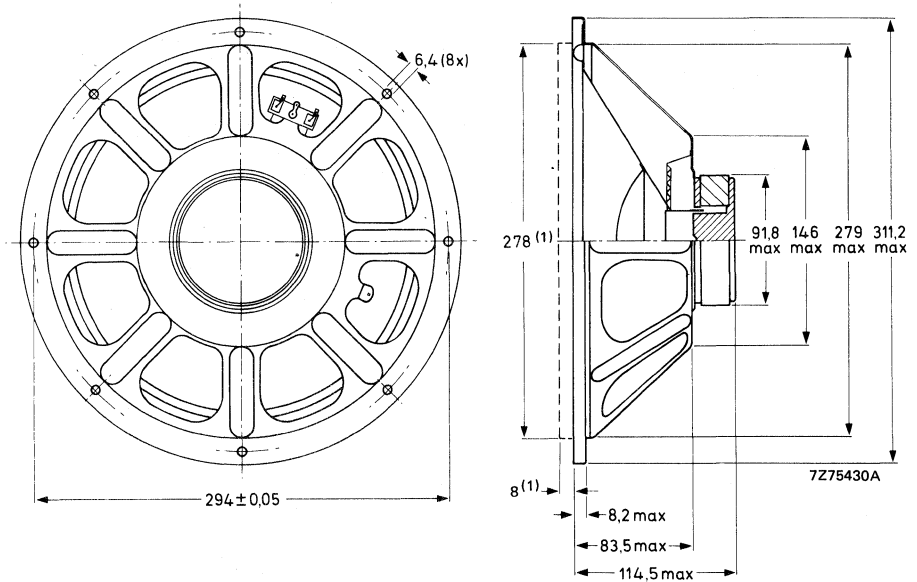


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

AD12650/W4, catalogue number 2422 257 31431 }  
 AD12650/W8, catalogue number 2422 257 31432 }

these numbers apply to bulk packed loudspeakers, minimum packing quantity 4 per unit.

**FREQUENCY RESPONSE CURVES** (see Fig.2)

Measured in anechoic room at the operating power. Loudspeaker mounted in sealed 80 l enclosure, filled with 0,5 kg of glasswool.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

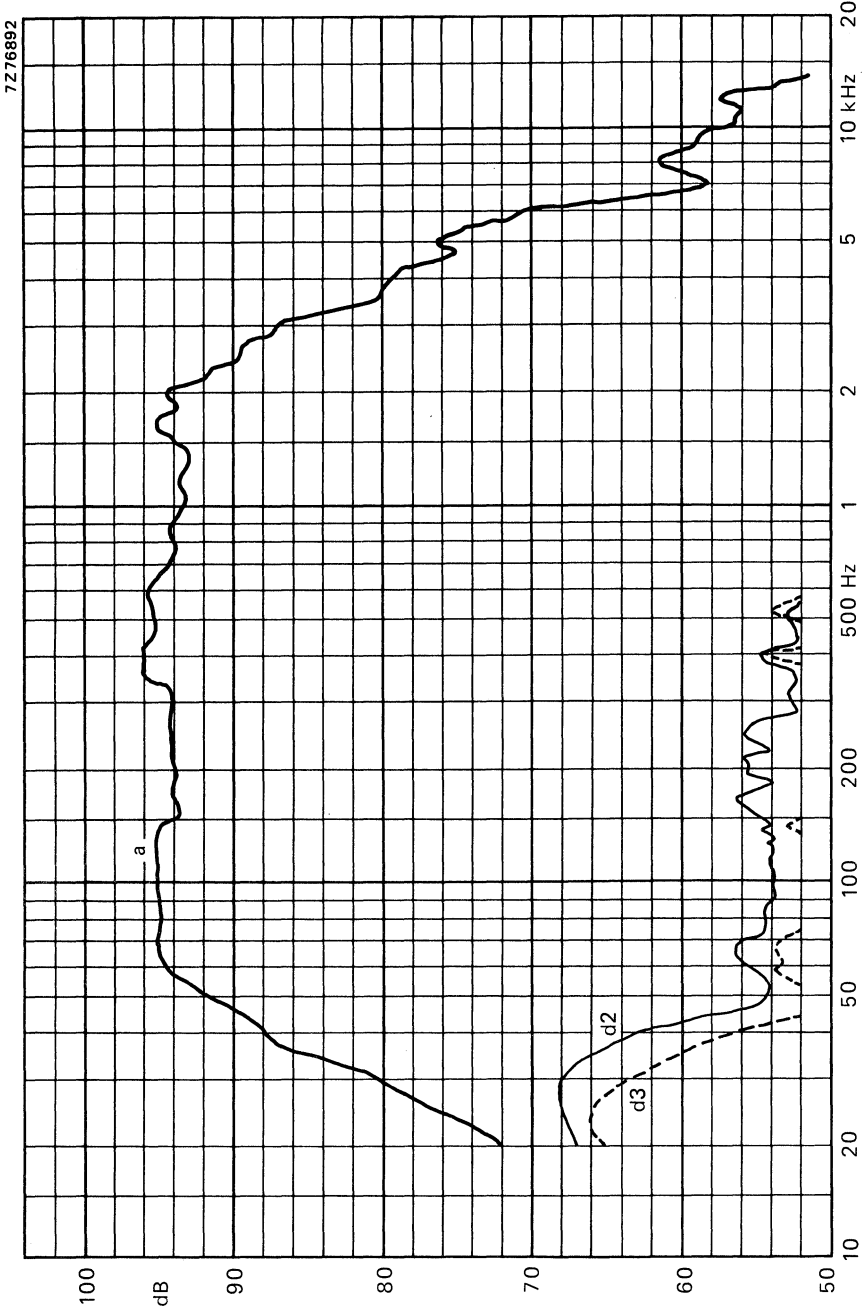


Fig. 2.

7Z76892



## 2 INCH HIGH POWER TWEETER LOUDSPEAKERS

### APPLICATION

For the reproduction of high frequencies in multi-way high-fidelity loudspeaker systems. Minimum recommended crossover frequency 3000 Hz with 3 dB/octave slope. Type AD22302 has a round flange; type AD22302 has a square flange.

### TECHNICAL DATA

	versions		
	T4	T8	T15
Rated impedance	4	8	15 $\Omega$
Voice coil resistance	3,4	6,3	12,5 $\Omega$
Rated frequency range	3000 to 20000 Hz		
Resonance frequency	2000		Hz
Power handling capacities, loudspeaker unmounted			
C = 12 $\mu$ F in series	4		W
C = 4,7 $\mu$ F in series		4	W
C = 2,7 $\mu$ F in series			4 W
Operating power (sound level 90 dB, 1 m)		6	W
Maximum power		8	W
Sweep voltage (600 to 20000 Hz), high-pass filter			
C = 12 $\mu$ F in series	3,4		V
C = 4,7 $\mu$ F in series		4,9	V
C = 2,7 $\mu$ F in series			6,7 V
Energy in air gap		21,5	mJ
Flux density		0,8	T
Air-gap height		2,5	mm
Voice coil height	2,8	2,9	2,9 mm
Core diameter		14,5	mm
Magnet material		ceramic	
diameter		36	mm
mass		29	g
Mass of loudspeaker		90	g

The loudspeaker has a paper cone. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. One tag has a  $\oplus$  mark to facilitate phase matching.



Dimensions in mm

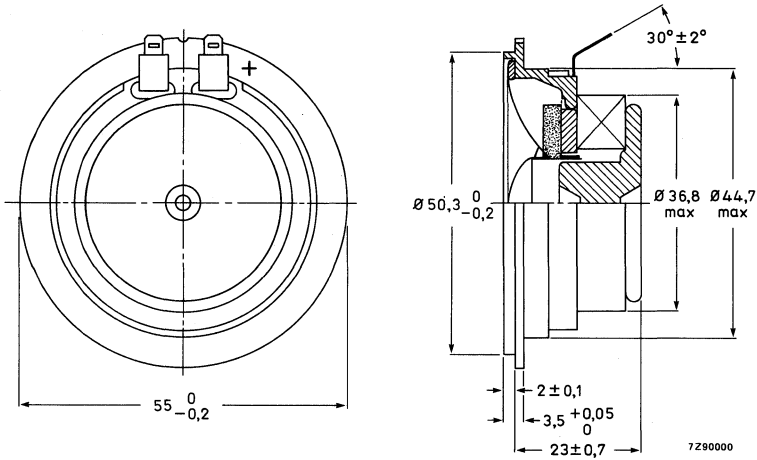


Fig. 1a type AD20302.

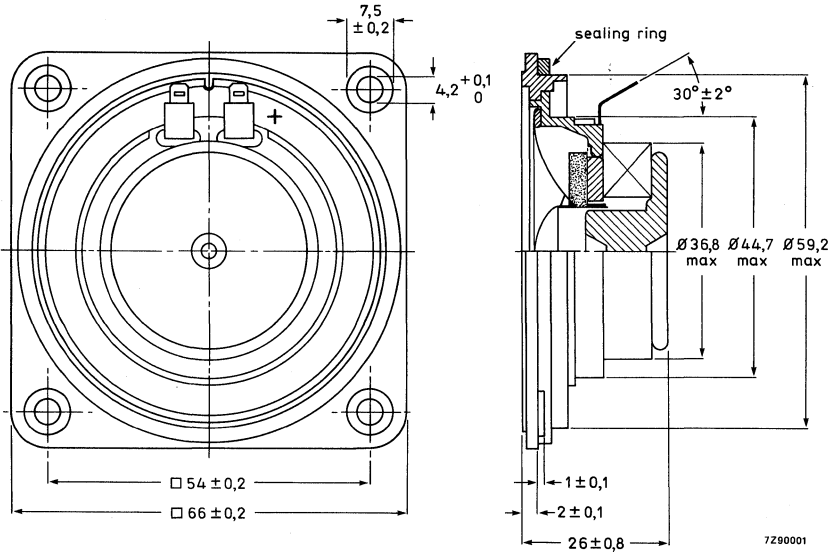


Fig. 1b type AD22302.

**AVAILABLE VERSIONS**

AD20302/T4 catalogue number 2422 257 32621  
AD20302/T8 catalogue number 2422 257 32622  
AD20302/T15 catalogue number 2422 257 32623  
AD22302/T4 catalogue number 2422 257 32631  
AD22302/T8 catalogue number 2422 257 32632  
AD22302/T15 catalogue number 2422 257 32633

These numbers are for  
bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

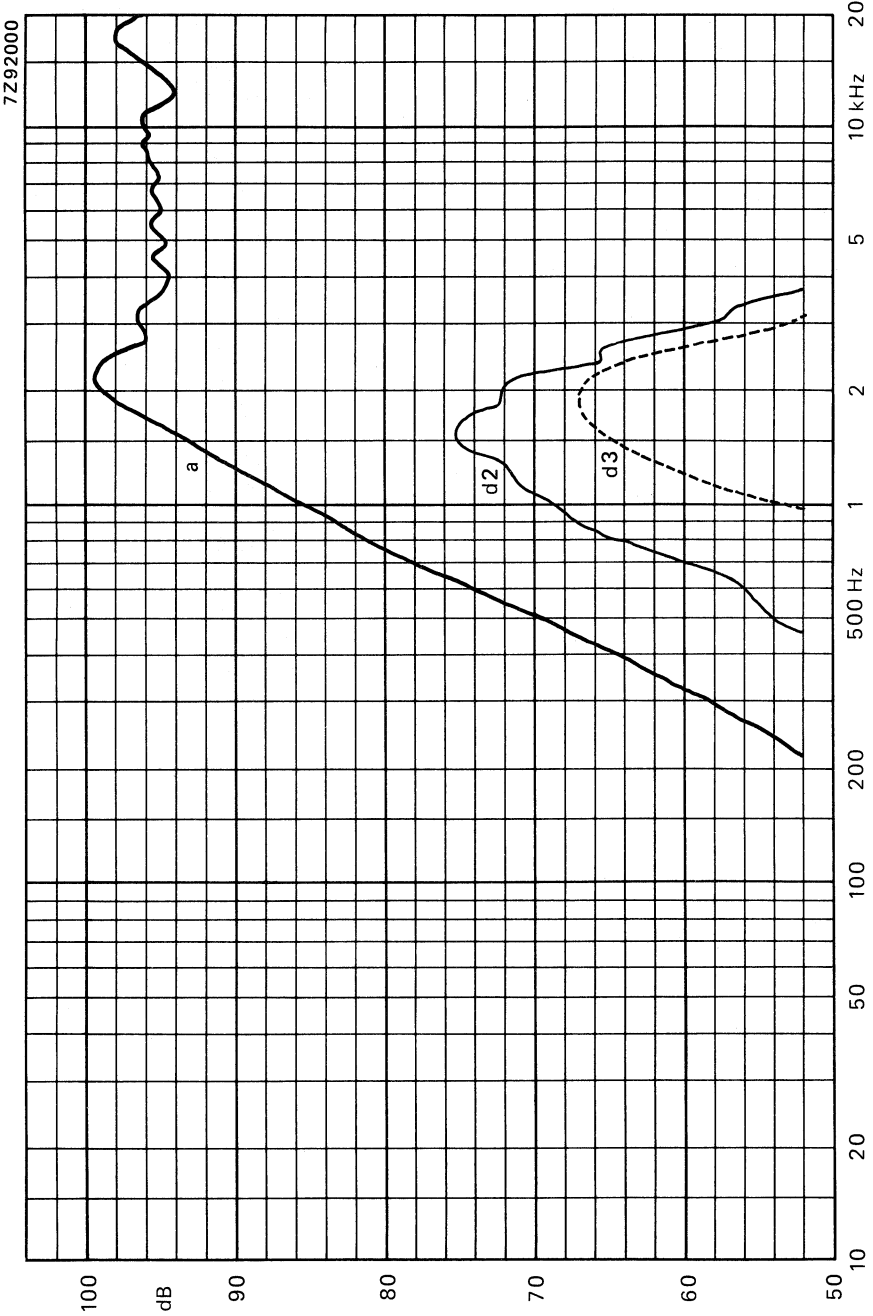


Fig. 2.

## 2 INCH HIGH POWER HI-FI TWEETER LOUDSPEAKERS

### APPLICATION

For the reproduction of high frequencies in multi-way high-fidelity loudspeaker systems. Minimum recommended crossover frequency 3000 Hz with 3 dB/octave slope. Type AD20310 has a round flange; type AD22310 has a square flange. These loudspeakers are the screened versions of types AD20302 and AD22302.

### TECHNICAL DATA

	version		
	T4	T8	T15
Rated impedance	4	8	15 $\Omega$
Voice coil resistance	3,4	6,3	12,5 $\Omega$
Rated frequency range	3000 to 20000 Hz		
Resonance frequency	2000		Hz
Power handling capacities, loudspeaker unmounted			
C = 12 $\mu$ F in series	4		W
C = 4,7 $\mu$ F in series		4	W
C = 2,7 $\mu$ F in series			4 W
Operating power (sound level 90 dB, 1 m)		6	W
Maximum power		8	W
Sweep voltage (600 to 20000 Hz), high-pass filter			
C = 12 $\mu$ F in series	3,4		V
C = 4,7 $\mu$ F in series		4,9	V
C = 2,7 $\mu$ F in series			6,7 V
Energy in air gap		21,5	mJ
Flux density		0,8	T
Air-gap height		2,5	mm
Voice coil height	2,8	2,9	2,9 mm
Core diameter		14,5	mm
Magnet material	ceramic		
diameter		36	mm
mass		29	g
Mass of loudspeaker		93	g

The loudspeaker has a paper cone. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. One tag has a  $\phi$  mark to facilitate phase matching.

Dimensions in mm

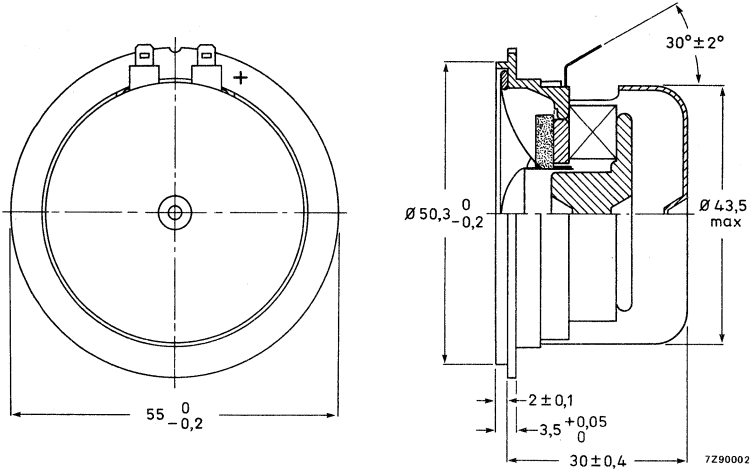


Fig. 1a type AD20310.

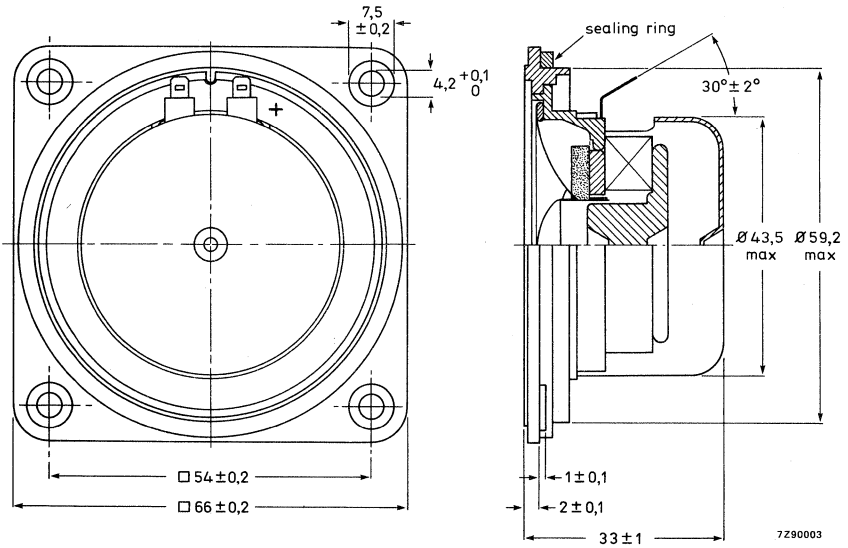


Fig. 1b type AD22310.

**AVAILABLE VERSIONS**

AD20310/T4 catalogue number 2422 257 32721  
AD20310/T8 catalogue number 2422 257 32722  
AD20310/T15 catalogue number 2422 257 32723  
AD22310/T4 catalogue number 2422 257 32731  
AD22310/T8 catalogue number 2422 257 32732  
AD22310/T15 catalogue number 2422 257 32733

} These numbers are for  
bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

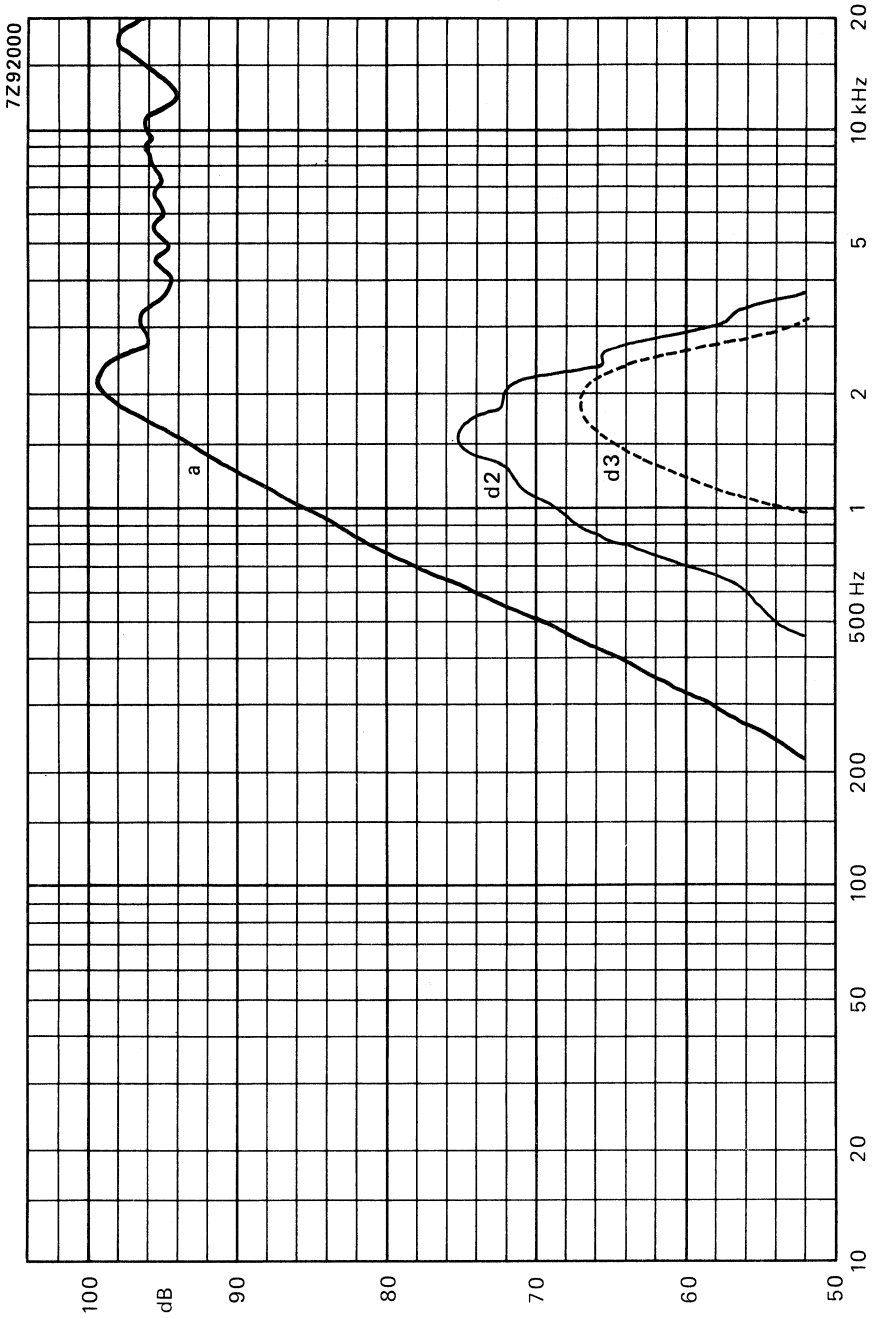


Fig. 2.

## 2 INCH HIGH POWER TWEETER LOUDSPEAKERS

### APPLICATION

For the reproduction of high frequencies in multi-way high-fidelity loudspeaker systems. Minimum recommended crossover frequency 3000 Hz with 3 dB/octave slope. T type AD20850 has a round flange; type AD22850 has a square flange.

### TECHNICAL DATA

	version		
	T4	T8	T15
Rated impedance	4	8	15 $\Omega$
Voice coil resistance	3,4	6,3	12,5 $\Omega$
Rated frequency range	3000 to 20000 Hz		
Resonance frequency	1900		Hz
Power handling capacities, loudspeaker unmounted,			
C = 12 $\mu$ F in series	4		W
C = 4,7 $\mu$ F in series		4	W
C = 2,7 $\mu$ F in series			4 W
Operating power (sound level 90 dB, 1 m)		3	W
Maximum power		8	W
Sweep voltage (600 to 20000 Hz), high-pass filter			
C = 12 $\mu$ F in series	2,4		V
C = 4,7 $\mu$ F in series		3,4	V
C = 2,7 $\mu$ F in series			4,7 V
Energy in air gap		40	mJ
Flux density		1,1	T
Air-gap height		2,5	mm
Voice coil height	2,8	2,9	2,9 mm
Core diameter		14,5	mm
Magnet material	ceramic		
diameter		45	mm ←
mass		53	g
Mass of loudspeaker		130	g

The loudspeaker has a paper cone. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. One tag has a  $\emptyset$  mark to facilitate phase matching.



Dimensions in mm

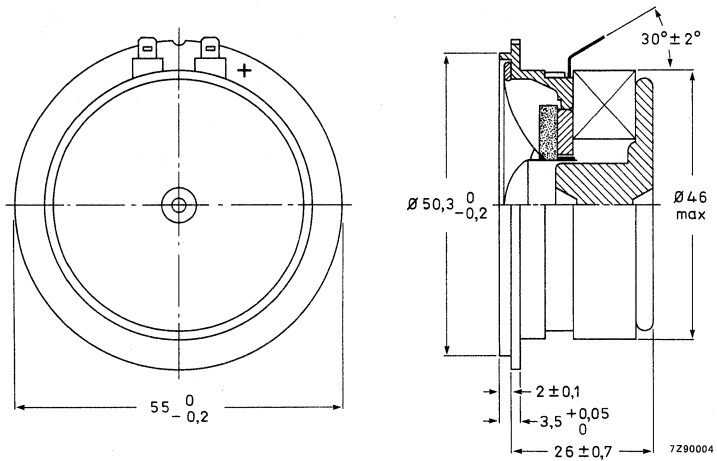


Fig. 1a type AD20850.

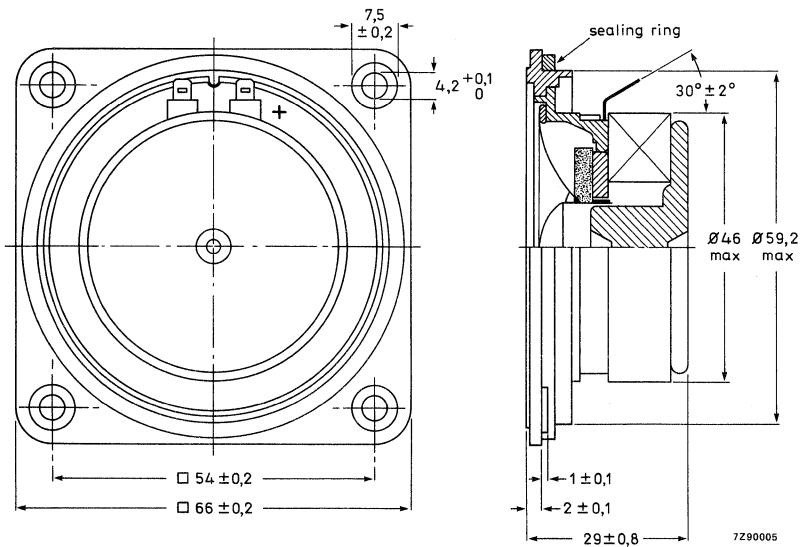


Fig. 1b type AD22850.

**AVAILABLE VERSIONS**

AD20850/T4 catalogue number 2422 257 42021  
AD20850/T8 catalogue number 2422 257 42022  
AD20850/T15 catalogue number 2422 257 42023  
AD22850/T4 catalogue number 2422 257 42031  
AD22850/T8 catalogue number 2422 257 42032  
AD22850/T15 catalogue number 2422 257 42033

} These numbers are for  
bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

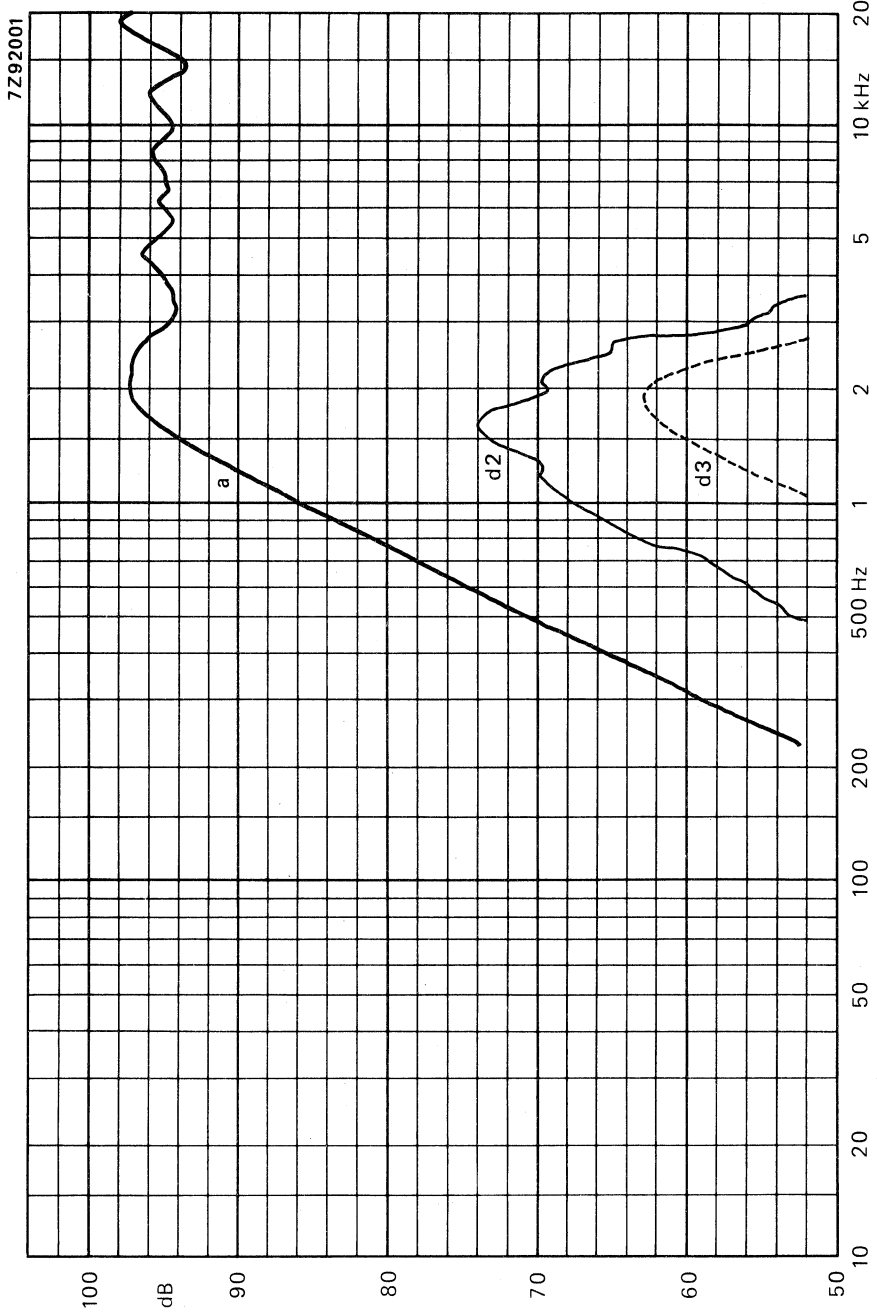


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD21600/RT8

## RIBBON TWEETER

for very high frequency reproduction

### TECHNICAL DATA

Rated impedance	8 $\Omega$	
Voice coil resistance	7 $\pm$ 0,7 $\Omega$	←
Rated frequency range	2000 to 60 000 Hz	
Resonance frequency	not relevant	
Power handling capacity, measured with filter: 3,3 $\mu$ F – 0,35 mH (1 minute on, 2 minutes off)	10 W	
Operating power (sound level 90 dB, 1 m)	2 W	
Sweep voltage (1 to 20 kHz) with filter: 3,3 $\mu$ F – 0,35 mH	2 V	
Flux density	0,36 T	
Voice coil height	9 mm	
Magnet material	ceramic	
dimensions	62 x 62 mm	←
mass	0,38 kg	
Mass of loudspeaker	0,77 kg	

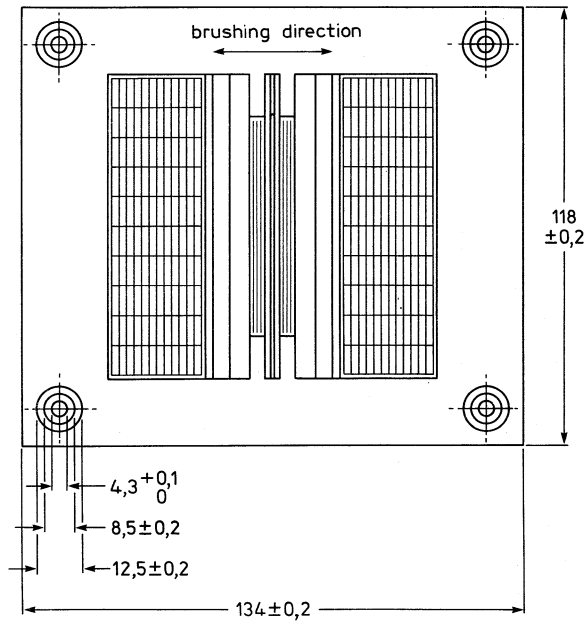
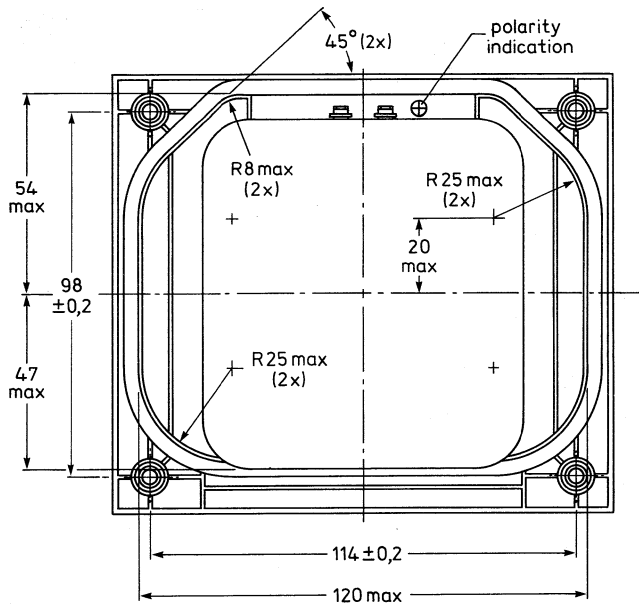
Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.  
One tag has a red mark to facilitate phase matching.

### AVAILABLE VERSION

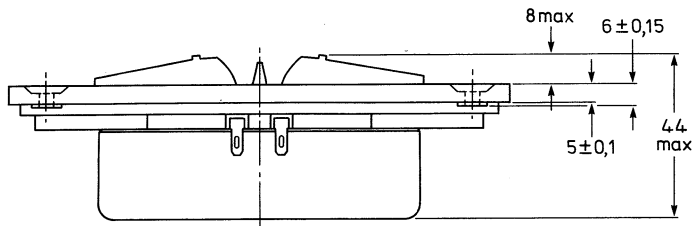
AD21600/RT8 catalogue number 2422 257 52022. This number is for bulk-packed loudspeakers. ←

### FREQUENCY RESPONSE CURVE (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.



7290059



DEVELOPMENT SAMPLE DATA

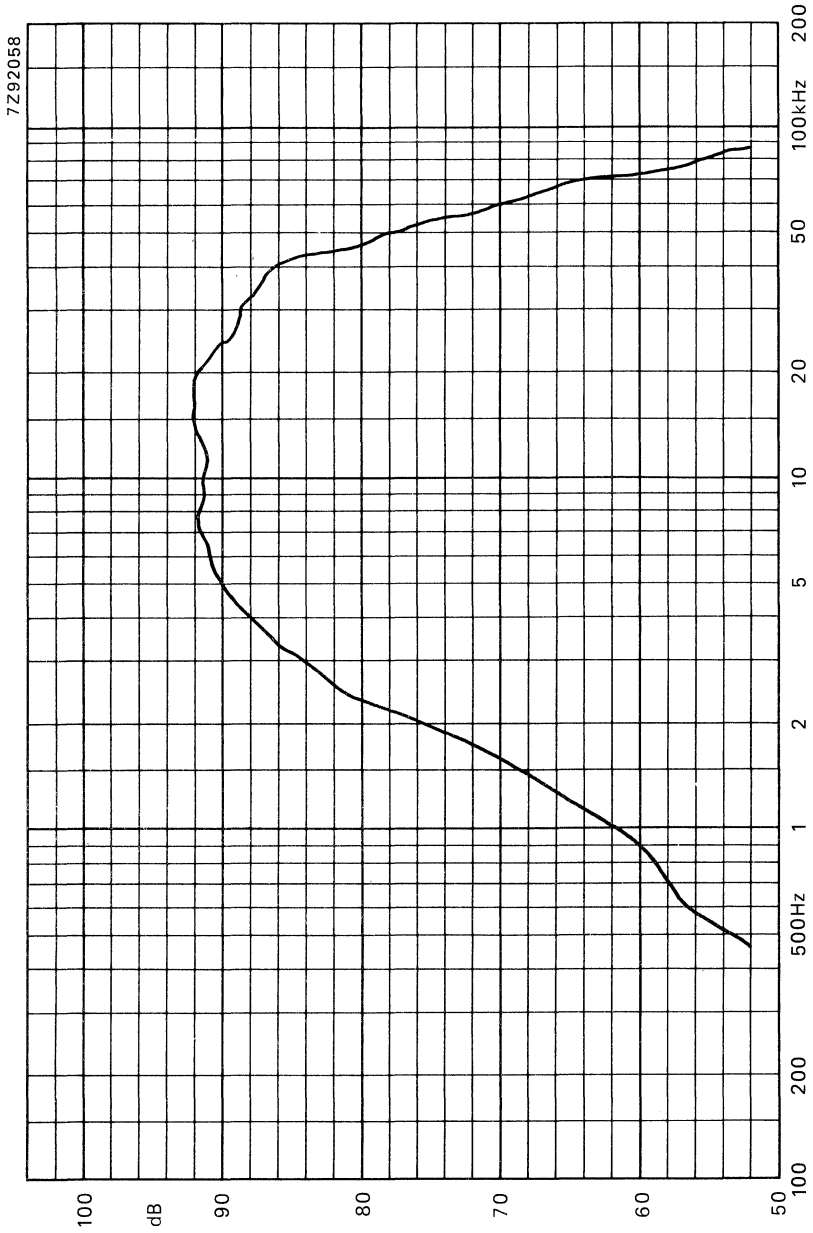


Fig. 2.



## 2 HIGH POWER TWEETER LOUDSPEAKERS

### APPLICATION

For the reproduction of high frequencies in multi-way high-fidelity loudspeaker systems. Minimum recommended crossover frequency 3000 Hz with 3 dB/octave slope.

### TECHNICAL DATA

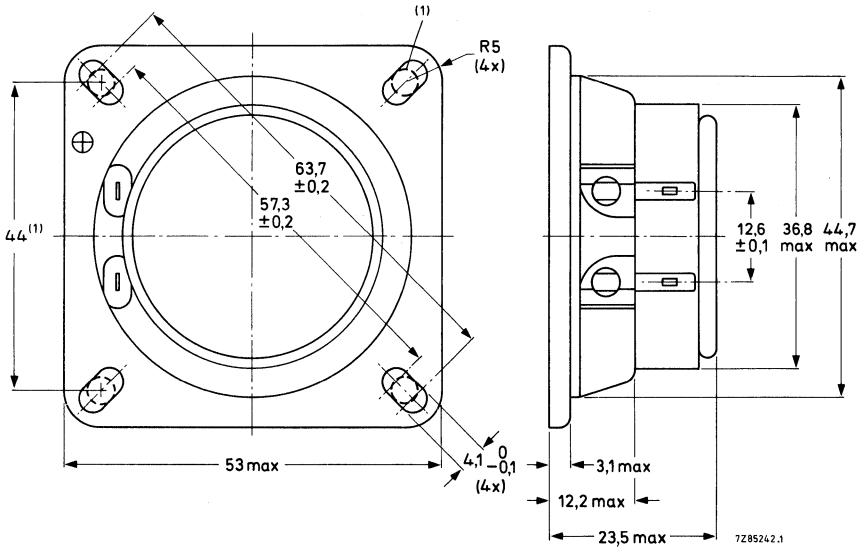
	versions		
	T4	T8	T15
Rated impedance	4	8	15 $\Omega$
Voice coil resistance	3,4	6,3	13,5 $\Omega$
Rated frequency range	3000 to 17 000 Hz		
Resonance frequency	1300		Hz
Power handling capacities, loudspeaker unmounted,			
C = 10 $\mu$ F in series	3		W
C = 5 $\mu$ F in series		3	W
C = 2,7 $\mu$ F in series			3 W
Operating power		6	W
Maximum power		6	W
Sweep voltage, frequency range: 600 to 17 000 Hz			
high pass filter:			
10 $\mu$ F in series	3,5		V
5 $\mu$ F in series		4,9	V
2,7 $\mu$ F in series			6,7 V
Energy in air gap		21,5	mJ
Flux density		0,8	T
Air-gap height		2,5	mm
Voice coil height	2	2,9	2,8 mm
Core diameter		14,5	mm
Magnet material		ceramic	
diameter		36	mm
mass		0,029	kg
Mass of loudspeaker		0,08	kg

The loudspeaker has a paper cone.

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. Version AD22300/T has four slotted mounting holes and AD22301/T has round mounting holes.



Dimensions in mm



(1) The loudspeakers are supplied either with slotted mounting holes (AD22300/T.) or with round holes (AD22301/T.).

Fig. 1.

One tag is indicated by a + sign for in-phase connection.

#### AVAILABLE VERSIONS

AD22300/T4	catalogue number 2422 257 32531	} these numbers apply to bulk packed loudspeakers, minimum packing quantity 10 per unit.
AD22300/T8	catalogue number 2422 257 32532	
AD22300/T15	catalogue number 2422 257 32533	
AD22301/T4	catalogue number 2404 257 32531	
AD22301/T8	catalogue number 2404 257 32532	
AD22301/T15	catalogue number 2404 257 32553	

#### FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted on IEC baffle according to IEC 268-5 para. 4.4.

Curve a: Sound pressure.

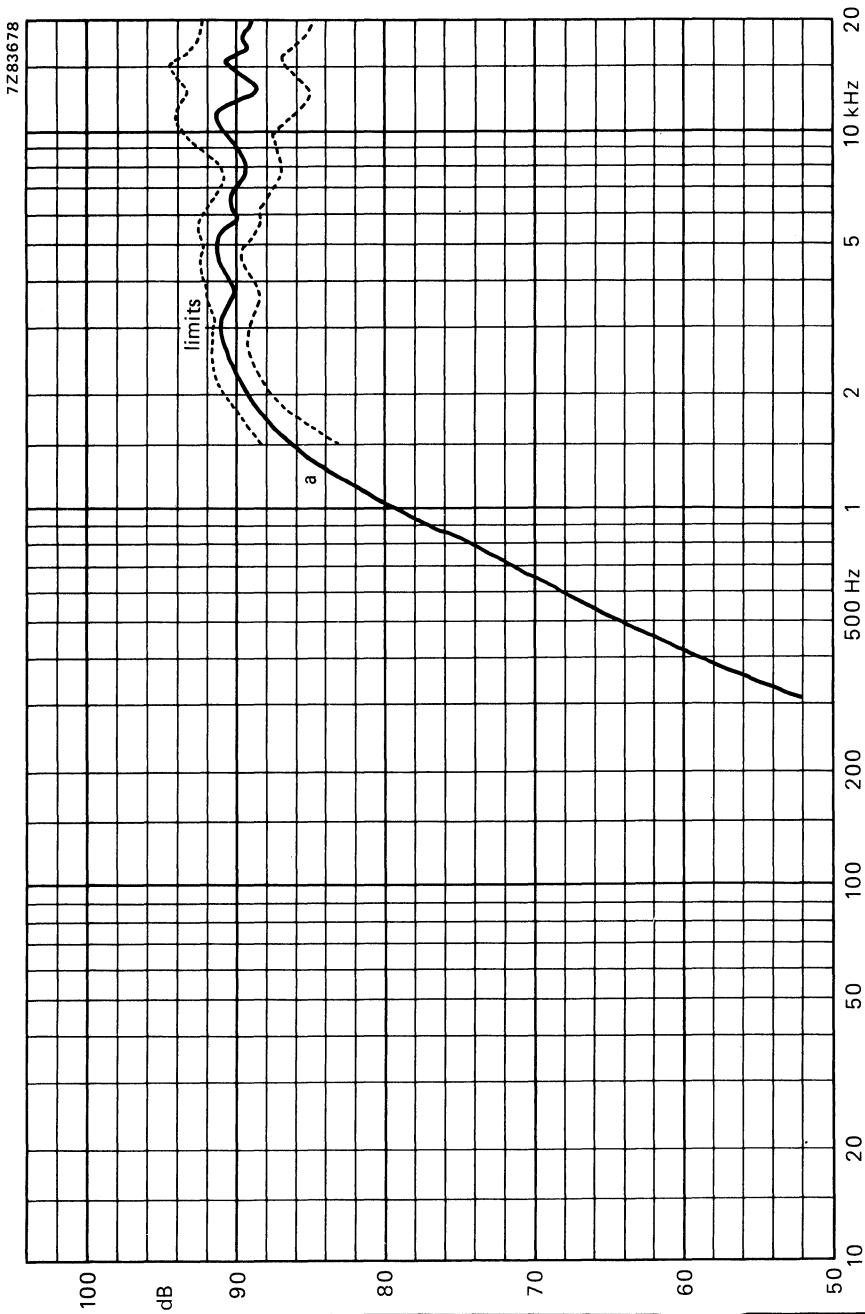


Fig. 2.

## 2 × 6 inch FULL RANGE LOUDSPEAKERS

## APPLICATION

For television and other applications where a low magnetic stray field is essential.

## TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 Ω
Voice coil resistance	3,4	7	15	22 Ω
→ Resonance frequency		155		Hz
Power handling capacity, measured without filter, loudspeaker unmounted		5		W
Maximum power on loudspeaker		10		W
Operating power (sound level 90 dB, 1 m)	1,35	1,5	1,6	1,6 W
Sweep voltage (60 to 10 000 Hz)	3,2	4,5	6,1	7,9 V
Filter		none		
Characteristic sensitivity	89	88,5	88	88 dB/W/m
Energy in air gap		56		mJ
Flux density		1,25		T
Air-gap height		2,5		mm
Voice coil height	4,2	4,2	4,2	5,1 mm
Core diameter		14,5		mm
Magnet material		ceramic		
diameter		45		mm
mass		0,095		kg
Mass of loudspeaker		0,289		kg
Magnetic stray field according to DIN 45578	max.	35		mT

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeakers have a textile rim.

Dimensions in mm

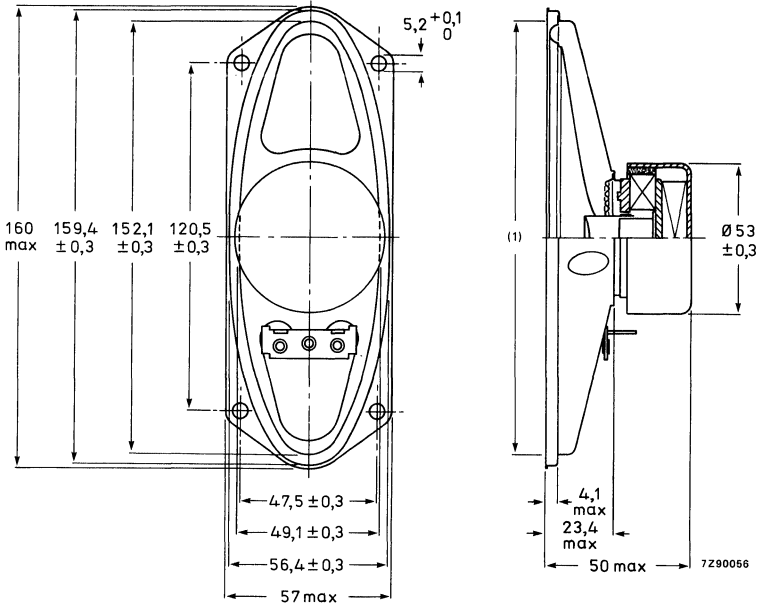


Fig. 1.

(1)

Recommended baffle opening oval of 151,5 x 48,5 mm. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD26921/X4	catalogue number 2422 257 29331	} These numbers are for bulk-packed loudspeakers.
AD26921/X8	catalogue number 2422 257 29332	
AD26921/X15	catalogue number 2422 257 29333	
AD26921/X25	catalogue number 2422 257 29334	

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

7Z92043

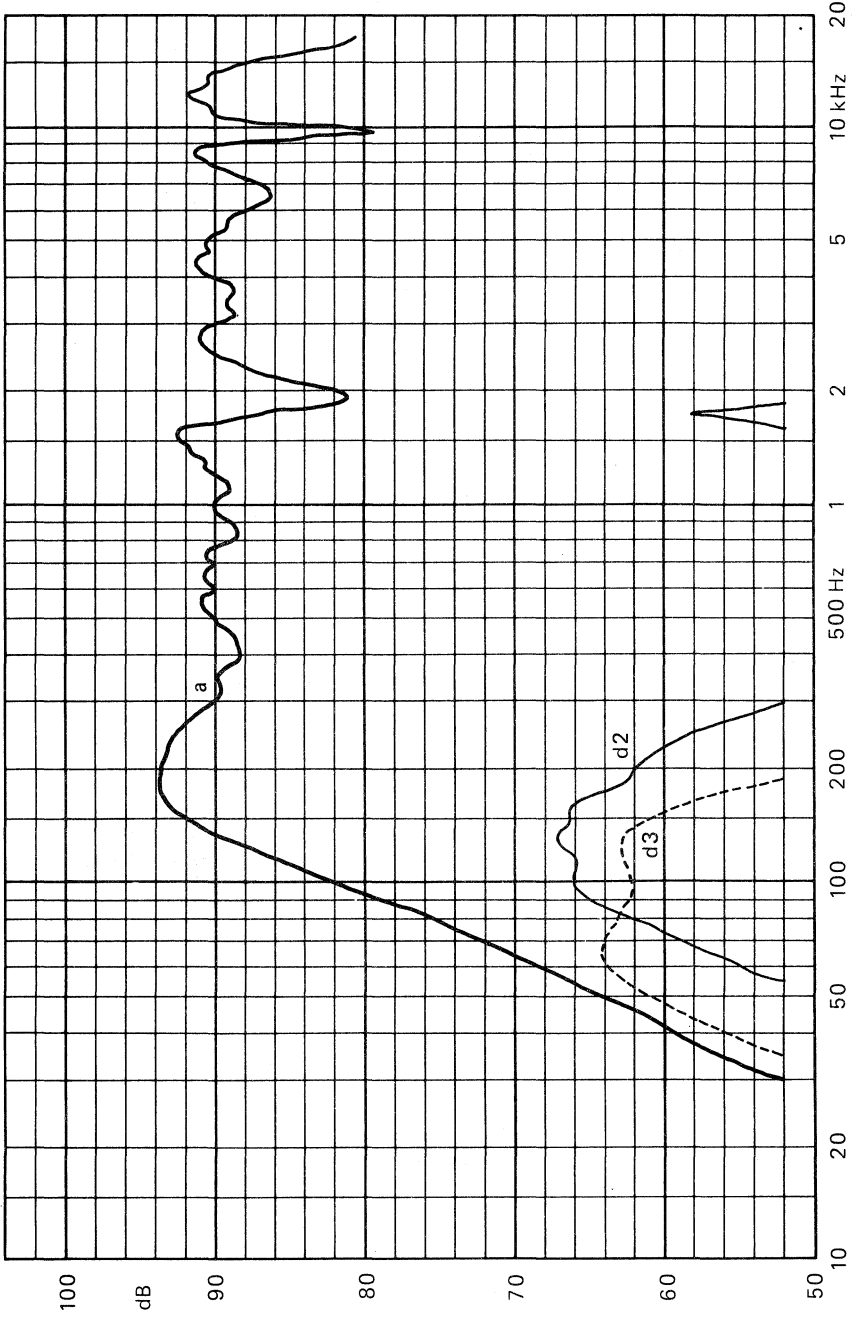


Fig. 2.

## 3 INCH CONE SQUAWKER LOUDSPEAKER

## TECHNICAL DATA

	version		
	Sq4	Sq8	Sq15
Rated impedance	4	8	15 $\Omega$
Voice coil resistance	3,2	7	13,2 $\Omega$
Rated frequency range	300 to 15000		Hz
Resonance frequency	470		Hz
Power handling capacity, loudspeaker mounted on IEC baffle, measured with filter			
15 $\mu$ F	10		W
6,8 $\mu$ F		10	W
3,3 $\mu$ F			10 W
Max. power on loudspeaker		20	W
Operating power (sound level 90 dB, 1 m)		4	W
Sweep voltage (500 to 1000 Hz); filter:			
15 $\mu$ F	2,9		V
6,8 $\mu$ F		4	V
3,3 $\mu$ F			5,5 V
Energy in air gap		53	mJ
Flux density		0,98	T
Air-gap height		3	mm
Voice coil height	4	4,5	4,5 mm
Core diameter		18	mm
Magnet material	ceramic		
diameter		53	mm
mass		0,1	kg
Mass of loudspeaker		0,237	kg
Connection by 2,8 mm (0,11 inch) tag connectors or by soldering.			

Dimensions in mm

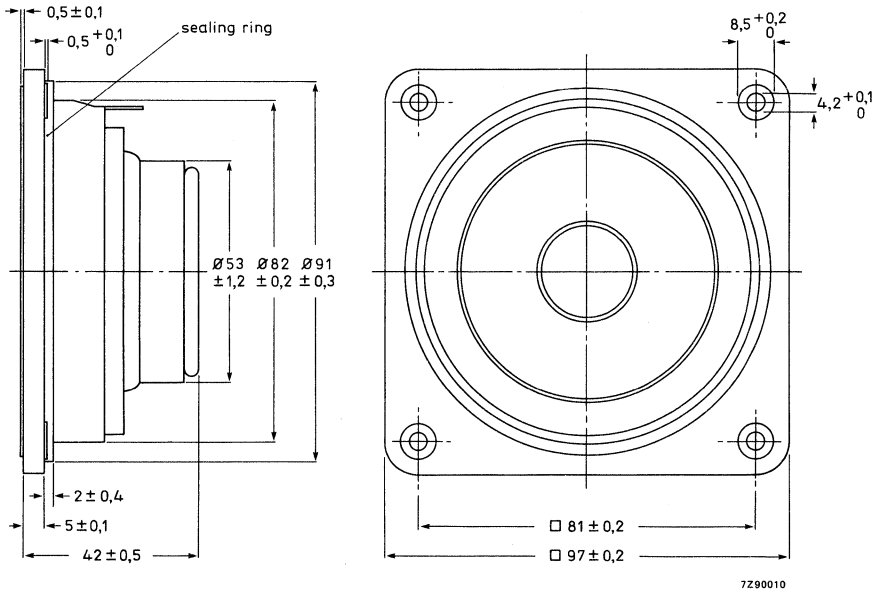


Fig. 1.

One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- |              |                                 |   |
|--------------|---------------------------------|---|
| AD33801/Sq4  | catalogue number 2422 257 53031 | } The numbers are for bulk-packed loudspeakers. |
| AD33801/Sq8  | catalogue number 2422 257 53032 |   |
| AD33801/Sq15 | catalogue number 2422 257 53033 |   |

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

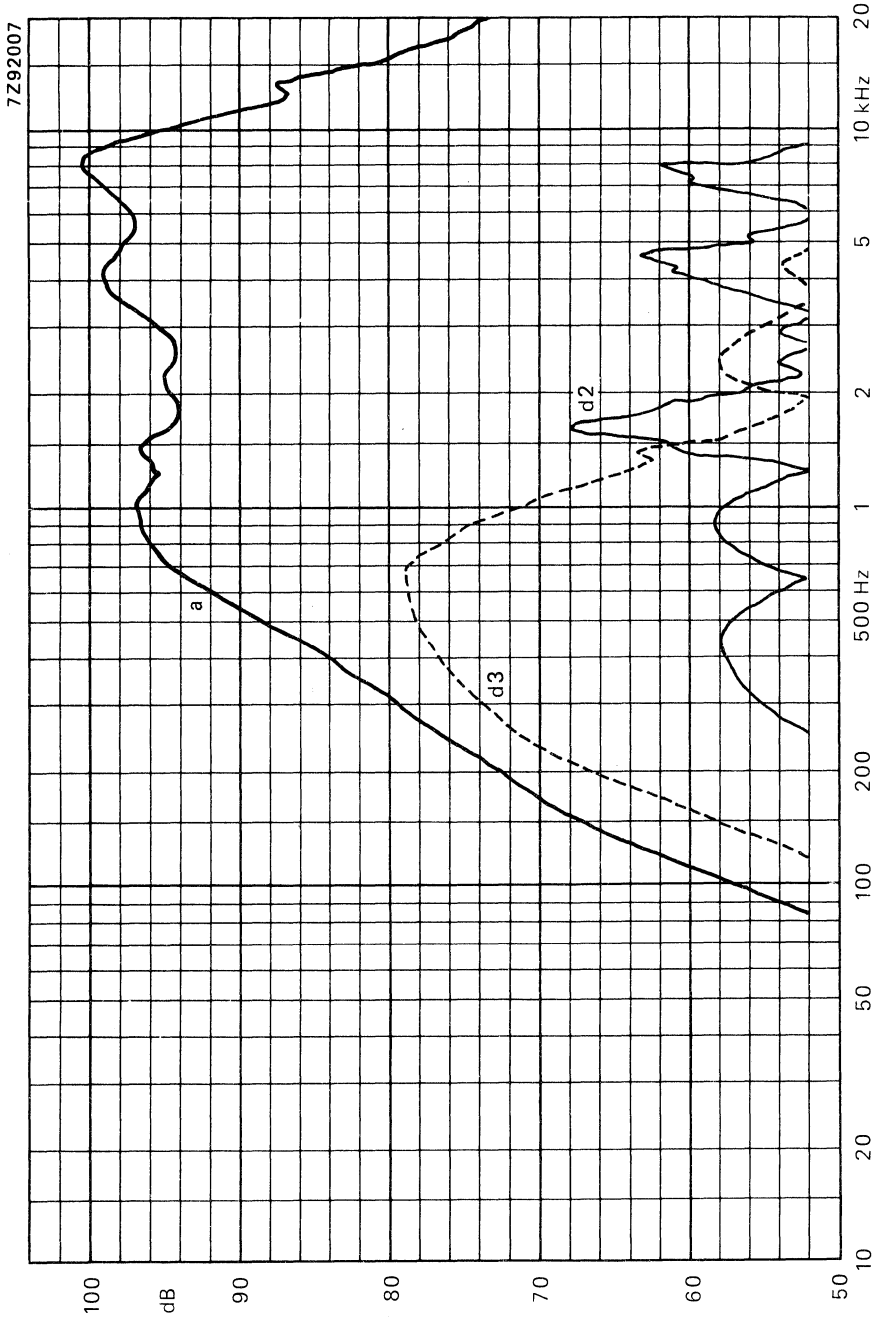


Fig. 2.



## 3 inch FULL RANGE LOUDSPEAKER

**APPLICATION**

For hi-fi video applications.

**TECHNICAL DATA**

Rated impedance	4 $\Omega$
Voice coil resistance	3,2 $\Omega$
Rated frequency range	200 to 20 000 Hz
Resonance frequency	85 Hz
Power handling capacity, measured without filter; loudspeaker mounted in 1 litre enclosure	12 W
loudspeaker unmounted	6 W
Maximum power on loudspeaker	20 W
Operating power (sound level 90 dB, 1 m)	2,25 W
Sweep voltage (45 to 20 000 Hz)	9 W
Energy in air gap	60,5 mJ
Flux density	1 T
Air-gap height	3 mm
Voice coil height	4,4 mm
Core diameter	18 mm
Magnet material	ceramic
diameter	45 mm
mass	53 g
Mass of loudspeaker	0,3 kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

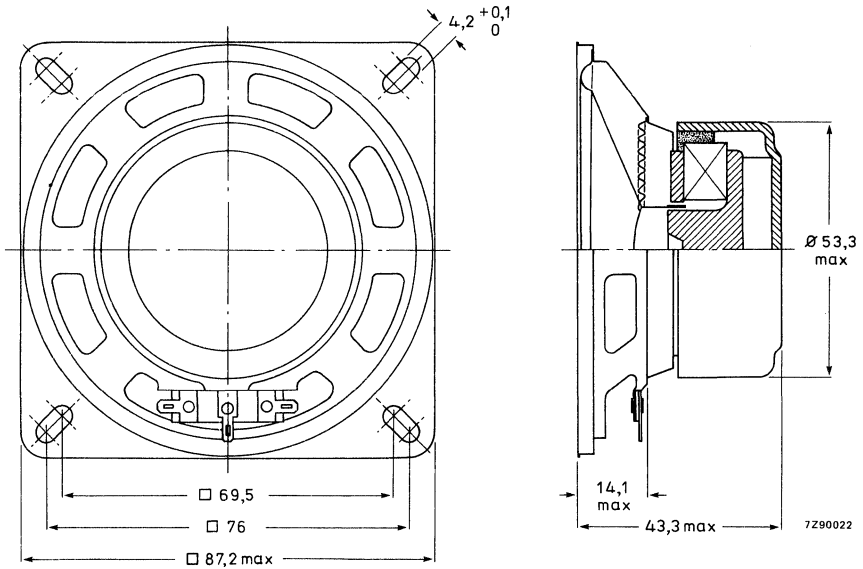


Fig. 1.

One tag has a red mark to facilitate phase matching. Recommended baffle hole:  $\phi$  79 mm.

#### AVAILABLE VERSION

AD33910/X4 catalogue number 2422 257 34532. This number is for bulk-packed loudspeakers.

#### FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

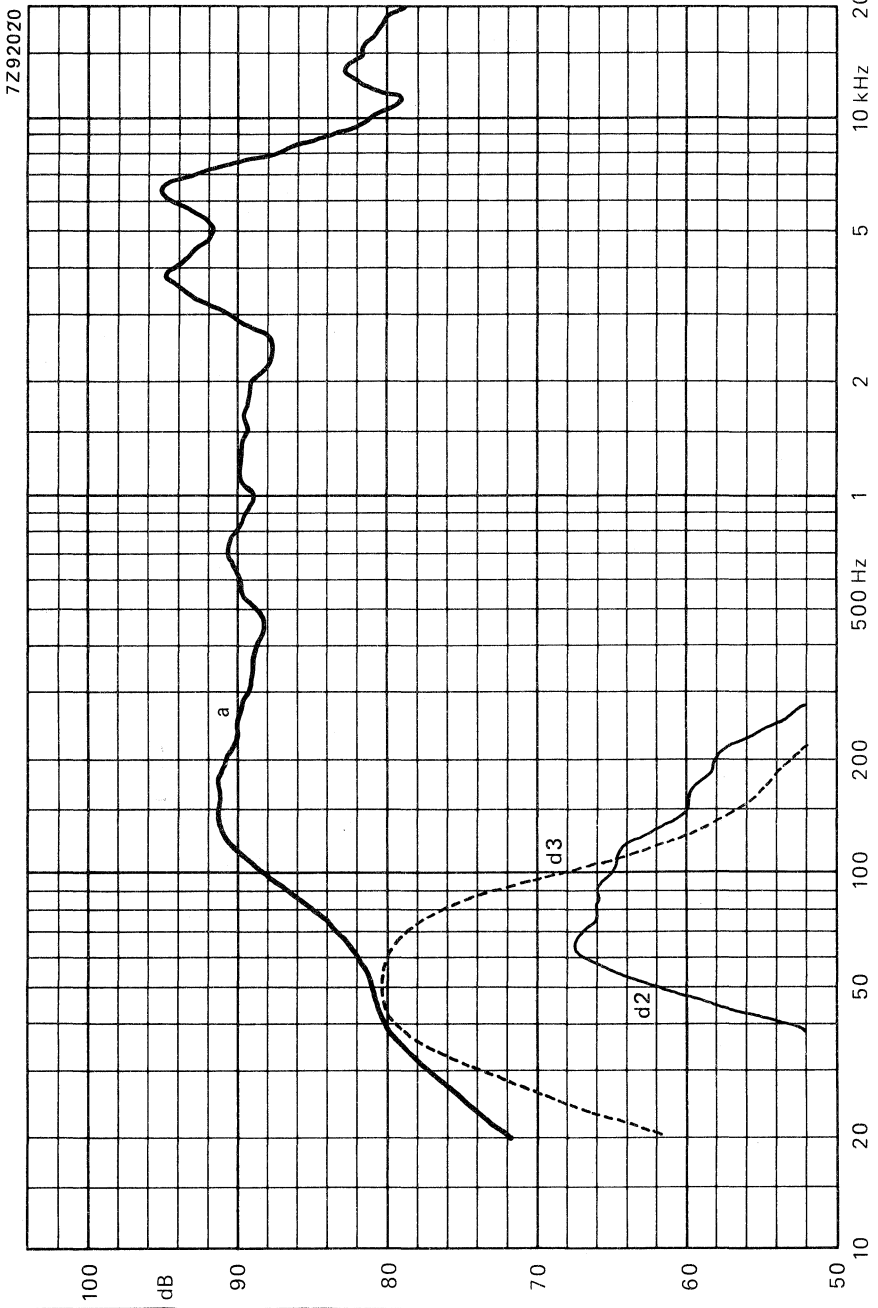


Fig. 2.

## 3 x 5 inch FULL RANGE LOUDSPEAKERS

### APPLICATION

Oval loudspeaker for audio and video applications.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8 $\Omega$
Rated frequency range		75 to 16 000		Hz
Resonance frequency		160		Hz
Power handling capacity, measured without filter, loudspeaker unmounted		3		W
Maximum power on loudspeaker		5		W
Operating power (sound level 90 dB, 0,5 m)		650		mW ←
Sweep voltage (100 to 20 000 Hz)		to be established		V
Filter		none		
Energy in air gap		12,7		mJ
Flux density		0,74		T
Air-gap height		2,5		mm
Voice coil height		3,6		mm
Core diameter		10		mm
Magnet material		ceramic		
square		28,5		mm ←
mass		0,018		kg
Mass of loudspeaker		0,09		kg

The loudspeakers have a plastic frame and a paper cone. AD35740/X. have a screened magnet system; stray field according to DIN 45578. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

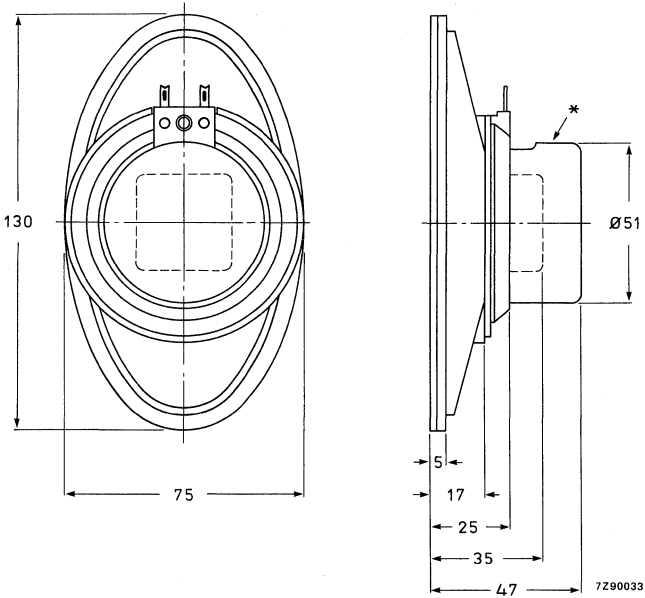


Fig. 1.

\* Screening for AD35740/X only.

One tag has a  $\oplus$  mark to facilitate phase matching. Recommended baffle hole: ellipse, 63 x 118 mm.

**AVAILABLE VERSIONS**

- AD35720/X4 catalogue number 2403 257 20021
- AD35720/X8 catalogue number 2403 257 20022
- AD35720/X15 catalogue number 2403 257 20023
- AD35720/X25 catalogue number 2403 257 20024
- AD35740/X4 catalogue number 2403 257 20121
- AD35740/X8 catalogue number 2403 257 20122
- AD35740/X15 catalogue number 2403 257 20123
- AD35740/X25 catalogue number 2403 257 20124

} These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES (see Fig. 2)**

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

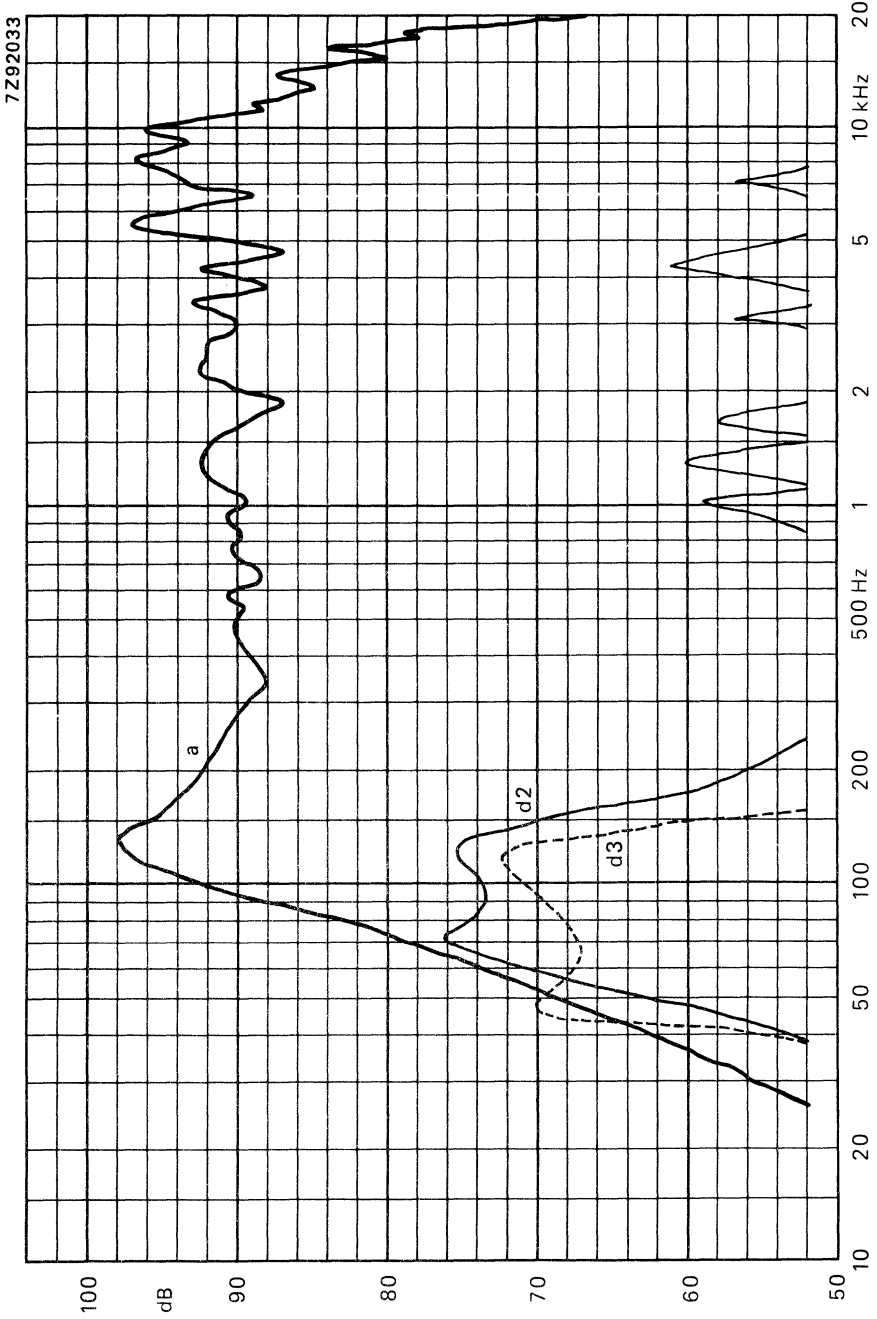


Fig. 2.

## 3 x 5 inch FULL RANGE LOUDSPEAKERS

### APPLICATION

Oval loudspeaker for audio and video applications.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8 $\Omega$
Rated frequency range		75 to 16 000		Hz
Resonance frequency		160		Hz
Power handling capacity, measured without filter, loudspeaker unmounted		2,5		W
Maximum power on loudspeaker		5		W
→ Operating power (sound level 90 dB, 0,5 m)		650		mW
Sweep voltage (100 to 20 000 Hz)		t.b.a.		V
Filter		none		
Energy in air gap		12,7		mJ
Flux density		0,74		T
Air-gap height		2,5		mm
Voice coil height		3,6		mm
→ Core diameter		10		mm
Magnet material		ceramic		
→ square		28,5		mm
mass		0,018		kg
Mass of loudspeaker		0,09		kg

The loudspeakers have a plastic frame and a paper cone. AD35741/X. have a screened magnet system; stray field according to DIN 45578. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

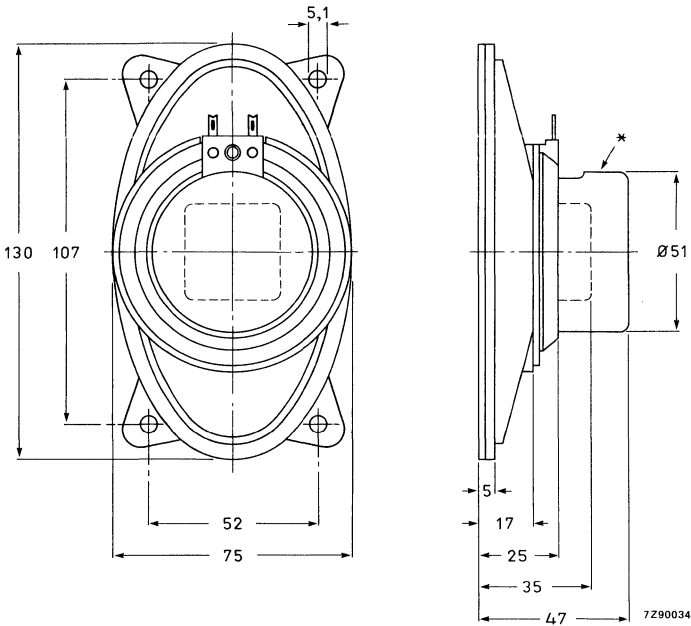


Fig. 1.

\* Screening for AD35741 only.

One tag has a  $\oplus$  mark to facilitate phase matching. Recommended baffle hole: oval, 63 x 118 mm.

#### AVAILABLE VERSIONS

AD35721/X4	catalogue number 2403 257 20221
AD35721/X8	catalogue number 2403 257 20222
AD35721/X15	catalogue number 2403 257 20223
AD35721/X25	catalogue number 2403 257 20224
AD35741/X4	catalogue number 2403 257 20321
AD35741/X8	catalogue number 2403 257 20322
AD35741/X15	catalogue number 2403 257 20323
AD35741/X25	catalogue number 2403 257 20324

These numbers are for bulk-packed loudspeakers.

#### FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.



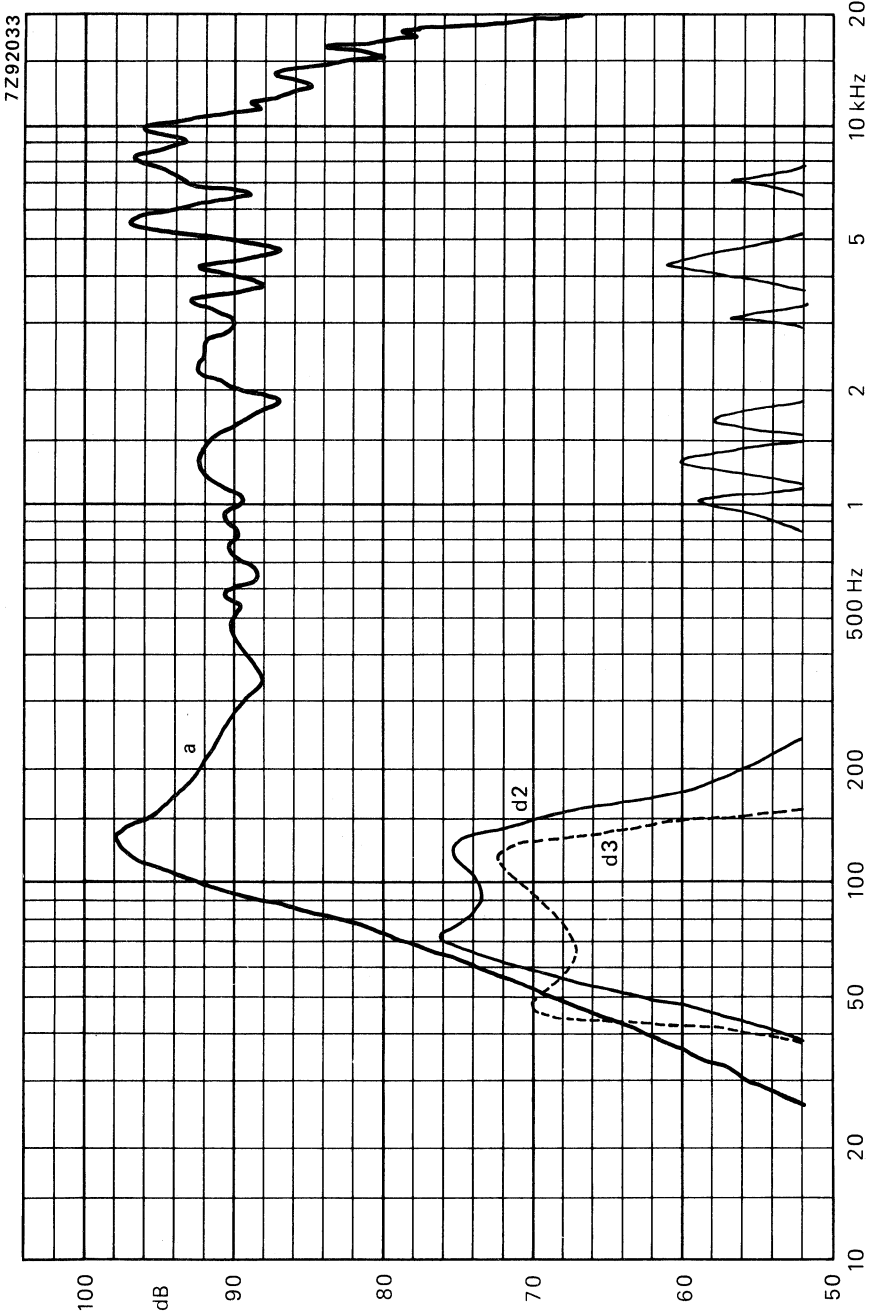


Fig. 2.

## 3 x 5 inch FULL RANGE LOUDSPEAKER

### APPLICATION

Oval loudspeaker for audio and video applications. AD35742 has a screened magnet system.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8 $\Omega$
Rated frequency range	100 to 20 000			Hz
Resonance frequency	160			Hz
Power handling capacity, measured without filter, loudspeaker unmounted	3			W
Operating power (sound level 90 dB, 0,5 m)	650			mW ←
Sweep voltage (100 to 20 000 Hz)	to be established			V
Filter	none			
Energy in air gap	12,7			mJ
Flux density	0,74			T
Air-gap height	2,5			mm
Voice coil height	3,6			mm
Core diameter	10			mm
Magnet material	ceramic			
square	28,5			mm ←
mass	0,018			kg
Mass of loudspeaker	0,091			kg

Magnetic stray field according to DIN 45578. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

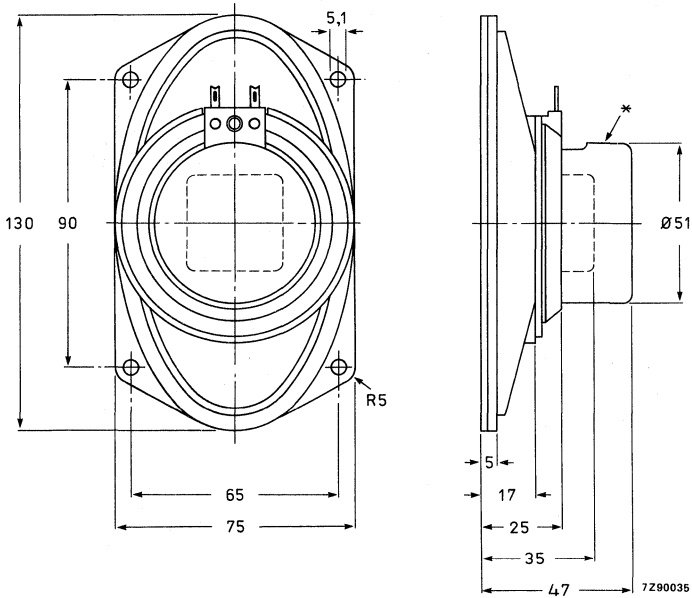


Fig. 1.

\* Screening for AD35742/X only.

One tag has a  $\oplus$  mark to facilitate phase mounting. Recommended baffle hole: ellipse, 63 x 118 mm.

**AVAILABLE VERSIONS**

- AD35722/X4 catalogue number 2403 257 20421
- AD35722/X8 catalogue number 2403 257 20422
- AD35722/X15 catalogue number 2403 257 20423
- AD35722/X25 catalogue number 2403 257 20424
  
- AD35742/X4 catalogue number 2403 257 20521
- AD35742/X8 catalogue number 2403 257 20522
- AD35742/X15 catalogue number 2403 257 20523
- AD35742/X25 catalogue number 2403 257 20524

} These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES (see Fig. 2)**

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

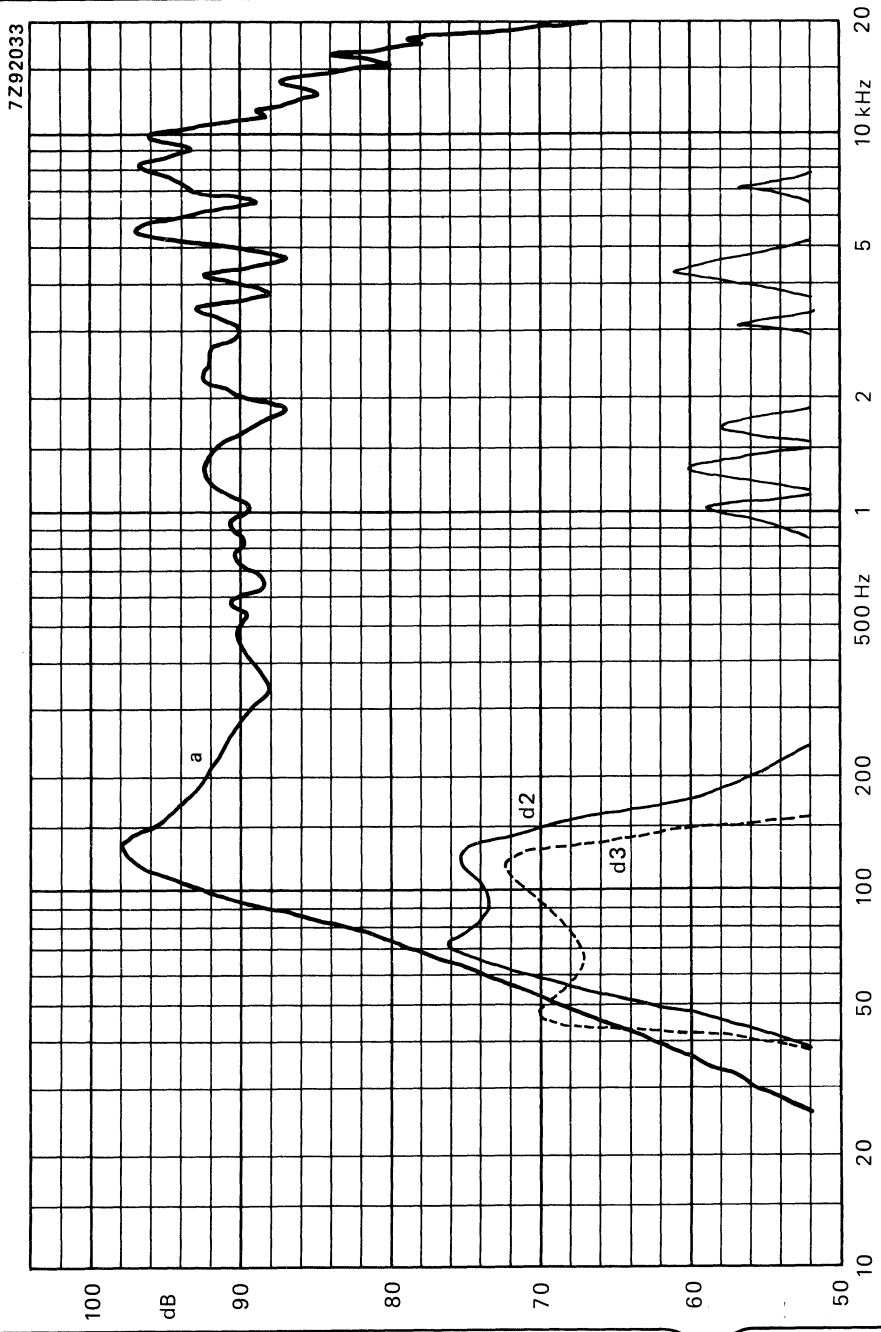


Fig. 2.

## 3 x 5 INCH FULL RANGE LOUDSPEAKERS

### APPLICATION

Oval loudspeaker for audio and video applications. AD35746 has a screened magnet system.

### TECHNICAL DATA

	version				
	X4	X8	X15	X25	
Rated impedance	4	8	15	25	Ω
Voice coil resistance	3,5	7,1	13,7	22,8	Ω
Rated frequency range	75 to 16 000				Hz
Resonance frequency	160				Hz
Power handling capacity, measured without filter, loudspeaker unmounted	5				W
Maximum power on loudspeaker	7				W
Operating power (sound level 90 dB, 0,5 m)	650				mW
Sweep voltage (100 to 20 000 Hz)	to be established				V
Filter	none				
Energy in air gap	12,7				mJ
Flux density	0,74				T
Air-gap height	2,5				mm
Voice coil height	3,6				mm
Core diameter	10				mm
Magnet material	ceramic				
→ square	28,5				mm
mass	18				g
Mass of loudspeaker					
AD35725	70				g
AD35746	90				g

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

The loudspeakers have a plastic frame and a paper cone.

Dimensions in mm

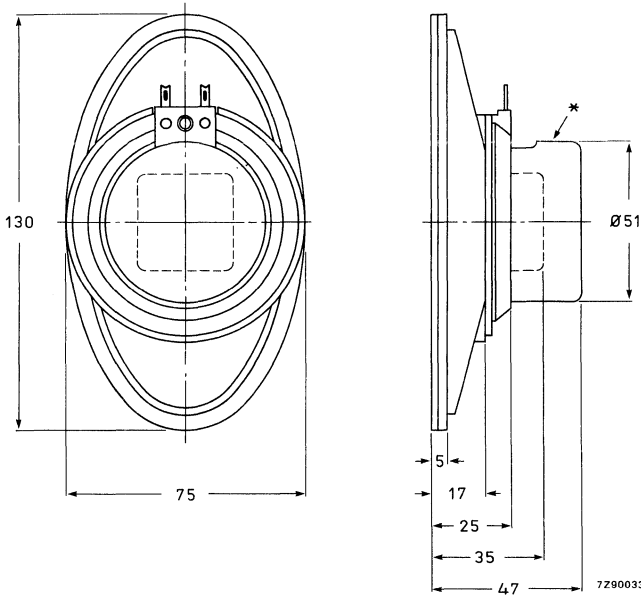


Fig. 1.

\* Screening for AD35746 only.

One tag has a ⊕ mark to facilitate phase matching. Recommended baffle hole: ellipse, 63 x 118 mm.

**AVAILABLE VERSIONS**

AD35725/X4	catalogue number 2403 257 50021
AD35725/X8	catalogue number 2403 257 50022
AD35725/X15	catalogue number 2403 257 50023
AD35725/X25	catalogue number 2403 257 50024
AD35746/X4	catalogue number 2403 257 50121
AD35746/X8	catalogue number 2403 257 50122
AD35746/X15	catalogue number 2403 257 50123
AD35746/X25	catalogue number 2403 257 50124

} These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

DEVELOPMENT SAMPLE DATA

7Z92033

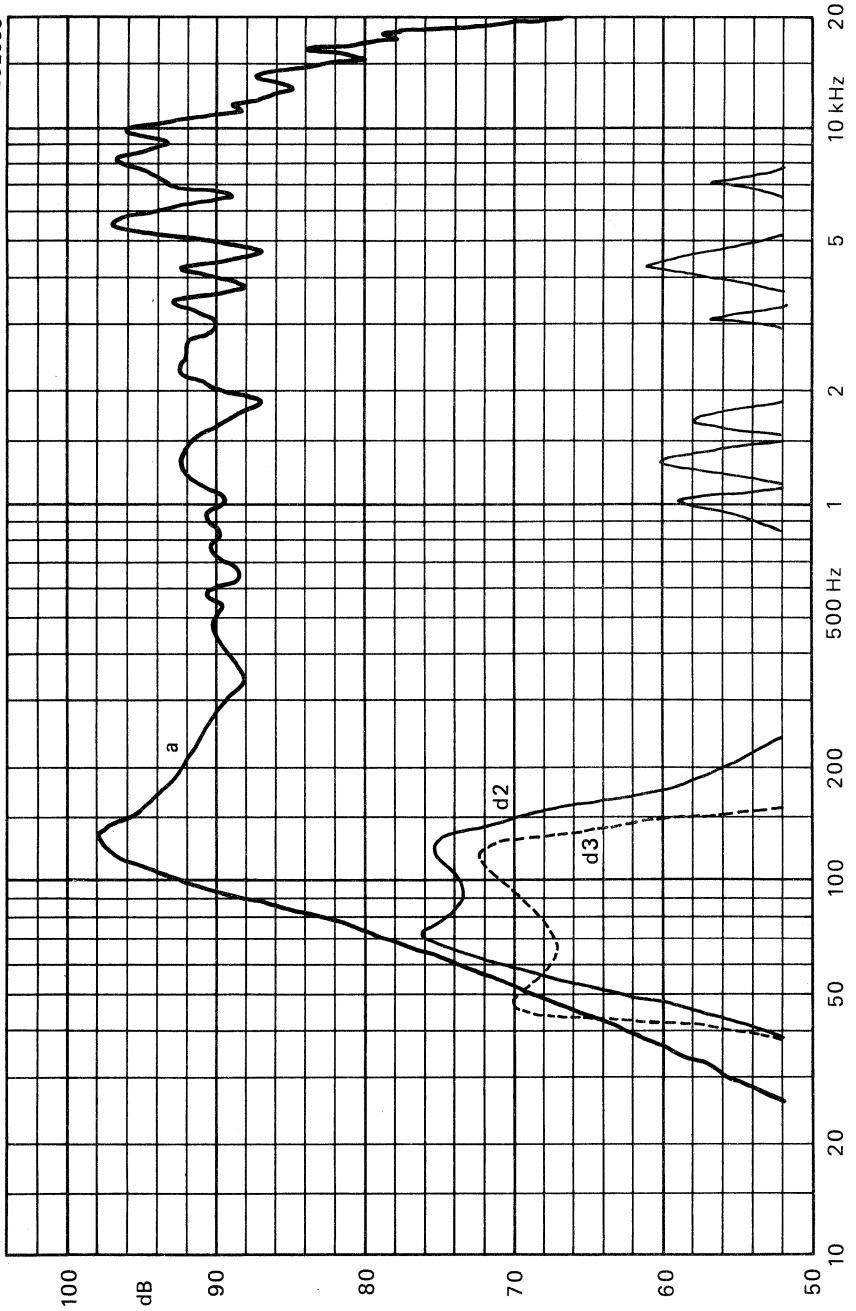


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD35726/X.  
AD35747/X.

# 3 x 5 INCH FULL RANGE LOUDSPEAKERS

## APPLICATION

Oval loudspeaker for audio and video applications. AD35747 has a screened magnet system.

## TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8 $\Omega$
Rated frequency range	75 to 16 000			Hz
Resonance frequency	160			Hz
Power handling capacity, measured without filter, loudspeaker unmounted	5			W
Maximum power on loudspeaker	7			W
Operating power (sound level 90 dB, 0,5 m)	650			mW
Sweep voltage (100 to 20 000 Hz)	t.b.a.			V
Filter	none			
Energy in air gap	12,7			mJ
Flux density	0,74			T
Air-gap height	2,5			mm
Voice coil height	3,6			mm
Core diameter	10			mm ←
Magnet material	ceramic			
square	28,5			mm ←
mass	18			g
Mass of loudspeaker				
AD35726	70			g
AD35747	90			g

The loudspeakers have a plastic frame and a paper cone.

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.



Dimensions in mm

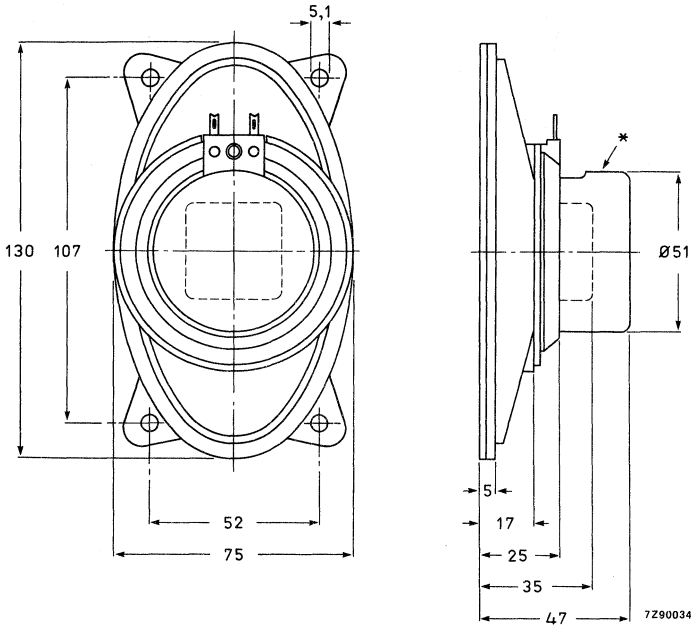


Fig. 1.

\* Screening for AD35747 only.

One tag has a  $\oplus$  mark to facilitate phase matching. Recommended baffle hole: oval, 63 x 118 mm.

**AVAILABLE VERSIONS**

AD35726/X4	catalogue number 2403 257 50221
AD35726/X8	catalogue number 2403 257 50222
AD35726/X15	catalogue number 2403 257 50223
AD35726/X25	catalogue number 2403 257 50224
AD35747/X4	catalogue number 2403 257 50321
AD35747/X8	catalogue number 2403 257 50322
AD35747/X15	catalogue number 2403 257 50323
AD35747/X25	catalogue number 2403 257 50324

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

DEVELOPMENT SAMPLE DATA

7Z92033

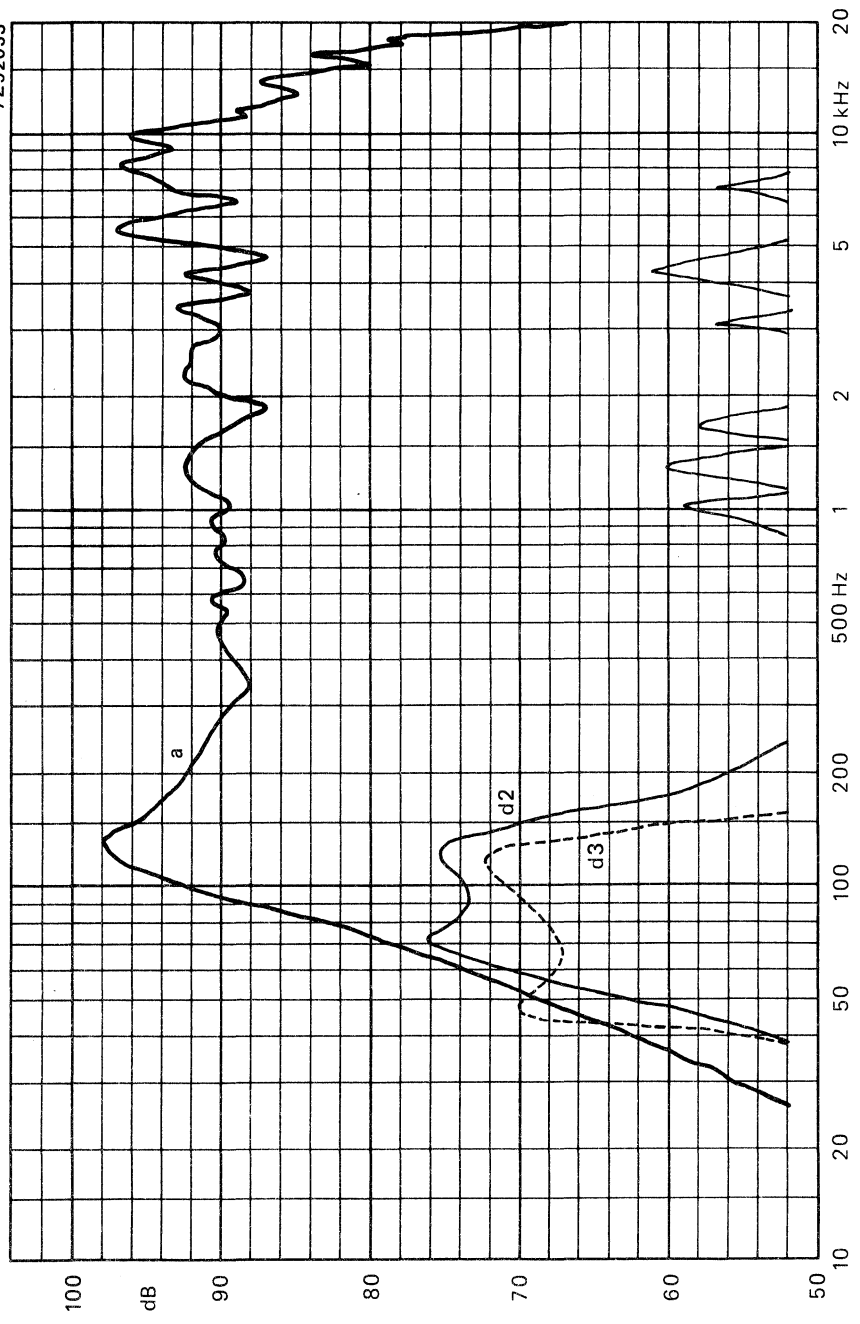


Fig. 2.

## 3 x 5 INCH FULL RANGE LOUDSPEAKERS

### APPLICATION

Oval loudspeaker for audio and video applications. AD35748 has a screened magnet system.

### TECHNICAL DATA

	version				
	X4	X8	X15	X25	
Rated impedance	4	8	15	25	$\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8	$\Omega$
Rated frequency range	100 to 20 000				Hz
Resonance frequency	160				Hz
Power handling capacity, measured without filter, loudspeaker unmounted	5				W
Maximum power on loudspeaker	7				W
Operating power (sound level 90 dB, 0,5 m)	650				mW
Sweep voltage (100 to 20 000 Hz)	to be established				V
Filter	none				
Energy in air gap	12,7				mJ
Flux density	0,74				T
Air-gap height	2,5				mm
Voice coil height	3,6				mm
Core diameter	10				mm
Magnet material	ceramic				
→ square mass	28,5				mm
	18				g
Mass of loudspeaker					
AD35727	70				g
AD35748	90				g

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

The loudspeakers have a plastic frame and a paper cone.

Dimensions in mm

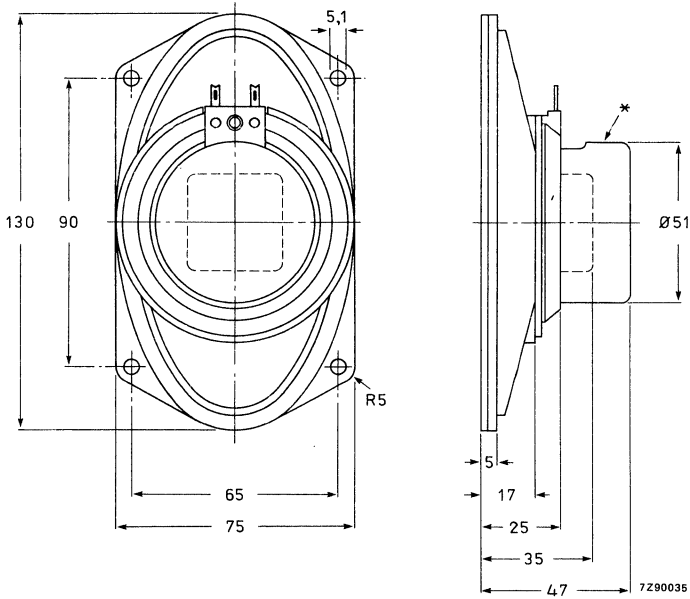


Fig. 1.

\* Screening for AD35748 only.

One tag has a  $\oplus$  mark to facilitate phase mounting. Recommended baffle hole: ellipse, 63 x 118 mm.

**AVAILABLE VERSIONS**

- |             |                                 |
|-------------|---------------------------------|
| AD35727/X4  | catalogue number 2403 257 50421 |
| AD35727/X8  | catalogue number 2403 257 50422 |
| AD35727/X15 | catalogue number 2403 257 50423 |
| AD35727/X25 | catalogue number 2403 257 50424 |
| AD35748/X4  | catalogue number 2403 257 50521 |
| AD35748/X8  | catalogue number 2403 257 50522 |
| AD35748/X15 | catalogue number 2403 257 50523 |
| AD35748/X25 | catalogue number 2403 257 50524 |

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2).

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

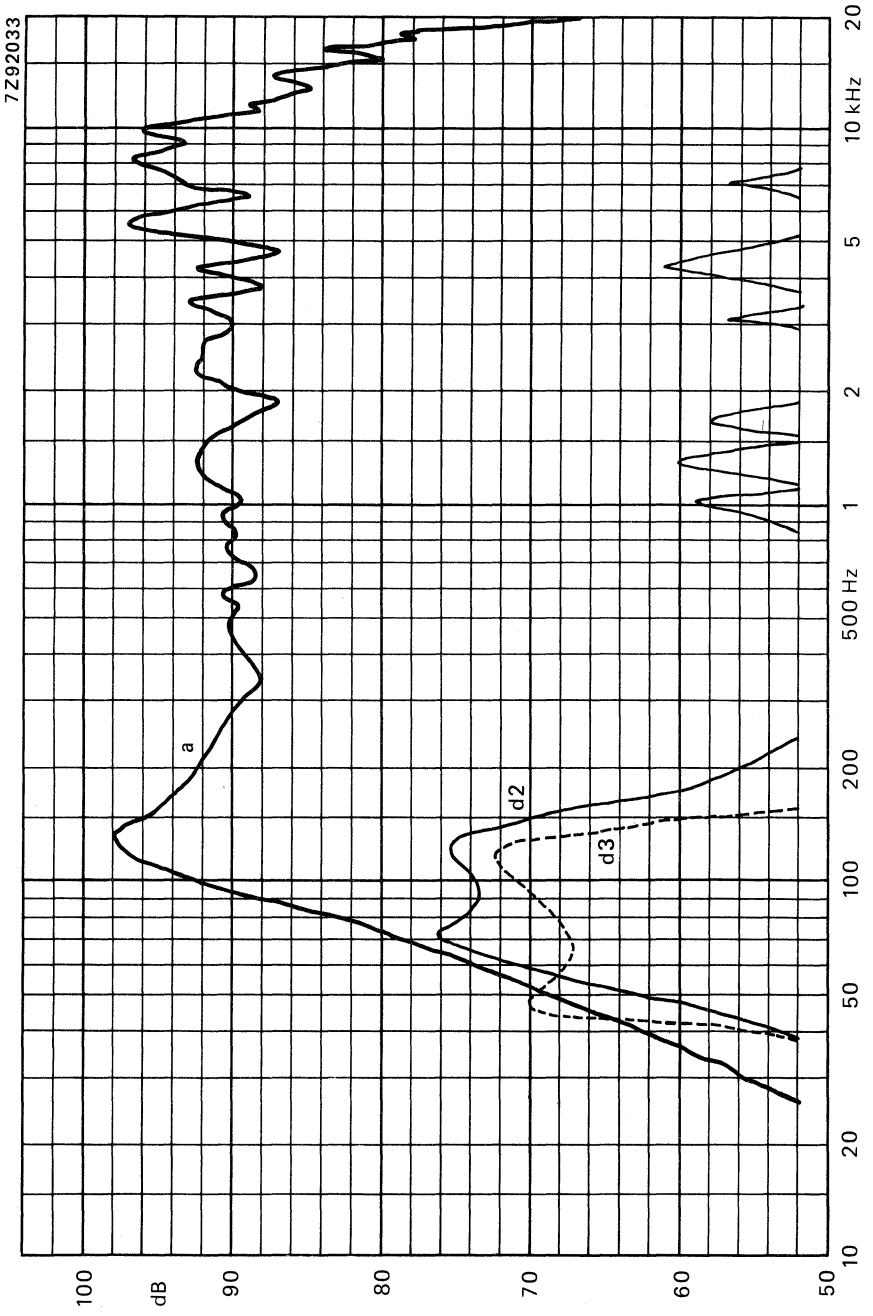


Fig. 2.

## 3 × 6 INCH OVAL WOOFER LOUDSPEAKER

## TECHNICAL DATA

Rated impedance	4 $\Omega$
Voice coil resistance	3,2 $\Omega$
Rated frequency range	60 to 13000 Hz
Resonance frequency	68 Hz
Power handling capacity, measured without filter, loudspeaker unmounted	15 W
Max. power on loudspeaker	33 W
Operating power (sound level 90 dB, 1 m)	7,5 W
Sweep voltage (40 to 1000 Hz)	5 V
Filter	none
Energy in air gap	97,5 mJ
Flux density	1,24 T
Air-gap height	3 mm
Voice coil height	6,5 mm
Core diameter	18 mm
Magnet material	ceramic
diameter	60 mm
mass	0,190 kg
Mass of loudspeaker	0,475 kg
Magnetic stray field according to DIN 45578, max.	35 mT

Connection by 2,8 mm (0,11 inch) tag connectors or by soldering.

The loudspeaker has a paper cone, an aluminium coil-former and a textile surround.

Dimensions in mm

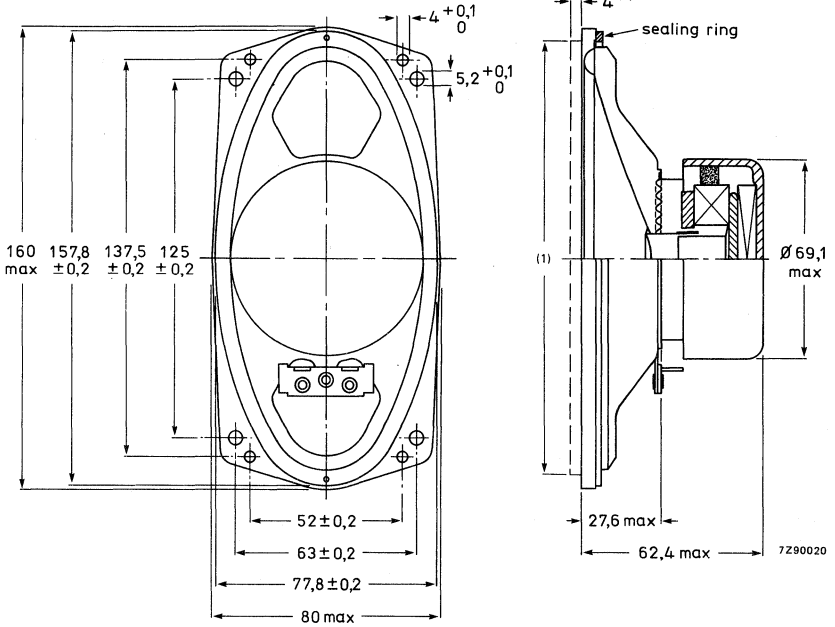


Fig. 1.

(1) Recommended baffle hole (oval, 151 mm x 71 mm) and clearance depth (4 mm) are required for cone movement at the specified power handling capacity.

**AVAILABLE VERSION**

AD36510/W4 catalogue number 2422 257 29021 This number is for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES (see Fig. 2)**

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

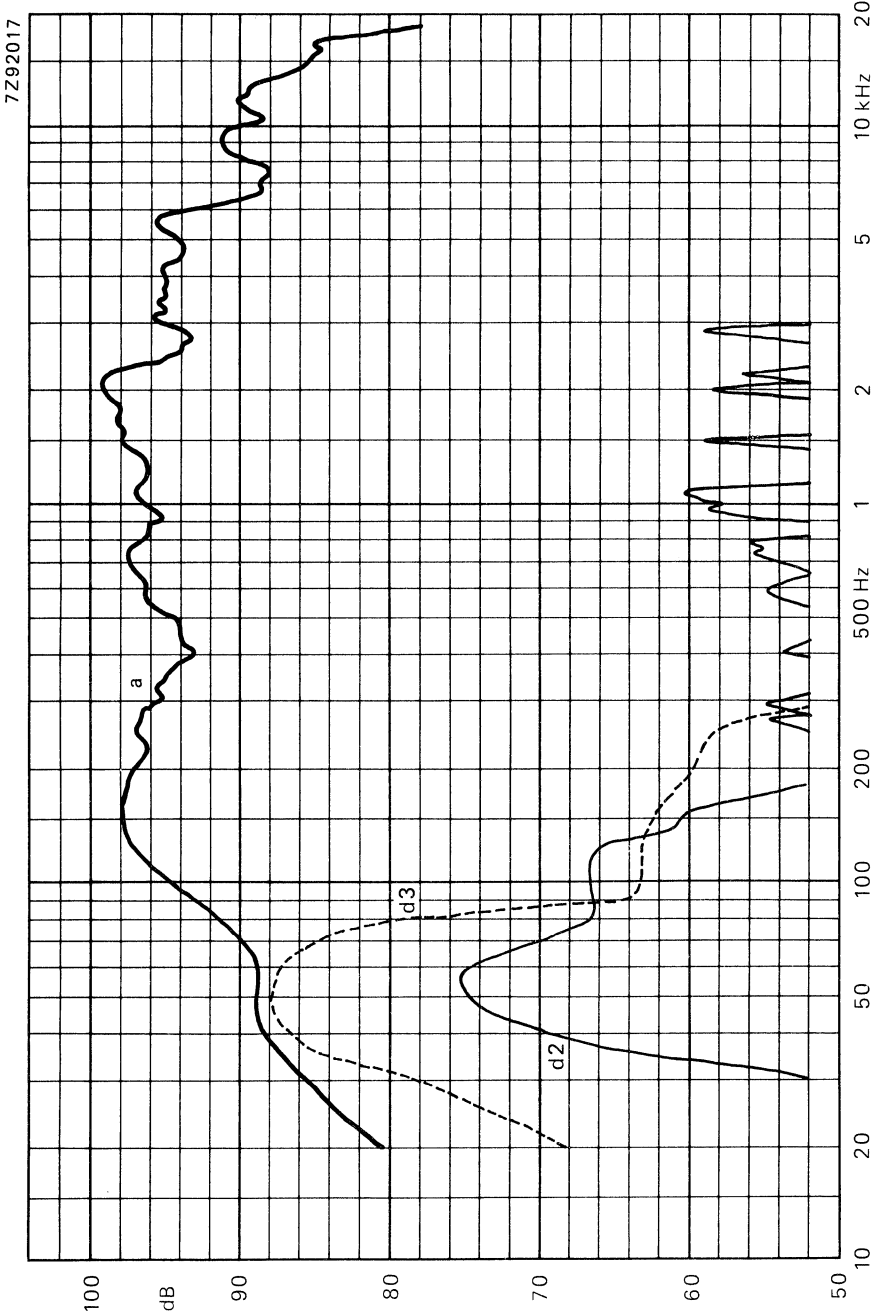


Fig. 2.



### 3 x 6 inch FULL RANGE LOUDSPEAKERS

- for audio and video, 3 W
- plastic frame, oval, for clip mounting
- paper cone

#### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8 $\Omega$
Sensitivity			69	dB
Resonance frequency			130	Hz
Power handling capacity				
AD36720			3	W
AD36740			2,5	W
Maximum power on loudspeaker			6	W
Operating power (sound level 90 dB, 0,5 m)			450	mW
Sweep voltage (100 to 20 000 Hz)				
AD36720			2,4	V
AD36740			2,2	V
Filter			none	
Energy in air gap			12,7	mJ
Flux density			0,74	T
Air-gap height			2,5	mm
Voice coil height			4	mm
Core diameter			10	mm
Magnet material			ceramic	
square			23	mm
mass			0,018	kg
Mass of loudspeaker				
AD36720			83	g
AD36740			104	g

AD36740/X. have a screened magnet system; stray field according to DIN 45578. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

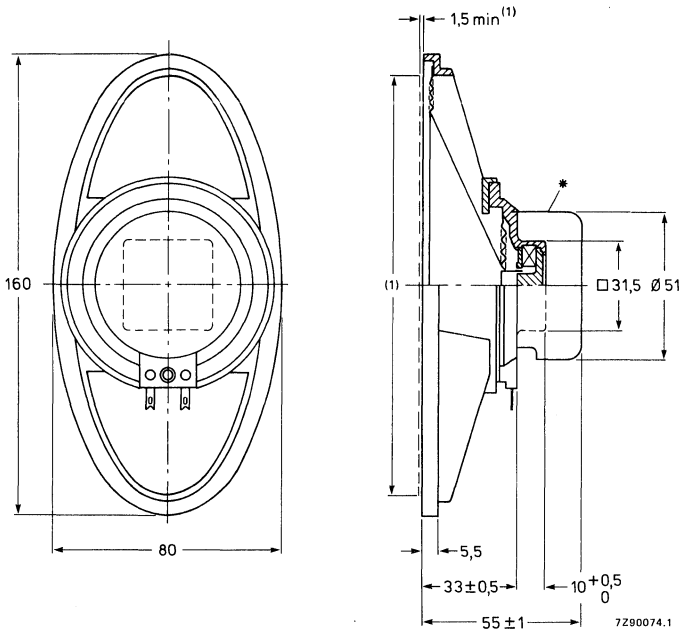


Fig. 1.

\* Screening for AD36740/X only.

(1) Recommended baffle hole (ellipse, 66 x 146 mm) and mounting clearance (1,5 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD36720/X4 catalogue number 2403 257 26021
- AD36720/X8 catalogue number 2403 257 26022
- AD36720/X15 catalogue number 2403 257 26023
- AD36720/X25 catalogue number 2403 257 26024
- AD36740/X4 catalogue number 2403 257 26121
- AD36740/X8 catalogue number 2403 257 26122
- AD36740/X15 catalogue number 2403 257 26123
- AD36740/X25 catalogue number 2403 257 26124

} These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Crue a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

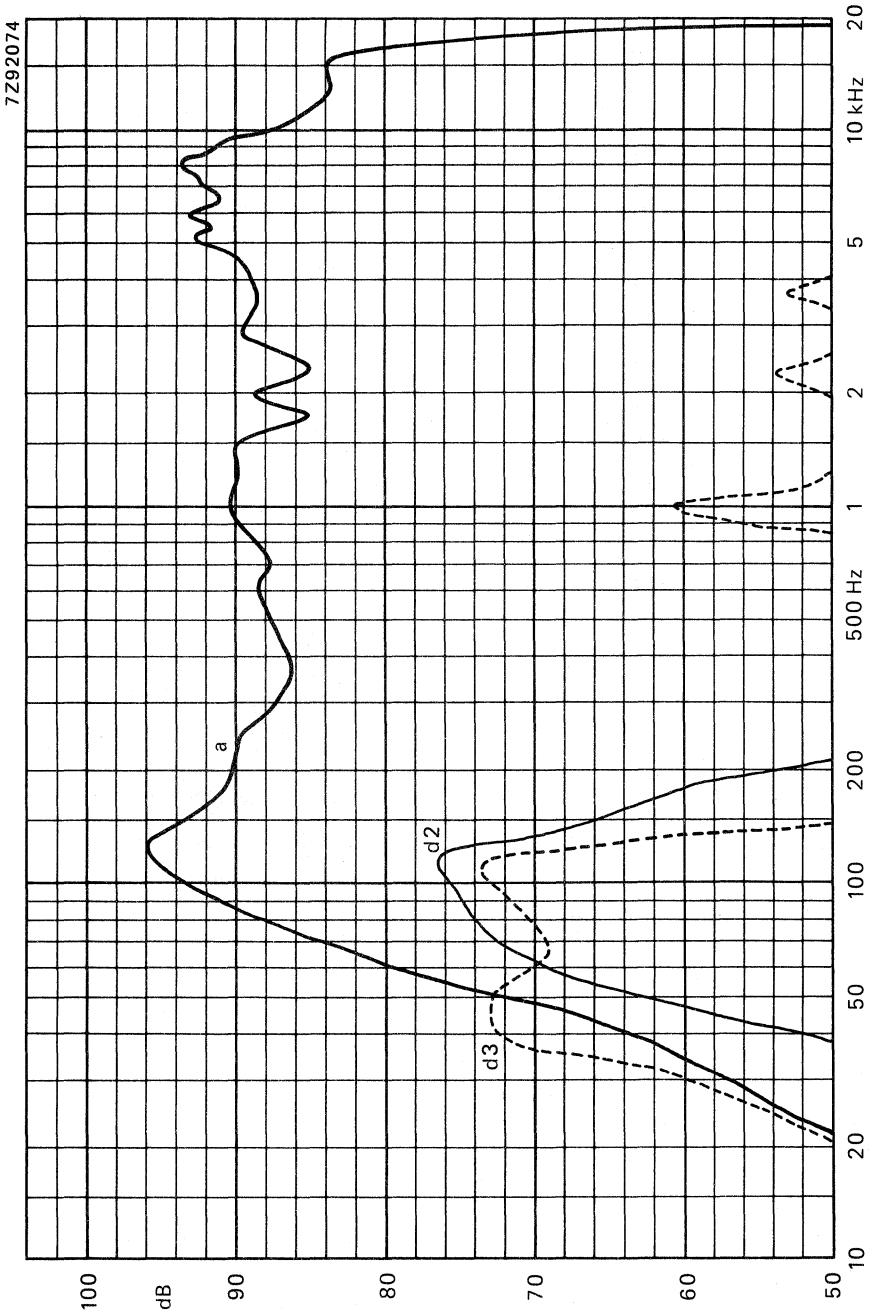


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD36722/X.  
AD36742/X.

### 3 x 6 inch FULL RANGE LOUDSPEAKERS

- for audio and video
- plastic frame, semi rectangular, 4 hole mounting
- paper cone

#### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8 $\Omega$
Sensitivity		69		dB
Resonance frequency		130		Hz
Power handling capacity				
AD36722		3		W
AD36742		2,5		W
Maximum power on loudspeaker		6		W
Operating power (sound level 90 dB, 0,5 m)		450		mW
Sweep voltage (100 to 20 000 Hz)				
AD36722		2,4		V
AD36742		2,2		V
Filter		none		
Energy in air gap		12,7		mJ
Flux density		0,74		T
Air-gap height		2,5		mm
Voice coil height		4		mm
Core diameter		10		mm
Magnet material		ceramic		
square		23		mm
mass		0,018		kg
Mass of loudspeaker				
AD36722		83		g
AD36742		104		g

AD36742/X. have a screened magnet system; stray field according to DIN 45578. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

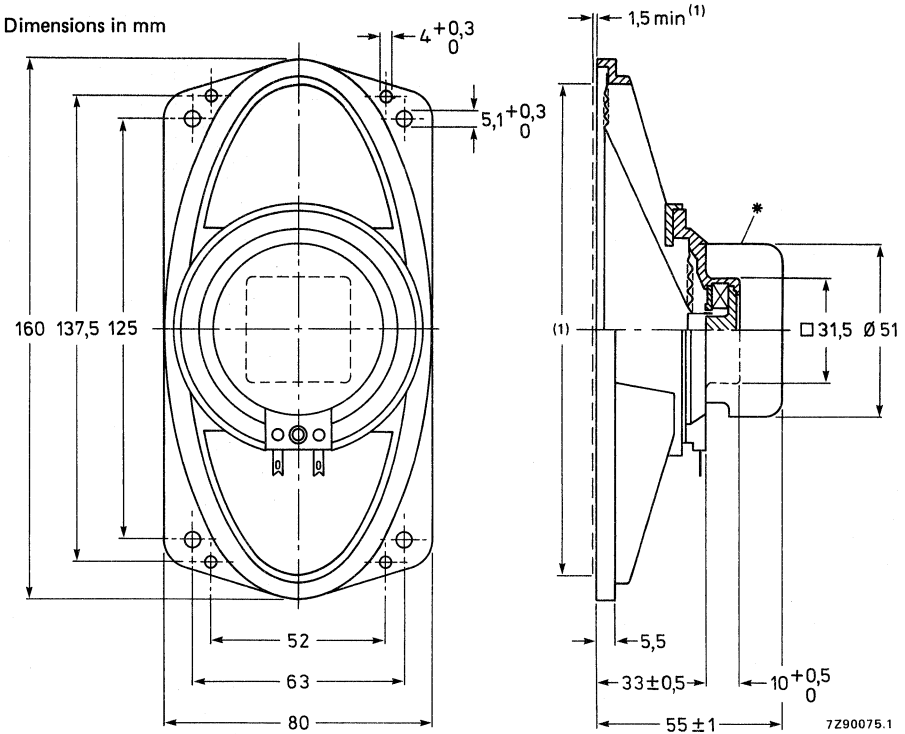


Fig. 1.

\* Screening for AD36742/X only.

(1) Recommended baffle hole (ellipse, 66 x 146 mm) and mounting clearance (1,5 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD36722/X4 catalogue number 2403 257 26421
- AD36722/X8 catalogue number 2403 257 26422
- AD36722/X15 catalogue number 2403 257 26423
- AD36722/X25 catalogue number 2403 257 26424
  
- AD36742/X4 catalogue number 2403 257 26521
- AD36742/X8 catalogue number 2403 257 26522
- AD36742/X15 catalogue number 2403 257 26523
- AD36742/X25 catalogue number 2403 257 26524

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.  
Curve a: Sound pressure.  
Curves d2 and d3: 2nd and 3rd harmonic distortion.

DEVELOPMENT SAMPLE DATA

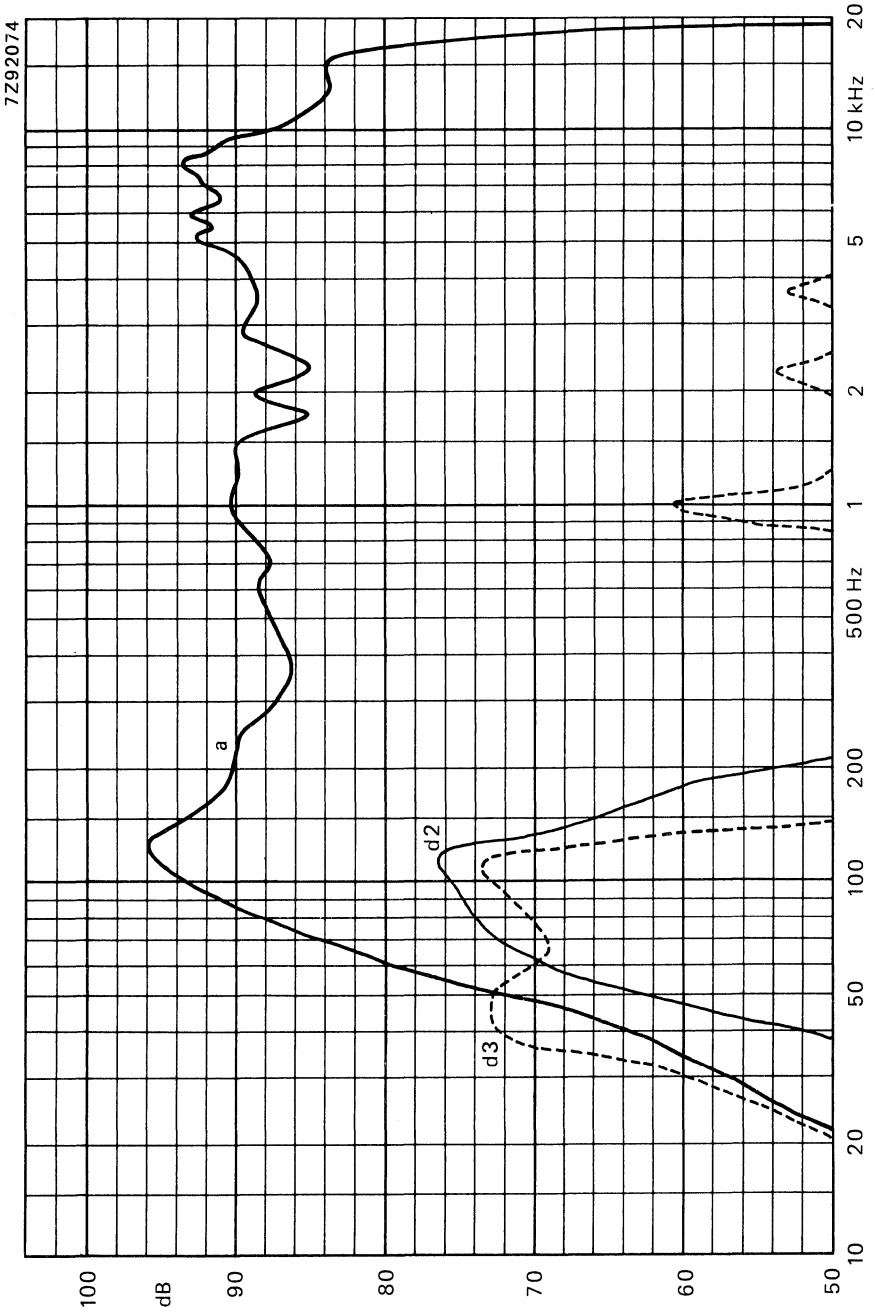


Fig. 2.

3 × 6 inch FULL RANGE LOUDSPEAKERS

- for audio and video, 5 W
- plastic frame, oval for clip mounting
- paper cone

TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 Ω
Voice coil resistance	3,5	7,1	13,7	22,8 Ω
Sensitivity			69	dB
Resonance frequency			130	Hz
Power handling capacity, AD36725			5	W
AD36746			4,5	W
Maximum power on loudspeaker			7	W
Operating power (sound level 90 dB, 0,5 m)			450	mW
Sweep voltage (100 to 20 000 Hz)				
AD36725			3,16	V
AD36746			2,64	V
Filter			none	
Energy in air gap			12,7	mJ
Flux density			0,74	T
Air-gap height			2,5	mm
Voice coil height			4	mm
Core diameter			10	mm
Magnet material			ceramic	
square			23	mm
mass			0,018	kg
Mass of loudspeaker				
AD36725			83	g
AD36746			104	g

AD36746/X. have a screened magnet system; stray field according to DIN 45578. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

DEVELOPMENT SAMPLE DATA

Dimensions in mm

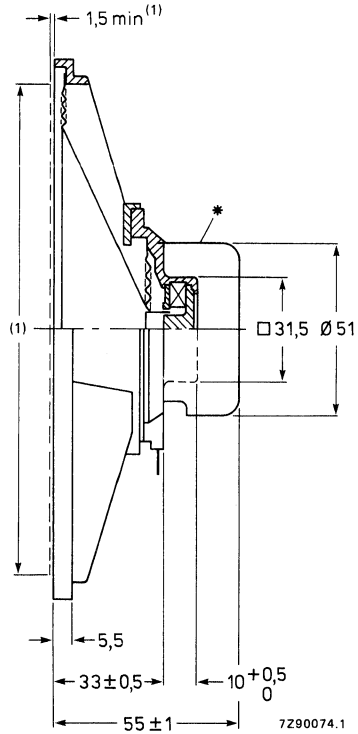
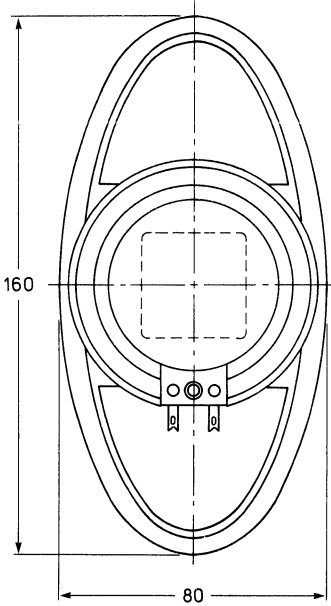


Fig. 1.

\* Screening for AD36746/X only.

(1) Recommended baffle hole (ellipse, 66 x 146 mm) and mounting clearance (1,5 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD36725/X4 catalogue number 2403 257 56021
- AD36725/X8 catalogue number 2403 257 56022
- AD36725/X15 catalogue number 2403 257 56023
- AD36725/X25 catalogue number 2403 257 56024
- AD36746/X4 catalogue number 2403 257 56121
- AD36746/X8 catalogue number 2403 257 56122
- AD36746/X15 catalogue number 2403 257 56123
- AD36746/X25 catalogue number 2403 257 56124

} These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.



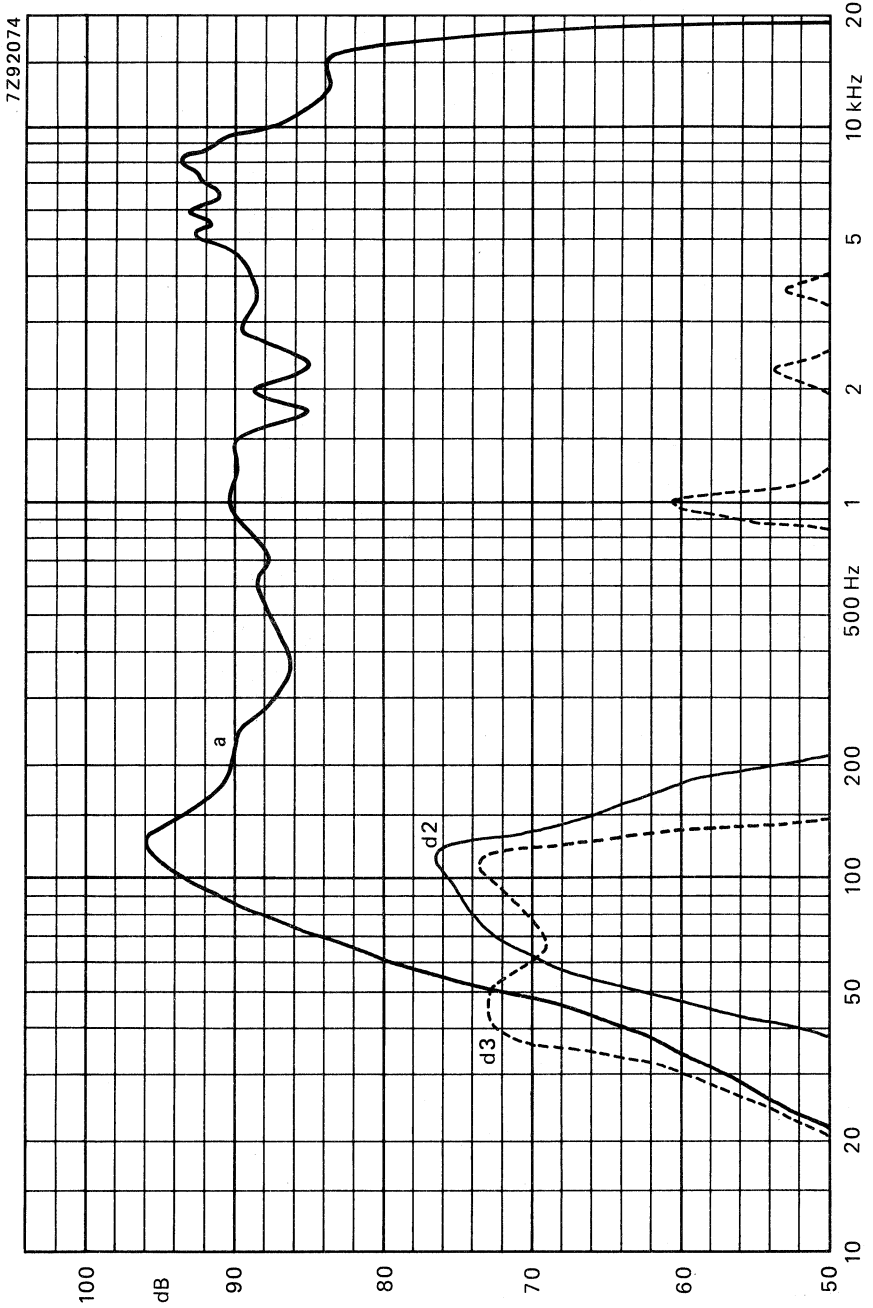


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD36727/X.  
AD36748/X.

### 3 × 6 INCH FULL RANGE LOUDSPEAKERS

- for audio and video, 5 W
- plastic frame, semi rectangular, 4 hole mounting
- paper cone

#### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 Ω
Voice coil resistance	3,5	7,1	13,7	22,8 Ω
Sensitivity		69		dB
Resonance frequency		130		Hz
Power handling capacity, AD36727		5		W
AD36748		4,5		W
Maximum power on loudspeaker		7		W
Operating power (sound level 90 dB, 0,5 m)		450		mW
Sweep voltage (100 to 20 000 Hz) AD36727		3,16		V
AD36748		2,64		V
Filter		none		
Energy in air gap		12,7		mJ
Flux density		0,74		T
Air-gap height		2,5		mm
Voice coil height		4		mm
Core diameter		10		mm
Magnet material		ceramic		
square		23		mm
mass		0,018		kg
Mass of loudspeaker				
AD36727		83		g
AD36748		104		g

AD36748/X. have a screened magnet system; stray field according to DIN 45578. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

AD36727/X.  
AD36748/X.

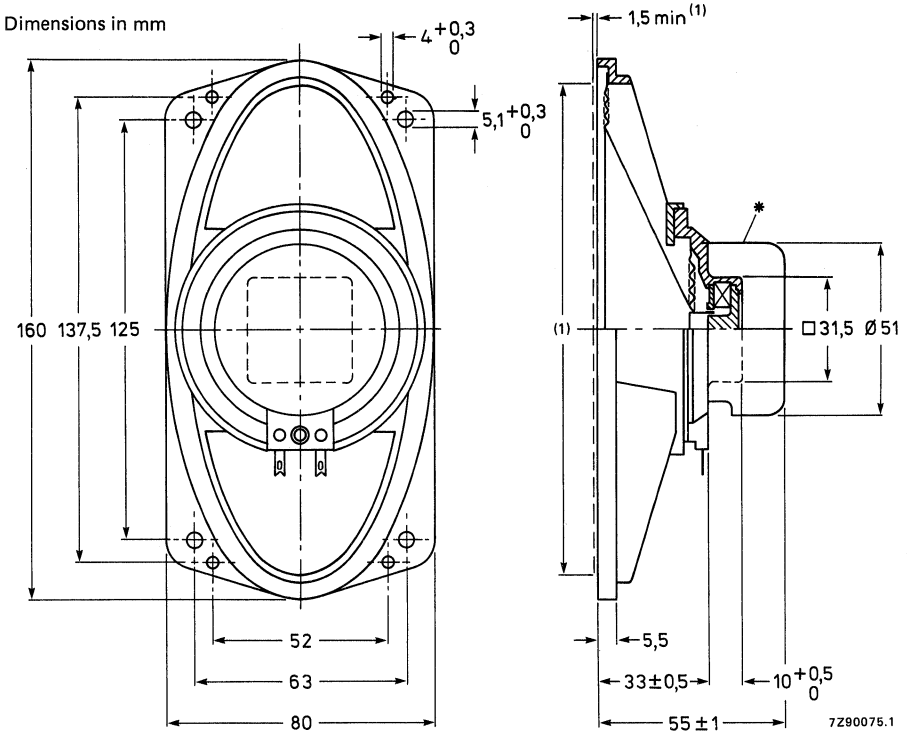


Fig. 1.

\* Screening for AD36748/X only.

(1) Recommended baffle hole (ellipse, 66 x 146 mm) and mounting clearance (1,5 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD36727/X4 catalogue number 2403 257 56421
- AD36727/X8 catalogue number 2403 257 56422
- AD36727/X15 catalogue number 2403 257 56423
- AD36727/X25 catalogue number 2403 257 56424
- AD36748/X4 catalogue number 2403 257 56521
- AD36748/X8 catalogue number 2403 257 56522
- AD36748/X15 catalogue number 2403 257 56523
- AD36748/X25 catalogue number 2403 257 56524

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

DEVELOPMENT SAMPLE DATA

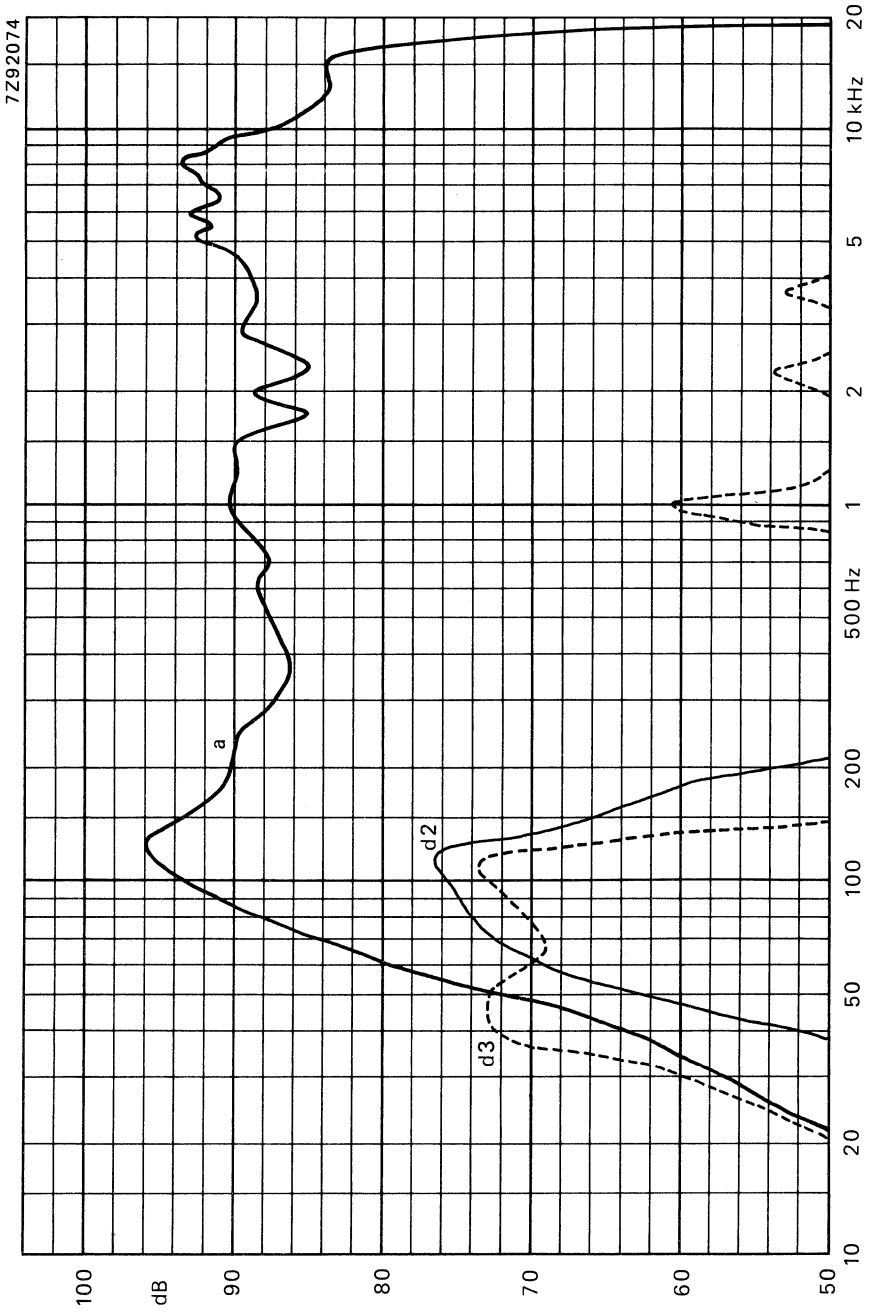


Fig. 2.

## 3 x 6 inch OVAL WOOFER LOUDSPEAKER

## APPLICATION

For hi-fi video in open applications.

## TECHNICAL DATA

	version		
	P4	P8	P15
Rated impedance	4	8	15 $\Omega$
Voice coil resistance	3,4	7	13,2 $\Omega$
Rated frequency range		65 to 18 000	Hz
Resonance frequency		95	Hz
Power handling capacity, measured without filter, loudspeaker unmounted		8	W
Maximum power on loudspeaker		15	W
Operating power (sound level 90 dB, 1 m)	1,6	1,6	1,7 W
Sweep voltage (50 to 1000 Hz)	4	5,6	7,75 V
Filter		none	
Energy in air gap		52	mJ
Flux density		0,97	T
Air-gap height		3	mm
Voice coil height	3,9	4,5	4,5 mm
Core diameter		18	mm
Magnet material		ceramic	
diameter		45	mm
mass		0,093	kg
Mass of loudspeaker		0,303	kg
Magnetic stray field to DIN 45578, at 70 mm	max.	0,35	mT

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeaker has a paper cone, a textile rim and a screened magnet system.

Dimensions in mm

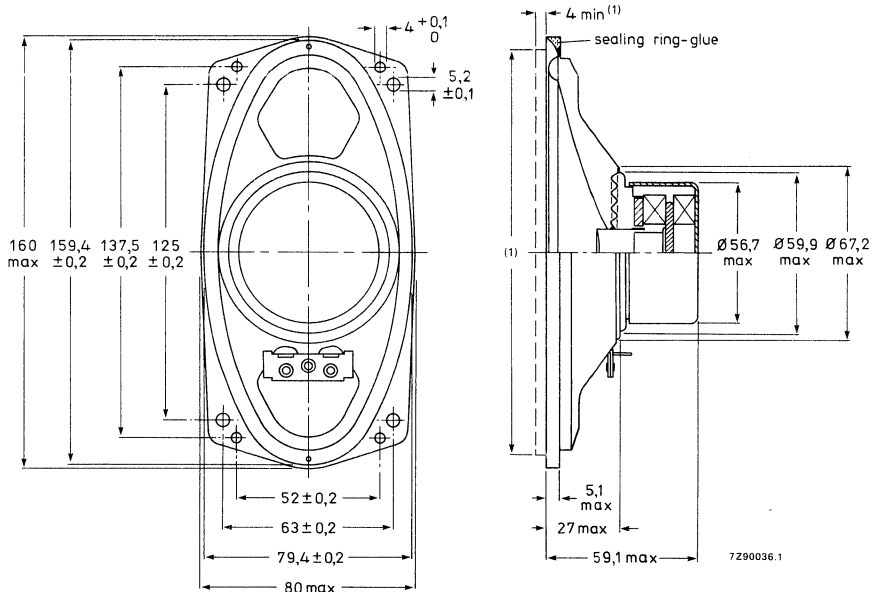


Fig. 1.

(1) Recommended baffle hole (oval, 71 x 152 mm) and clearance depth (4 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD36900/P4	catalogue number 2422 257-29121	} These numbers are for bulk-packed loudspeakers.
AD36900/P8	catalogue number 2422 257 29122	
AD36900/P15	catalogue number 2422 257 29123	

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker unmounted.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

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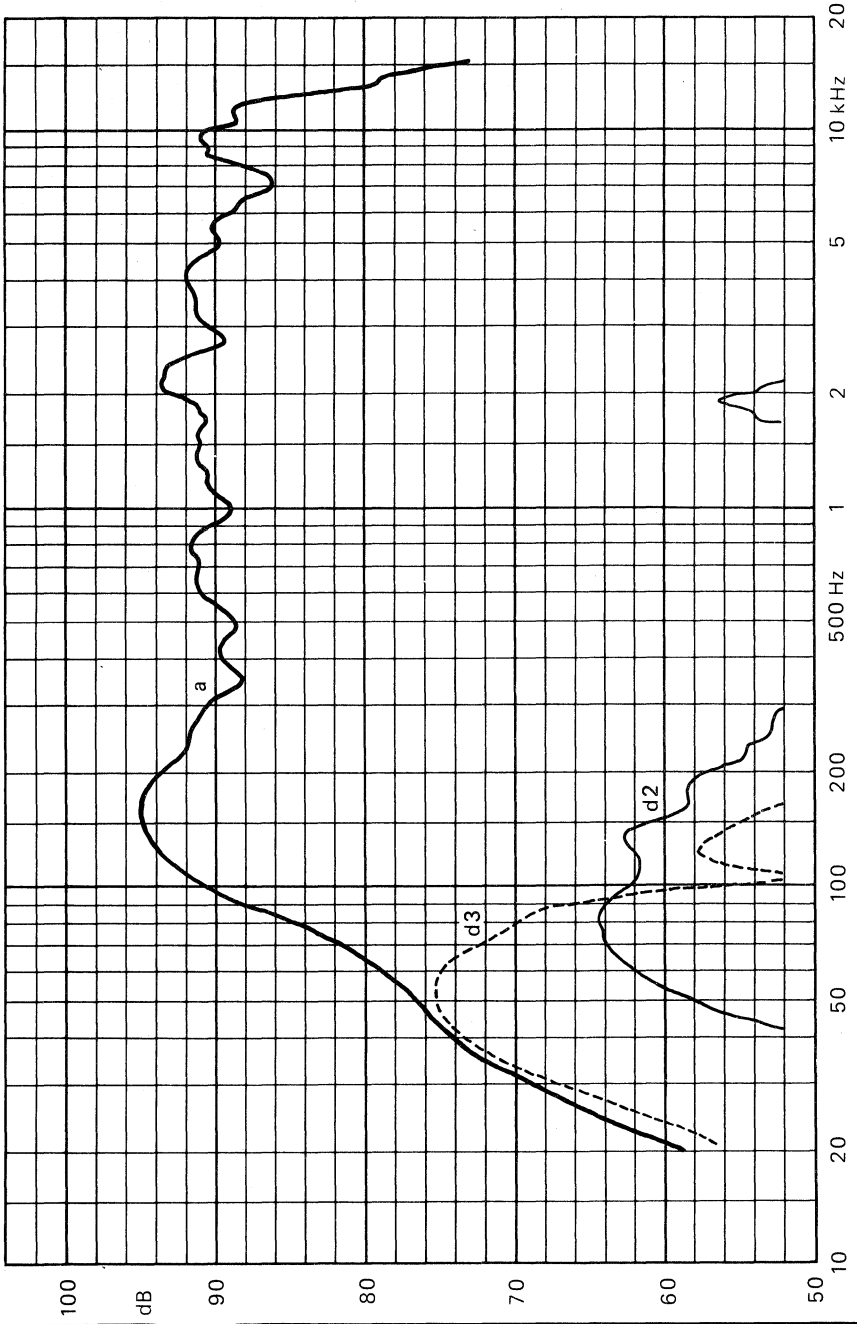


Fig. 2.

## 3 x 6 INCH MEDIUM POWER FULL RANGE LOUDSPEAKER

### APPLICATION

For video applications.

### TECHNICAL DATA

	version	
	X8	X15
Rated impedance	8	15 $\Omega$
Voice coil resistance	7	13,2 $\Omega$
Rated frequency range	65 to 18 000 Hz	
Resonance frequency	95 Hz	
Power handling capacity, measured without filter, loudspeaker unmounted	8	W
Maximum power on loudspeaker	15	W
Operating power (sound level 90 dB, 1 m)	1,6	1,7 W
Sweep voltage (50 to 1000 Hz)	5,6	V
Filter	none	
Energy in air gap	52	mJ
Flux density	0,97	T
Air-gap height	3	mm
Voice coil height	4,5	mm
Core diameter	18	mm
Magnet material	ceramic	
diameter	45	mm
mass	0,093	kg
Mass of loudspeaker	0,303	kg
Magnetic stray field to DIN 45578, at 70 mm max	0,35	mT

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeaker has a paper cone, a textile rim and a screened magnet system.



Dimensions in mm

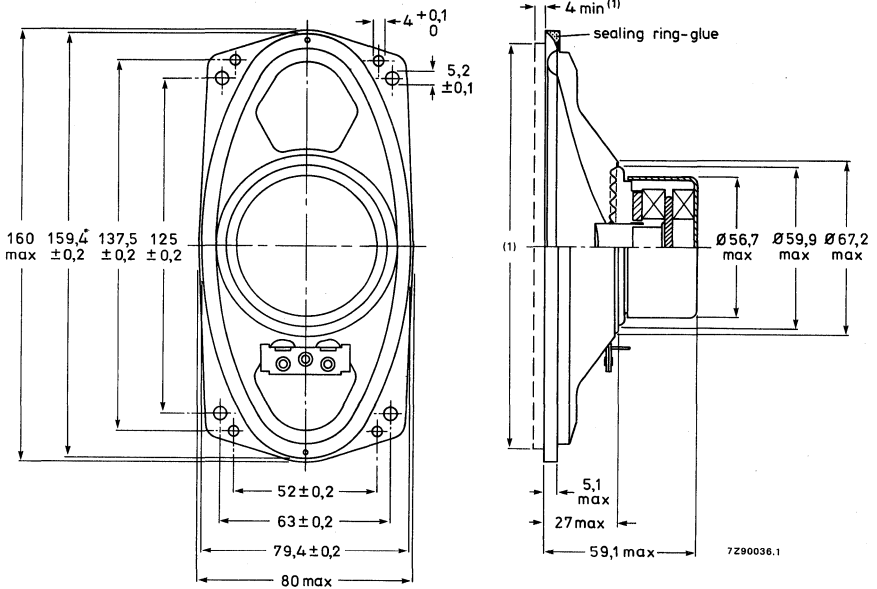


Fig. 1.

(1) Recommended baffle hole (oval of 71 x 152 mm) and clearance depth (4 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD36901/X8 catalogue number 2422 257 29222 -

AD36901/X15 catalogue number 2422 257 29223

} These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker unmounted.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

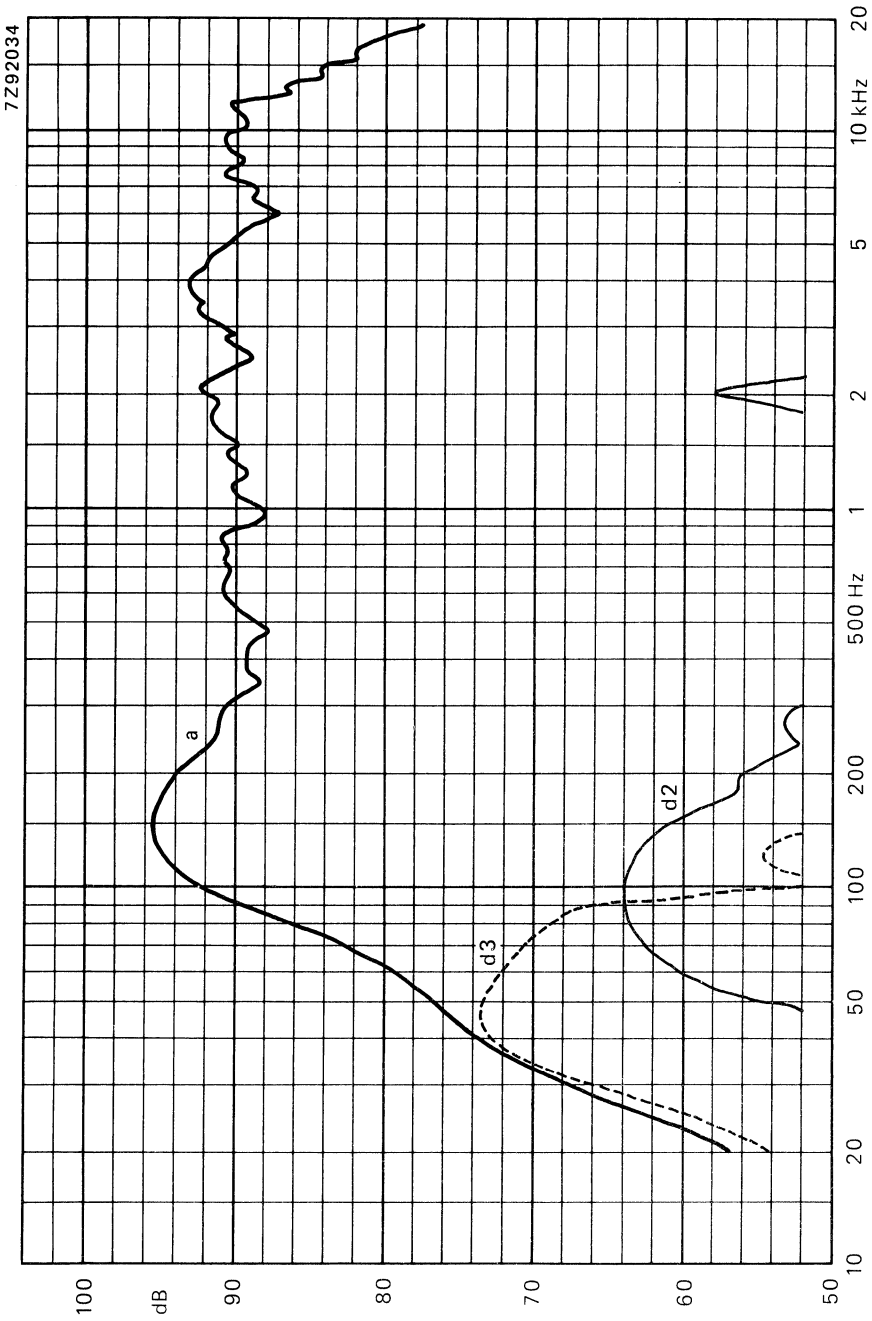


Fig. 2.

## 3 × 8 inch WOOFER LOUDSPEAKER

## APPLICATION

For hi-fi video open application.

## TECHNICAL DATA

	version		
	P4	P8	P15
Rated impedance	4	8	15 Ω
Voice coil resistance	3,4	7	13 Ω
Resonance frequency		95	Hz
Power handling capacity, measured without filter, loudspeaker unmounted		8	W
Maximum power on loudspeaker		15	W
Operating power (sound level 90 dB, 1 m)			
Sweep voltage (70 to 20 000 Hz)		4	V
Filter		none	
Energy in air gap		60,5	mJ
Flux density		1,008	T
Air-gap height		3	mm
Voice coil height		3,9	mm
Core diameter		18	mm
Magnet material		ceramic	
diameter		50	mm
mass		0,093	kg
Mass of loudspeaker		0,367	kg
Magnetic stray field according to DIN 45578	max.	35	mT

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

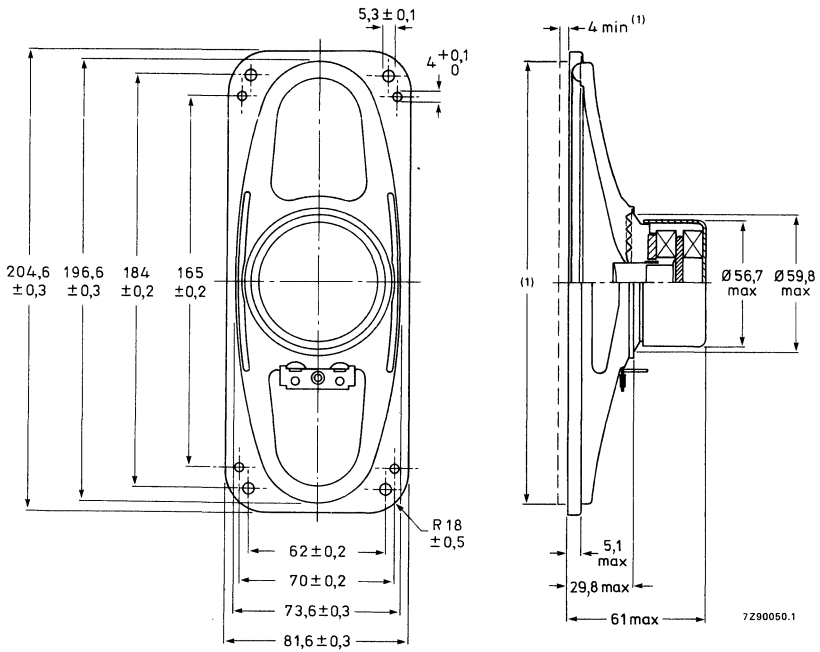


Fig. 1.

(1) Recommended baffle hole (oval, 75,5 x 198,5 mm) and clearance depth (2 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD38901/P4 catalogue number 2422 257 40231
  - AD38901/P8 catalogue number 2422 257 40232
  - AD38901/P15 catalogue number 2422 257 40233
- } These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

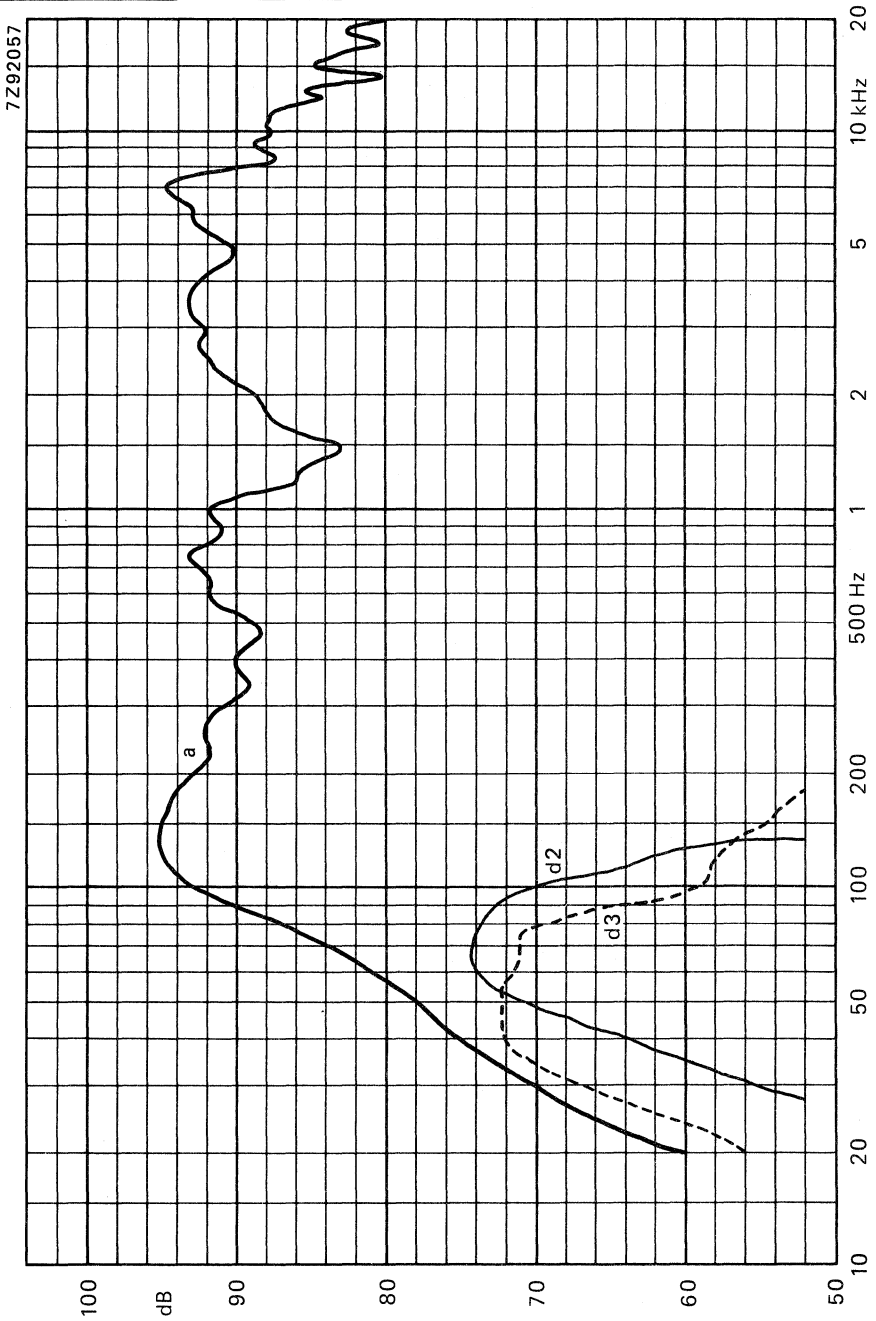


Fig. 2.

## 3 x 8 inch WOOFER LOUDSPEAKERS

## TECHNICAL DATA

	version		
	P4	P8	P15
Rated impedance	4	8	15 $\Omega$
Voice coil resistance	3,4	7	13,2 $\Omega$
Resonance frequency		95	Hz
Power handling capacity, measured without filter, loudspeaker unmounted		13	W
Maximum power on loudspeaker		25	W
Operating power (sound level 90 dB, 1 m)	1,32	1,4	1,5 W
Sweep voltage (50 to 2000 Hz)	5,1	7,2	9,85 V
Filter		none	
Energy in air gap		60,5	mJ
Flux density		1,008	T
Air-gap height		3	mm
Voice coil height	3,9	4,5	4,5 mm
Core diameter		18	mm
Magnet material		ceramic	
diameter		45	mm
mass		0,099	kg
Mass of loudspeaker		0,351	kg
Magnetic stray field according to DIN 45578 max.		35	mT

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeakers have a textile rim.

Dimensions in mm

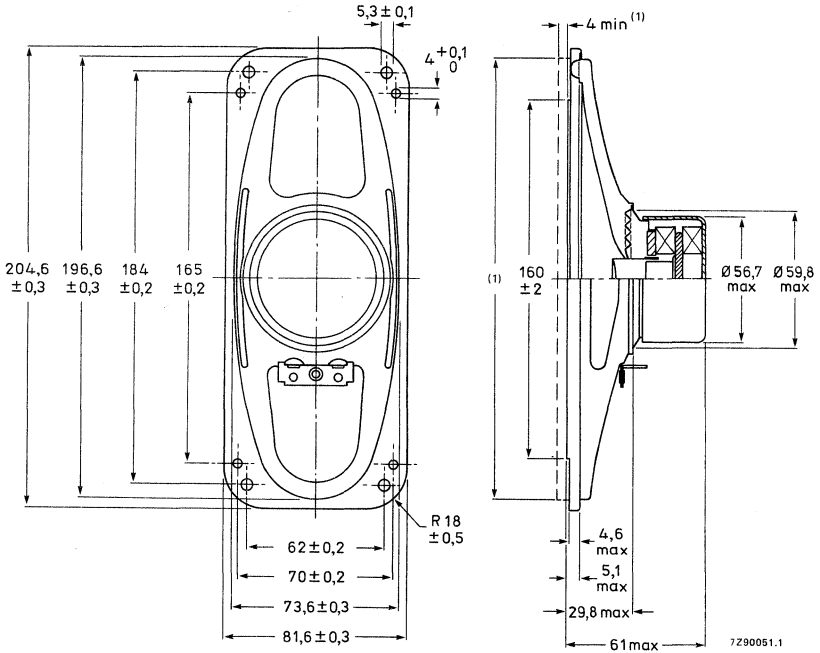


Fig. 1.

(1) Recommended baffle hole (oval, 75,5 x 198 mm) and mounting clearance (4 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD38902/P4 catalogue number 2422 257 40321
- AD38902/P8 catalogue number 2422 257 40322
- AD38902/P15 catalogue number 2422 257 40323

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

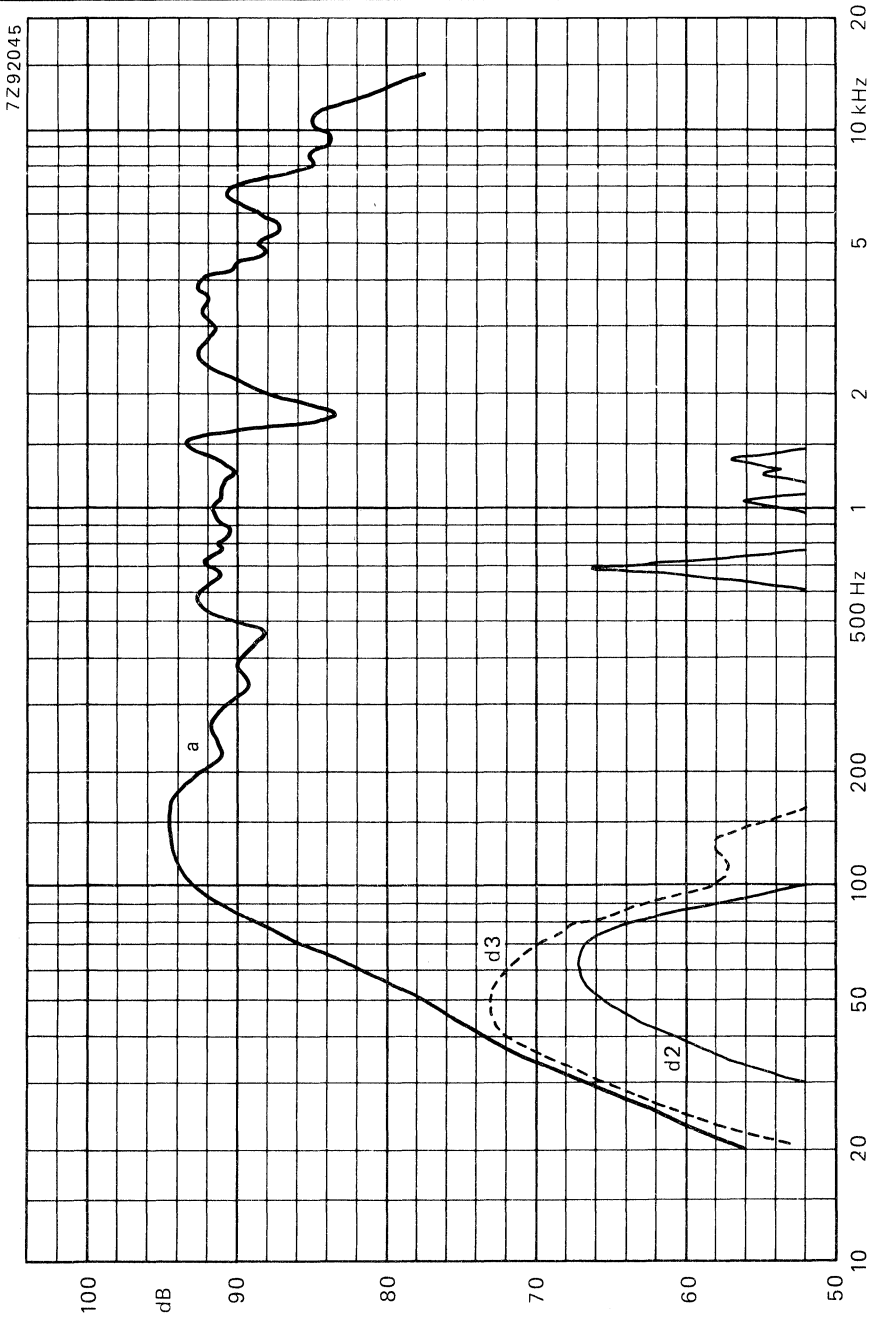


Fig. 2.



## 4 INCH HIGH POWER WOOFER LOUDSPEAKER

### APPLICATION

For high-fidelity bass reproduction in bass reflex enclosures specially for video applications. Recommended volume of enclosure 7 litres. The loudspeaker has a very low distortion, and a very low stray magnetic field.

### TECHNICAL DATA

	version	
	W4	W8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,2	7 $\Omega$
Rated frequency range	70 to 10 000	Hz
Resonance frequency	72	Hz
Power handling capacity, mounted in 7 l bass reflex enclosure, measured without filter	20	W
Maximum power on loudspeaker	30	W
Operating power	7	8 W
Sweep voltage, frequency range: 30 to 6000 Hz	5,5	7,75 V
Energy in air gap	154	mJ
Flux density	0,96	T
Stray magnetic field according to DIN 45578 par. 2.2.5, distance 70 mm	0,35	T
Air-gap height	5	mm
Voice coil height	6	6,6 mm
Core diameter	25	mm
Magnet material	ceramic	
diameter	60	mm
mass	0,225	kg
Mass of loudspeaker	0,68	kg

The loudspeaker has a paper cone and a rubber surround. Two tinned 2,8 mm (0,11 inch) tag connectors permit connection to the woofer by plugging or soldering.

Dimensions in mm

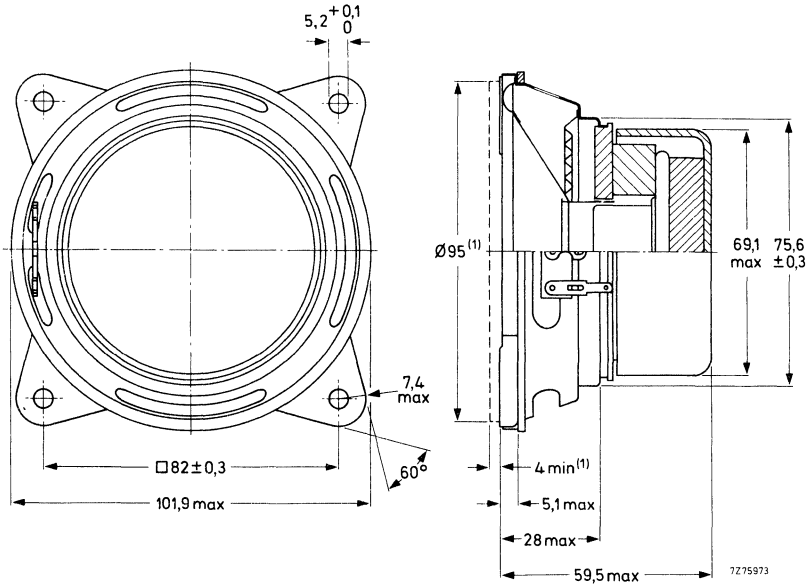


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

AD40501/W4, catalogue number 2422 257 34723

AD40501/W8, catalogue number 2422 257 34724

these numbers apply to bulk packed loudspeakers, minimum packing quantity 16 per unit.

**FREQUENCY RESPONSE CURVES** (See Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted on IEC baffle according to IEC 268-5 par. 4-4.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

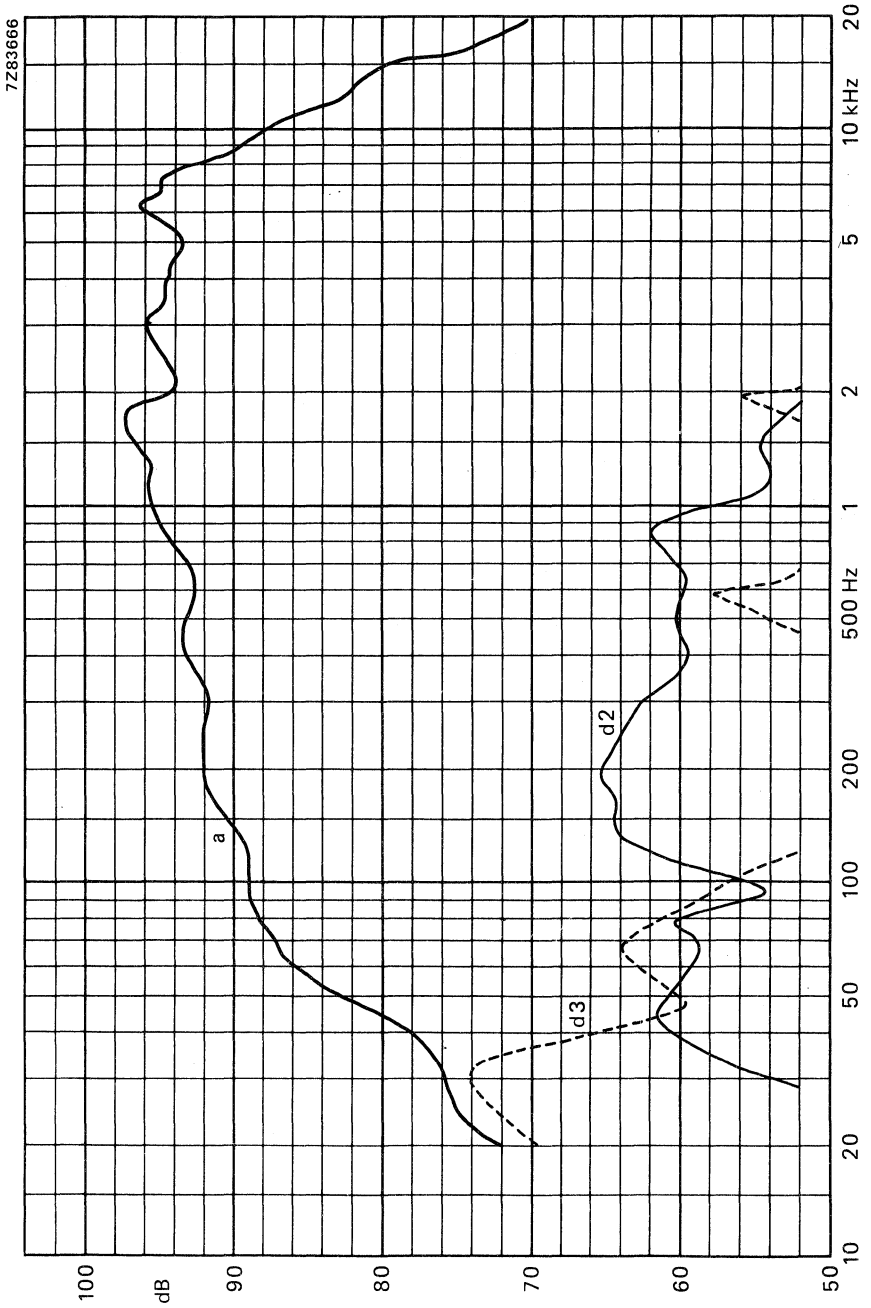


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD40725/X.  
AD40745/X.

## 4 INCH LOW POWER LOUDSPEAKERS

### APPLICATION

For portable receivers and intercoms. AD40745 has a screened magnet system and is specially suitable for portable television sets.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8 $\Omega$
Rated frequency range	80 to 15 000			Hz
Resonance frequency	170			Hz
Power handling capacity, loudspeaker unmounted, measured without filter	5			W
Maximum power on loudspeaker	7			W
Operating power (sound level 90 dB, 0,5 m)	0,45			W
Sweep voltage (frequency range 100 to 20 000 Hz)	2,4	3,5	4,7	6,1 V
Energy in air gap	12,7			mJ
Flux density	0,74			T
Air-gap height	2,5			mm
Voice coil height	2,7	2,2	3,0	3,6 mm
Core diameter	10			mm
Magnet material	ceramic			
square	28,5			mm ←
mass	18			g
Mass of loudspeaker				
AD40725	70			g
AD40745	90			g

Connection is by means of 2,8 mm (0,11 inch) tag connectors or soldering.

The loudspeakers have a plastic frame, and a paper cone and surround.



DEVELOPMENT SAMPLE DATA

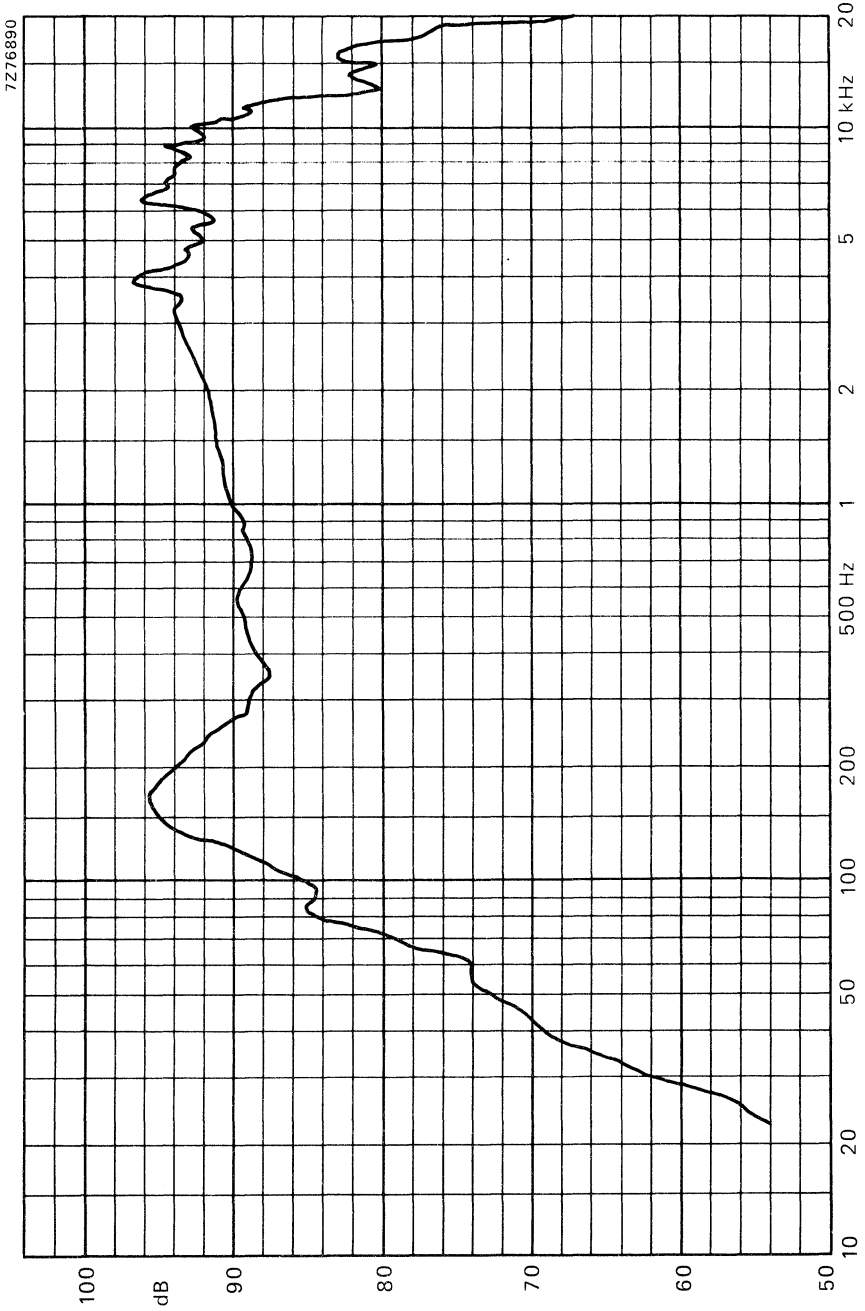


Fig. 2.



## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD40800/M4

# 4 INCH MEDIUM POWER LOUDSPEAKER

## APPLICATION

Mainly for use with car radios.

## TECHNICAL DATA

Rated impedance	4 $\Omega$
Voice coil resistance	3,2 $\Omega$
Rated frequency range	60 to 20 000 Hz
Resonance frequency	115 Hz
Power handling capacity, measured without filter unmounted	15 W
Maximum power	25 W
Operating power (sound level 90 dB, 1 m)	1,5 W
Sweep voltage, frequency range: 60 to 20 000 Hz	5,5 V
Energy in air gap	55 mJ
Flux density	1 T
Air-gap height	3 mm
Voice coil height	3,4 mm
Core diameter	18 mm
Magnet material	ceramic
diameter	53 mm
mass	0,1 kg
Mass of loudspeaker	0,275 kg

The loudspeaker has a paper cone and a textile surround and an aluminium coil former. Connection to the loudspeaker by means of a 4,8 mm (0,19 inch) and a 2,8 mm (0,11 inch) tag connector or by soldering.



Dimensions in mm

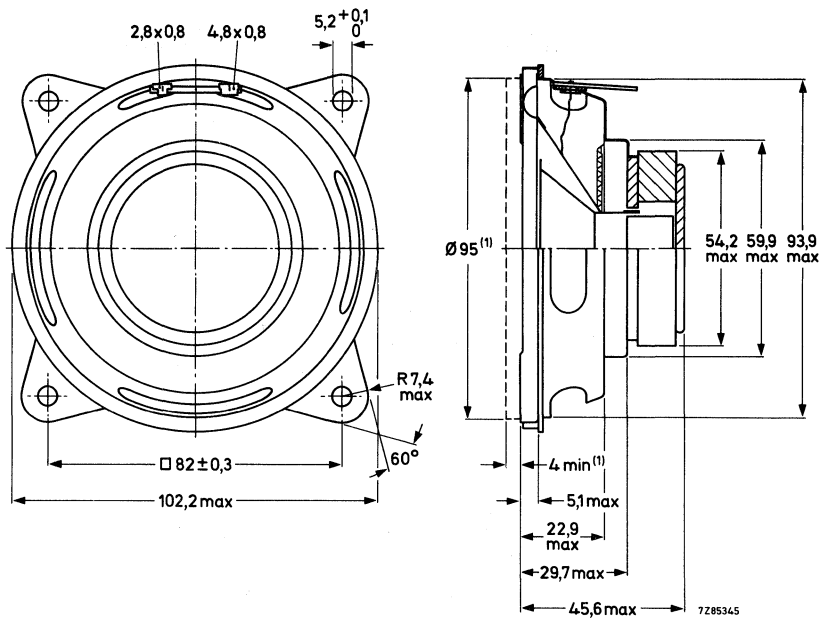


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

The 4,8 mm (0,19 inch) tag should be used for in-phase connection.

**AVAILABLE VERSION**

AD40800/M4, catalogue number 2422 257 34936

this number applies to bulk-packed loudspeakers, minimum packing quantity 27 per unit.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

DEVELOPMENT SAMPLE DATA

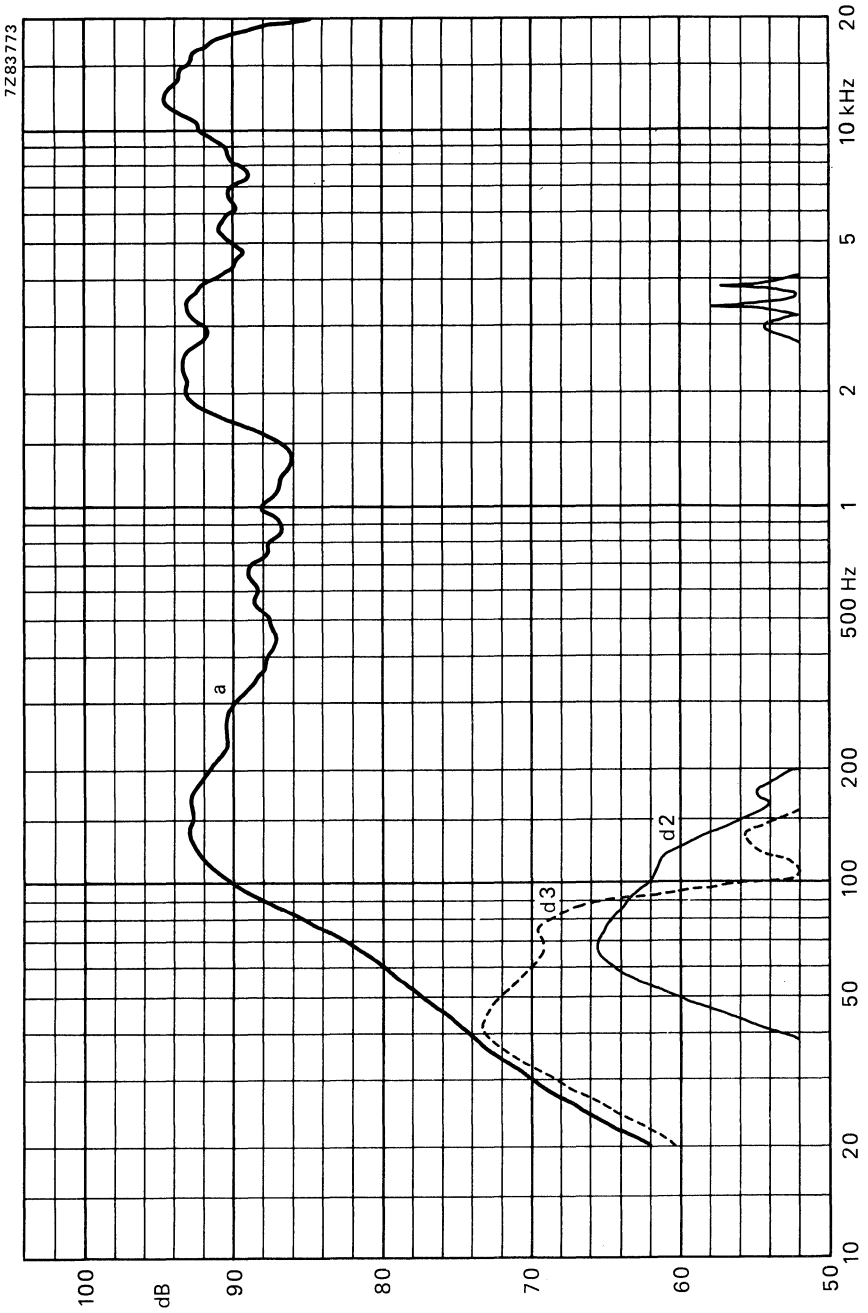


Fig. 2.

## 4 inch FULL RANGE LOUDSPEAKER

## TECHNICAL DATA

	version	
	4	8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,4	7 $\Omega$
Resonance frequency		150 Hz
Power handling capacity, measured without filter, loudspeaker unmounted		6 W
Maximum power on loudspeaker		10 W
Operating power (sound level 91 dB, 1 m)		0,85 W
Sweep voltage (80 to 20 000 Hz)	3,4	4,9 V
Filter		none
Energy in air gap		38 mJ
Flux density		1,1 T
Air-gap height		2,5 mm
Voice coil height		4,2 mm
Core diameter		14,5 mm
Magnet material		ceramic
diameter		45 mm
mass		0,053 kg
Mass of loudspeaker		0,175 kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

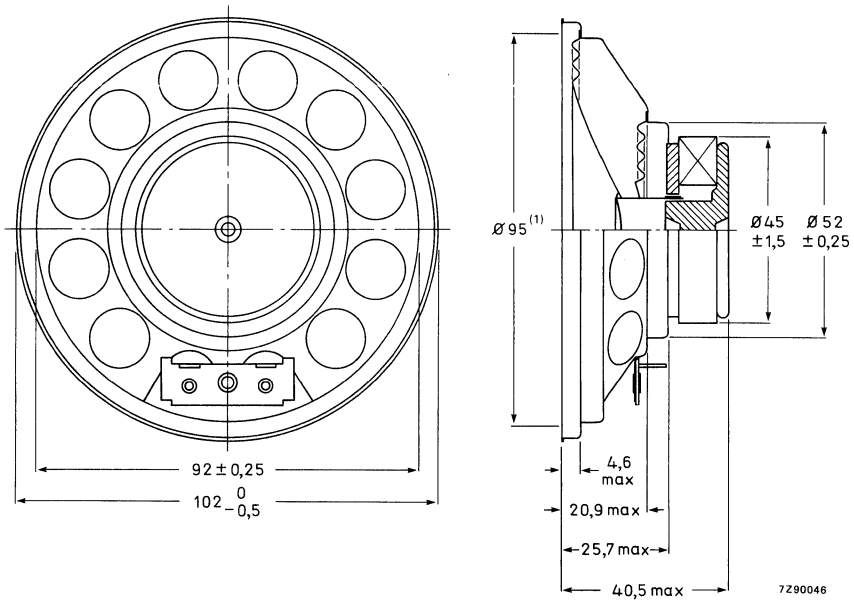


Fig. 1.

(1) Recommended baffle hole:  $\varnothing 95$  mm. The surround of the cone is specially treated. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD40880/X4 catalogue number 2422 257 44421 }  
 AD40880/X8 catalogue number 2422 257 44422 } These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

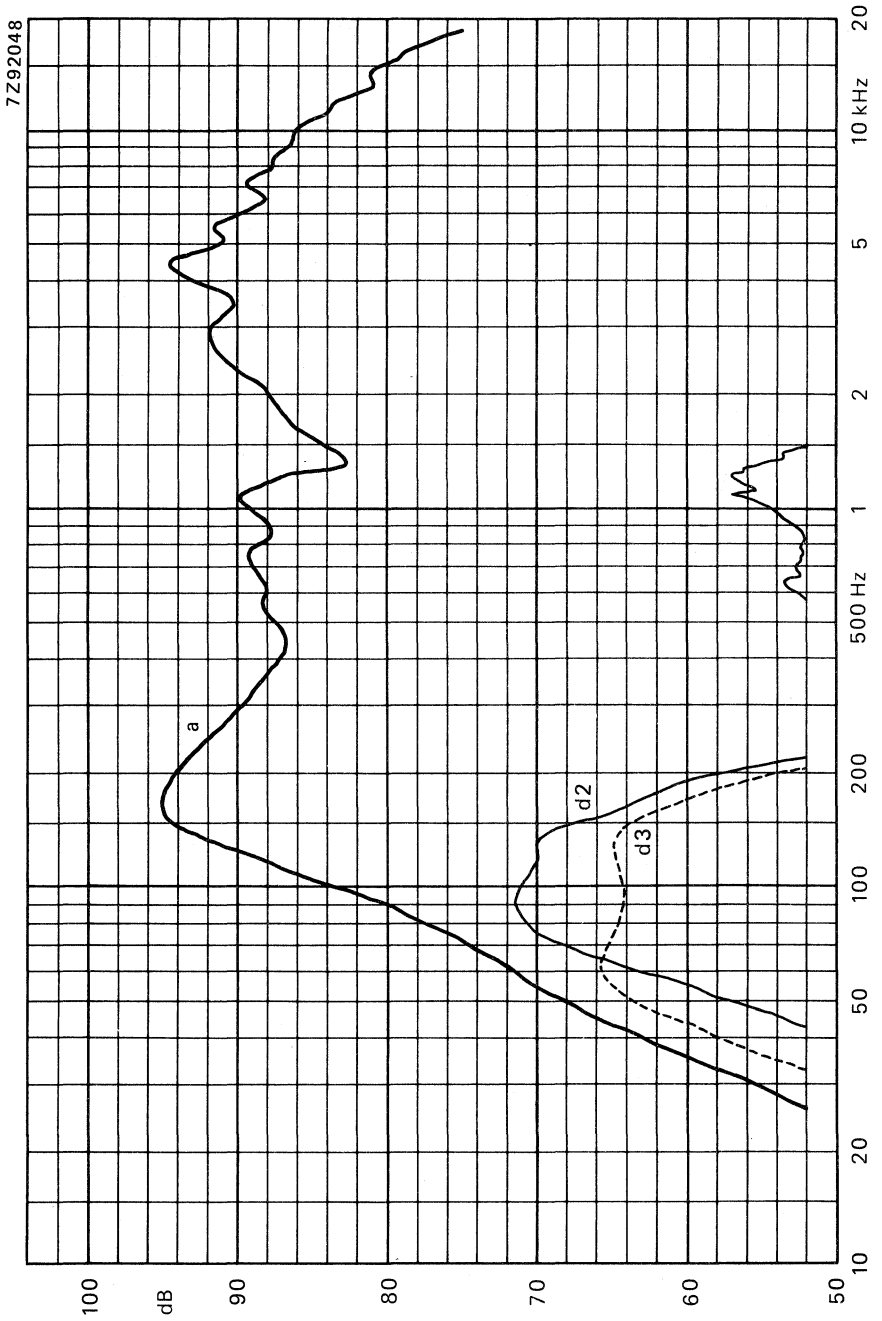


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD44322/X.

### 4 inch FULL RANGE LOUDSPEAKER

#### TECHNICAL DATA

	version		
	X4	X8	X15
Rated impedance	4	8	15 $\Omega$
Voice coil resistance	3,8	7	13 $\Omega$
Rated frequency range	2000 to 16 000		Hz
Resonance frequency	170		Hz
Power handling capacity, measured without filter, loudspeaker unmounted	4		W
Maximum power on loudspeaker	8		W
Operating power (sound level 90 dB, 1m)	2,4		W
Sweep voltage (70 to 20 000 Hz)	2,8	4	5,4 V
Filter	none		
Energy in air gap	12,08		mJ
Flux density	0,57		T
Air-gap height	2,5		mm
Voice coil height	4	4,3	4,2 mm
Core diameter	14,5		mm
Magnet material	ceramic		
diameter	36		mm
mass	0,030		kg
Mass of loudspeaker	0,17		kg
Magnetic stray field according to DIN 45576	max.	0,35	mT

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

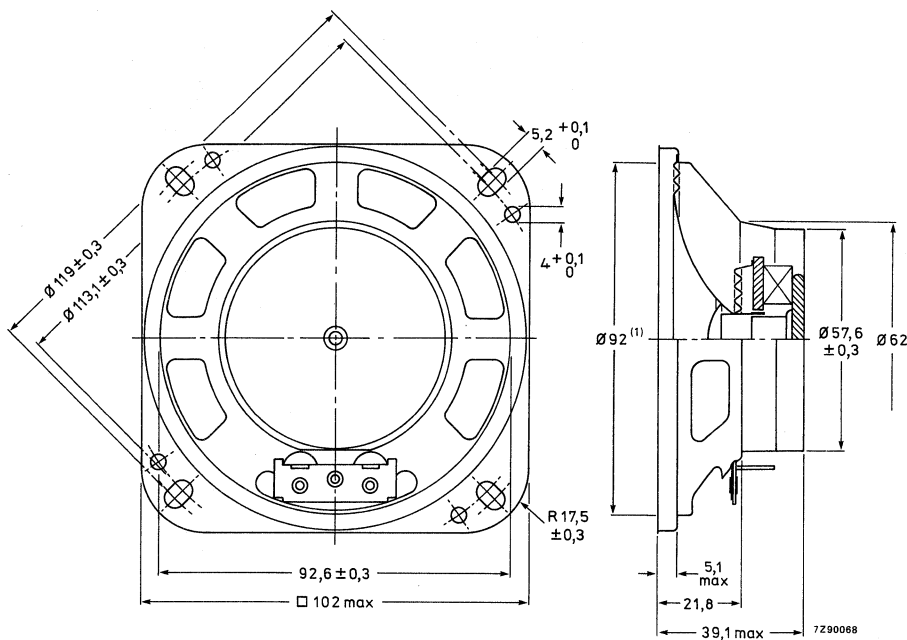


Fig. 1.

(1) Recommended baffle opening ( $\varnothing 92$  mm) and mounting clearance (2 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD44322/X4 catalogue number 2422 257 24731
  - AD44322/X8 catalogue number 2422 257 24732
  - AD44322/X15 catalogue number 2422 257 24733
- } These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure

Curves d2 and d3: 2nd and 3rd harmonic distortion.

DEVELOPMENT SAMPLE DATA

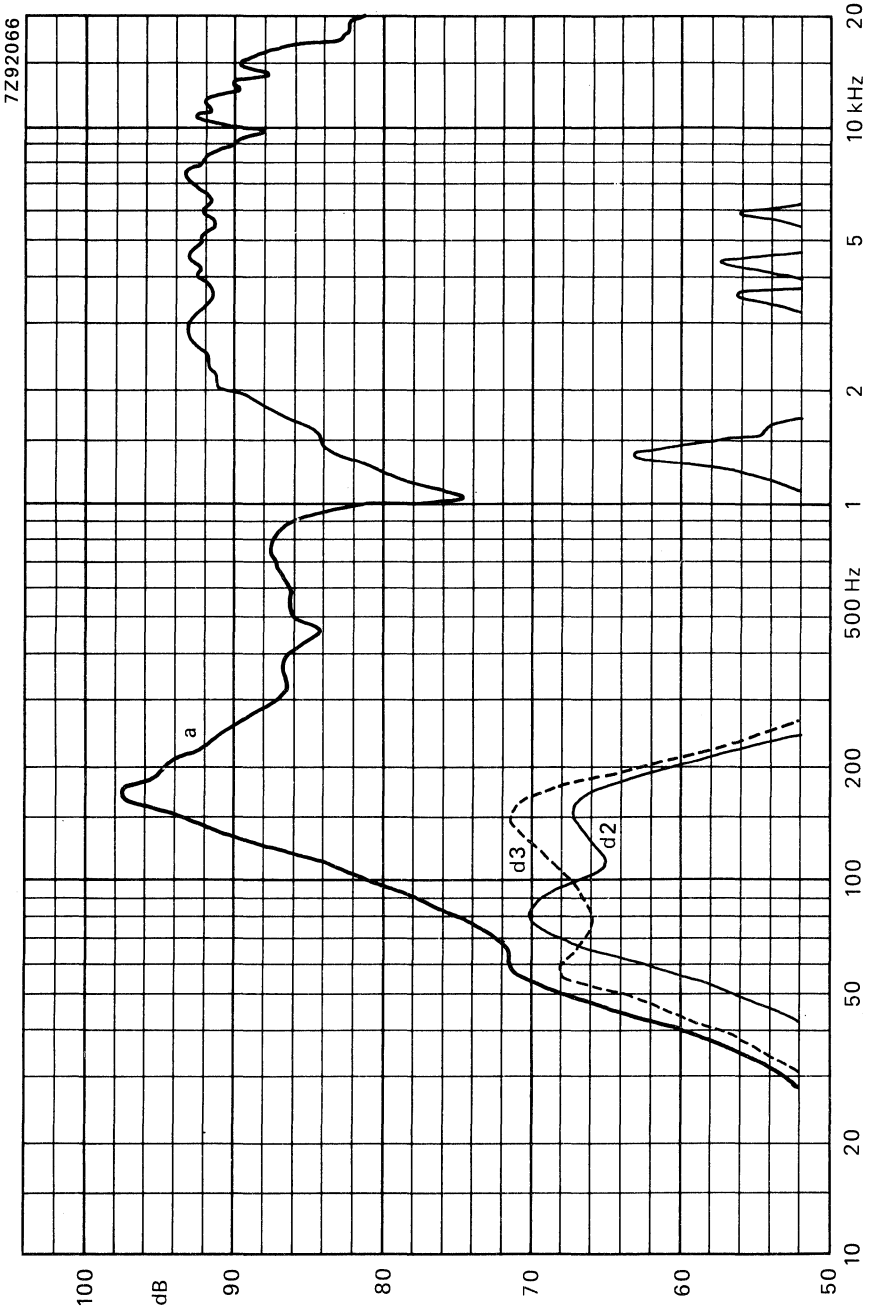


Fig. 2.



## 4 inch FULL RANGE ROUND LOUDSPEAKER

### TECHNICAL DATA

Rated impedance	4 $\Omega$
Voice coil resistance	3,2 $\Omega$
Resonance frequency	110 Hz
Power handling capacity, measured without filter, loudspeaker unmounted	15 W
Maximum power on loudspeaker	25 W
Operating power (sound level 96 dB, 1 m)	4 W
Sweep voltage (60 to 20 000 Hz)	5,5 V
Filter	none
Energy in air gap	78 mJ
Flux density	1,15 T
Air-gap height	3 mm
Voice coil height	4 mm
Core diameter	18 mm
Magnet material	ceramic
→ diameter	60 mm
mass	0,154 kg
Mass of loudspeaker	0,350 kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeaker has a textile rim and an aluminium coil former. Type AD44401/M4 is provided with a soft foam sealing ring, see Fig. 1.

Dimensions in mm

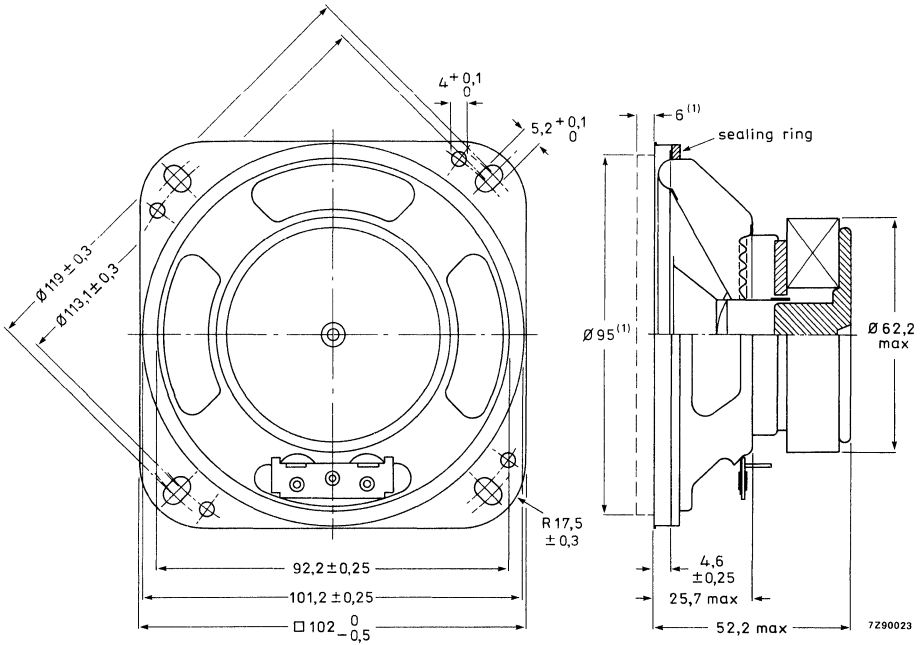


Fig. 1.

(1) Recommended baffle hole ( $\phi 95$  mm) and clearance (6 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD44400/M4 catalogue number 2422 257 44121 }  
AD44401/M4 catalogue number 2422 257 44131 } These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

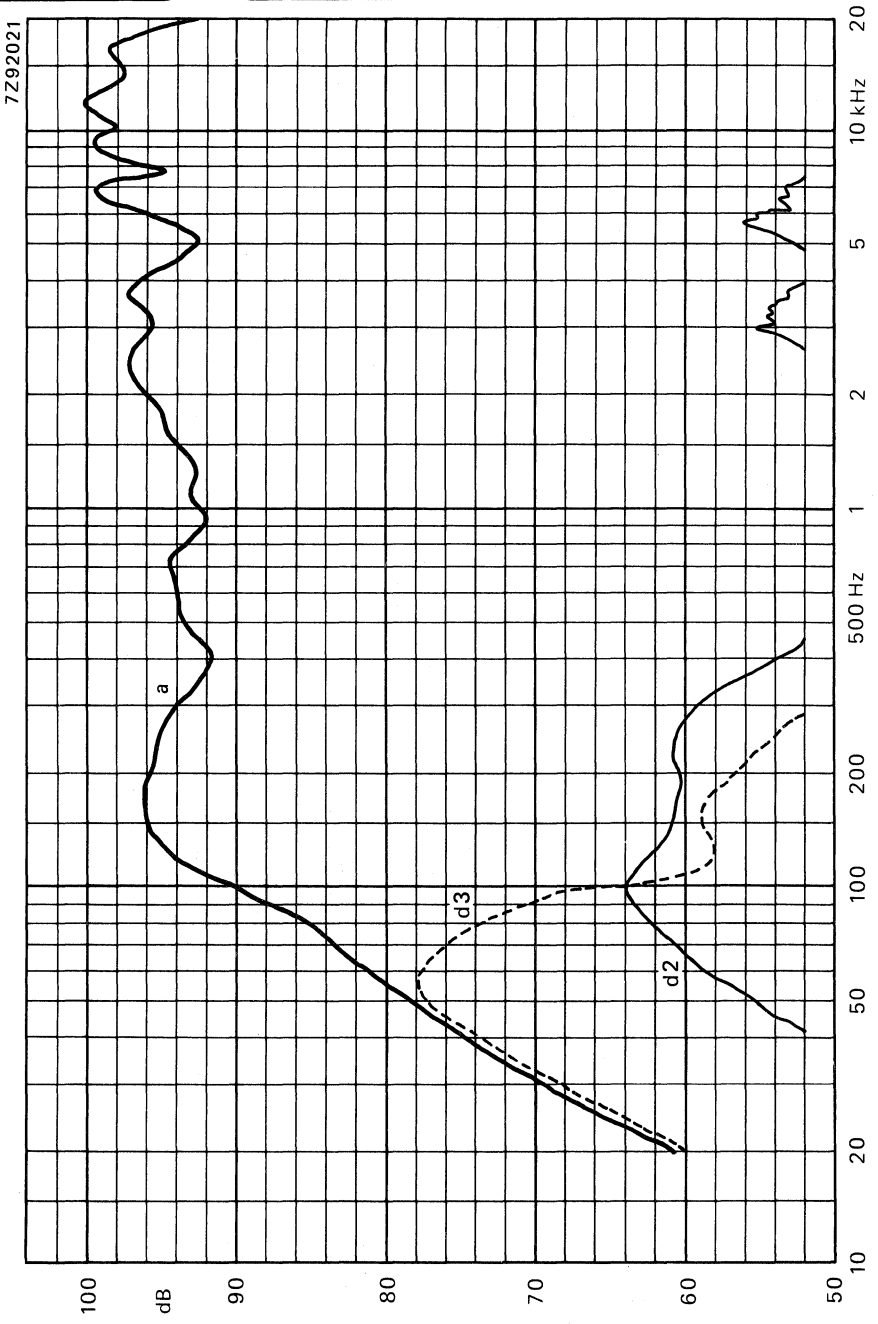


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD44725/X.  
AD44745/X.

## 4 INCH LOW POWER LOUDSPEAKERS

### APPLICATION

For portable receivers and intercoms. AD44745 has a screened magnet system and is specially suitable for portable television sets.

### TECHNICAL DATA

	version				
	X4	X8	X15	X25	
Rated impedance	4	8	15	25	$\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8	$\Omega$
Rated frequency range	80 to 15 000				Hz
Resonance frequency	170				Hz
Power handling capacity, loudspeaker unmounted, measured without filter	5				W
Maximum power on loudspeaker	7				W
Operating power (sound level 90 dB, 0,5 m)	0,45				W
Sweep voltage (frequency range 100 to 20 000 Hz)	2,4	3,5	4,7	6,1	V
Energy in air gap	12,7				mJ
Flux density	0,74				T
Air-gap height	2,5				mm
Voice coil height	2,7	2,2	3,0	3,6	mm
Core diameter	10				mm
Magnet material	ceramic				
square	28,5				mm ←
mass	18				g
Mass of loudspeaker,					
AD44725	70				g
AD44745	90				g

Connection is by means of 2,8 mm (0,11 inch) tag connectors or soldering.

The loudspeakers have a plastic frame, and a paper cone and surround.

Dimensions in mm

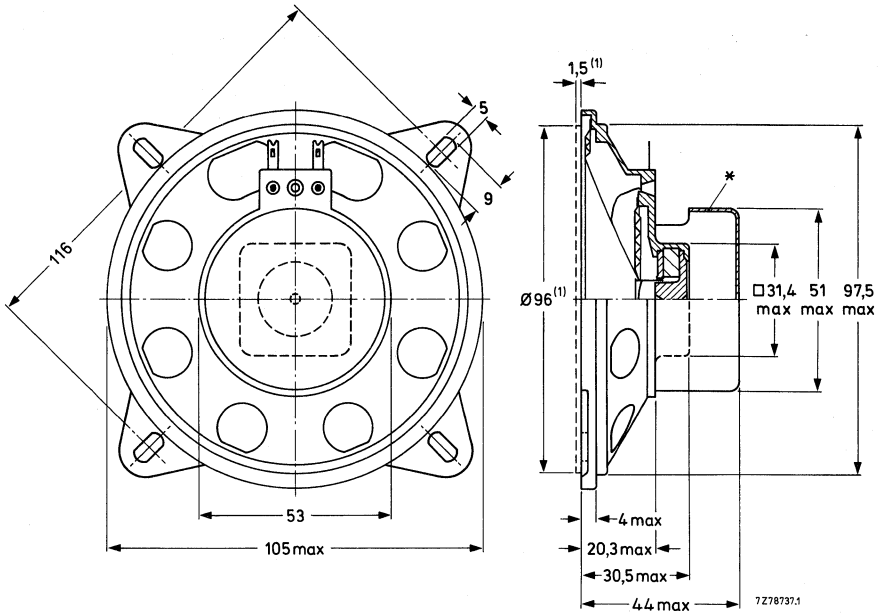


Fig. 1.

\* Screening for AD44745 only.

(1) Recommended baffle opening ( $\phi$  96 mm) and clearance depth (1,5 mm) are required for cone movement at the specified power handling capacity.

#### AVAILABLE VERSIONS

type according to Fig. 1a.

AD44725/X4	catalogue number 2403 257 54825
AD44725/X8	catalogue number 2403 257 54826
AD44725/X15	catalogue number 2403 257 54827
AD44725/X25	catalogue number 2403 257 54828
AD44745/X4	catalogue number 2403 257 54725
AD44745/X8	catalogue number 2403 257 54726
AD44745/X15	catalogue number 2403 257 54727
AD44745/X25	catalogue number 2403 257 54728

These numbers apply to bulk packed loudspeakers, minimum packing quantity 50 per unit.

#### FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

DEVELOPMENT SAMPLE DATA

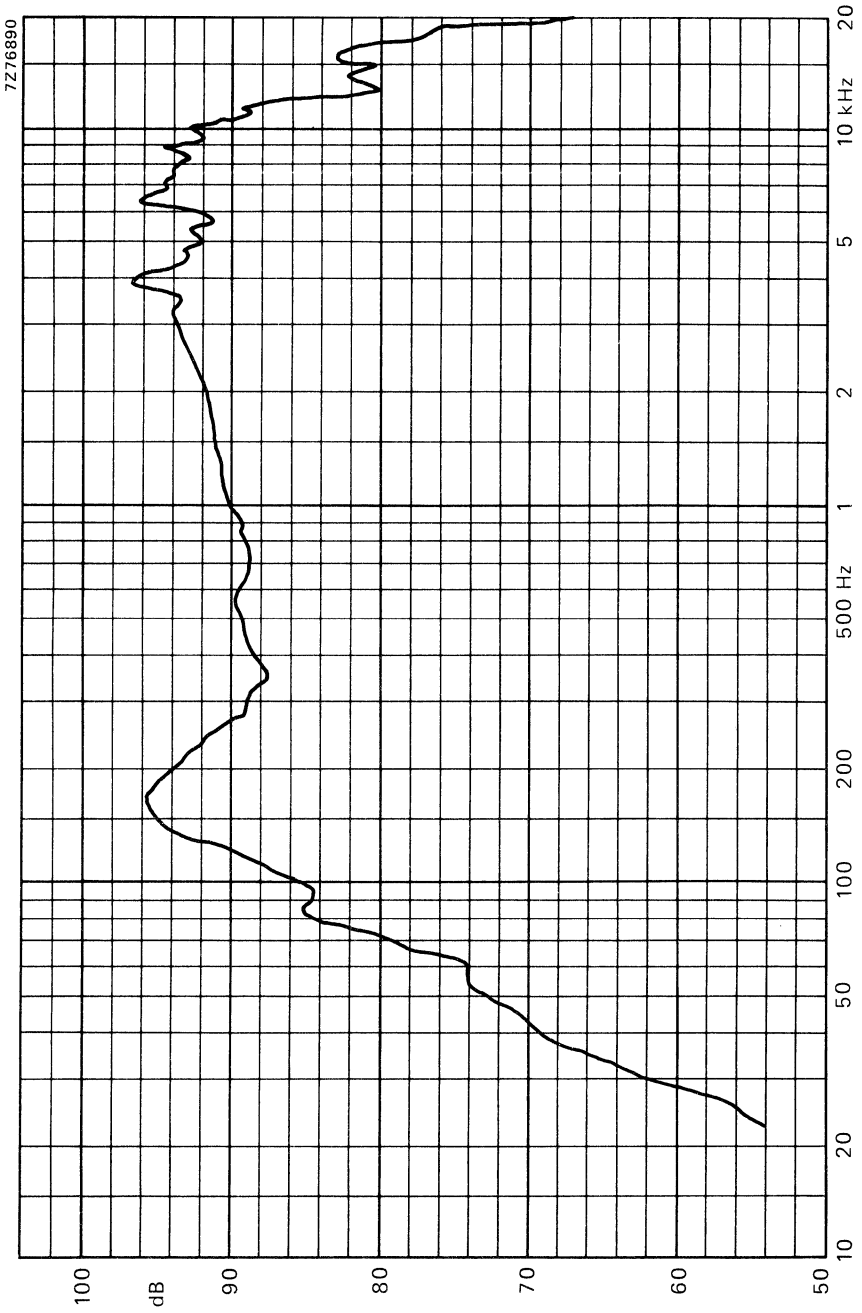


Fig. 2.

## 4 inch FULL RANGE LOUDSPEAKER

## TECHNICAL DATA

	version	
	X4	X8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,2	7 $\Omega$
Resonance frequency	140	Hz
Power handling capacity, measured without filter, loudspeaker unmounted	8	W
Maximum power on loudspeaker	12	W
Operating power (sound level 90 dB, 1 m)	1	W
Sweep voltage (80 to 20 000 Hz)	4	5,6 V
Filter	none	
Characteristic sensitivity	90	dB/W/m
Energy in air gap	50	mJ
Flux density	0,95	T
Air-gap height	3	mm
Voice coil height	4	4,5 mm
Core diameter	18	mm
Magnet material	ceramic	
diameter	53	mm
mass	0,1	kg
Mass of loudspeaker	0,26	kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeakers have a textile rim.

Dimensions in mm

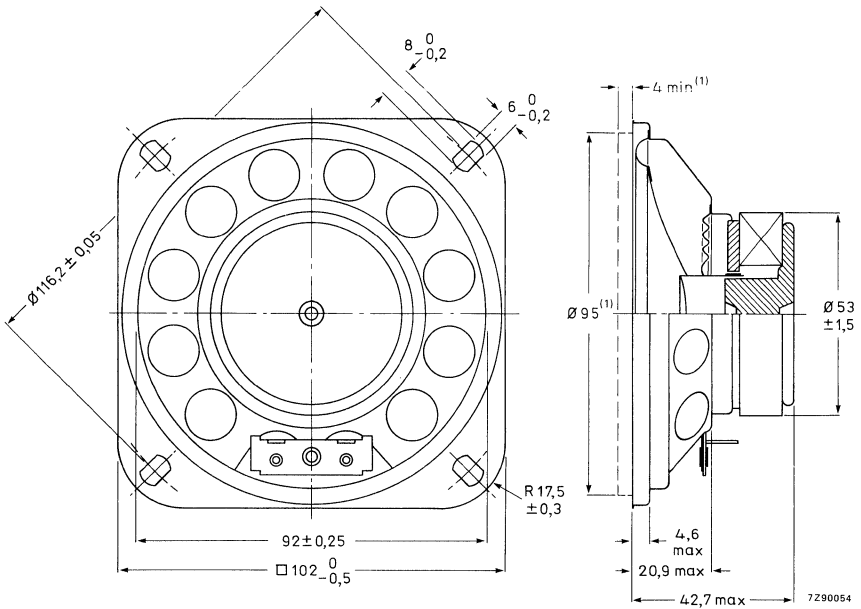


Fig. 1.

(1) Recommended baffle hole ( $\phi 95 \text{ mm}$ ) and clearance depth ( $4 \text{ mm}$ ) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD44830/X4 catalogue number 2422 257 44531

AD44830/X8 catalogue number 2422 257 44532

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.



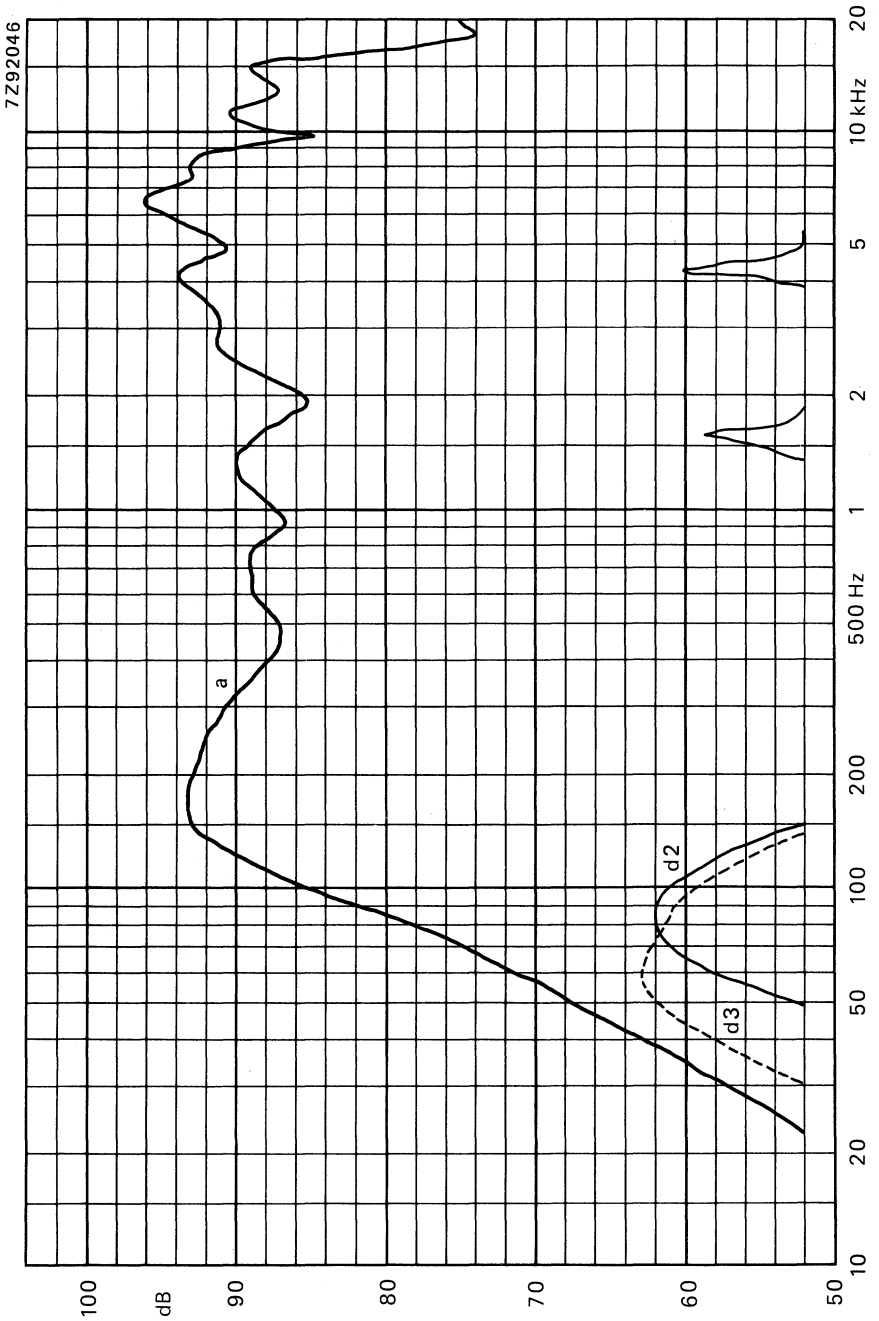


Fig. 2.

## 4 inch FULL RANGE LOUDSPEAKER

### TECHNICAL DATA

	version	
	X8	X15
Rated impedance	8	15 $\Omega$
Voice coil resistance	7	13 $\Omega$
Resonance frequency	175	Hz
Power handling capacity, measured without filter, loudspeaker unmounted	4	W
Maximum power on loudspeaker	8	W
Operating power (sound level 90 dB, 1 m)	1	W
Sweep voltage (70 to 20 000 Hz)	4	V
Filter	none	
Energy in air gap	26,5	mJ
Flux density	0,91	T
Air-gap height	2,5	mm
Voice coil height	4,3	4,2 mm
Core diameter	14,5	mm
Magnet material	ceramic	
diameter	45	mm
mass	0,1	kg
Mass of loudspeaker	0,18	kg
Magnetic stray field according to DIN 45576	max. 35	mT

Loudspeakers AD44860/X. have a paper rim; AD44861/X. have a textile rim. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

AD44860/X.  
AD44861/X.

Dimensions in mm

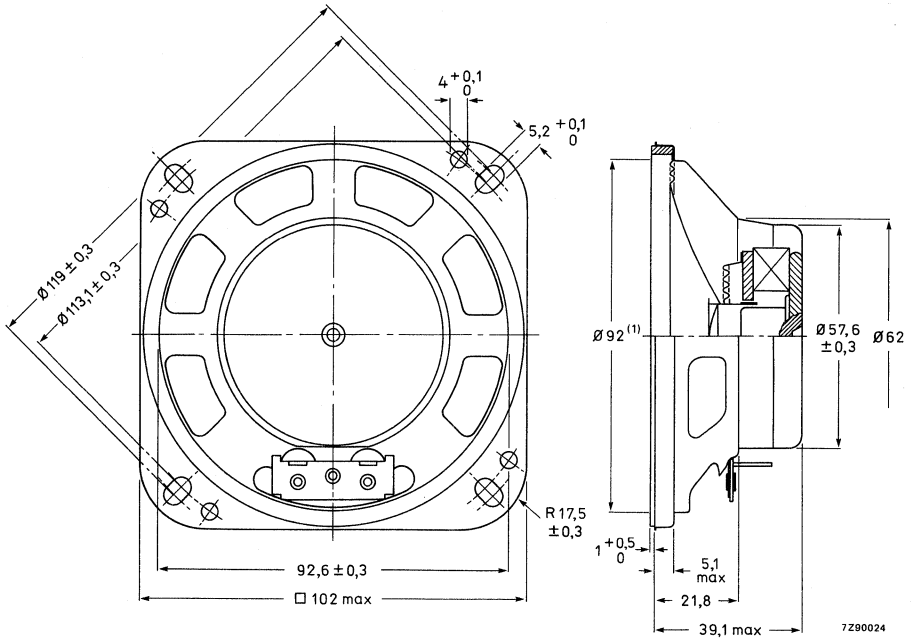


Fig. 1.

One tag has a red mark to facilitate phase matching. Recommended baffle hole:  $\varnothing 92 \text{ mm}$ .

**AVAILABLE VERSIONS**

AD44860/X8 catalogue number 2422 257 24622

AD44860/X15 catalogue number 2422 257 24623

AD44861/X8 catalogue number 2422 257 24626

AD44861/X15 catalogue number 2422 257 24627

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

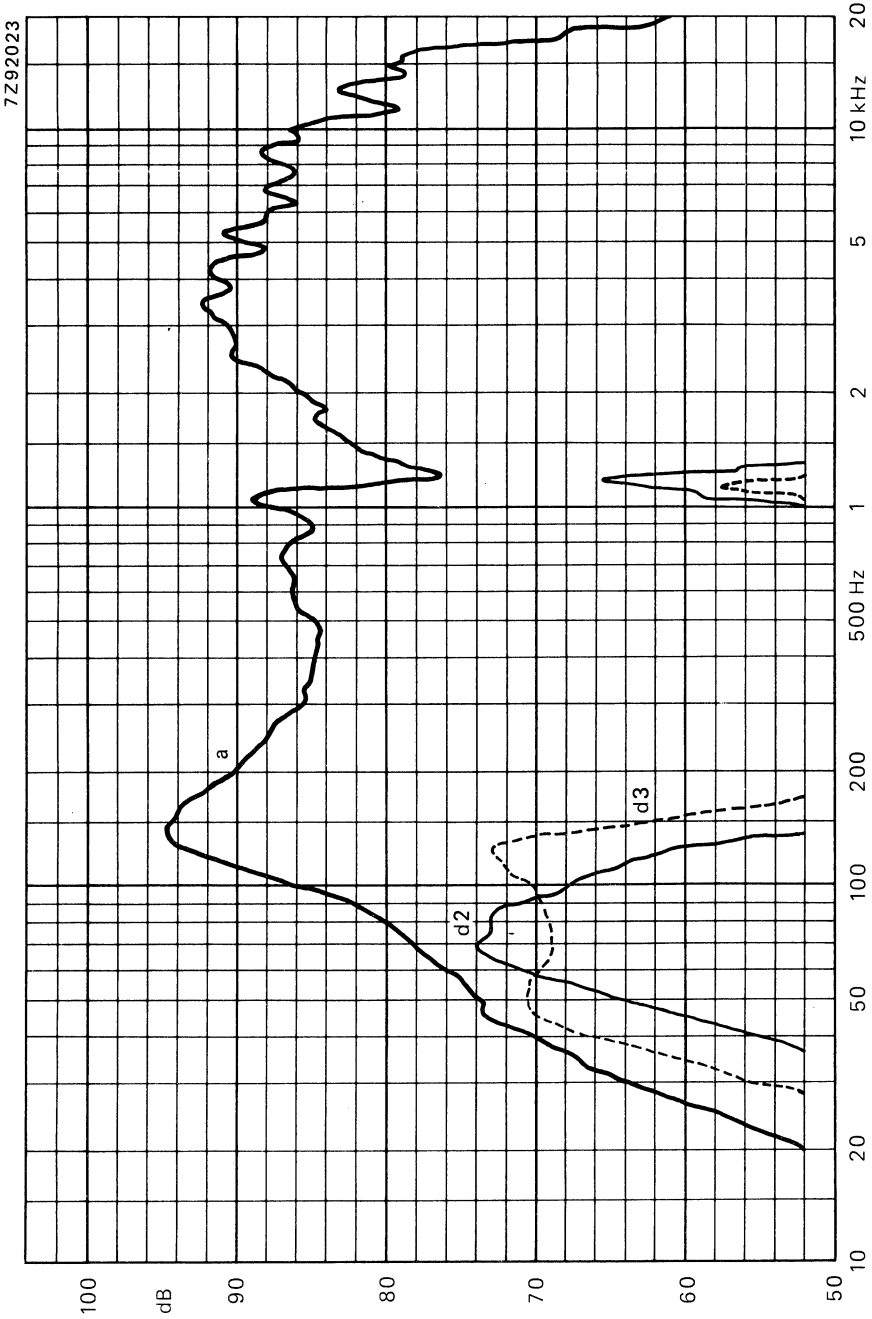


Fig. 2.

## 4 inch FULL RANGE LOUDSPEAKER

## TECHNICAL DATA

	version	
	X4	X8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,4	7 $\Omega$
Resonance frequency	150 Hz	
Power handling capacity, measured without filter, loudspeaker unmounted	6	W
Maximum power on loudspeaker	10	W
Operating power (sound level 92 dB, 1 m)	0,85	W
Sweep voltage (80 to 20 000 Hz)	3,4	4,9 V
Filter	none	
Characteristic sensitivity	91	dB/W/m
Energy in air gap	38	mJ
Flux density	1,1	T
Air-gap height	2,5	mm
Voice coil height	4,2	mm
Core diameter	14,5	mm
Magnet material	ceramic	
diameter	45	mm
mass	0,053	kg
Mass of loudspeaker	0,185	kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

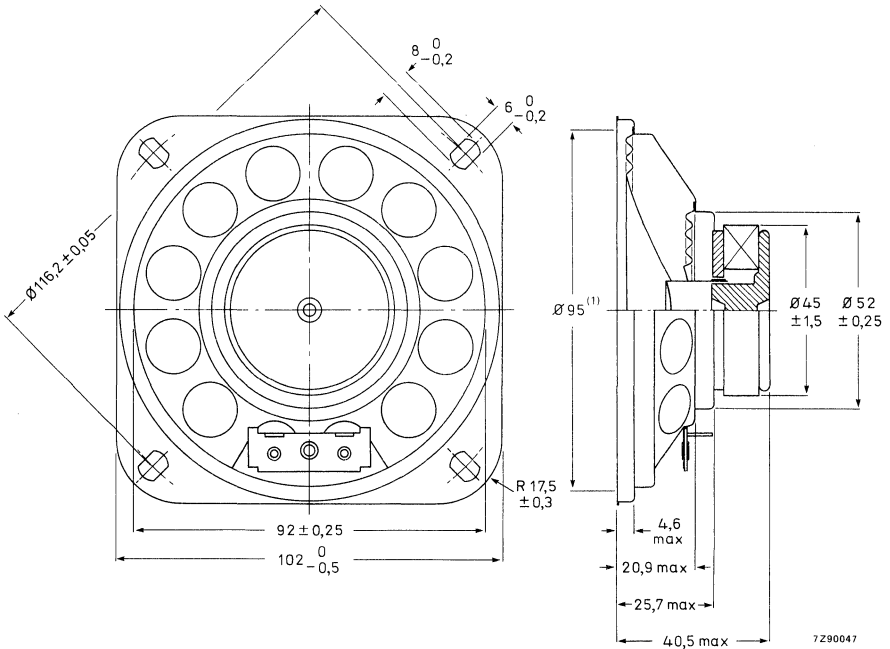


Fig. 1.

Recommended baffle opening  $\phi 95$  mm. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD44880/X4 catalogue number 2422 257 44431  
 AD44880/X8 catalogue number 2422 257 44432 } These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

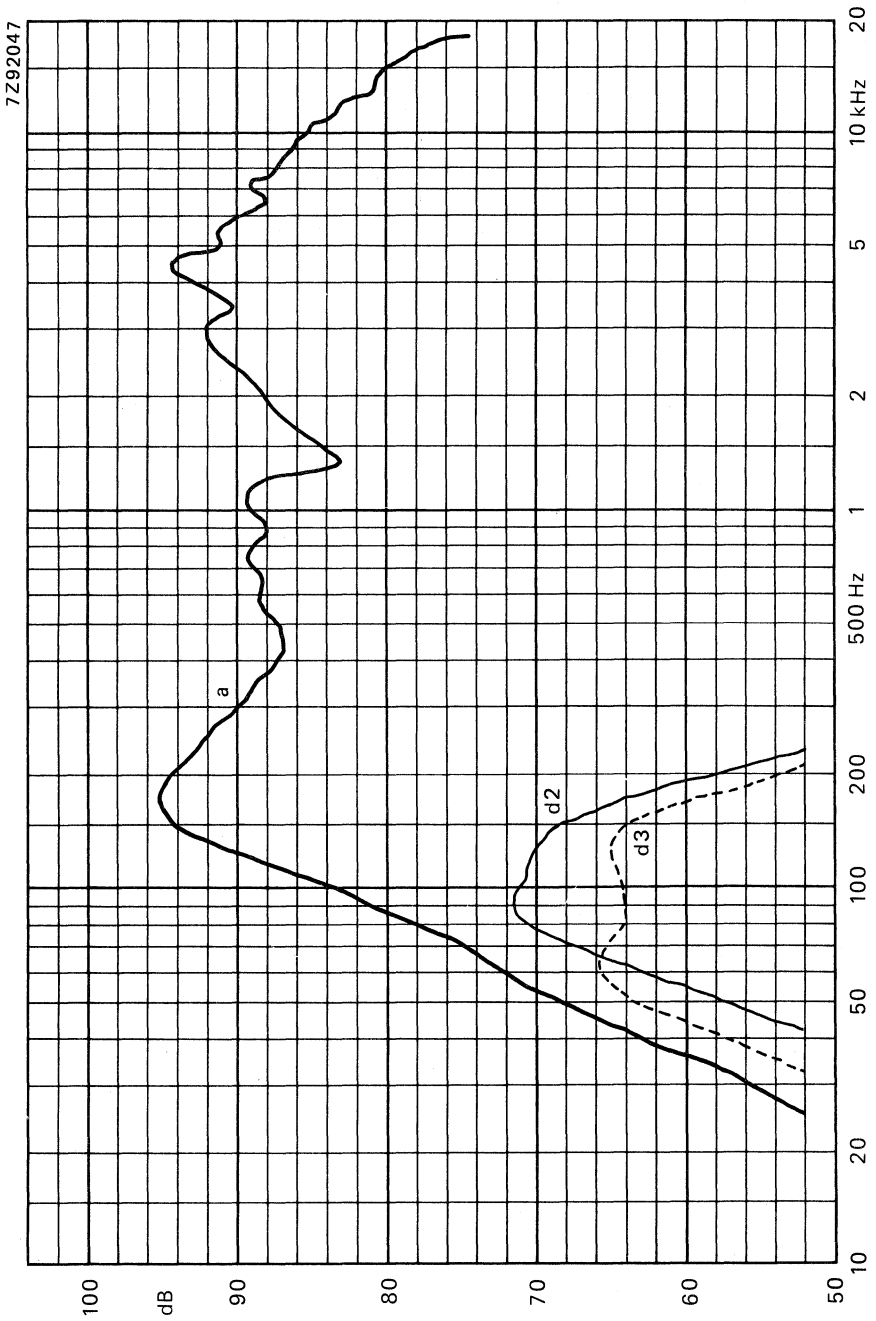


Fig. 2.

## 4 inch MEDIUM POWER LOUDSPEAKER

### APPLICATION

A full range loudspeaker that is particularly suitable for colour television sets due to the absence of stray magnetic field.

### TECHNICAL DATA

	version			
	M4	M8	M15	M25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,4	7,1	13,5	22,7 $\Omega$
Rated frequency range	70 to 10 000			Hz
Resonance frequency	90			Hz
Power handling capacity, measured without filter, loudspeaker unmounted	8			W
Operating power (sound level 90 dB, 1 m)	1,5	1,5	1,6	1,8 W
Sweep voltage (35 to 20 000 Hz)	4	5,7	7,7	10 V
Energy in air gap	60,5			mJ
Flux density	1			T
Air-gap height	3			mm
Voice coil height	4,5	3,9	3,2	4 mm
Core diameter	18			mm
Magnet material	ceramic			
diameter	45			mm ←
mass	0,1			kg
Mass of loudspeaker	0,35			kg
Magnetic stray field according to DIN 45 578	0,35			mT

The loudspeaker has a foam plastic rim, double cone and an aluminium voice coil. The magnet system is screened and compensated. Version AD44900M has a raised rim; version AD44901M is equipped with a flat rim. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.



Dimensions in mm

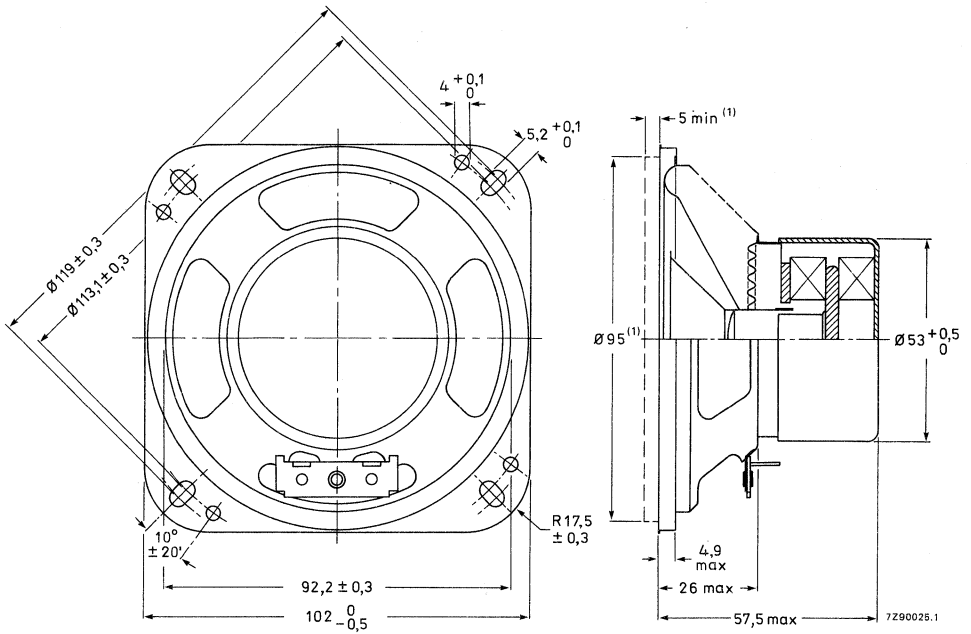


Fig. 1.

(1) Recommended baffle hole ( $\phi$  95 mm) and clearance depth (5 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD44900/M4	catalogue number 2422 257 44221
AD44900/M8	catalogue number 2422 257 44222
AD44900/M15	catalogue number 2442 257 44223
AD44900/M25	catalogue number 2422 257 44224
AD44901/M4	catalogue number 2422 257 44231
AD44901/M8	catalogue number 2422 257 44232
AD44901/M15	catalogue number 2422 257 44233
AD44901/M25	catalogue number 2422 257 44234

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

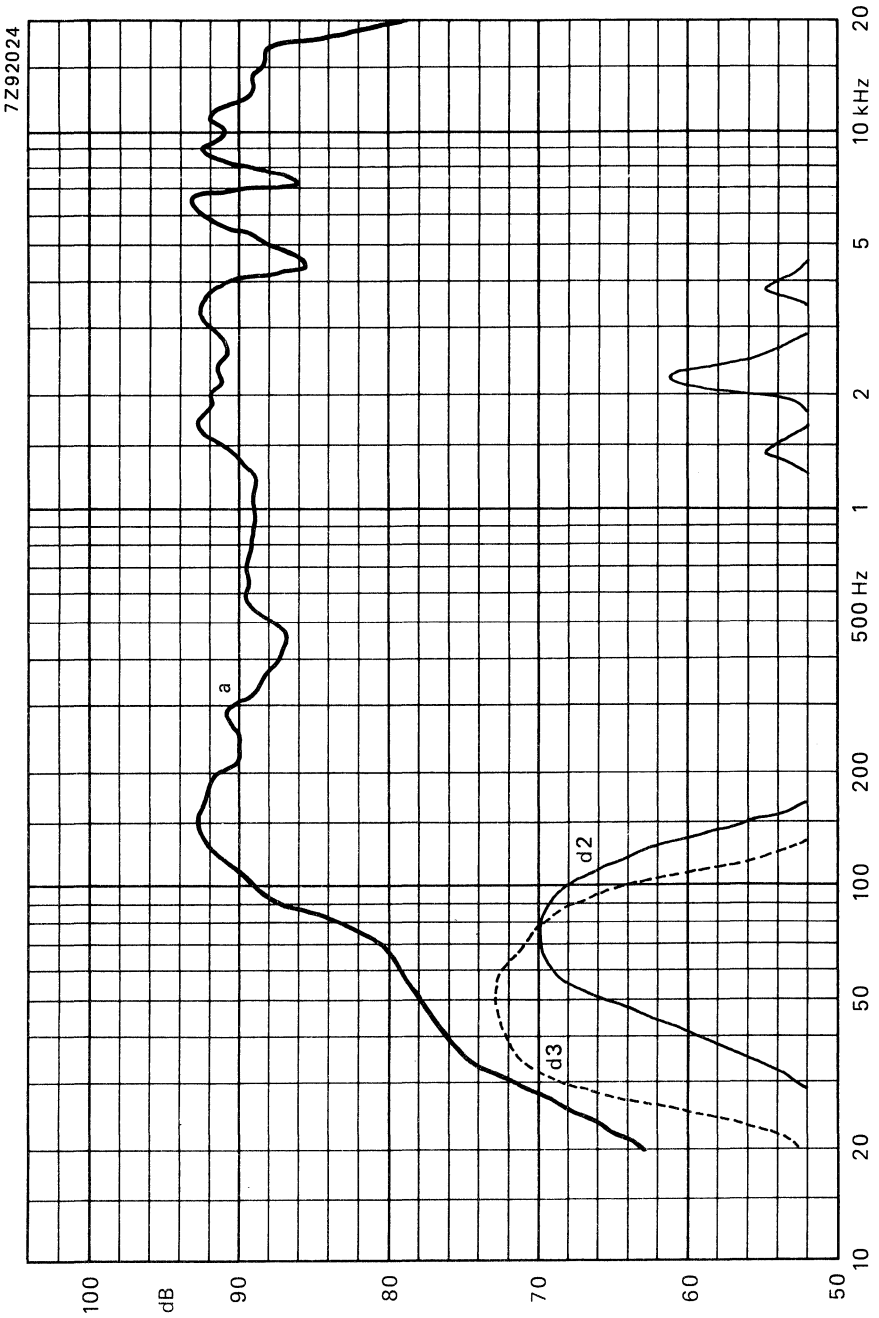


Fig. 2.

## 4 INCH HIGH POWER WOOFER LOUDSPEAKERS

### APPLICATION

For video applications.

### TECHNICAL DATA

	version	
	W4	
Rated impedance	4	$\Omega$
Voice coil resistance	3,2	$\Omega$
Rated frequency range	40 – 10 000	Hz
Resonance frequency	65	Hz
Power handling capacity, measured without filter, loudspeaker unmounted	8	W
Operating power (sound level 90 dB, 1 m)	2,25	W
Energy in air gap	60,5	mJ
Flux density	1,008	T
Air-gap height	3	mm
Voice coil height	3,9	mm
Core diameter	18	mm
Magnet material	ceramic	
diameter	45	mm
mass	0,093	kg
Mass of loudspeaker	0,35	kg

The loudspeaker has a paper cone and a foam surround, the magnet system is screened and compensated. Version AD44900W has a raised rim; version AD44901W is equipped with a flat rim.

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.



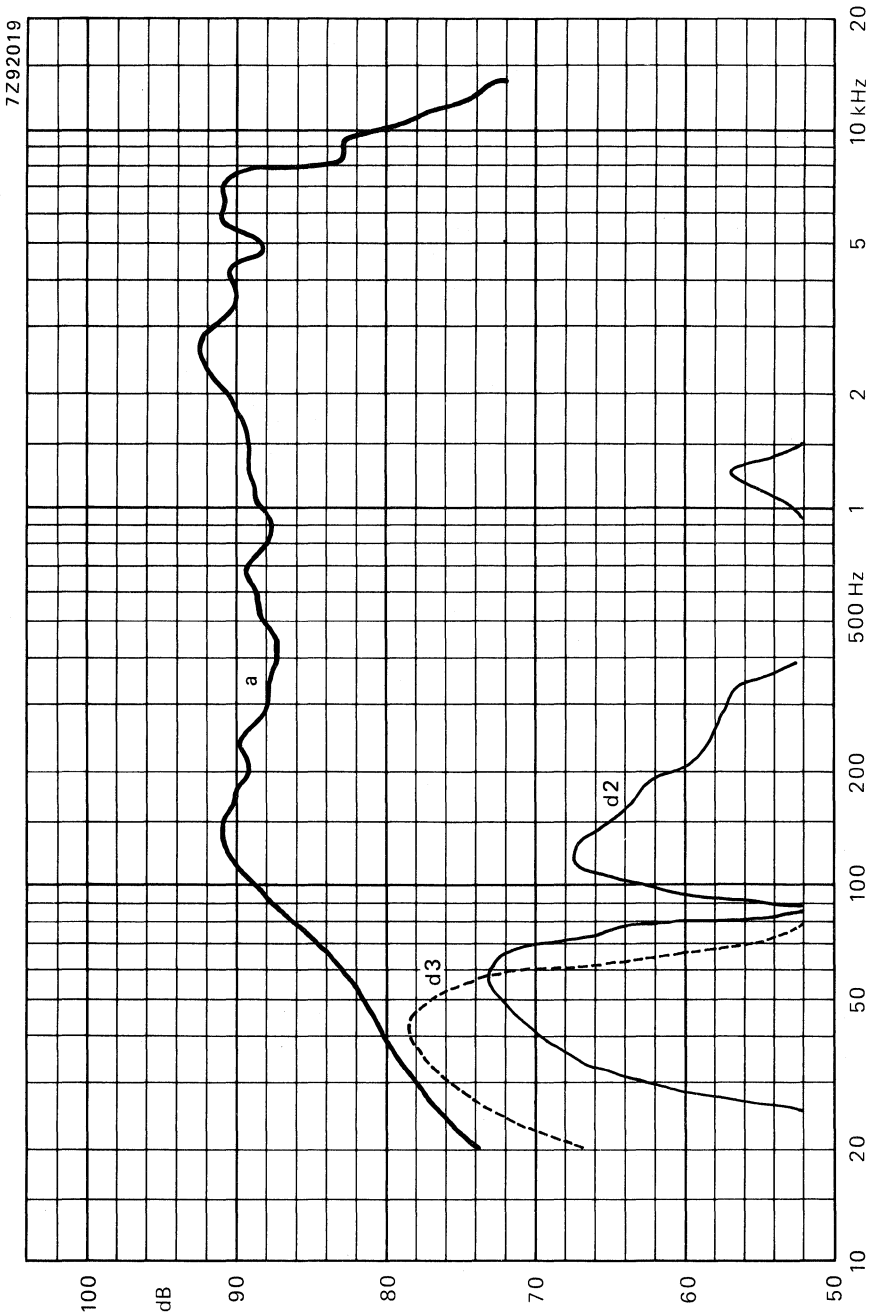


Fig. 2.

## 4 inch WOOFER LOUDSPEAKER

## APPLICATION

The loudspeakers are particularly suitable for use in television because of the screened loudspeaker system.

## TECHNICAL DATA

	version		
	P4	P8	P15
Rated impedance	4	8	15 $\Omega$
Voice coil resistance	3,4	7,1	13,5 $\Omega$
Resonance frequency		110	Hz
Power handling capacity, measured without filter, loudspeaker unmounted		8	W
Operating power (sound level 96 dB, 1 m)		1,5	W
Sweep voltage (35 to 20 000 Hz)		7,7	V
Filter		none	
Energy in air gap		60,5	mJ
Flux density		1,008	T
Air-gap height		3	mm
Voice coil height		4,5	mm
Core diameter		18	mm
Magnet material		ceramic	
diameter		45	mm
mass		0,093	kg
Mass of loudspeaker		0,35	kg
Magnetic stray field according to DIN 45578 max.		0,35	mT

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

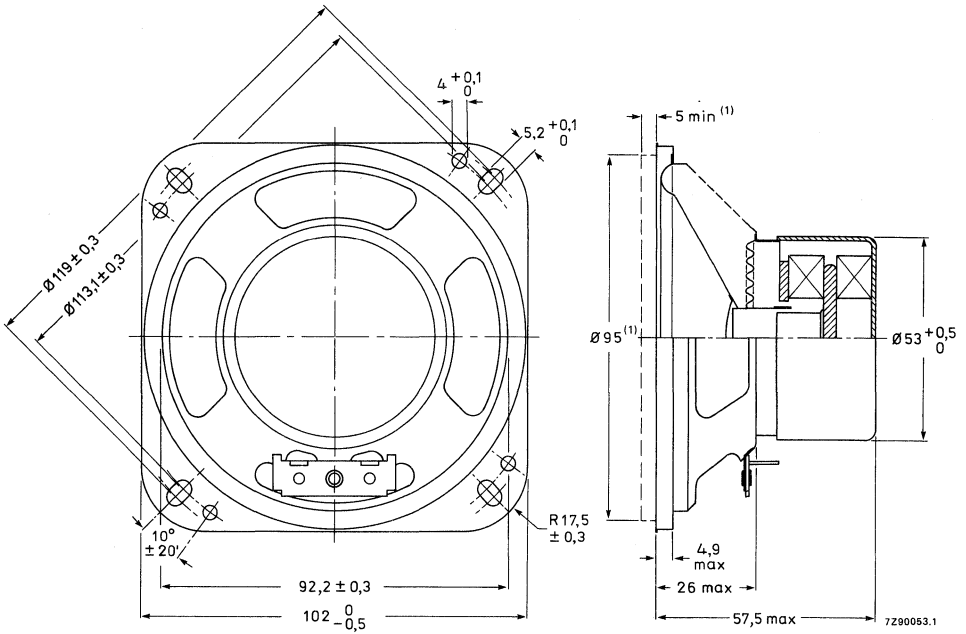


Fig. 1.

(1) Recommended baffle hole ( $\varnothing 95 \text{ mm}$ ) and clearance depth ( $5 \text{ mm}$ ) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD44900/P4 catalogue number 2422 257 44325
- AD44900/P8 catalogue number 2422 257 44326
- AD44900/P15 catalogue number 2422 257 44327

} These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

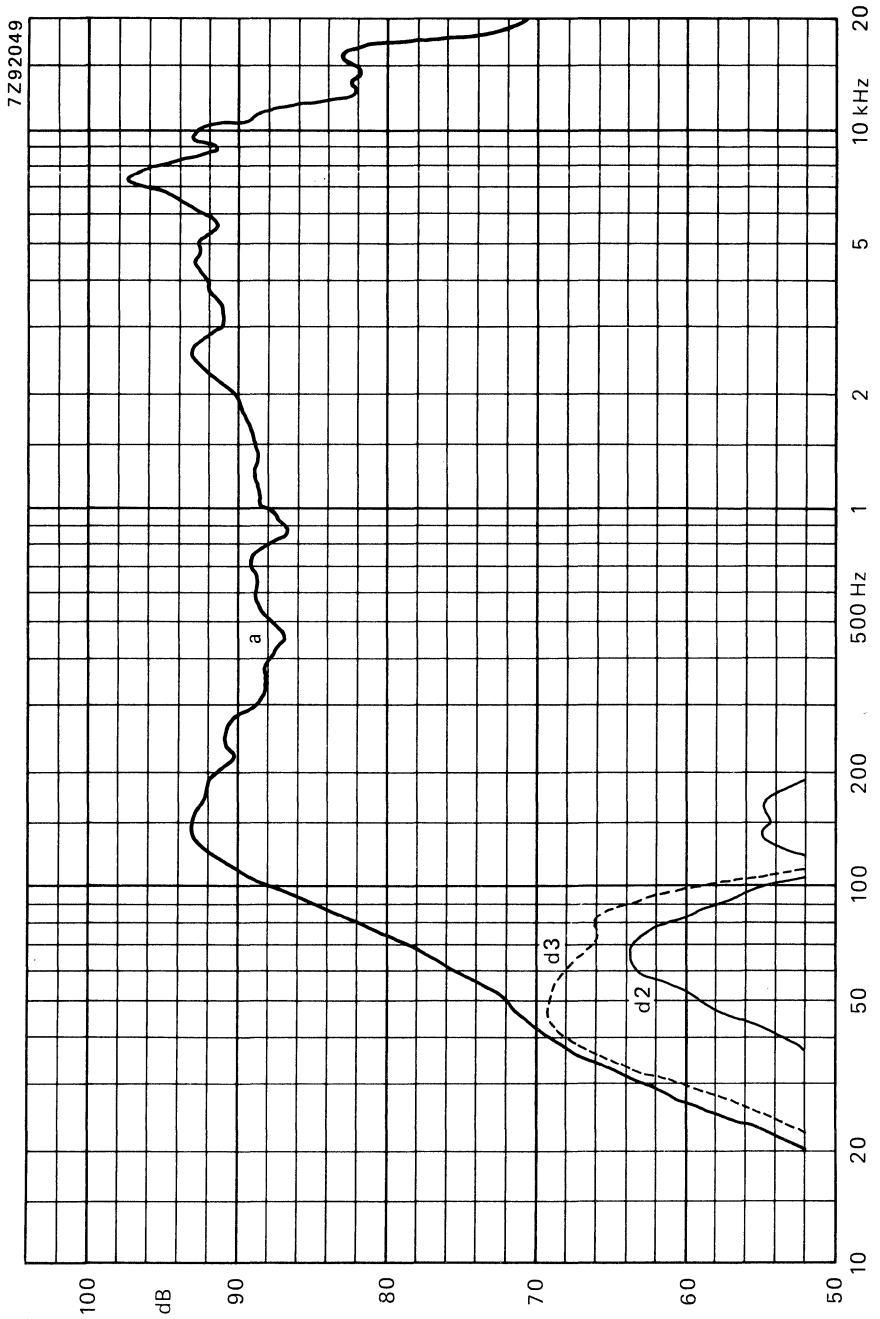


Fig. 2.



## 4 x 6 INCH FULL RANGE LOUDSPEAKERS

### APPLICATION

Oval loudspeaker for audio and video applications. AD46740 has a screened magnet system.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8 $\Omega$
Rated frequency range	100 to 15 000			Hz
Resonance frequency	130			Hz
Power handling capacity, according to DIN 45573, measured without filter, loudspeaker unmounted	4			W
Maximum power on loudspeaker	6			W
Operating power (sound level 90 dB, 1 m)	400			mW
Sweep voltage (100 to 20 000 Hz)	2,4			V
Filter	none			
Energy in air gap	12,7			mJ
Flux density	0,74			T
Air-gap height	2,5			mm
Voice coil height	2,7	2,2	3,0	3,6 mm
Core diameter	10			mm
Magnet material	ceramic			
→ square mass	28,5			mm
	18			g
Mass of loudspeaker				
AD46720	82			g
AD46740	103			g

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

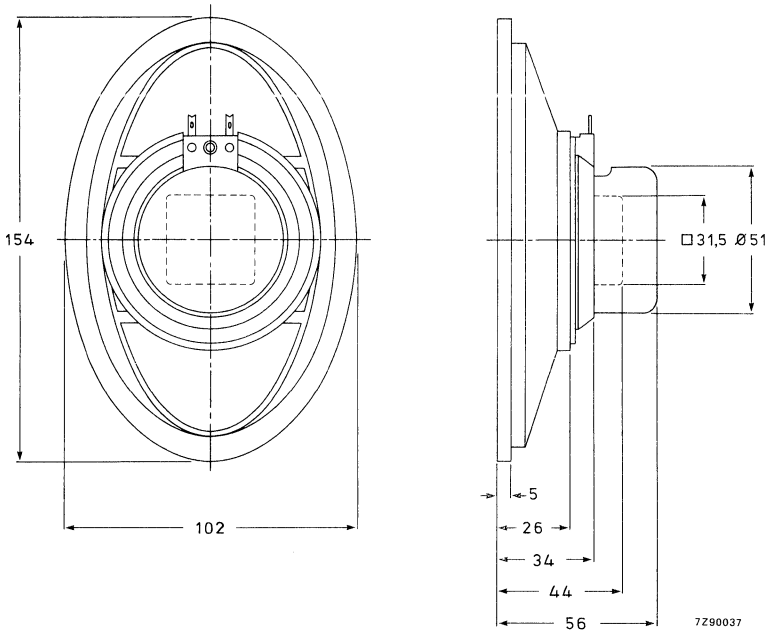


Fig. 1.

\* Screening for AD46740 only.  
Recommended baffle hole: 88 x 140, oval.  
One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD46720/X4 catalogue number 2403 257 29021
- AD46720/X8 catalogue number 2403 257 29022
- AD46720/X15 catalogue number 2403 257 29023
- AD46720/X25 catalogue number 2403 257 29024
- AD46740/X4 catalogue number 2403 257 29121
- AD46740/X8 catalogue number 2403 257 29122
- AD46740/X15 catalogue number 2403 257 29123
- AD46740/X25 catalogue number 2403 257 29124

These numbers are for  
bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.  
Curve a: Sound pressure.  
Curves d2 and d3: 2nd and 3rd harmonic distortion.

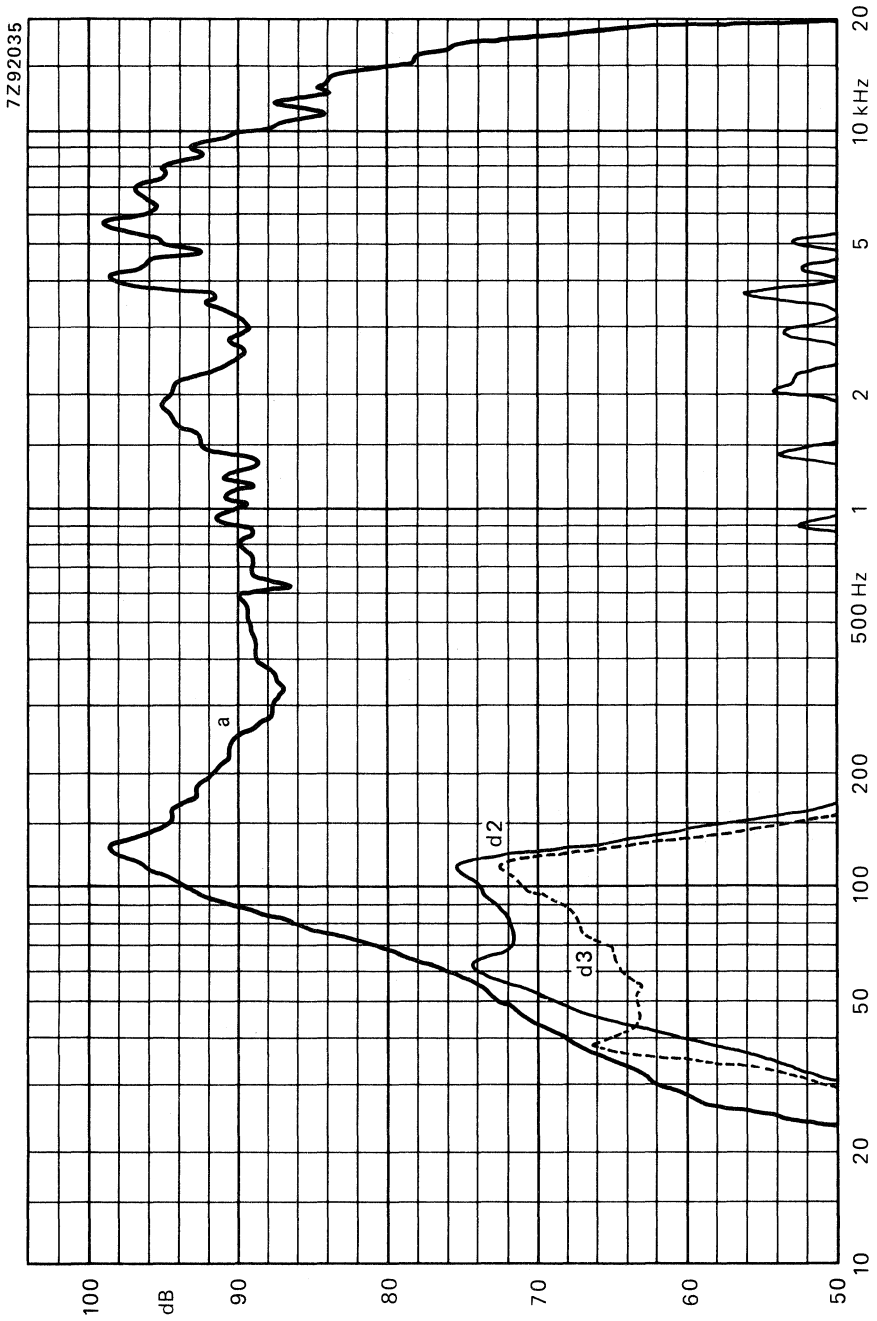


Fig. 2.

## 4 x 6 INCH FULL RANGE LOUDSPEAKERS

### APPLICATION

Oval loudspeaker for audio and video applications. AD46741 has a screened magnet system.

### TECHNICAL DATA

	version				
	X4	X8	X15	X25	
Rated impedance	4	8	15	25	Ω
Voice coil resistance	3,5	7,1	13,7	22,8	Ω
Rated frequency range	100 to 15 000				Hz
Resonance frequency	130				Hz
Power handling capacity, according to DIN 45573, measured without filter, loudspeaker unmounted	5				W
Maximum power on loudspeaker	6				W
Operating power (sound level 90 dB, 1 m)	400				mW
Sweep voltage (100 to 20 000 Hz)	2,4				V
Filter	none				
Energy in air gap	12,7				mJ
Flux density	0,74				T
Air-gap height	2,5				mm
Voice coil height	2,7	2,2	3,0	3,6	mm
Core diameter	10				mm
Magnet material	ceramic				
square	28,5				mm
mass	18				g
Mass of loudspeaker					
AD46721	82				g
AD46742	103				g

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

AD46721/X.  
AD46741/X.

Dimensions in mm

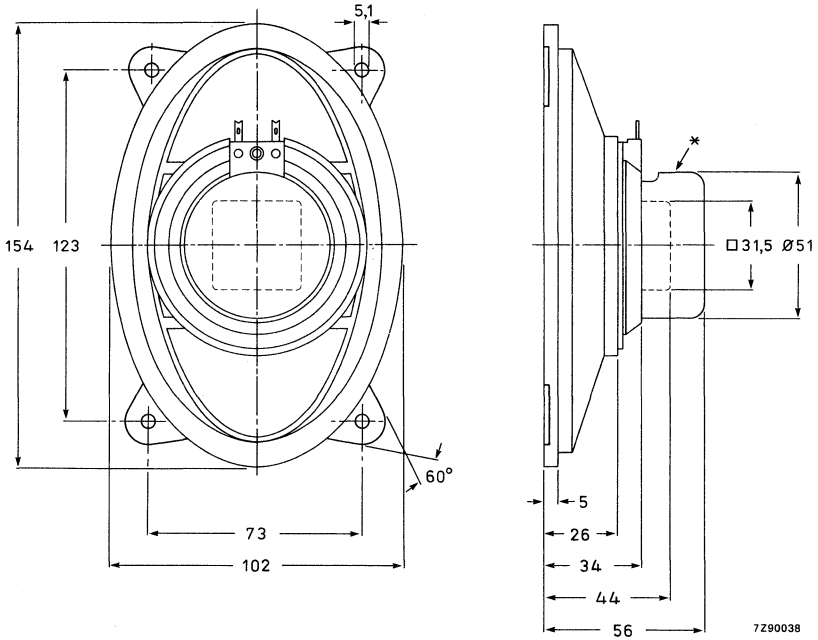


Fig. 1.

\* Screening for AD46741 only.  
Recommended baffle hole: 88 x 140 mm, oval.  
One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD46721/X4 catalogue number 2403 257 29221
- AD46721/X8 catalogue number 2403 257 29222
- AD46721/X15 catalogue number 2403 257 29223
- AD46721/X25 catalogue number 2403 257 29224
  
- AD46741/X4 catalogue number 2403 257 29321
- AD46741/X8 catalogue number 2403 257 29322
- AD46741/X15 catalogue number 2403 257 29323
- AD46741/X25 catalogue number 2403 257 29324

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES (see Fig. 2)**

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.  
Curve a: Sound pressure.  
Curves d2 and d3: 2nd and 3rd harmonic distortion.

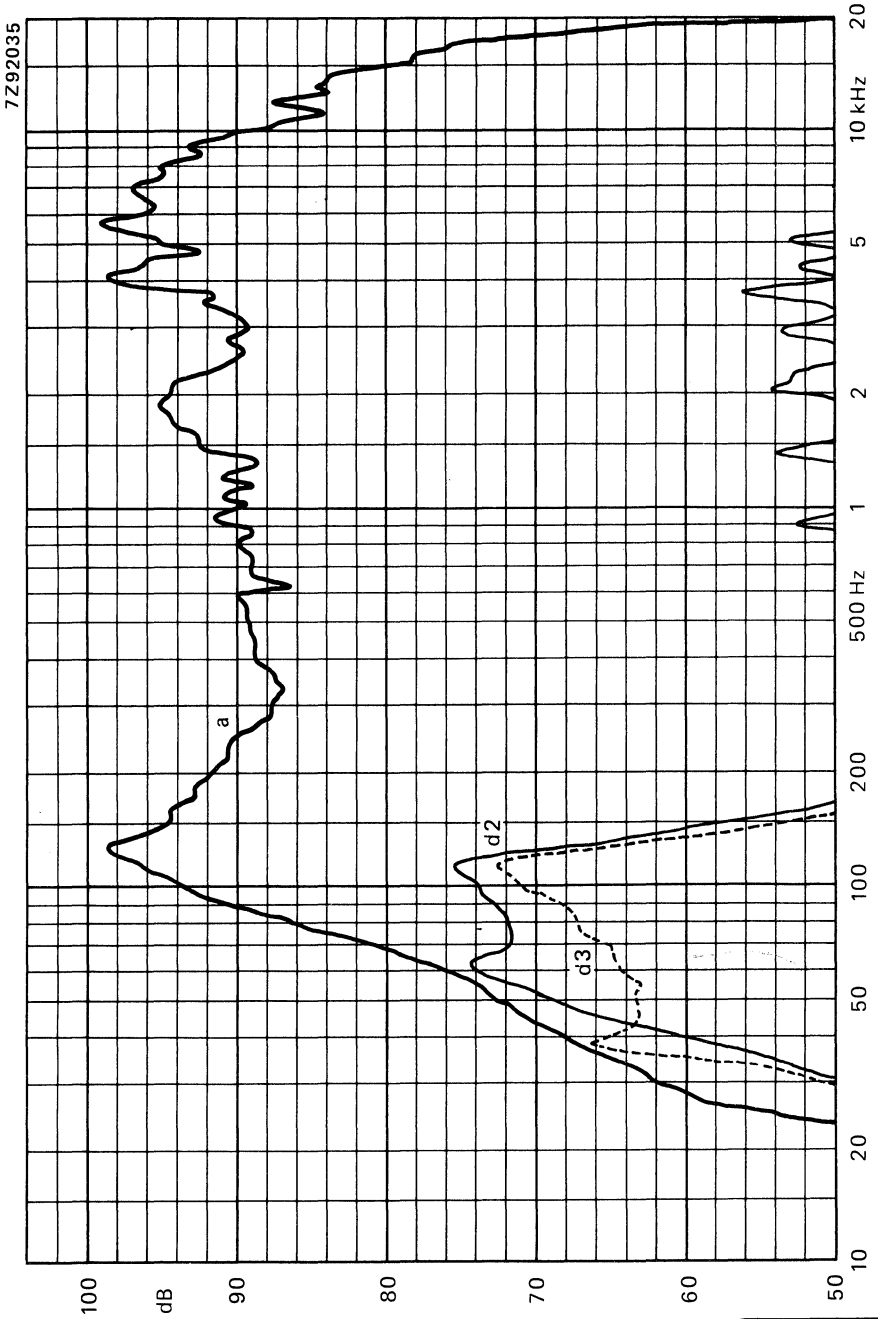


Fig. 2.

## 4 x 6 INCH OVAL MEDIUM POWER LOUDSPEAKERS

### APPLICATION

Oval loudspeaker for audio and video applications. AD46742 has a screened magnet system.

### TECHNICAL DATA

	version				
	X4	X8	X15	X25	
Rated impedance	4	8	15	25	Ω
Voice coil resistance	3,5	7,1	13,7	22,8	Ω
Rated frequency range	100 to 15 000				Hz
Resonance frequency	130				Hz
Power handling capacity, according to DIN 45573, measured without filter, loudspeaker unmounted	5				W
Maximum power on loudspeaker	6				W
Operating power (sound level 90 dB, 1 m)	400				mW
Sweep voltage (100 to 20 000 Hz)	2,4	3,5	4,7	6,1	V
Filter	none				
Characteristic sensitivity	71				
Energy in air gap	12,7				mJ
Flux density	0,74				T
Air-gap height	2,5				mm
Voice coil height	2,7	2,2	3,0	3,6	mm
Core diameter	10				mm
Magnet material	ceramic				
→ square mass	28,5				mm
	18				g
Mass of loudspeaker	103				g

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

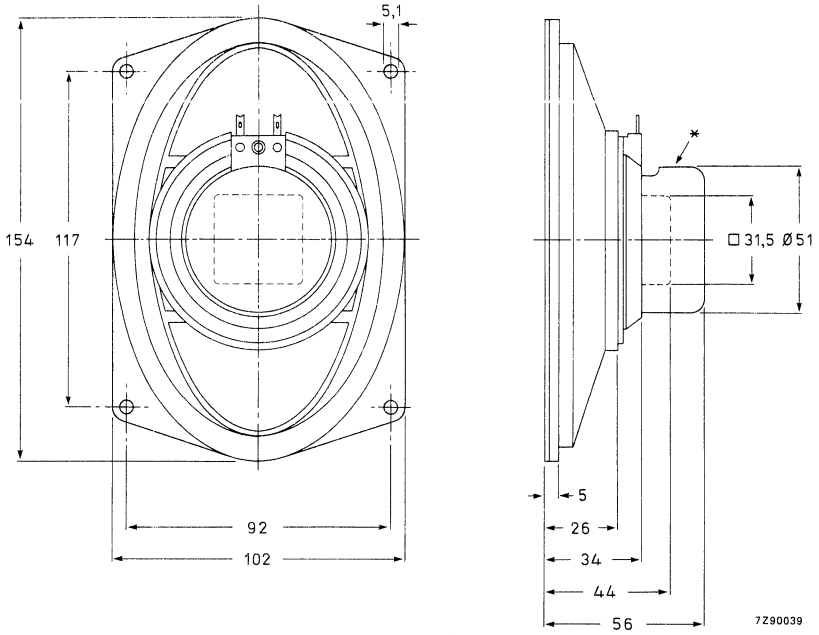


Fig. 1.

\* Screening for AD46742 only.

Recommended baffle hole: 88 mm x 140 mm (oval).  
One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD46722/X4 catalogue number 2403 257 29421
- AD46722/X8 catalogue number 2403 257 29422
- AD46722/X15 catalogue number 2403 257 29423
- AD46722/X25 catalogue number 2403 257 29424
  
- AD46742/X4 catalogue number 2403 257 29521
- AD46742/X8 catalogue number 2403 257 29522
- AD46742/X15 catalogue number 2403 257 29523
- AD46742/X25 catalogue number 2403 257 29524

These numbers are for  
bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.  
Curve a: Sound pressure.  
Curves d2 and d3: 2nd and 3rd harmonic distortion.



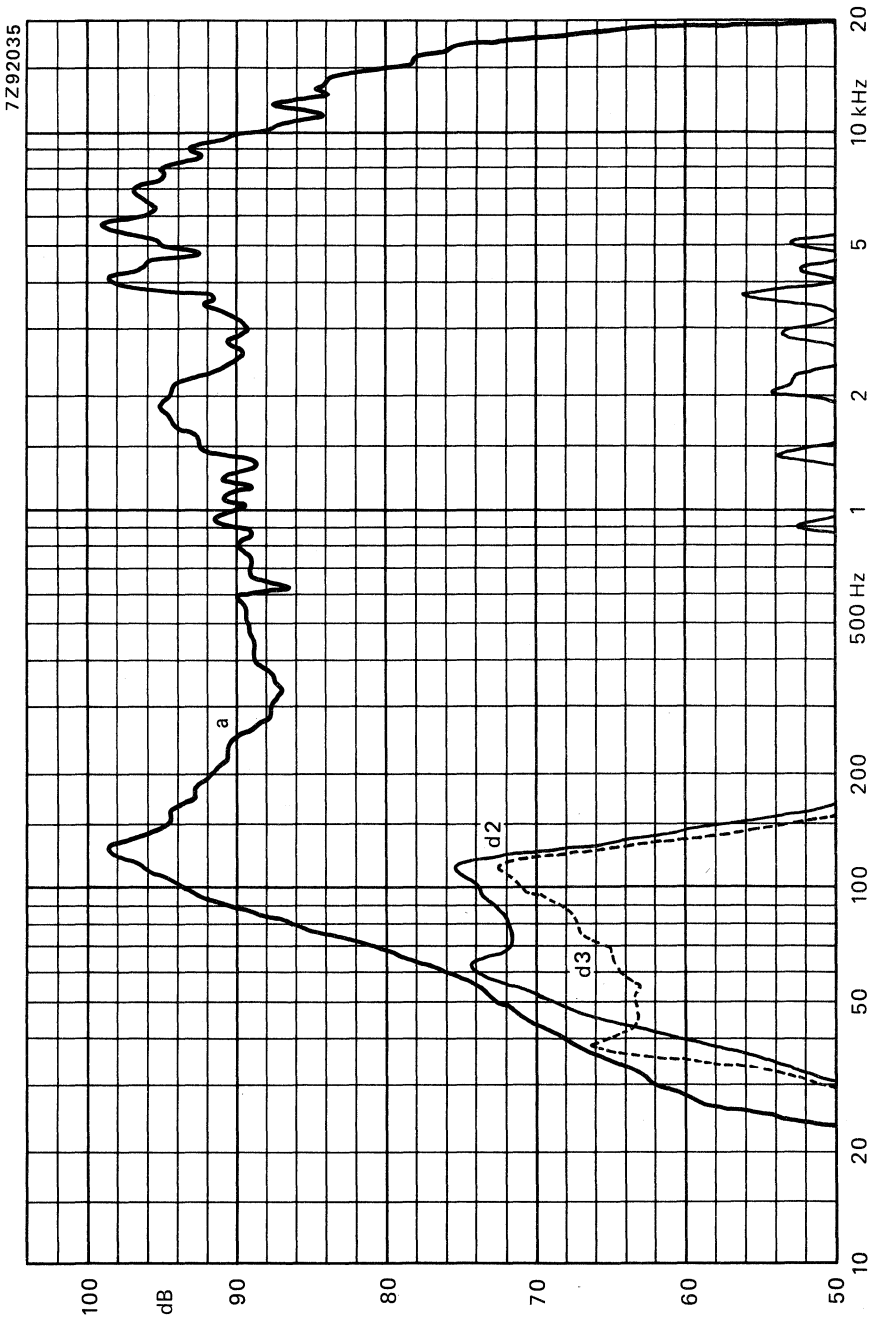


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD46725/X.  
AD46746/X.

## 4 x 6 INCH FULL RANGE LOUDSPEAKERS

### APPLICATION

Oval loudspeaker for audio and video applications. AD46746 has a screened magnet system.

### TECHNICAL DATA

	version				
	X4	X8	X15	X25	
Rated impedance	4	8	15	25	$\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8	$\Omega$
Rated frequency range	100 to 15 000				Hz
Resonance frequency	130				Hz
Power handling capacity, measured without filter, loudspeaker unmounted	5				W
Maximum power on loudspeaker	7				W
Operating power (sound level 90 dB, 0,5 m)	400				mW
Sweep voltage (100 to 20 000 Hz)	2,4				V
Filter	none				
Energy in air gap	12,7				mJ
Flux density	0,74				T
Air-gap height	2,5				mm
Voice coil height	2,7	2,2	3,0	3,6	mm
Core diameter	10				mm
Magnet material	ceramic				
square	28,5				mm ←
mass	18				g
Mass of loudspeaker					
AD46725	80				g
AD46746	100				g

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

The loudspeakers have a plastic frame and a paper cone.

AD46725/X.  
AD46746/X.

Dimensions in mm

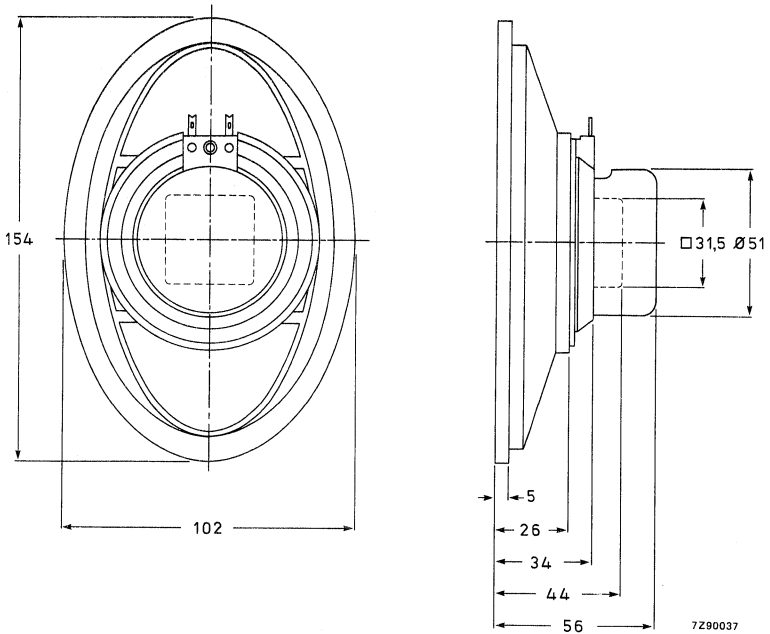


Fig. 1.

\* Screening for AD46746 only.

Recommended baffle hole: 88 x 140, oval. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD46725/X4 catalogue number 2403 257 59021
- AD46725/X8 catalogue number 2403 257 59022
- AD46725/X15 catalogue number 2403 257 59023
- AD46725/X25 catalogue number 2403 257 59024
- AD46746/X4 catalogue number 2403 257 59121
- AD46746/X8 catalogue number 2403 257 59122
- AD46746/X15 catalogue number 2403 257 59123
- AD46746/X25 catalogue number 2403 257 59124

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

DEVELOPMENT SAMPLE DATA

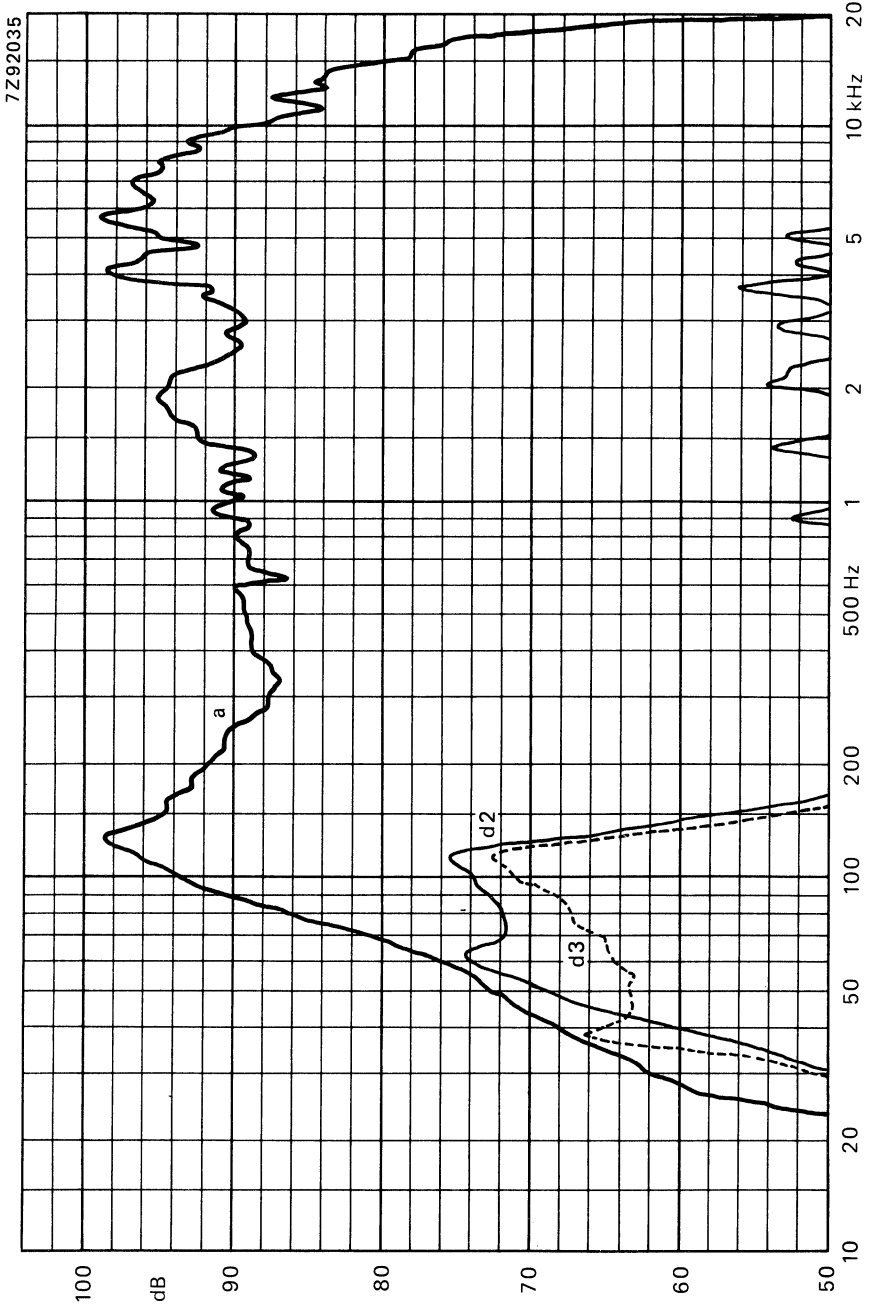


Fig. 2.

AD46726/X.  
AD46747/X.

## 4 × 6 INCH FULL RANGE LOUDSPEAKERS

### APPLICATION

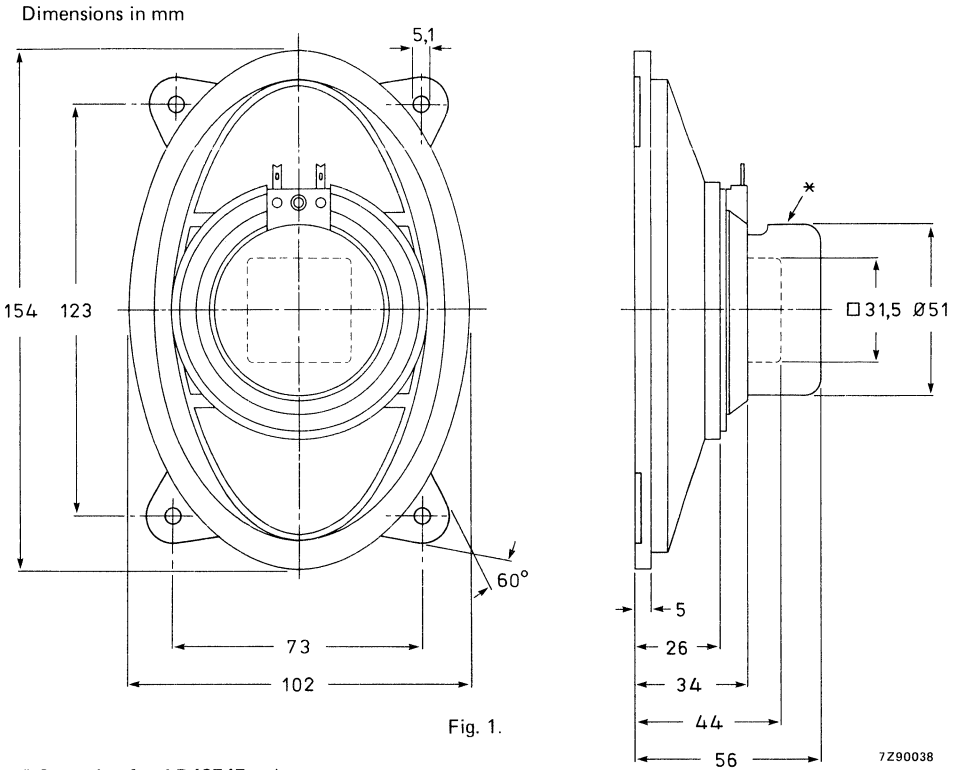
Oval loudspeaker for audio and video applications. AD46747 has a screened magnet system.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 Ω
Voice coil resistance	3,5	7,1	13,7	22,8 Ω
Rated frequency range	100 to 15 000			Hz
Resonance frequency	130			Hz
Power handling capacity measured without filter, loudspeaker unmounted	5			W
Maximum power on loudspeaker	7			W
Operating power (sound level 90 dB, 0,5 m)	400			mW
Sweep voltage (100 to 20 000 Hz)	2,4			V
Filter	none			
Energy in air gap	12,7			mJ
Flux density	0,74			T
Air-gap height	2,5			mm
Voice coil height	2,7	2,2	3,0	3,6 mm
Core diameter	10			mm
Magnet material	ceramic			
→ square	28,5			mm
mass	18			g
Mass of loudspeaker				
AD46726	80			g
AD46747	100			g

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

The loudspeakers have a plastic frame and a paper cone.



\* Screening for AD46747 only.  
Recommended baffle hole: 88 x 140 mm, oval.  
One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- |             |                                 |
|-------------|---------------------------------|
| AD46726/X4  | catalogue number 2403 257 59221 |
| AD46727/X8  | catalogue number 2403 257 59222 |
| AD46726/X15 | catalogue number 2403 257 59223 |
| AD46726/X25 | catalogue number 2403 257 59224 |
| AD46747/X4  | catalogue number 2403 257 59321 |
| AD46747/X8  | catalogue number 2403 257 59322 |
| AD46747/X15 | catalogue number 2403 257 59323 |
| AD46747/X25 | catalogue number 2403 257 59324 |

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

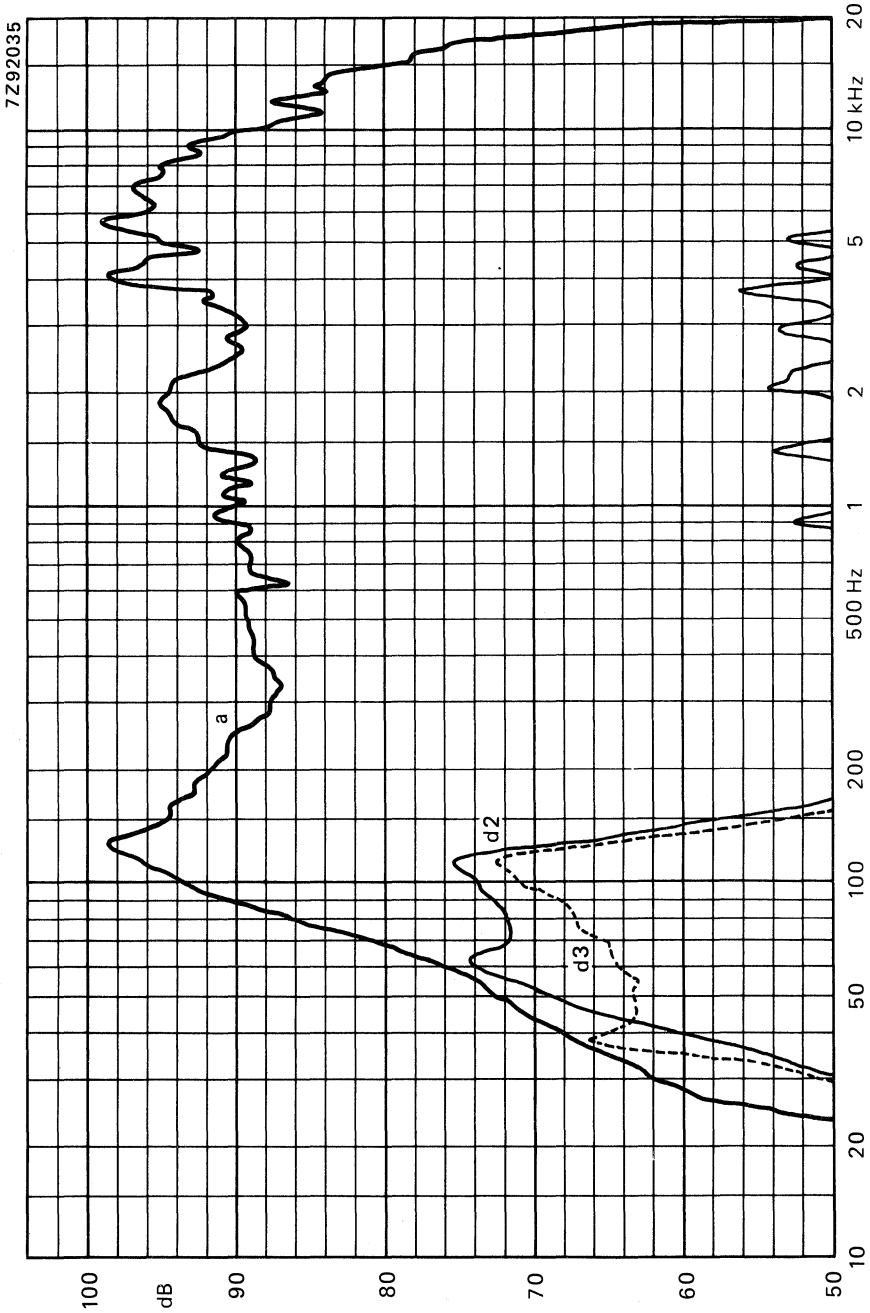


Fig. 2.

## 4 × 6 INCH OVAL MEDIUM POWER LOUDSPEAKERS

### APPLICATION

Oval loudspeaker for audio and video applications. AD46748 has a screened magnet system.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 Ω
Voice coil resistance	3,5	7,1	13,1	22,8 Ω
Rated frequency range	100 to 15 000			Hz
Resonance frequency	130			Hz
Power handling capacity measured without filter, loudspeaker unmounted	5			W
Maximum power on loudspeaker	7			W
Operating power (sound level 90 dB, 0,5 m)	400			mW
Sweep voltage (100 to 20 000 Hz)	2,4	3,5	4,7	6,1 V
Filter	none			
Characteristic sensitivity	71			
Energy in air gap	12,7			mJ
Flux density	0,74			T
Air-gap	2,5			mm
Voice coil height	2,7	2,2	3,0	3,6 mm
Core diameter	10			mm
Magnet material	ceramic			
square	28,5			mm ←
mass	18			g
Mass of loudspeaker				
AD46727	80			g
AD46748	100			g

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

The loudspeakers have a plastic frame and a paper cone.



AD46727/X.  
AD46748/X.

Dimensions in mm

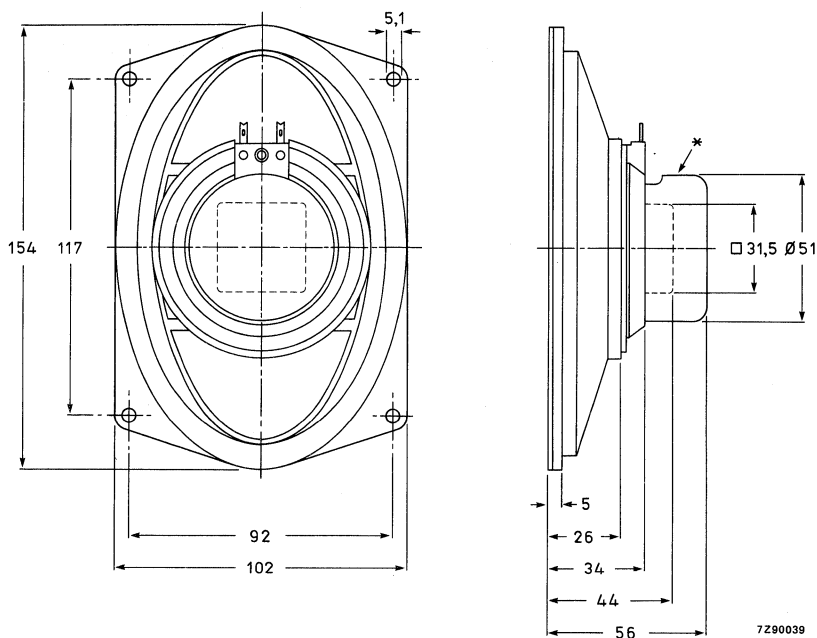


Fig. 1.

\* Screening for AD46748 only.

Recommended baffle hole: 88 mm x 140 mm (oval). One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD46727/X4 catalogue number 2403 257 59421
- AD46727/X8 catalogue number 2403 257 59422
- AD46727/X15 catalogue number 2403 257 59432
- AD46727/X25 catalogue number 2403 257 59424
  
- AD46748/X4 catalogue number 2403 257 59521
- AD46748/X8 catalogue number 2403 257 59522
- AD46748/X15 catalogue number 2403 257 59523
- AD46748/X25 catalogue number 2403 257 59524

These numbers are for bulk-packed loudspeakers

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

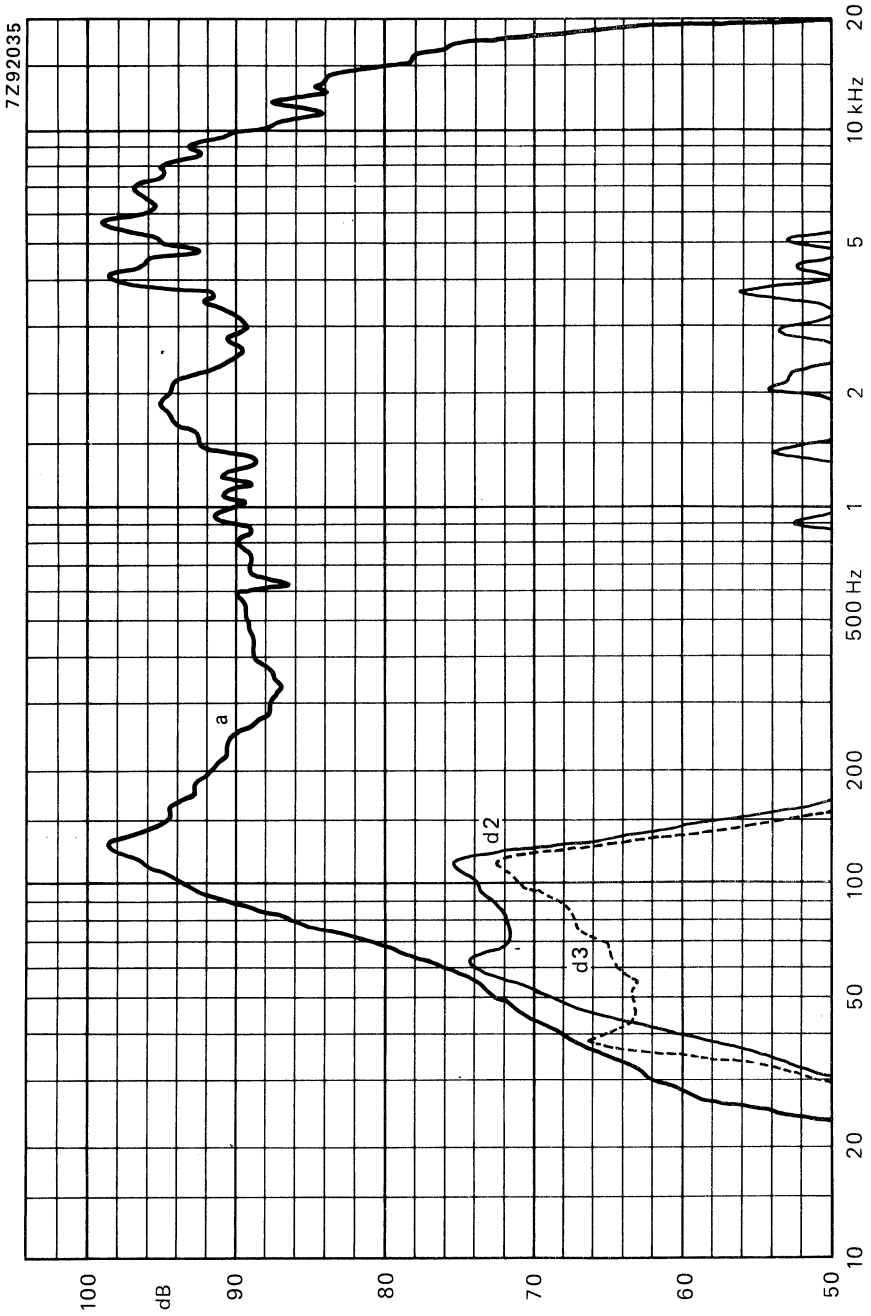


Fig. 2.



## 4 x 6 inch FULL RANGE OVAL LOUDSPEAKER

## TECHNICAL DATA

Rated impedance	8 $\Omega$
Voice coil resistance	7 $\Omega$
Resonance frequency	150 Hz
Power handling capacity, measured without filter, loudspeaker unmounted	6 W
Maximum power on loudspeaker	12 W
Operating power (sound level 90 dB, 1 m)	1 W
Sweep voltage (35 to 20 000 Hz)	4,9 V
Filter	none
Flux density	0,98 T
Air-gap height	3 mm
Voice coil height	4,5 mm
Core diameter	18 mm
Magnet material	ceramic
diameter	53 mm
mass	0,1 kg
Mass of loudspeaker	0,3 kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

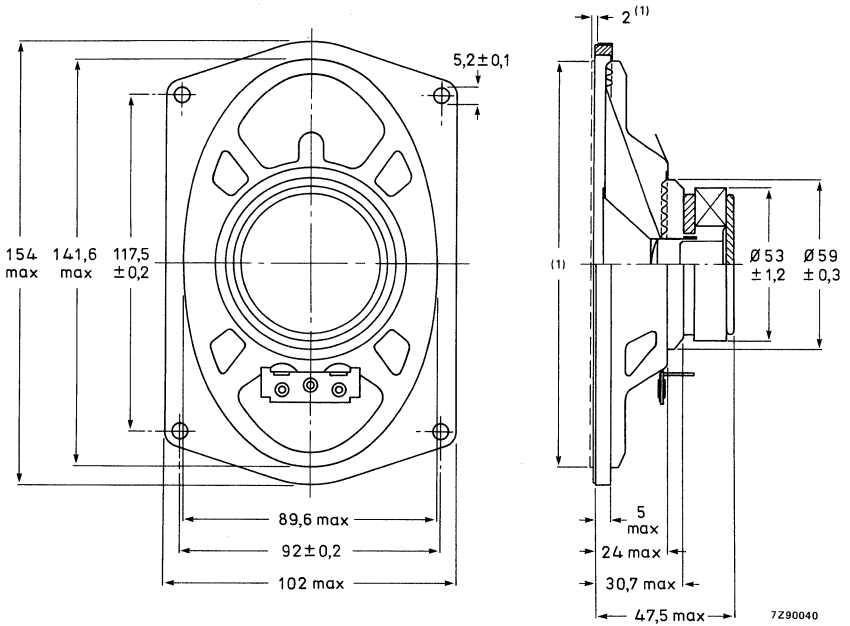


Fig. 1.

(1) Recommended baffle hole (oval of 141 mm x 89 mm) and clearing depth (2 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSION**

AD46800/M8 catalogue number 2422 257 30536

This number is for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

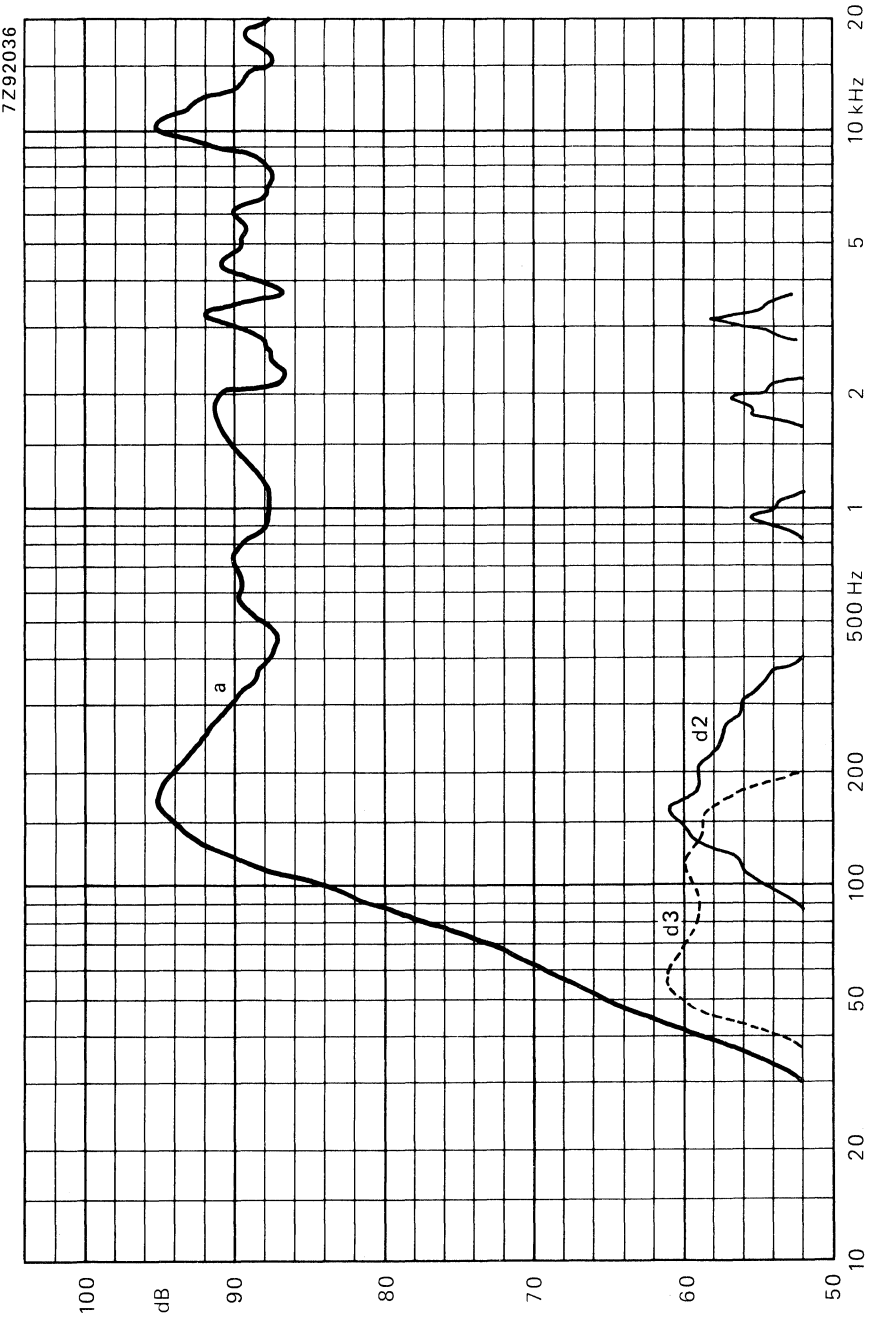


Fig. 2.

## 3½ × 6 inch FULL RANGE OVAL LOUDSPEAKER

## TECHNICAL DATA

Rated impedance	4 Ω
Voice coil resistance	3,2 Ω
Resonance frequency	120 Hz
Power handling capacity, measured without filter, loudspeaker unmounted	8 W
Operating power (sound level 90 dB, 1 m)	1,2 W
Sweep voltage (60 to 20 000 Hz)	4 V
Filter	none
Flux density	1 T
Air-gap height	3 mm
Voice coil height	4 mm
Core diameter	18 mm
Magnet material	ceramic
→ diameter	53 mm
mass	0,1 kg
Mass of loudspeaker	0,27 kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

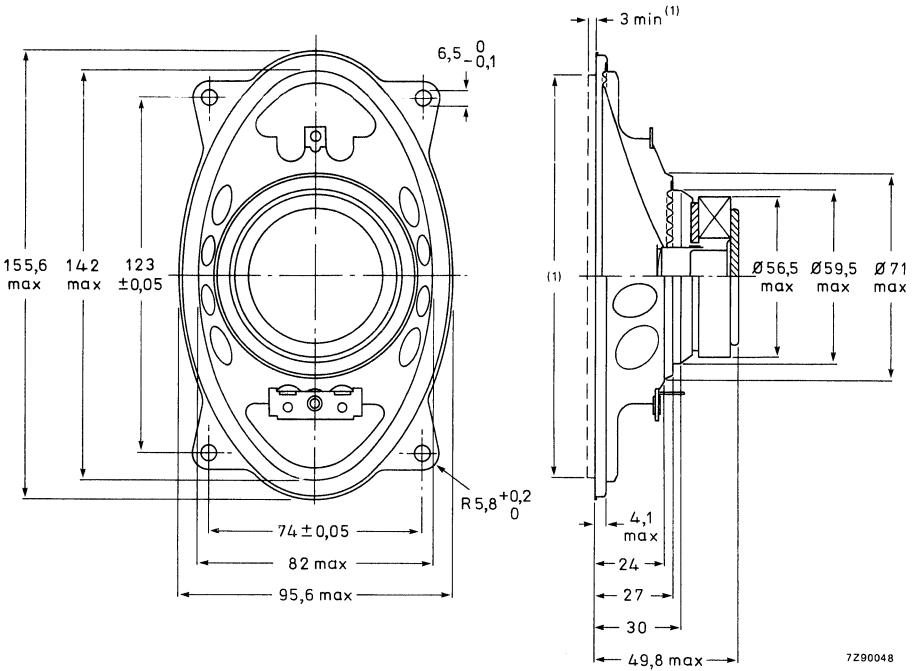


Fig. 1.

(1) Recommended baffle hole (oval of 142 mm x 82 mm) and clearing depth (3 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSION**

AD46801/X4 catalogue number 2422 257 20231. This number is for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.



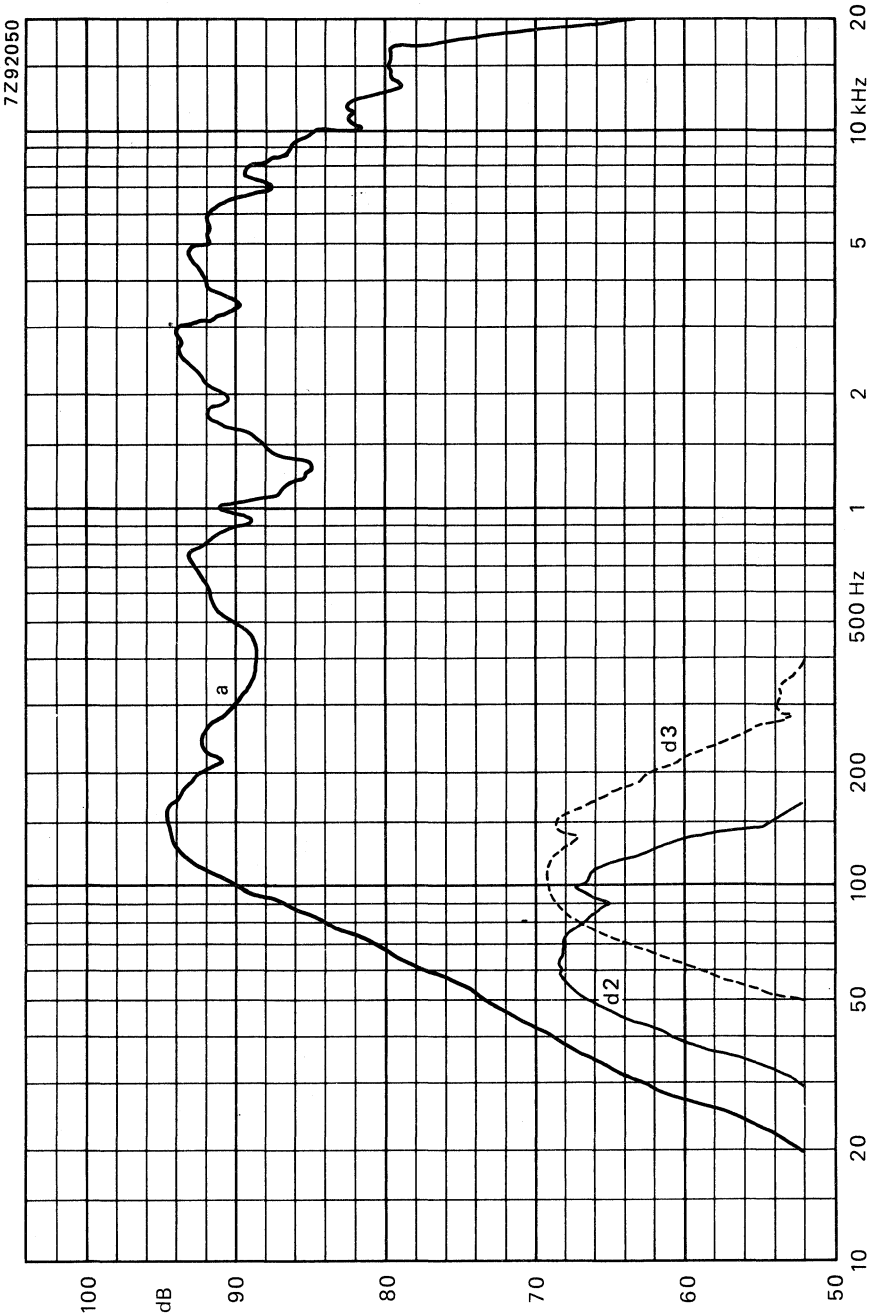


Fig. 2.

## 3½ × 6 inch FULL RANGE OVAL LOUDSPEAKER

## TECHNICAL DATA

Rated impedance	4 Ω
Voice coil resistance	3,2 Ω
Resonance frequency	140 Hz
Power handling capacity, measured without filter, loudspeaker unmounted	6 W
Operating power (sound level 90 dB, 1 m)	1,2 W
Sweep voltage (70 to 20000 Hz)	3 V
Filter	none
Flux density	0,74 T
Air-gap height	3 mm
Voice coil height	4 mm
Core diameter	18 mm
Magnet material	ceramic
diameter	53 mm ←
mass	0,07 kg
Mass of loudspeaker	0,23 kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

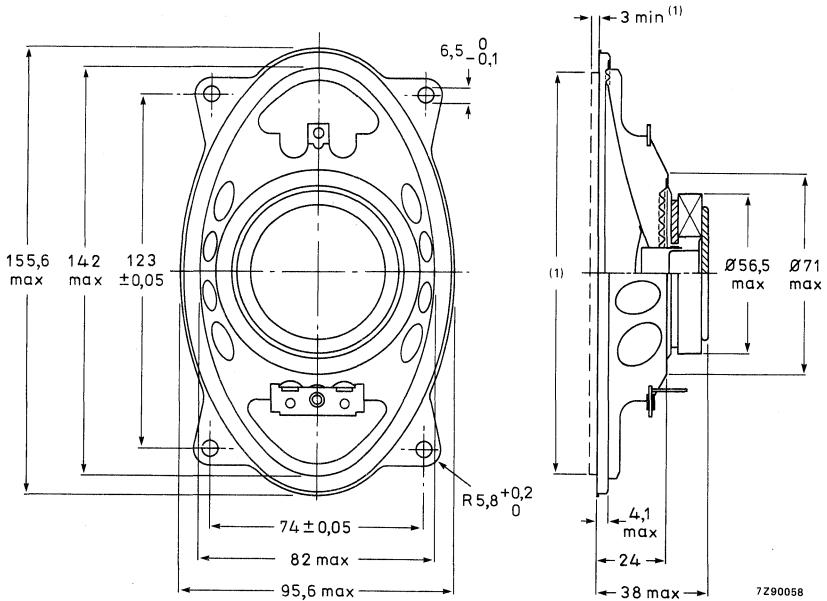


Fig. 1.

(1) Recommended baffle (oval of 142 mm x 82 mm) and clearing depth (3 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSION**

AD46810/X4; catalogue number 2422 257 20221. This number is for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

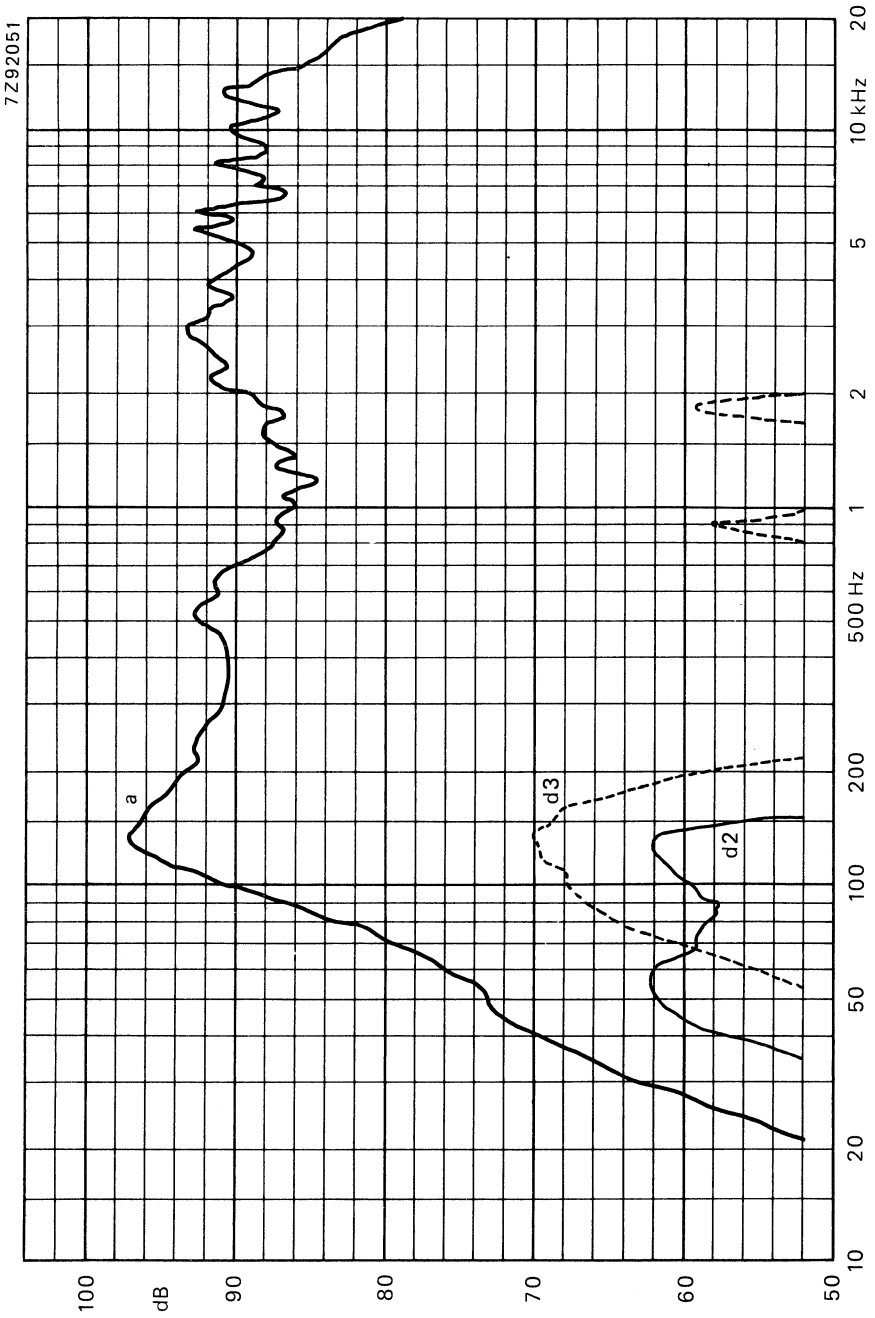


Fig. 2.



## 4 x 6 inch FULL RANGE LOUDSPEAKER

## TECHNICAL DATA

	version		
	M4	M8	M15
Rated impedance	4	8	15 $\Omega$
Voice coil resistance	3,4	7	13,2 $\Omega$
Resonance frequency		150	Hz
Power handling capacity, measured without filter, loudspeaker unmounted		6	W
Maximum power on loudspeaker		12	W
Operating power (sound level 90 dB, 1 m)		1	W
Sweep voltage (35 to 20 000 Hz)	3,5	4,9	6,7 V
Filter		none	
Energy in air gap		60,5	mJ
Flux density		1,008	T
Air-gap height		3	mm
Voice coil height	4	4,5	4,4 mm
Core diameter		18	mm
Magnet material		ceramic	
diameter		45	mm ←
mass		0,093	kg
Mass of loudspeaker		0,31	kg
Magnetic stray field according to DIN 45578 max		35	mT

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeaker has a screened magnet system.

Dimensions in mm

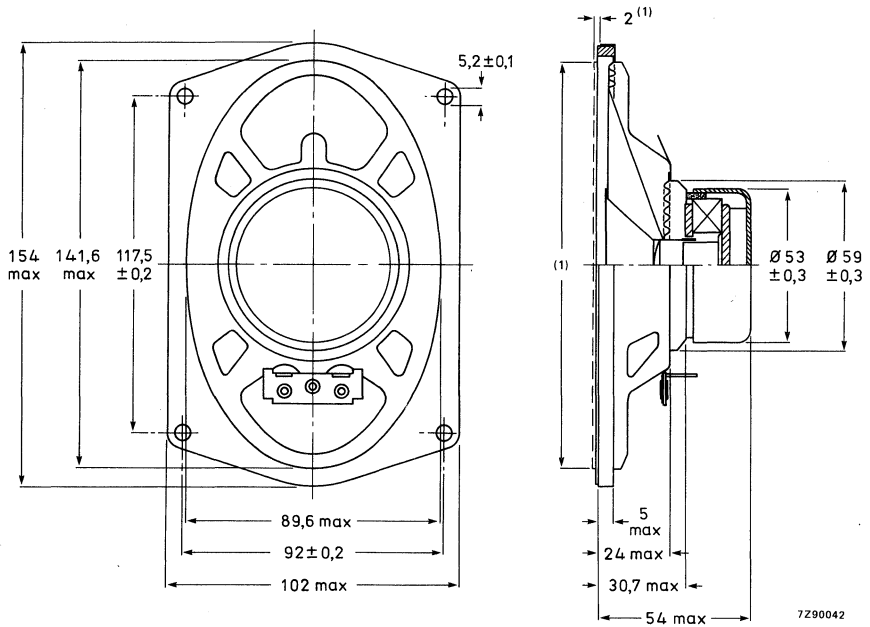


Fig. 1.

(1) Recommended baffle hole (oval of 141 mm x 89 mm) and clearing depth (2 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD46900/M4 catalogue number 2422 257 20431
- AD46900/M8 catalogue number 2422 257 20432
- AD46900/M15 catalogue number 2422 257 20433

} These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

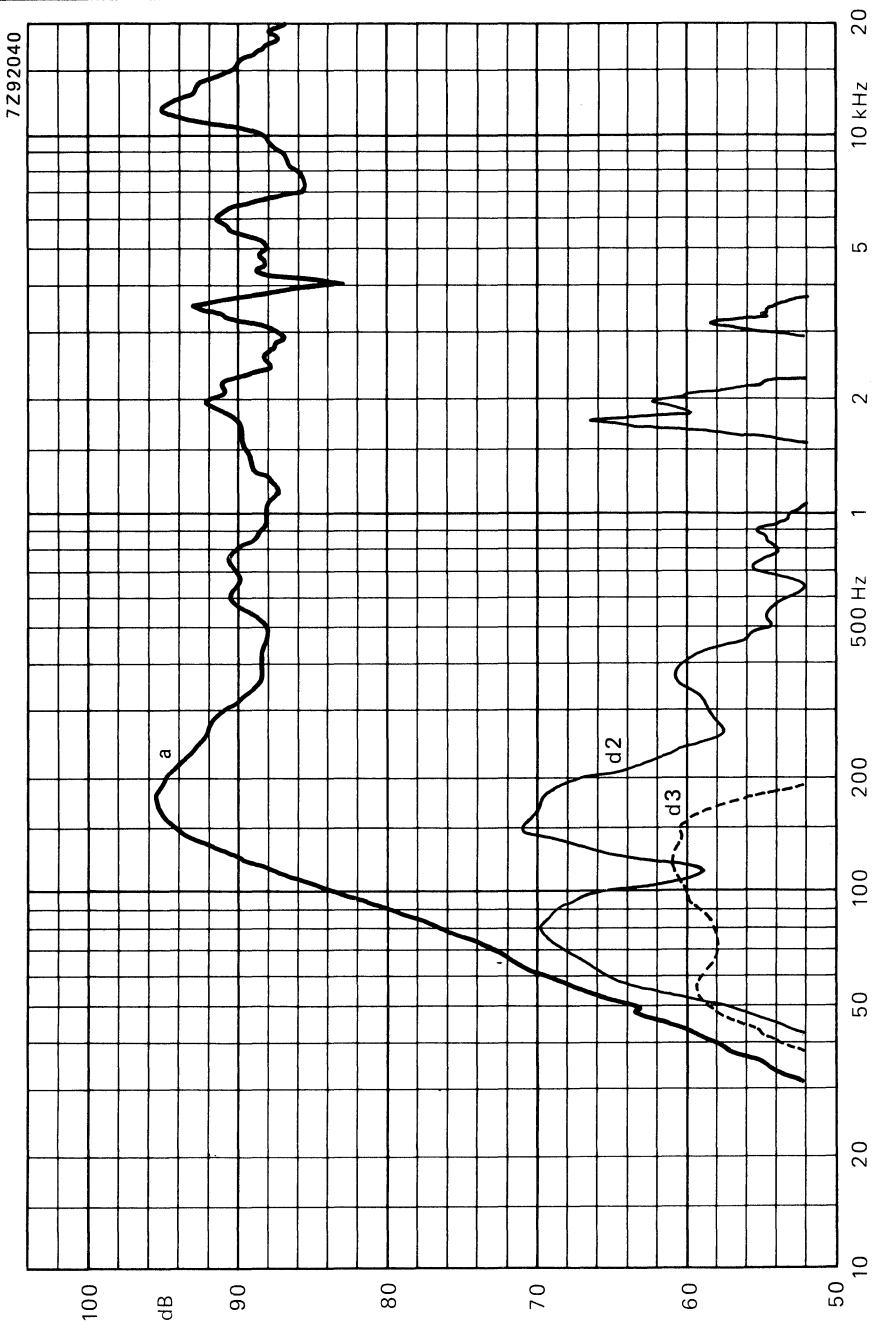


Fig. 2.



## 4 x 6 inch FULL RANGE LOUDSPEAKER

## TECHNICAL DATA

	version		
	X8	X15	X25
Rated impedance	8	15	25 $\Omega$
Voice coil resistance	7	13	22 $\Omega$
Resonance frequency		130	Hz
Power handling capacity, measured without filter, loudspeaker unmounted		6	W
Maximum power on loudspeaker		12	W
Operating power (sound level 90 dB, 1 m)		1	W
Sweep voltage (70 to 20 000 Hz)	4,9	6	8,7 V
Filter		none	
Energy in air gap		34,5	mJ
Flux density		0,95	T
Air-gap height		2,5	mm
Voice coil height	4,3	4,2	5 mm
Core diameter		14,5	mm
Magnet material		ceramic	
diameter		37	mm
mass		0,057	kg
Mass of loudspeaker	0,2	0,2	0,2 kg
Magnetic stray field according to DIN 45578 max		35	mT

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeaker has a screened magnet system and a paper cone with a treated surround.

Dimensions in mm

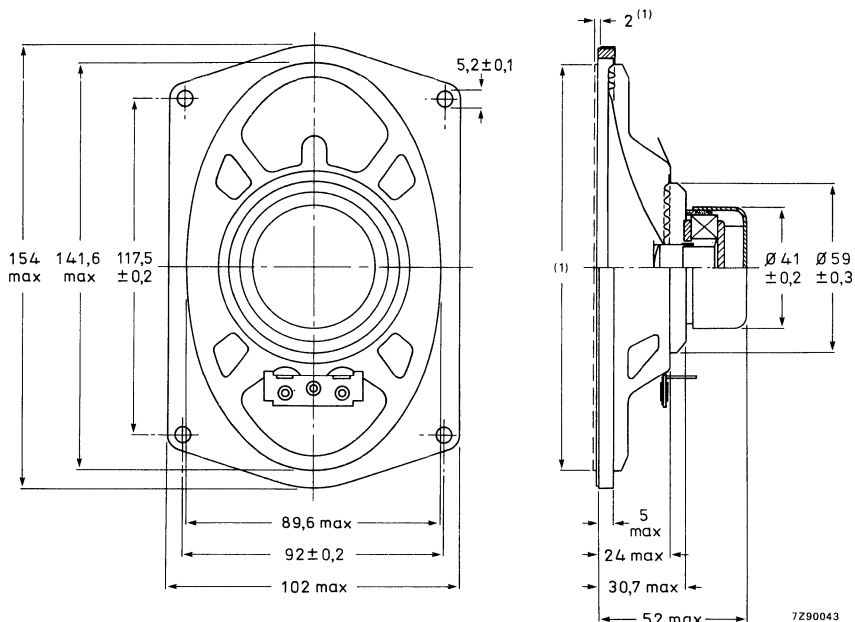


Fig. 1.

(1) Recommended baffle hole (oval of 141 mm x 89 mm) and clearing depth (2 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD46951/X8 catalogue number 2422 257 20426
- AD46951/X15 catalogue number 2422 257 20427
- AD46951/X25 catalogue number 2422 257 20428

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

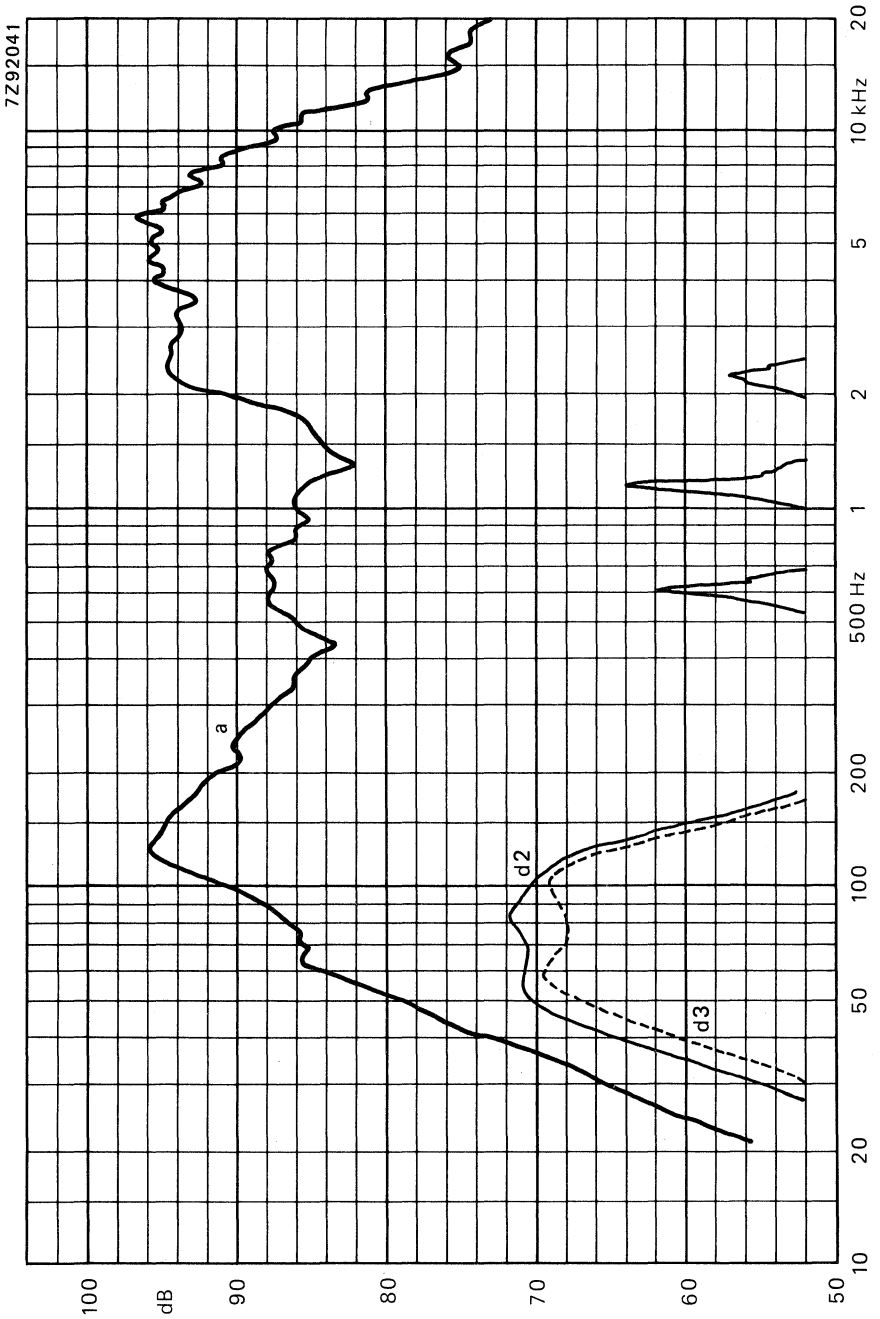


Fig. 2.

## 4 x 8 inch OVAL MEDIUM POWER LOUDSPEAKER

### APPLICATION

This loudspeaker is particularly suitable for colour and monochrome video sets, due to the neglectable magnetic stray field.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,2	7	13,2	22,5 $\Omega$
Rated frequency range	90 to 10 000			Hz
Resonance frequency	110			Hz
Power handling capacity, measured without filter, loudspeaker unmounted	10			W
Maximum power on loudspeaker	15			W
Operating power (sound level 90 dB, 1 m)	1	1	1,3	1,4 W
Sweep voltage (55 to 20 000 Hz)	4,5	6,3	8,6	11,2 V
Energy in air gap	60,5			mJ
Flux density	1			T
Air-gap height	3			mm
Voice coil height	4	4,5	4,5	4 mm
Core diameter	18			mm
Magnet material	ceramic			
diameter	45			mm
mass	0,1			kg
Mass of loudspeaker	0,35			kg
Magnetic stray field according to DIN 45578, distance 70 mm	0,35			mT

The loudspeaker has a screened and compensated magnet system. The rim is treated and the speaker has an aluminium coil former. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

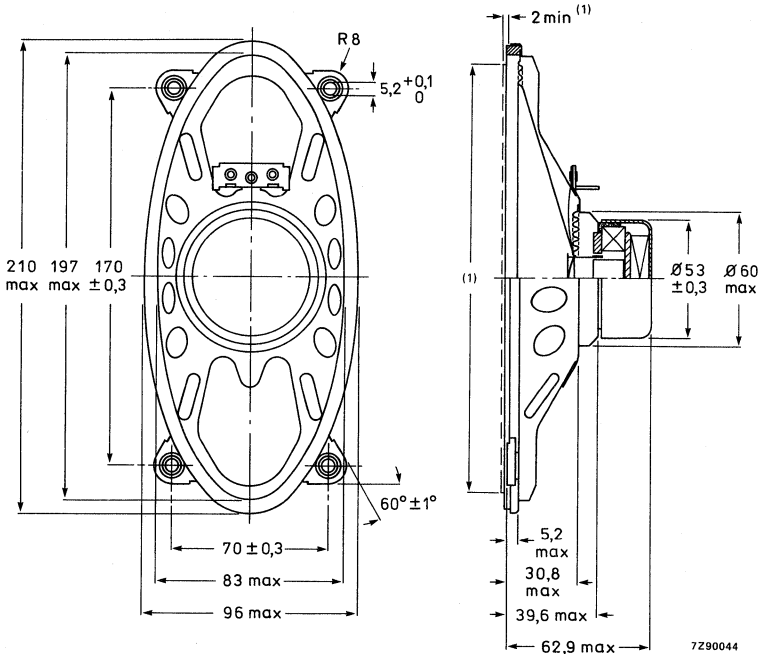


Fig. 1.

(1) Recommended baffle hole (oval of 192 mm x 82 mm) and clearing depth (2 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD48901/X4 catalogue number 2422 257 40125
- AD48901/X8. catalogue number 2422 257 40126
- AD48901/X15 catalogue number 2422 257 40127
- AD48901/X25 catalogue number 2422 257 40128

These numbers are for bulk-packed loudspeakers

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

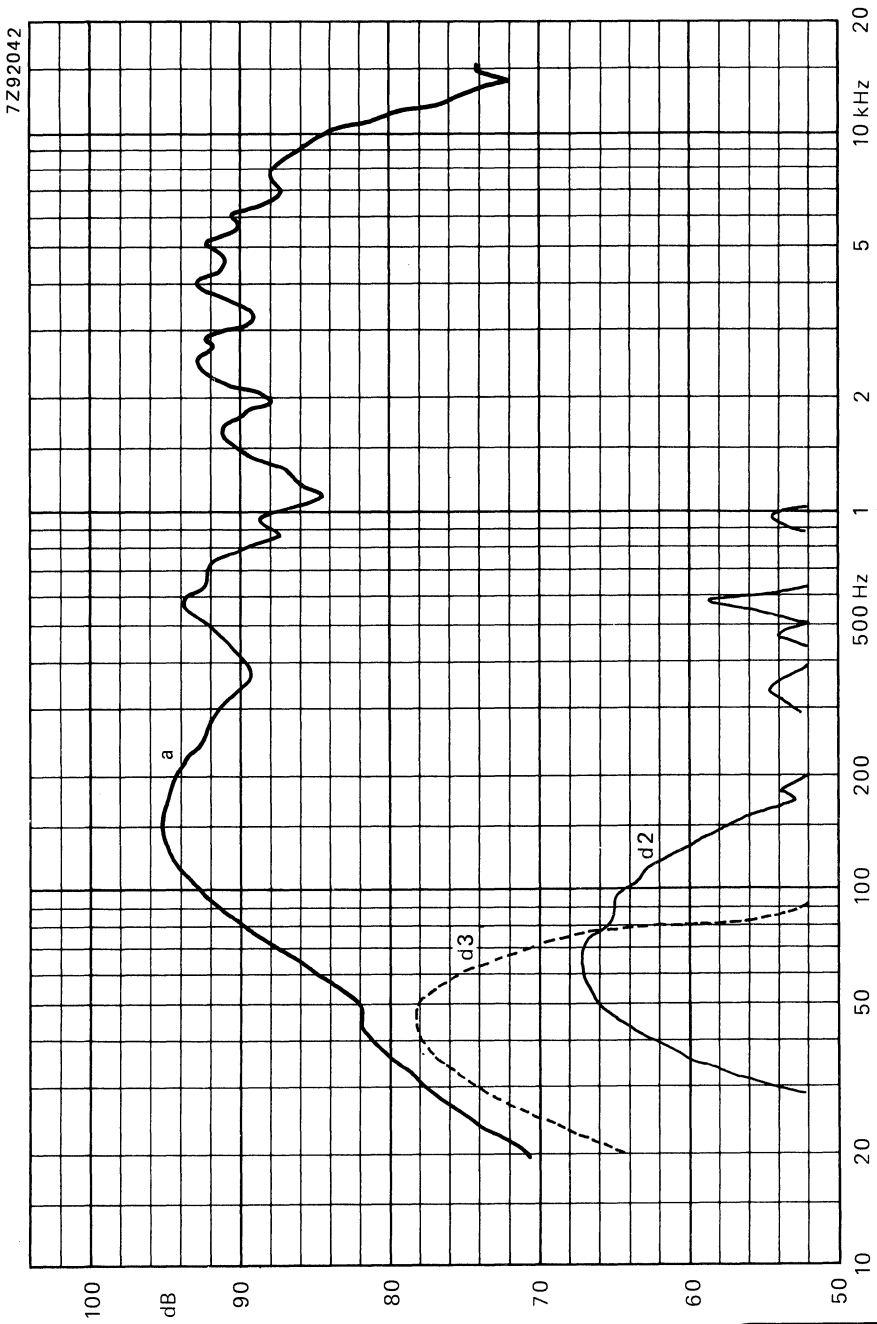


Fig. 2.

## 5 inch HIGH POWER FULL RANGE LOUDSPEAKER

## TECHNICAL DATA

Rated impedance	4 $\Omega$
Voice coil resistance	3,2 $\Omega$
Resonance frequency	115 Hz
Power handling capacity, measured without filter, loudspeaker unmounted	15 W
Maximum power on loudspeaker	25 W
Operating power (sound level 96 dB, 1 m)	4 W
Sweep voltage 60 to 20 000 Hz)	5,5 V
Filter	none
Characteristic sensitivity	90 dB/W/m
Energy in air gap	78 mJ
Flux density	1,15 T
Air-gap height	3 mm
Voice coil height	4,2 mm
Core diameter	18 mm
Magnet material	ceramic
→ diameter	60 mm
mass	0,154 kg
Mass of loudspeaker	0,350 kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

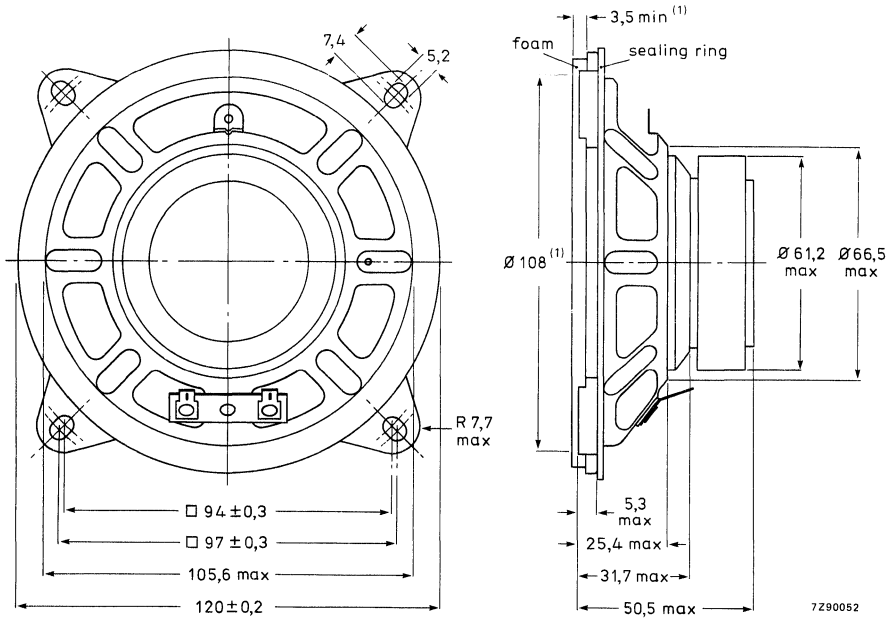


Fig. 1.

Recommended baffle opening ( $\varnothing 108 \text{ mm}$ ) and mounting clearance ( $3,5 \text{ mm}$ ) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSION**

AD50400/M4 catalogue number 2422 257 45338. This number is for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.



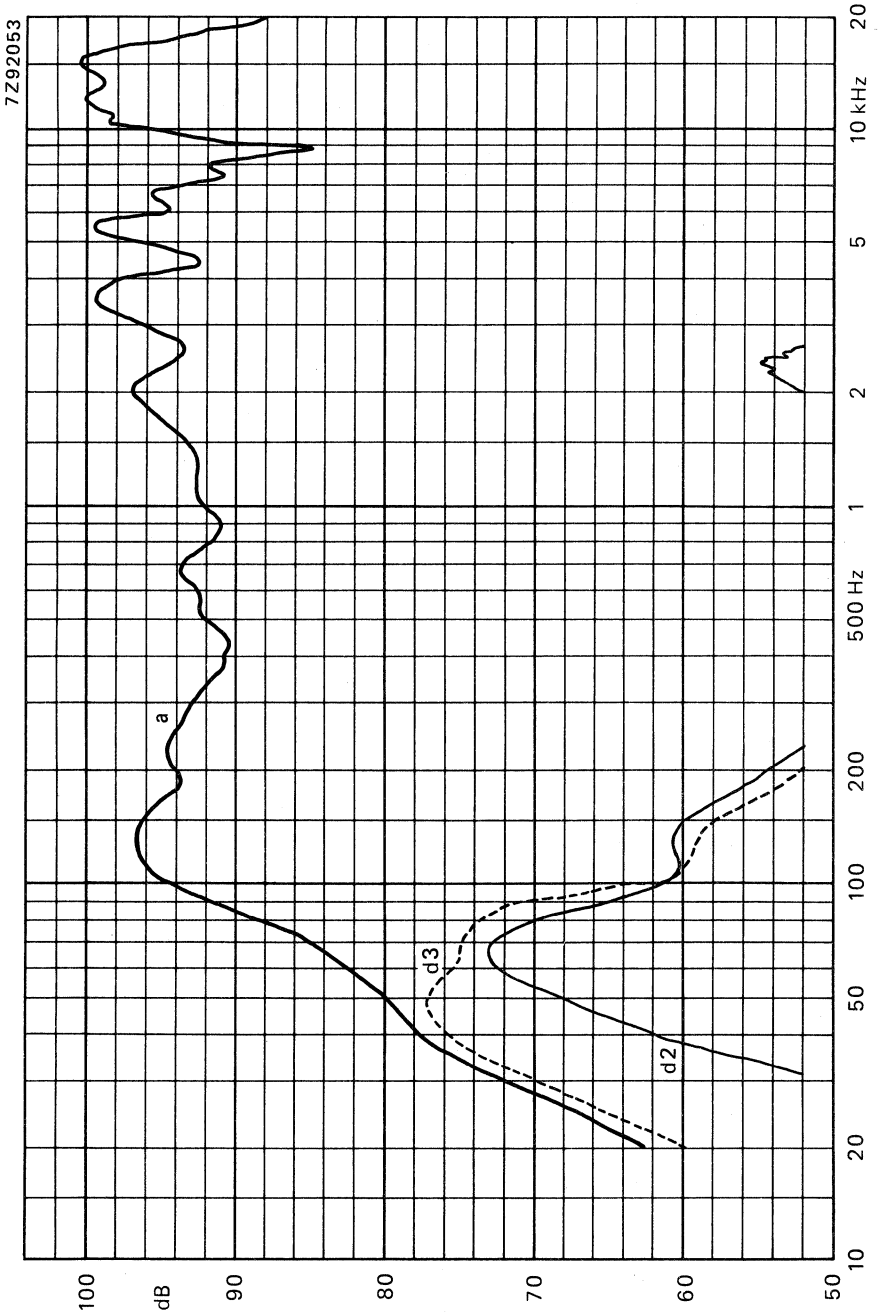


Fig. 2.

## 5 INCH HIGH POWER SQUAWKER LOUDSPEAKER

### APPLICATION

For the reproduction of audio frequencies from 400 to 5000 Hz with very low distortion in multi-way high-fidelity loudspeaker systems in accordance with DIN 45500. The loudspeaker has an excellent spherical radiation pattern.

### TECHNICAL DATA

	version	
	Sq4	Sq8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,4	7 $\Omega$
Rated frequency range	400 to 5000 Hz	
Resonance frequency	260 Hz	
Power handling capacity of system, measured with filter:		
72 $\mu$ F – 2,1 mH	20	W
36 $\mu$ F – 4,5 mH		20 W
Operating power	4 W	
Sweep voltage, frequency range: 400 – 5000 Hz, high-pass filter:		
72 $\mu$ F – 2,1 mH	4	V
36 $\mu$ F – 4,5 mH		5,6 V
Energy in air gap	140	mJ
Flux density	0,93	T
Air-gap height	5	mm
Voice coil height	6,8	mm
Core diameter	25	mm
Magnet material	ceramic	
diameter	53	mm
mass	0,23	kg
Mass of loudspeaker	0,7	kg

The loudspeaker has a paper cone, a textile surround and a sealed pot; no acoustic isolation required. Two tinned 2,8 mm (0,11 inch) tag connectors permit connection to the loudspeaker by plugging or soldering.

Dimensions in mm

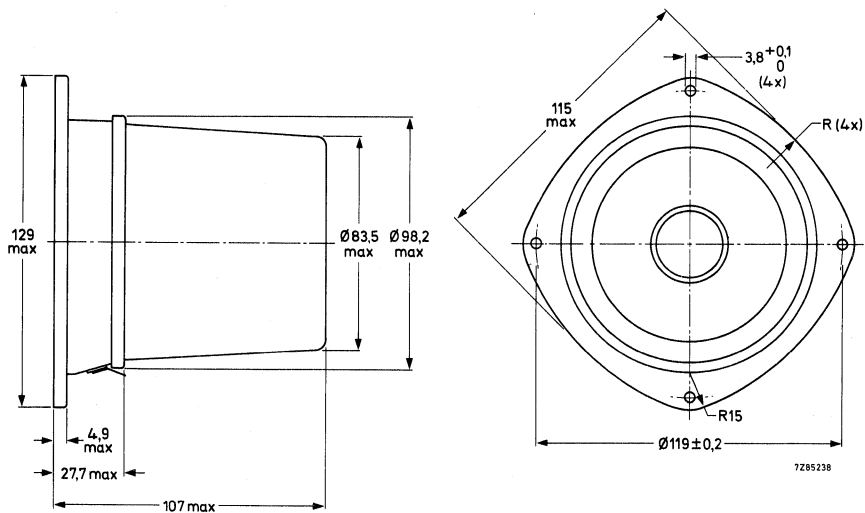


Fig. 1.

Baffle hole diameter minimum 100 mm.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

AD50600/Sq4, catalogue number 2422 257 45021

AD50600/Sq8, catalogue number 2422 257 45022

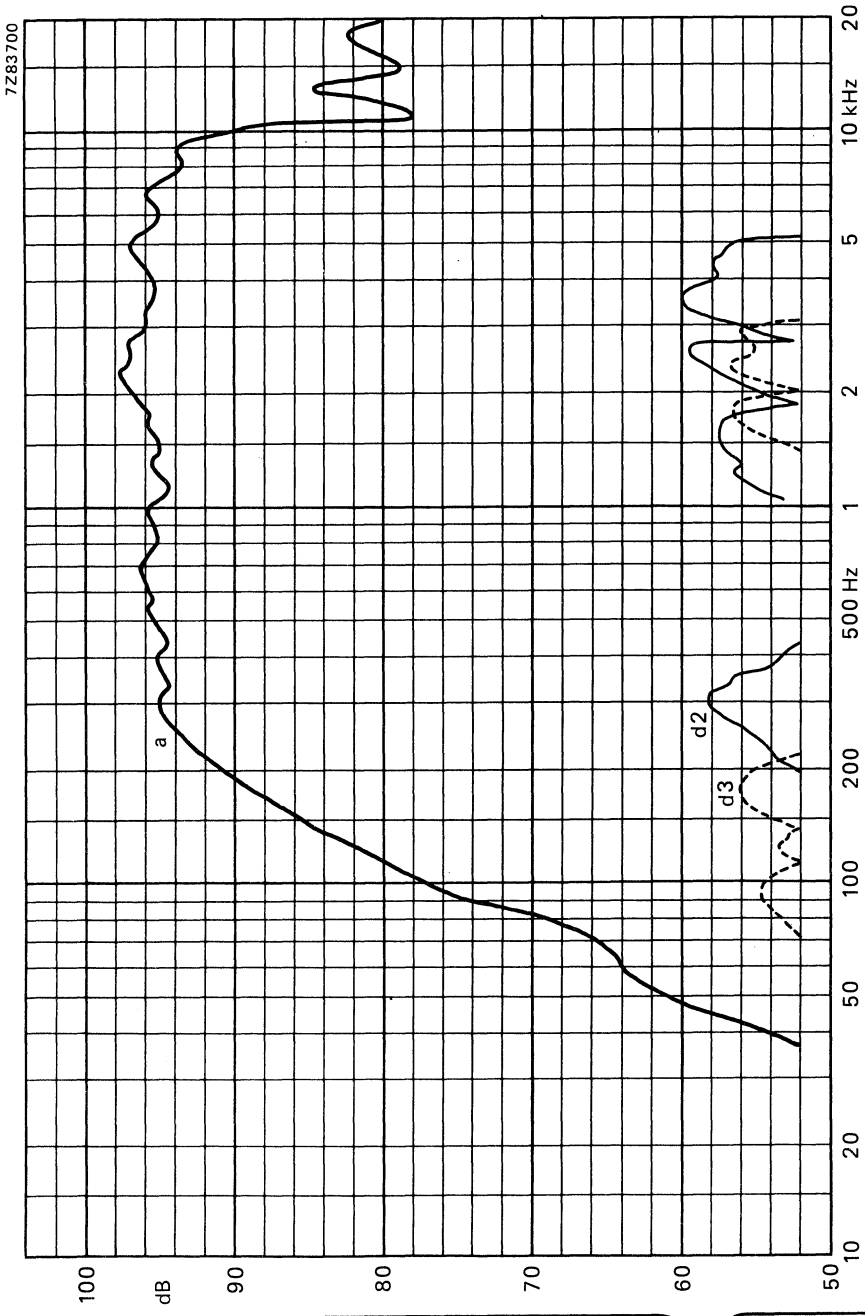
these numbers apply to bulk packed loudspeakers, minimum packing quantity 24 per unit.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted on IEC baffle according to IEC 268-5 par. 4-4.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.



## 5¼ inch LOW POWER LOUDSPEAKER

### APPLICATION

Round loudspeaker for audio and video applications. AD50740 has a screened magnet system.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 Ω
Voice coil resistance	3,5	7,1	13,7	22,8 Ω
Rated frequency range		80 to 13 000		Hz
Resonance frequency		130		Hz
Power handling capacity, measured without filter, loudspeaker unmounted		3		W
Maximum power on loudspeaker		5		W
→ Operating power (sound level 90 dB, 0,5 m)		300		mW
Sweep voltage (100 to 20 000 Hz)	2,4	3,5	4,7	6,1 V
Filter		none		
Energy in air gap		12,7		mJ
Flux density		0,74		T
Air-gap height		2,5		mm
Voice coil height	2,7	2,2	3,0	3,6 mm
Core diameter		10		mm
Magnet material		ceramic		
→ square		28,5		mm
mass		0,018		kg
Mass of loudspeaker		0,088		kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeaker has a plastic frame and a paper cone.

Dimensions in mm

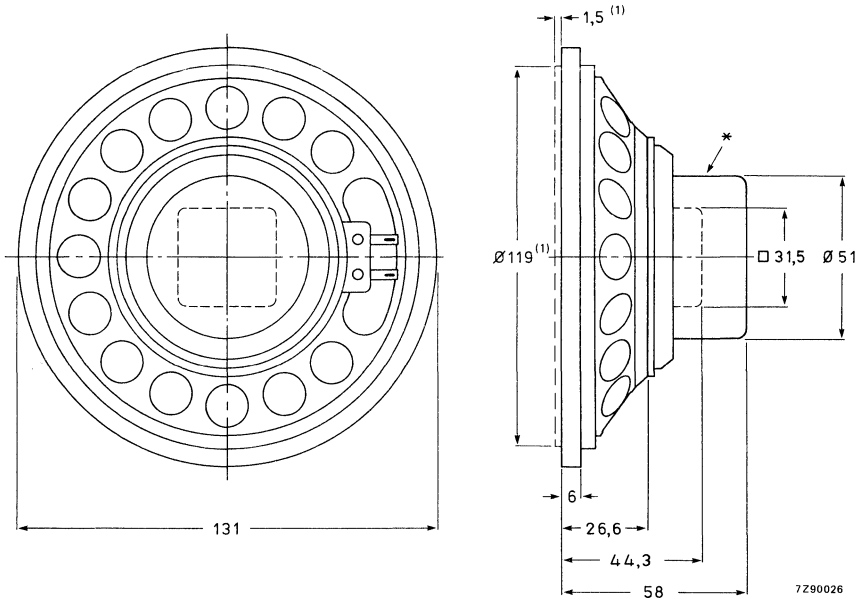


Fig. 1.

\* Screening for AD50740/X only.

(1) Recommended baffle opening ( $\phi$  119 mm) and clearance depth (1,5 mm) are required for cone movement at the specified power handling capacity.

One tag has a red mark to facilitate phase matching. Recommended baffle hole: 119 mm diameter.

**AVAILABLE VERSIONS**

- AD50720/X4 catalogue number 2403 257 25121
- AD50720/X8 catalogue number 2403 257 25122
- AD50720/X15 catalogue number 2403 257 25123
- AD50720/X25 catalogue number 2403 257 25124
  
- AD50740/X4 catalogue number 2403 257 25221
- AD50740/X8 catalogue number 2403 257 25222
- AD50740/X15 catalogue number 2403 257 25223
- AD50740/X25 catalogue number 2403 257 25224

These numbers are for bulk-packed loudspeakers.

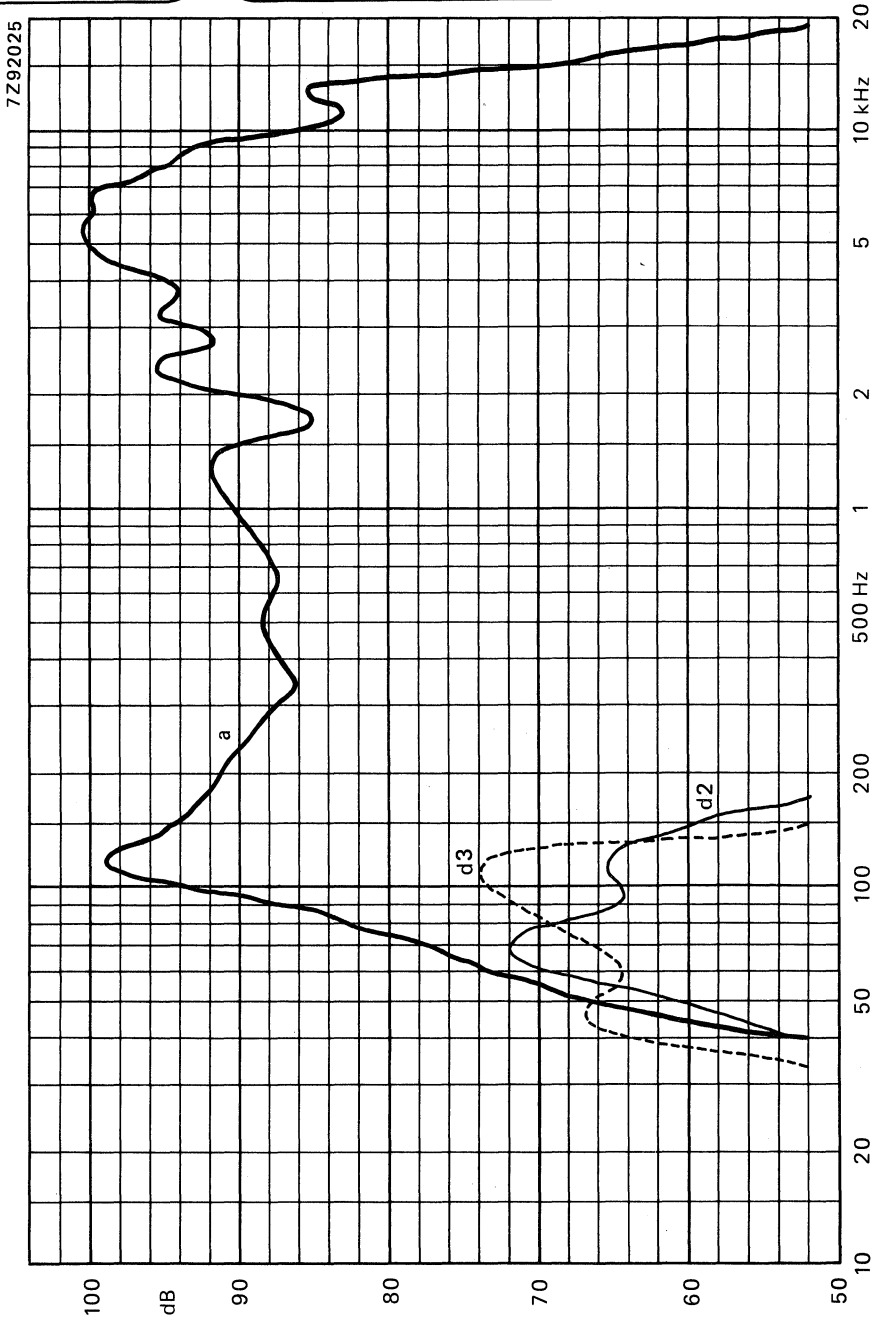


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD50725/X.  
AD50745/X.

## 5/4 inch LOW POWER LOUDSPEAKERS

### APPLICATION

Round loudspeaker for audio and video applications. AD50745 has a screened magnet system.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8 $\Omega$
Rated frequency range	80 to 13 000			Hz
Resonance frequency	130			Hz
Power handling capacity, measured without filter, loudspeaker unmounted	5			W
Maximum power on loudspeaker	7			W
Operating power (sound level 90 dB, 0,5 m)	300			mW
Sweep voltage (100 to 20 000 Hz)	2,4	3,5	4,7	6,1 V
Filter	none			
Energy in air gap	12,7			mJ
Flux density	0,74			T
Air-gap height	2,5			mm
Voice coil height	2,7	2,2	3,0	3,6 mm
Core diameter	10			mm
Magnet material	ceramic			
square	28,5			mm ←
mass	18			g
Mass of loudspeaker				
AD50725	90			g
AD50745	110			g

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

The loudspeaker has a plastic frame and a paper cone.



AD50725/X.  
AD50745/X.

Dimensions in mm

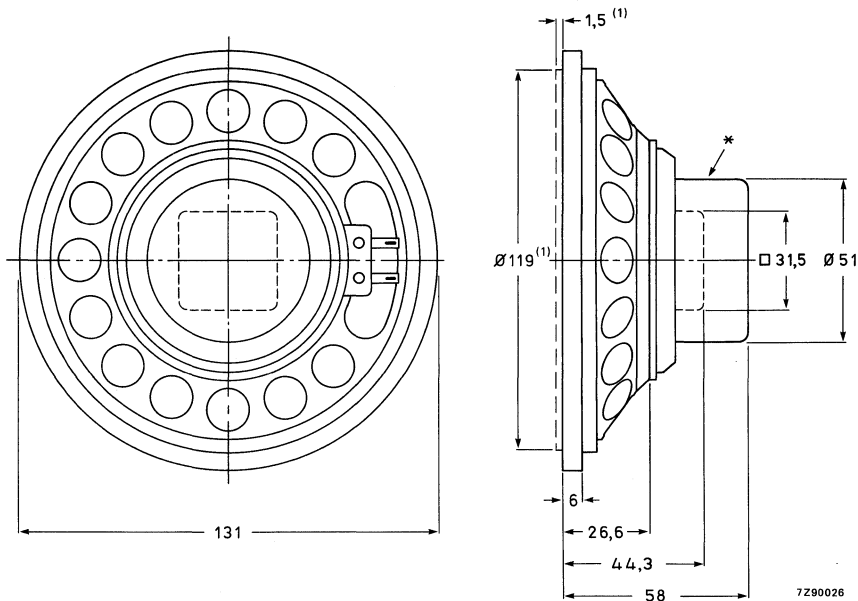


Fig. 1.

\* Screening for AD70745/X only.

(1) Recommended baffle opening ( $\varnothing 142$  mm) and clearance depth (1,5 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD50725/X4	catalogue number 2403 257 55121	}
AD50725/X8	catalogue number 2403 257 55122	
AD50725/X15	catalogue number 2403 257 55123	
AD50724/X25	catalogue number 2403 257 55124	
AD50745/X4	catalogue number 2403 257 55221	
AD50745/X8	catalogue number 2403 257 55222	}
AD50745/X15	catalogue number 2403 257 55223	
AD50745/X25	catalogue number 2403 257 55224	

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

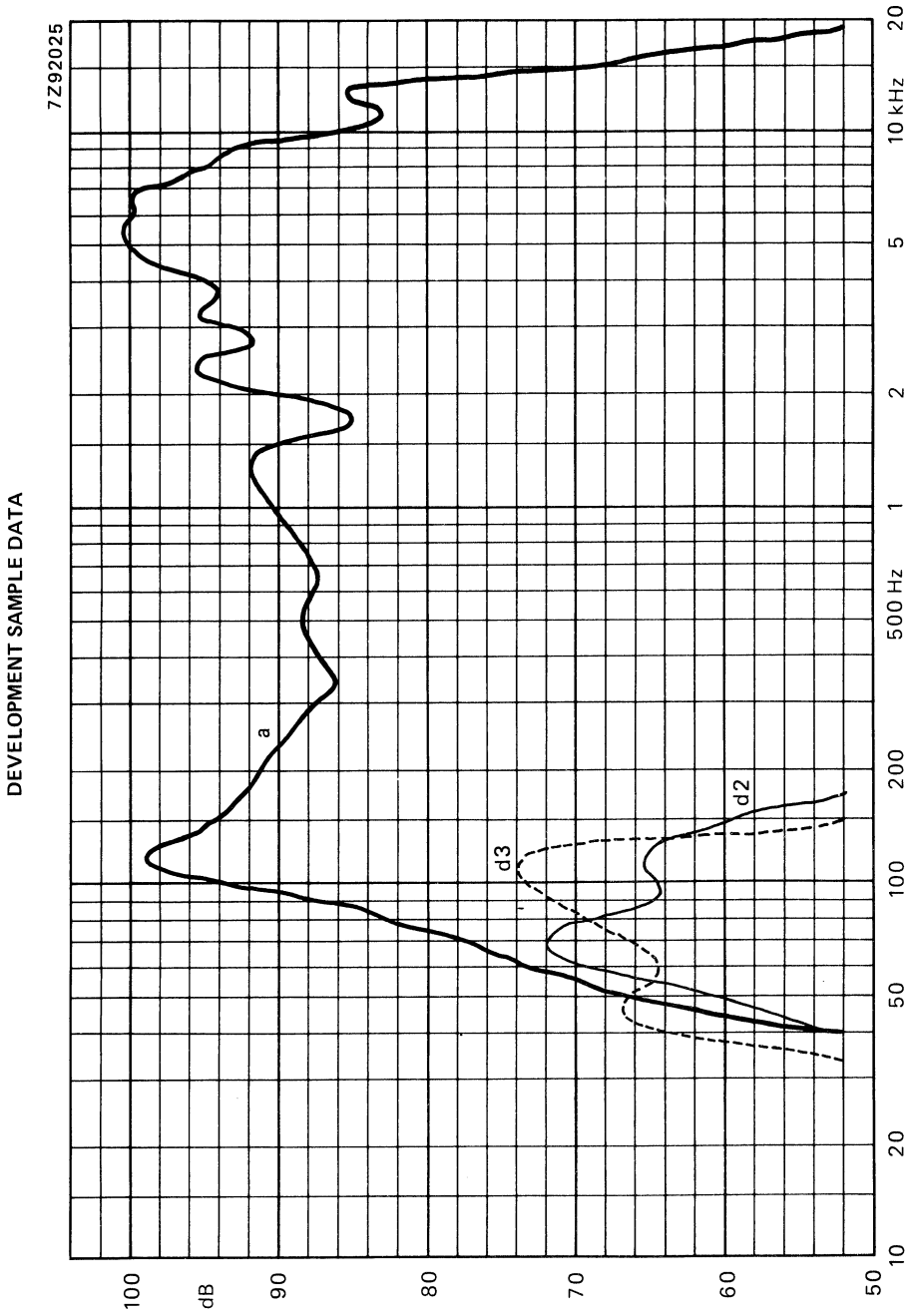


Fig. 2.

## 5 inch FULL RANGE LOUDSPEAKERS

## TECHNICAL DATA

	version				
	X4	X8	M4	M8	
Rated impedance	4	8	4	8	$\Omega$
Voice coil resistance	3,2	7	3,2	7	$\Omega$
Resonance frequency			140		Hz
Power handling capacity, measured without filter, loudspeaker unmounted			6		W
Maximum power on loudspeaker			10		W
Sweep voltage (80 to 20 000 Hz)	3,4	4,9	4	4,9	V
Filter			none		
Characteristic sensitivity			91		dB/W/m
Energy in air gap			55		mJ
Flux density			1		T
Air-gap height			3		mm
Voice coil height	4	4,5	4	4,5	mm
Core diameter			18		mm
Magnet material			ceramic		
→ diameter			53		mm
mass			0,1		kg
Mass of loudspeaker			0,26		kg

Connections is by 2,8 mm (0,11 inch) tag connectors or by soldering. The M-versions have a double cone.

Dimensions in mm

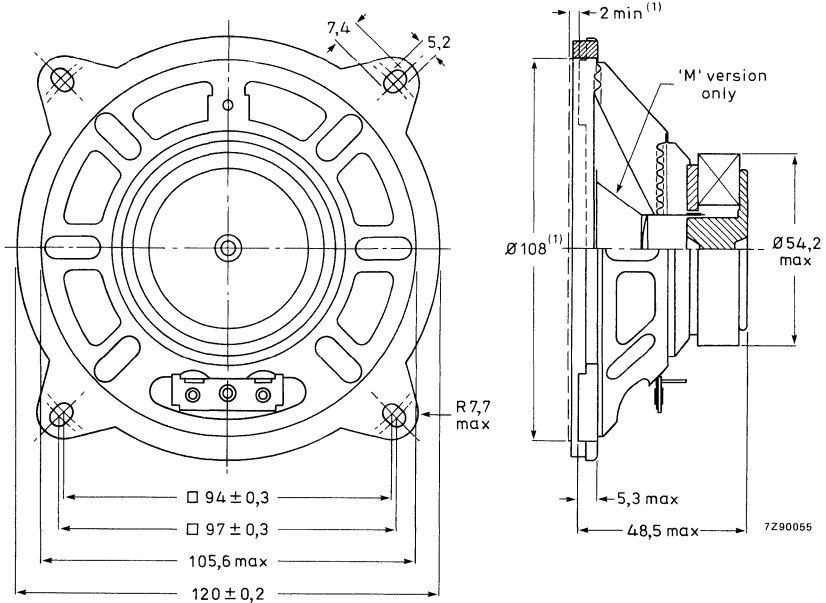


Fig. 1.

(1) Recommended baffle hole ( $\varnothing 108$  mm) and mounting clearance (2 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD50800/X4 catalogue number 2422 257 25121
- AD50800/X8 catalogue number 2422 257 25122
- AD50800/M4 catalogue number 2422 257 25125
- AD50800/M8 catalogue number 2422 257 25126

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

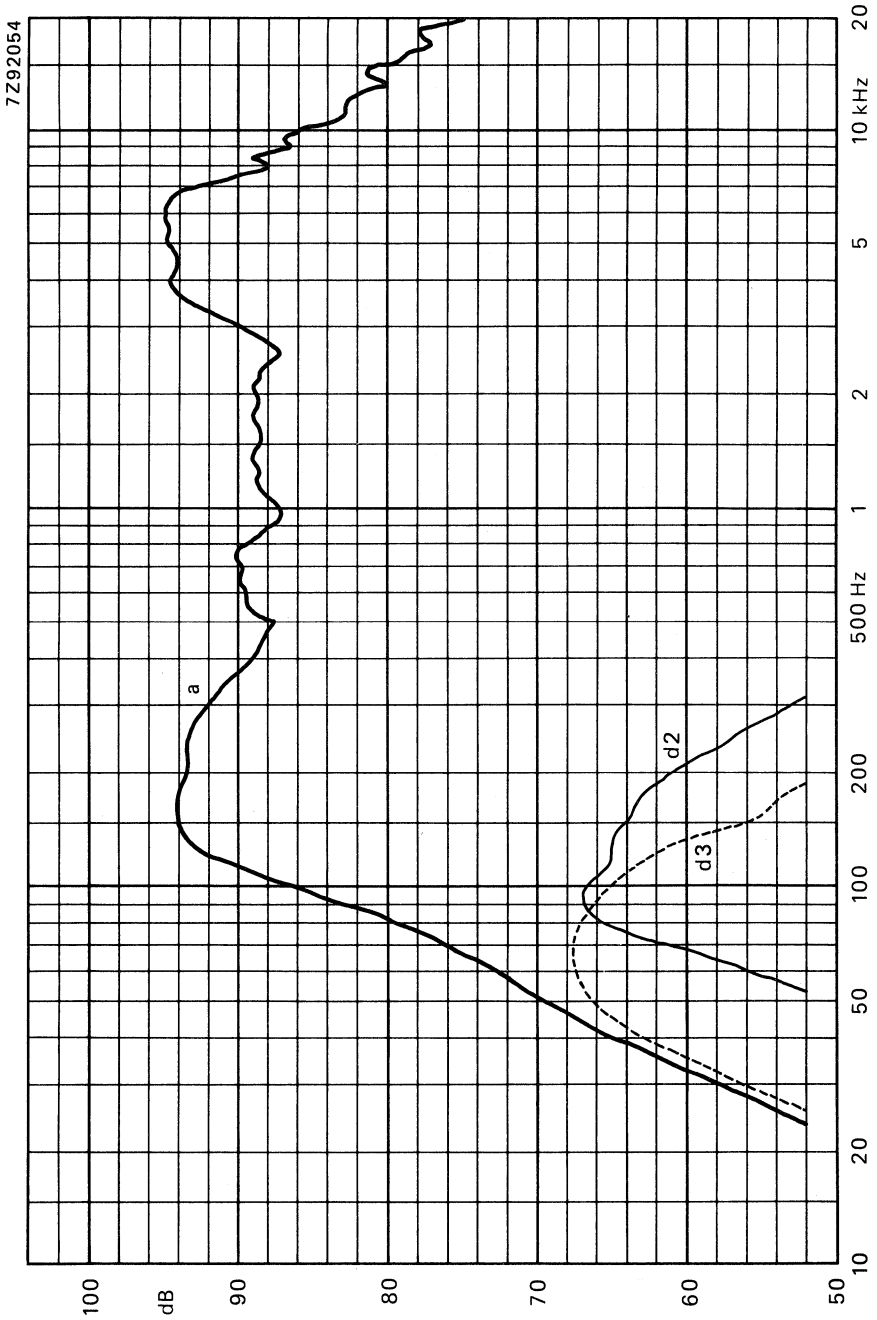


Fig. 2a AD50800/X.

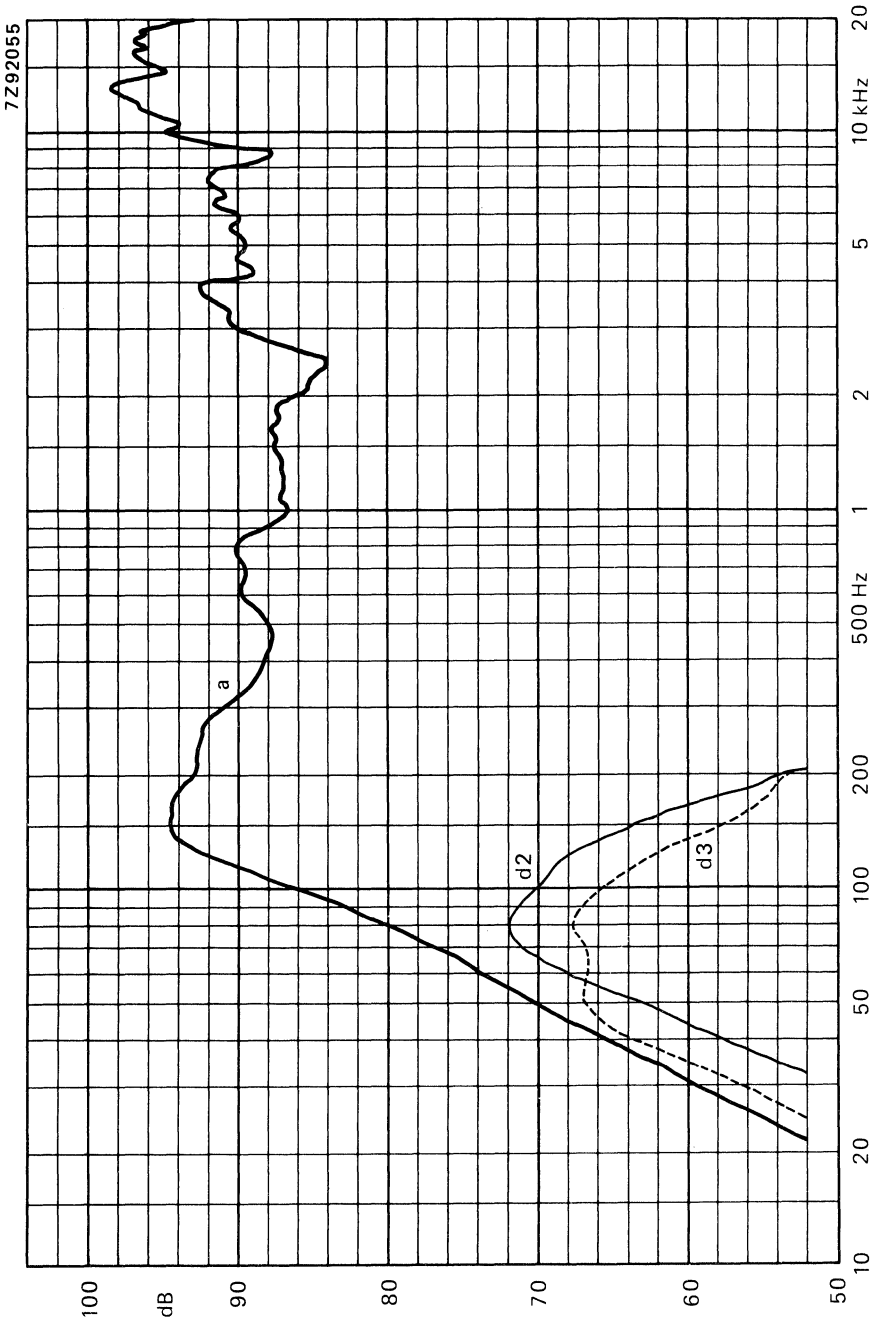


Fig. 2b AD50800/M.



## 5 INCH HIGH POWER SQUAWKER LOUDSPEAKER

### APPLICATION

For the reproduction of audio frequencies from 400 to 5000 Hz with very low distortion in multi-way high-fidelity loudspeaker systems in accordance with DIN 45500. The loudspeaker has an excellent spherical radiation pattern.

### TECHNICAL DATA

	version	
	Sq4	Sq8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,2	6,8 $\Omega$
Rated frequency range	400 to 5000 Hz	
Resonance frequency	280	Hz
Power handling capacity of system, measured with filter:		
72 $\mu$ F – 2,1 mH	15	W
36 $\mu$ F – 4,5 mH		15 W
Operating power	6	W
Sweep voltage, frequency range: 400 – 5000 Hz, high-pass filter:		
72 $\mu$ F – 2,1 mH	5	V
36 $\mu$ F – 4,5 mH		6,9 V
Energy in air gap	55	mJ
Flux density	0,93	T
Air-gap height	3	mm
Voice coil height	4,4	mm
Core diameter	18	mm
Magnet material	ceramic	
diameter	53	mm
mass	0,1	kg
Mass of loudspeaker	0,4	kg

The loudspeaker has a paper cone, a textile surround and a sealed pot; no acoustic isolation required. Two tinned 2,8 mm (0,11 inch) tag connectors permit connection to the loudspeaker by plugging or soldering.



Dimensions in mm

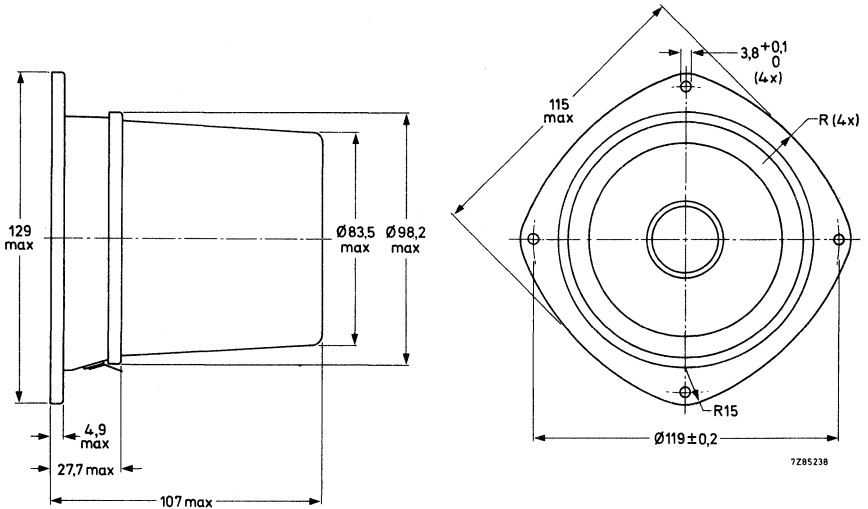


Fig. 1.

Baffle hole diameter minimum 100 mm.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

AD50800/Sq4, catalogue number 2422 257 45121  
 AD50800/Sq8, catalogue number 2422 257 45122

these numbers apply to bulk packed loudspeakers, minimum packing quantity 24 per unit.

**FREQUENCY RESPONSE CURVE (See Fig. 2)**

Measured in anechoic room at the operating power. Loudspeaker mounted on IEC baffle according to IEC 268-5 par. 4-4.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

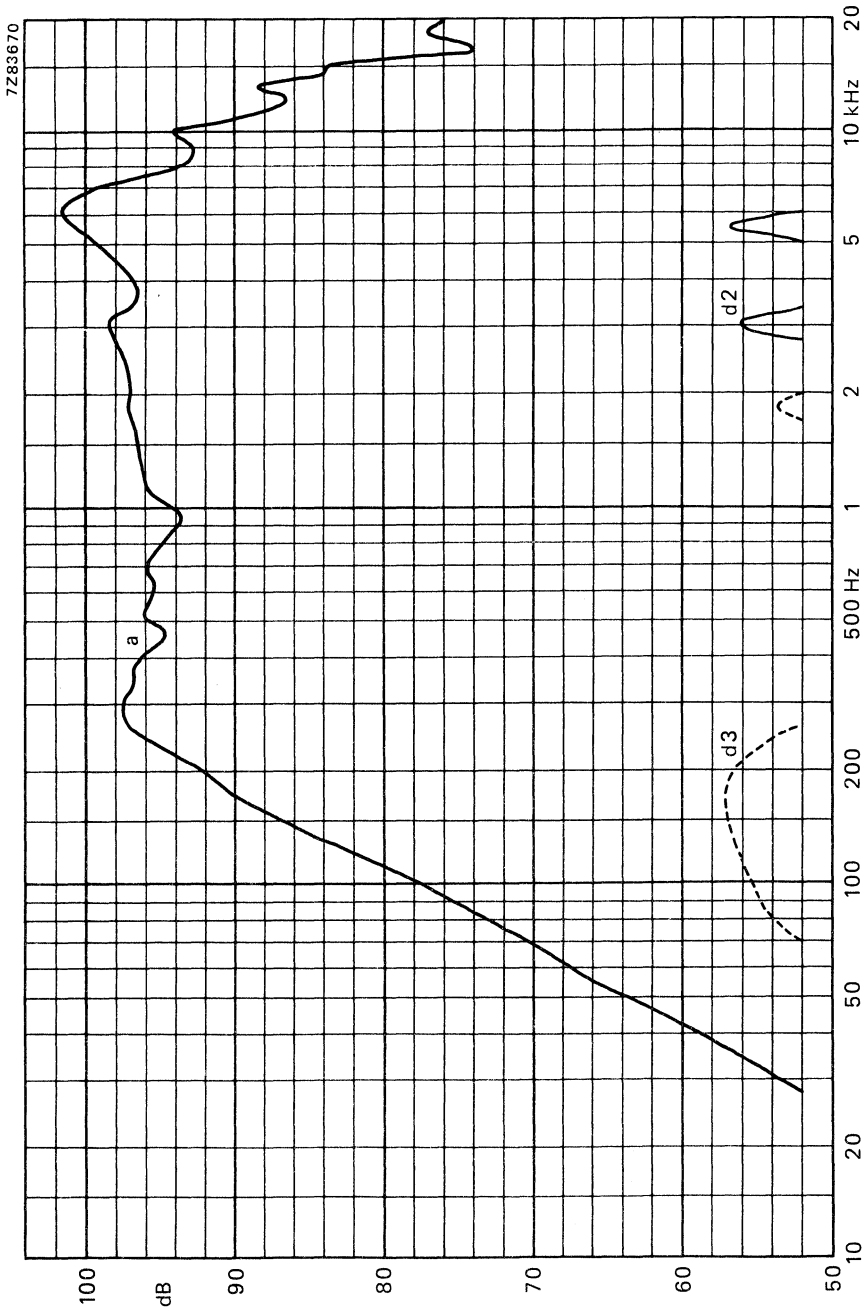


Fig. 2.

## 5¼ inch WOOFER LOUDSPEAKER

## TECHNICAL DATA

Rated impedance	4 $\Omega$
Voice coil resistance	3,8 $\Omega$
Resonance frequency	62 Hz
Power handling capacity, loudspeaker mounted in 14 l bass reflex box	20 W
Maximum power on loudspeaker	40 W
Operating power (sound level 92 dB, 1 m)	7,5 W
Sweep voltage (35 to 6000 Hz)	5 V
Filter	none
Energy in air gap	161 mJ
Flux density	0,9 T
Air-gap height	5 mm
Voice coil height	10 mm
Core diameter	25 mm
Magnet material	ceramic
diameter	60 mm
mass	0,225 kg
Mass of loudspeaker	0,718 kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

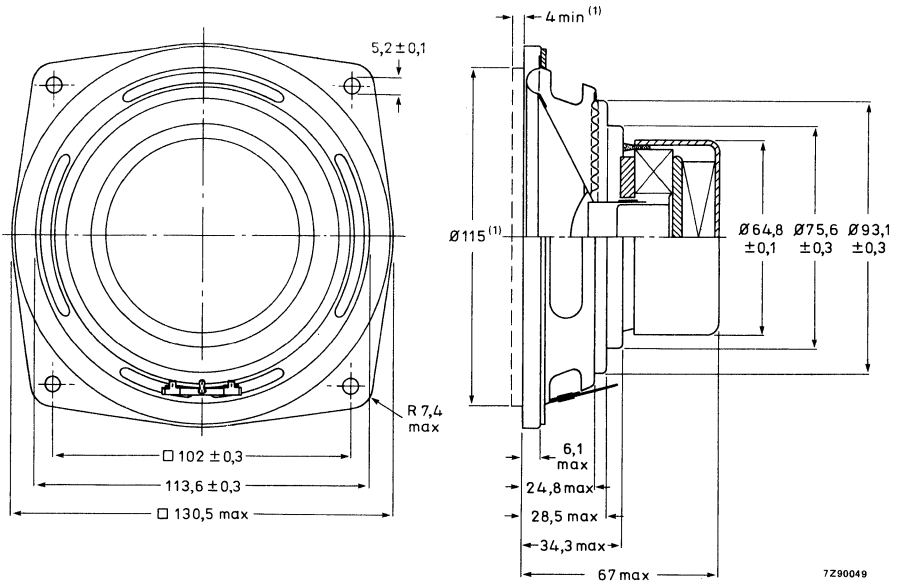


Fig. 1.

(1) Recommended baffle hole opening ( $\varnothing 115$  mm) and clearance depth (4 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSION**

AD51501/W4 catalogue number 2422 257 35931

This number is for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve 1: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

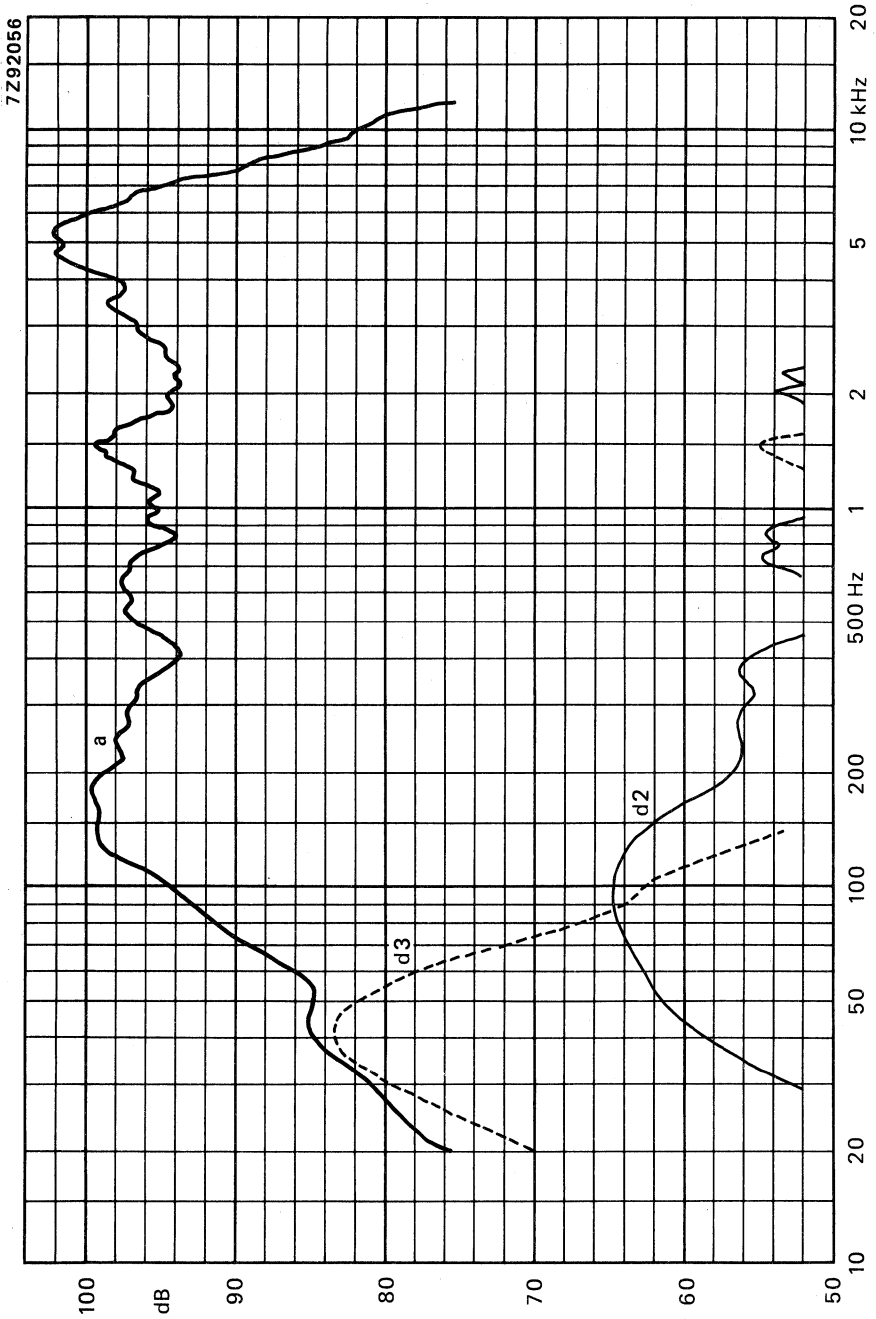


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD51502/W4M

### 5¼ inch WOOFER LOUDSPEAKER

- frame: metal
- cone: paper
- rim: foam
- screened magnet
- aluminium coil former
- for video applications

#### TECHNICAL DATA

Rated impedance	4 $\Omega$
Voice coil resistance	3,8 $\Omega$
Rated frequency range	100 to 4000 Hz
Resonance frequency	70 Hz
Power handling capacity, measured without filter, loudspeaker unmounted	20 W
Maximum power on loudspeaker, in bass-reflex box of 10 l	40 W
Operating power (sound level 87 dB, 1m)	W
Sweep voltage (50 to 1000 Hz)	5 V
Filter	none
Energy in air gap	127,3 mJ
Flux density	0,8 T
Air-gap height	5 mm
Voice coil height	10 mm
Core diameter	25 mm
Magnet material	ceramic
diameter	60 mm
mass	0,213 kg
Mass of loudspeaker	0,630 kg
Magnetic stray field according to DIN 45578	max. 0,35 mT

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

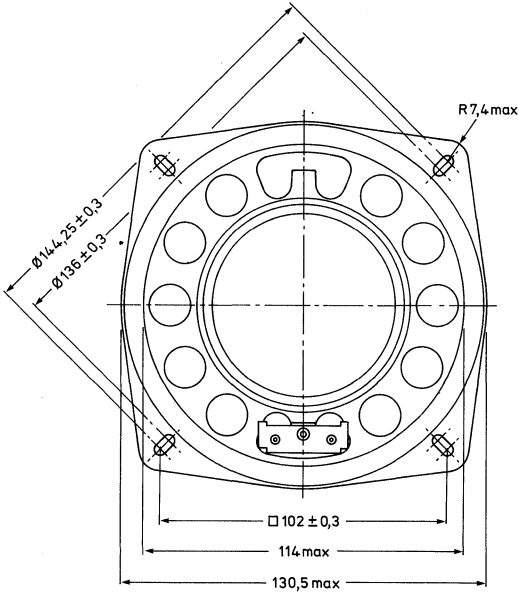


Fig. 1.

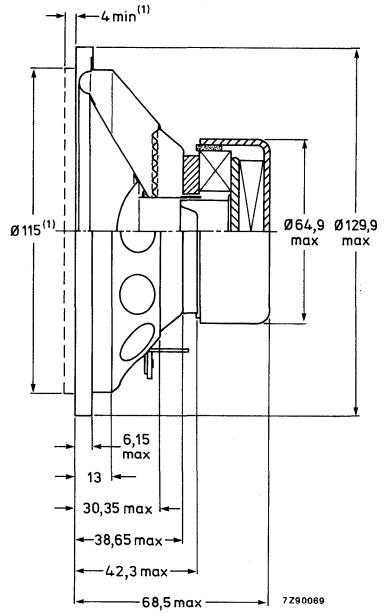


Fig. 2.

**AVAILABLE VERSION**

AD51502/W4M catalogue number 2422 257 35933. This number is for bulk packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure

Curves d2 and d3: 2nd and 3rd harmonic distortion.

- (1) Recommended baffle opening ( $\phi$  115 mm) and mounting clearance (4 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

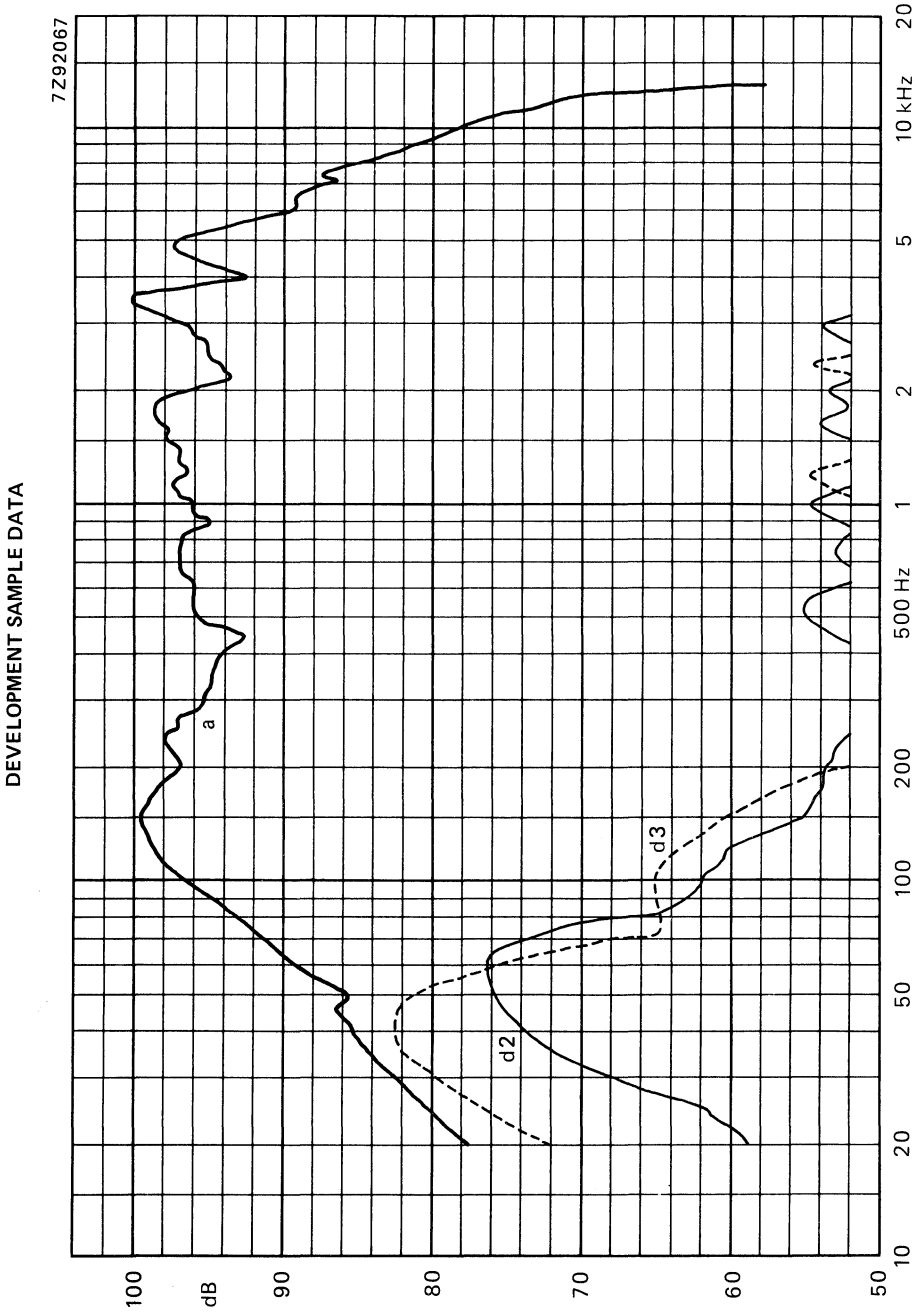


Fig. 3.



## 5¼ INCH HIGH POWER FULL RANGE LOUDSPEAKER

## APPLICATION

For high-fidelity sound reproduction in car radio applications and open enclosures. The loudspeaker has a very low distortion.

## TECHNICAL DATA

Rated impedance	4 $\Omega$
Voice coil resistance	3,8 $\Omega$
Rated frequency range	60 to 8000 Hz
Resonance frequency	78 Hz
Power handling capacity, measured without filter	20 W
Maximum power on loudspeaker	40 W
Operating power	6,25 W
Sweep voltage, frequency range: 42 to 20 000 Hz	6,2 V
Energy in air gap	135 mJ
Flux density	0,87 T
Air-gap height	5 mm
Voice coil height	10 mm
Core diameter	25 mm
Magnet material	ceramic
diameter	72 mm
mass	0,26 kg
Mass of loudspeaker	0,636 kg

The loudspeaker has a paper cone and a textile surround. Two tinned 2,8 mm (0,11 inch) tag connectors permit connection to the speaker by plugging or soldering.

Dimensions in mm

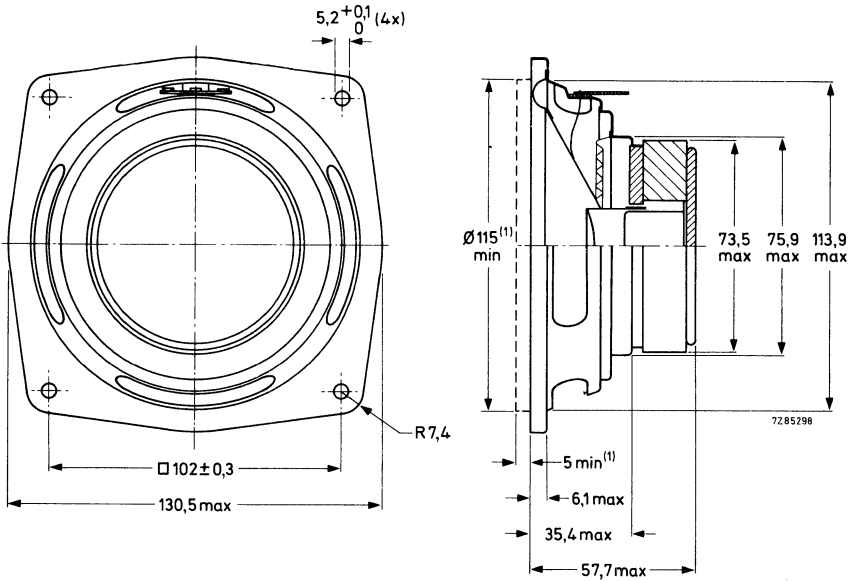


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSION**

AD51600/P4, catalogue number 2422 257 35825

this number applies to bulk packed loudspeakers, minimum packing quantity 32 per unit.

**FREQUENCY RESPONSE CURVE** (See Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted on IEC baffle according to IEC 268-5 par. 4-4.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

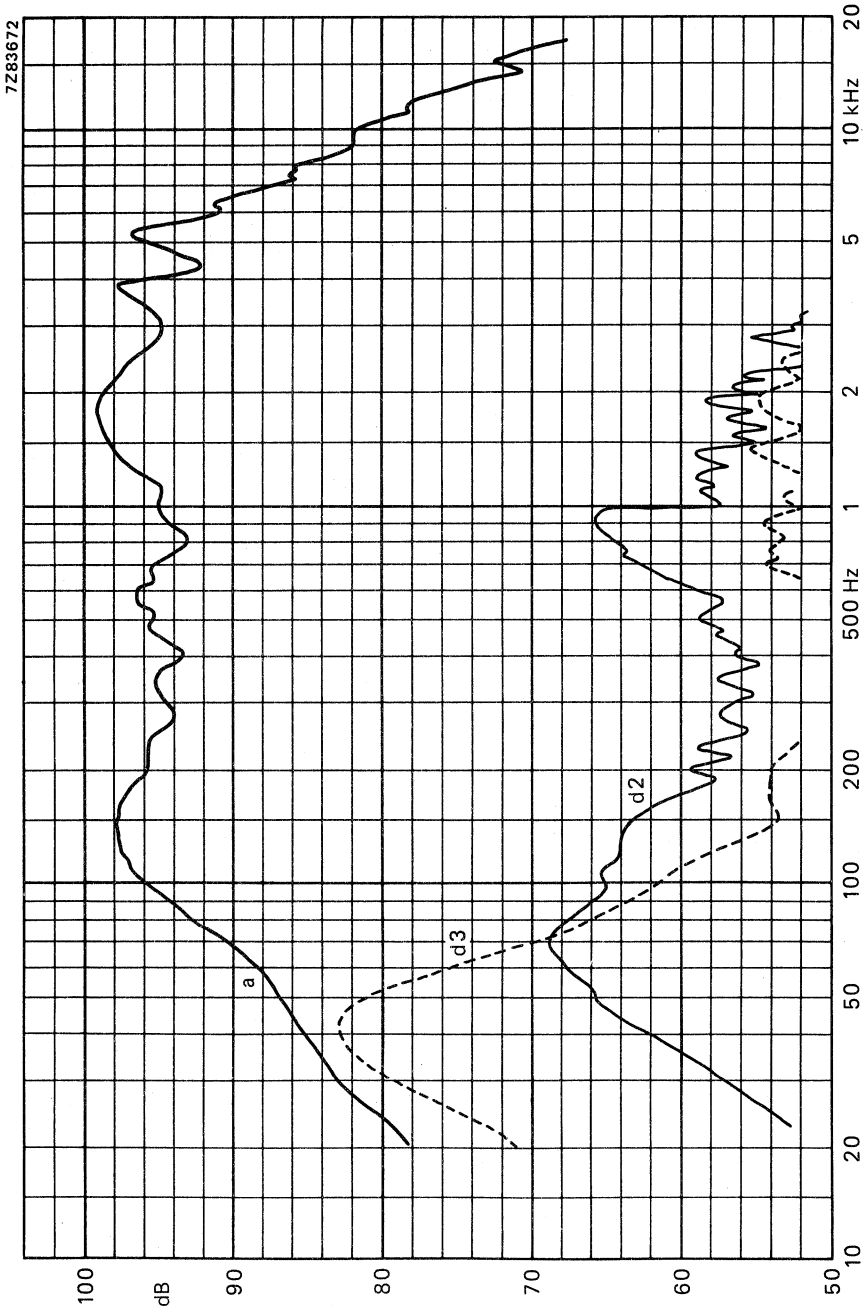


Fig. 2.

## 5¼ inch HIGH POWER WOOFER LOUDSPEAKER

## TECHNICAL DATA

	version	
	W4	W8
Rated impedance	4	8 Ω
Voice coil resistance	3,8	7 Ω
Rated frequency range	60 – 9000 Hz	
Resonance frequency	62	Hz
Power handling capacity, measured in a sealed box of 4 l, with 50 g damping material	30	W
Maximum power on loudspeaker	50	W
Operating power (sound level 96 dB, 1 m)	5	W
Sweep voltage (35 to 6000 Hz)	4,9	7 V
Filter	none	
Energy in air gap	135	mJ
Flux density	0,38	0,93 T
Air-gap height	5	mm
Voice coil height	10	mm
Core diameter	25	mm
Magnet material	ceramic	
diameter	72	mm
mass	0,26	kg
Mass of loudspeaker	0,64	kg

The loudspeaker has a paper cone and a foam surround, paper dust cap and an aluminium coil former. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

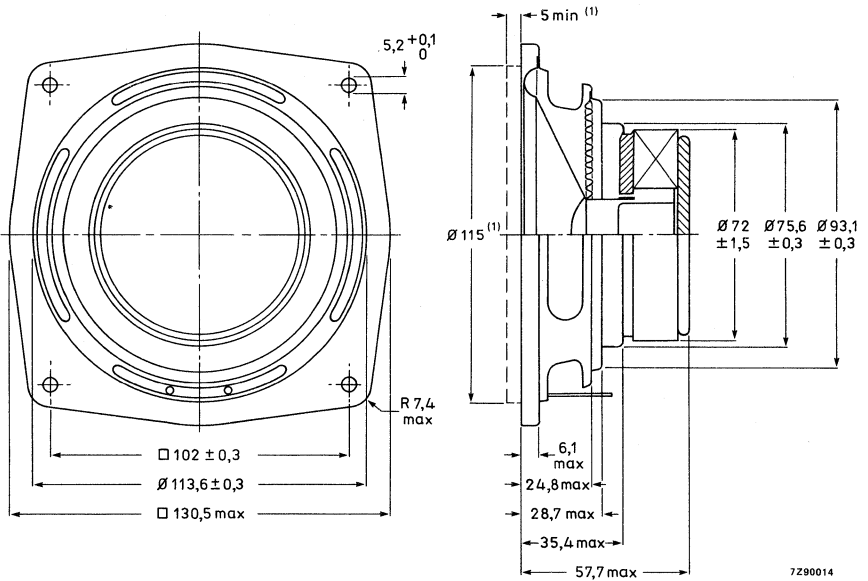


Fig. 1.

(1) Recommended baffle hole ( $\varnothing 115 \text{ mm}$ ) and clearance depth ( $5 \text{ mm}$ ) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

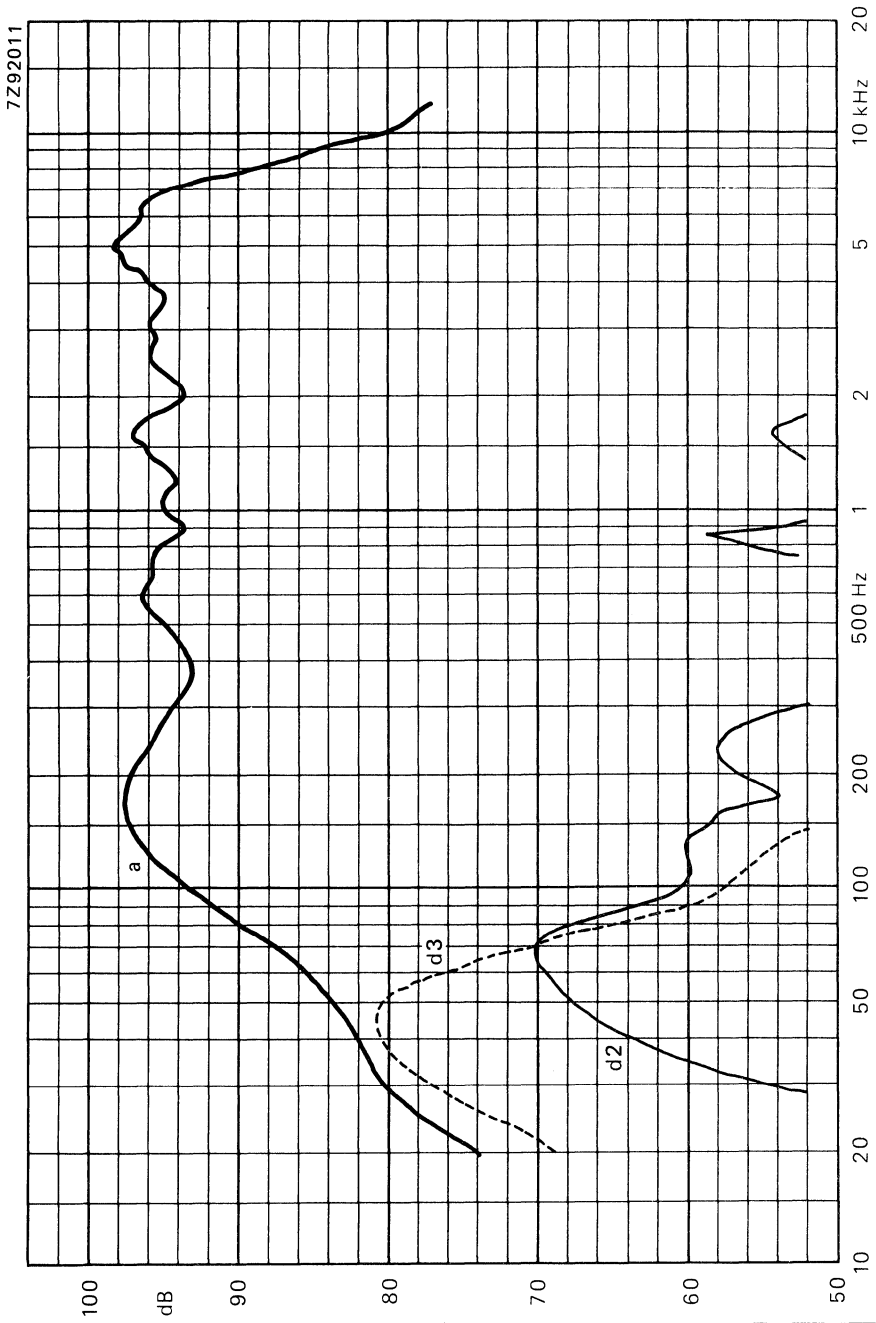
AD51610/W4 catalogue number 2422 257 35821 } These numbers are for bulk-packed loudspeakers.  
 AD51610/W8 catalogue number 2422 257 35822 }

**FREQUENCY RESPONSE CURVES (see Fig. 2)**

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.



## 5¼ inch LOW POWER LOUDSPEAKER

### APPLICATION

Round loudspeaker with 4 mounting lugs for audio and video applications. AD55740 has a screened magnet system.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 Ω
Voice coil resistance	3,5	7,1	13,7	22,8 Ω
Rated frequency range		80 to 13 000		Hz
Resonance frequency		130		Hz
Power handling capacity, measured without filter, loudspeaker unmounted		3		W
Maximum power on loudspeaker		5		W
Operating power (sound level 90 dB, 1 m)		300		mW
Sweep voltage (100 to 20 000 Hz)	2,4	3,5	4,7	6,1 V
Filter		none		
Energy in air gap		12,7		mJ
Flux density		0,74		T
Air-gap height		2,5		mm
Voice coil height	2,7	2,2	3,0	3,6 mm
Core diameter		10		mm
Magnet material		ceramic		
→ square		28,5		mm
mass		0,018		kg
Mass of loudspeaker		0,088		kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeaker has a plastic frame and a paper cone.

Dimensions in mm

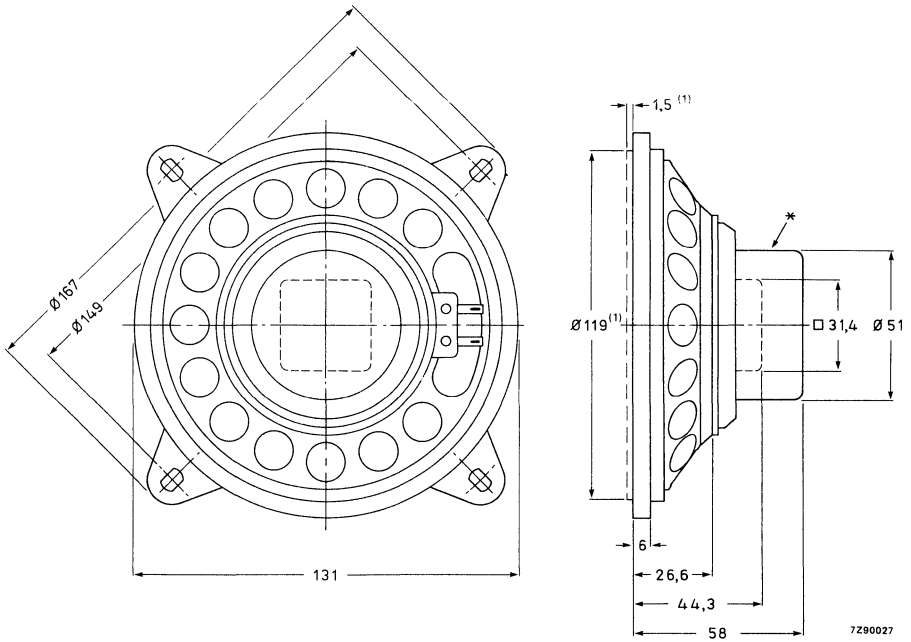


Fig. 1.

\* Screening for AD55740/X only.

(1) Recommended baffle hole ( $\phi$  119 mm) and clearance depth (1,5 mm) are required for cone movement at the specified power handling capacity.

One tag has a red mark to facilitate phase matching. Recommended baffle hole: 119 mm diameter.

#### AVAILABLE VERSIONS

AD55720/X4	catalogue number 2403 257 25921
AD55720/X8	catalogue number 2403 257 25922
AD55720/X15	catalogue number 2403 257 25923
AD55720/X25	catalogue number 2403 257 25924
AD55740/X4	catalogue number 2403 257 25821
AD55740/X8	catalogue number 2403 257 25822
AD55740/X15	catalogue number 2403 257 25823
AD55740/X25	catalogue number 2403 257 25824

These number are for bulk-packed loudspeakers.



7Z92025

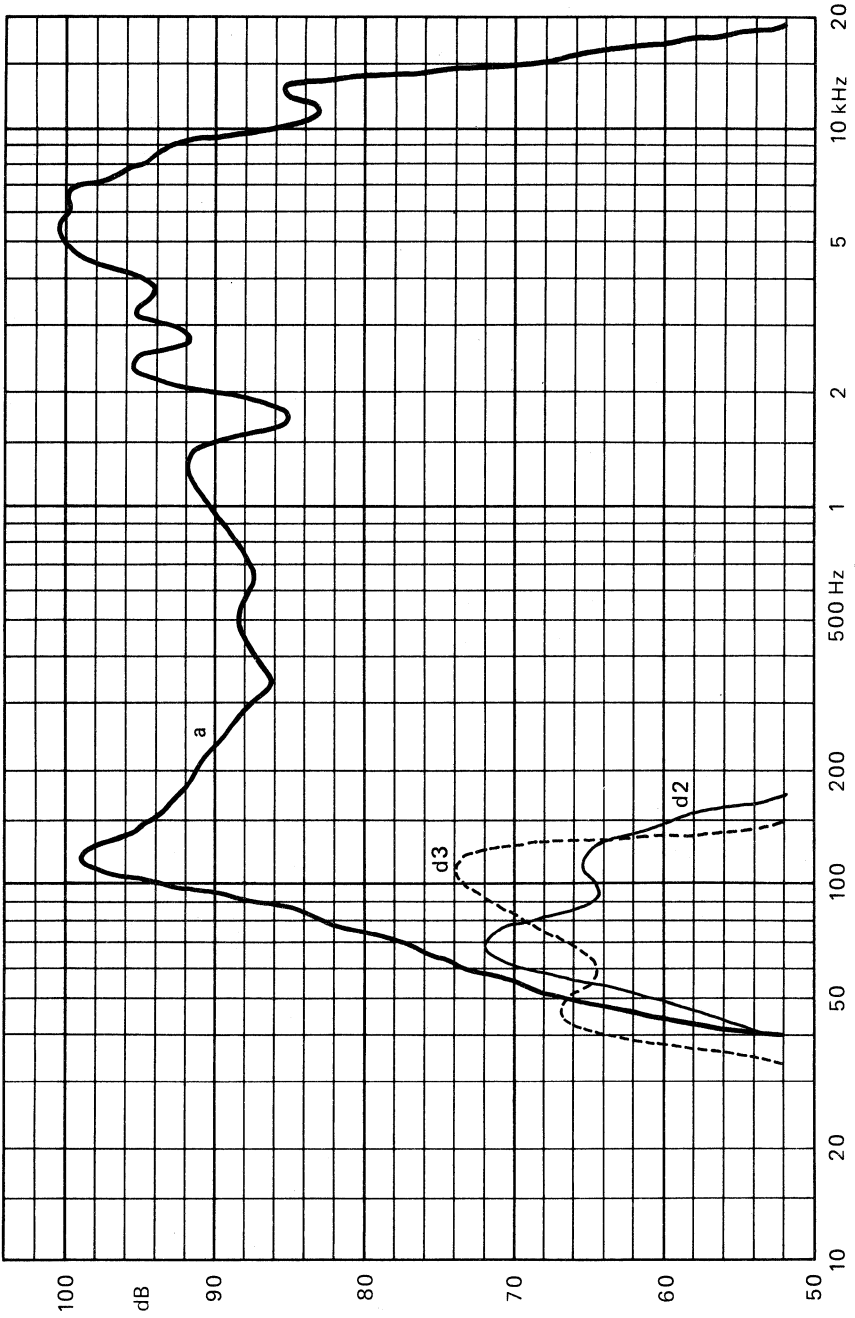


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD55725/X.  
AD55745/X.

## 5¼ inch LOW POWER LOUDSPEAKERS

### APPLICATION

Round loudspeaker with 4 mounting lugs for audio and video applications. AD55745 has a screened magnet system.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 Ω
Voice coil resistance	3,5	7,1	13,7	22,8 Ω
Rated frequency range	80 to 13000			Hz
Resonance frequency	130			Hz
Power handling capacity, measured without filter, loudspeaker unmounted	5			W
Maximum power on loudspeaker	7			W
Operating power (sound level 90 dB, 0,5 m)	300			mW
Sweep voltage (100 to 20 000 Hz)	2,4	3,5	4,7	6,1 V
Filter	none			
Energy in air gap	12,7			mJ
Flux density	0,74			T
Air-gap height	2,5			mm
Voice coil height	2,7	2,2	3,0	3,6 mm
Core diameter	10			mm
Magnet material	ceramic			
square mass	28,5			mm
	18			g
Mass of loudspeaker				
AD55725	50			g
AD55745	110			g

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

The loudspeaker has a plastic frame and a paper cone.

AD55725/X.  
AD55745/X.

Dimensions in mm

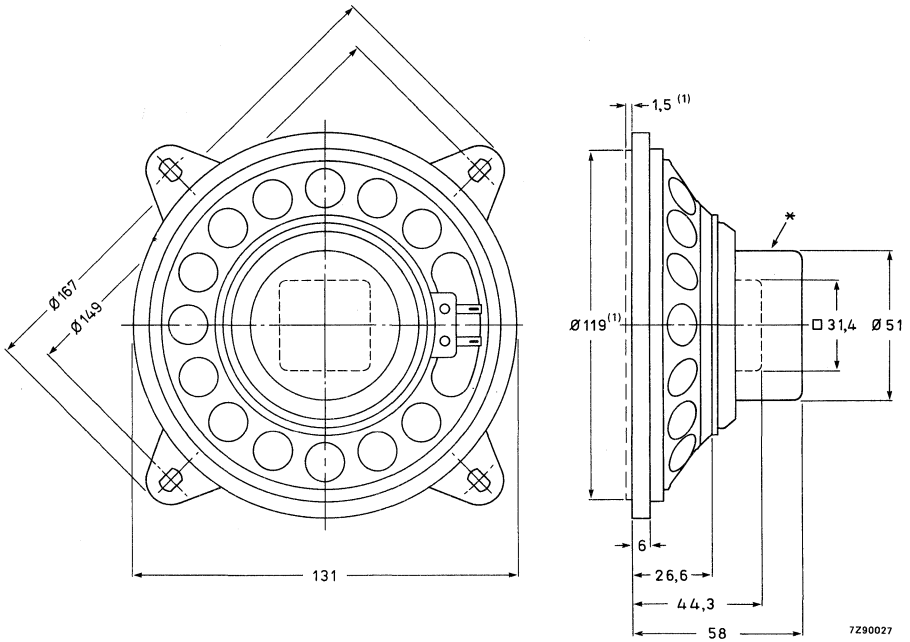


Fig. 1.

\* Screening for AD55745 only.

(1) Recommended baffle hole ( $\varnothing 119$  mm) and clearance depth (1,5 mm) are required for cone movement at the specified power handling capacity.

One tag has a red mark to facilitate phase matching. Recommended baffle hole: 119 mm diameter.

**AVAILABLE VERSIONS**

AD55725/X4	catalogue number 2403 257 55921
AD55725/X8	catalogue number 2403 257 55922
AD55725/X15	catalogue number 2403 257 55923
AD55725/X25	catalogue number 2403 257 55924
AD55745/X4	catalogue number 2403 257 55821
AD55745/X8	catalogue number 2403 257 55822
AD55745/X15	catalogue number 2403 257 55823
AD55745/X25	catalogue number 2403 257 55824

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

DEVELOPMENT SAMPLE DATA

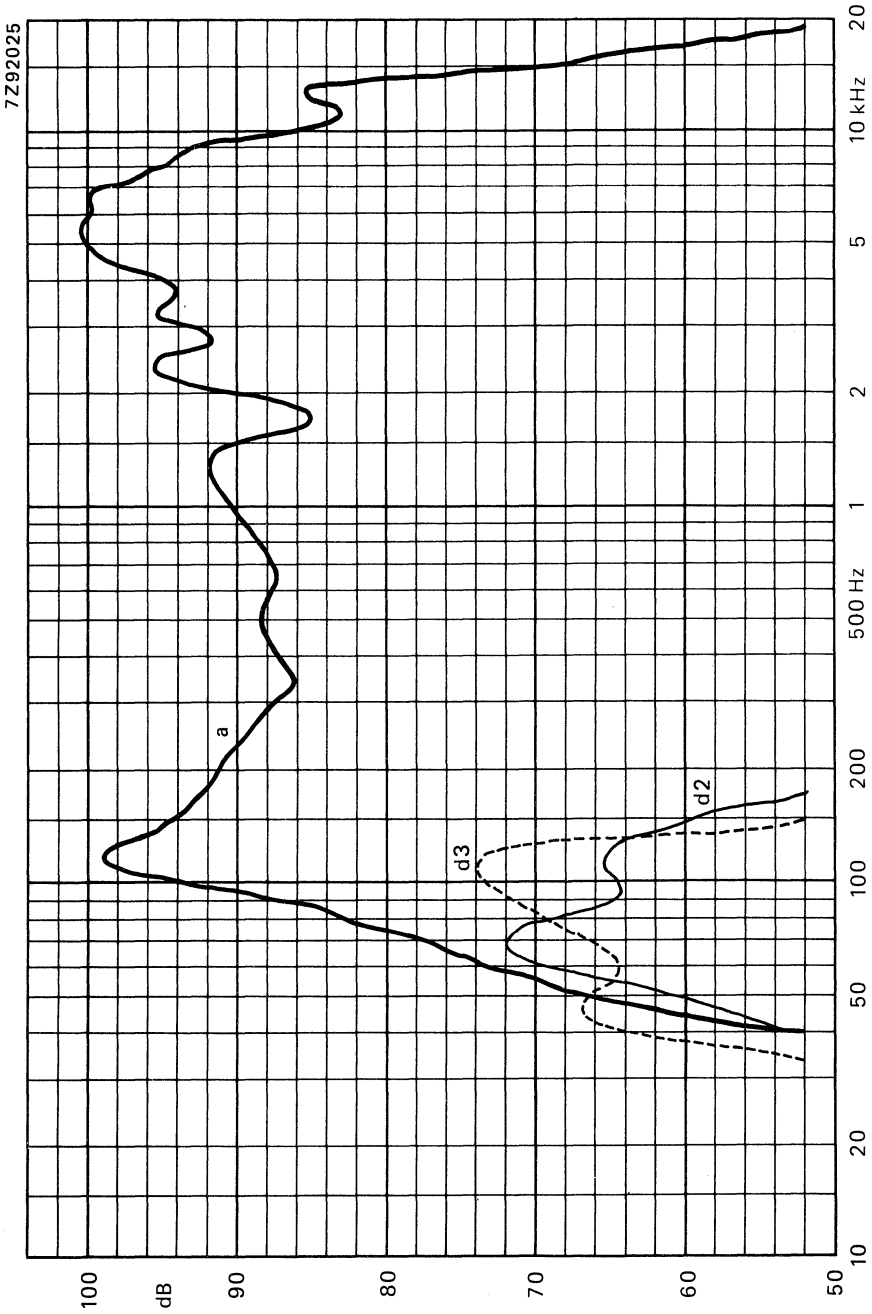


Fig. 2.

## 5 × 7 INCH MEDIUM POWER LOUDSPEAKER

## APPLICATION

The loudspeaker can be used in black and white and colour television sets. The magnet has a screened and compensated ceramic system with a very low stray magnetic field. High sensitivity at 4000 Hz.

## TECHNICAL DATA

	version	
	M4	M8
Rated impedance	4	8 Ω
Voice coil resistance	3,4	7,1 Ω
Rated frequency range	60 to 10 000 Hz	
Resonance frequency	100 Hz	
Power handling capacity, measured without filter, loudspeaker unmounted	10 W	
Maximum power on loudspeaker	15 W	
Operating power	0,75	0,7 W
Sweep voltage, frequency range: 55 to 20 000 Hz	4,5	6,3 V
Energy in air gap	65 mJ	
Flux density	1,045 T	
Stray magnetic field according to DIN 45578 par. 2.2.5, distance 70 mm	0,35 mT	
Air-gap height	3 mm	
Voice coil height	4,5	4,3 mm
Core diameter	18 mm	
Magnet material	ceramic	
→ diameter	45 mm	
mass	0,102 kg	
Mass of loudspeaker	0,346 kg	

The loudspeaker has a dual paper cone, a treated paper surround, and a foam plastic gasket on the flange. Connection to the loudspeaker by means of 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

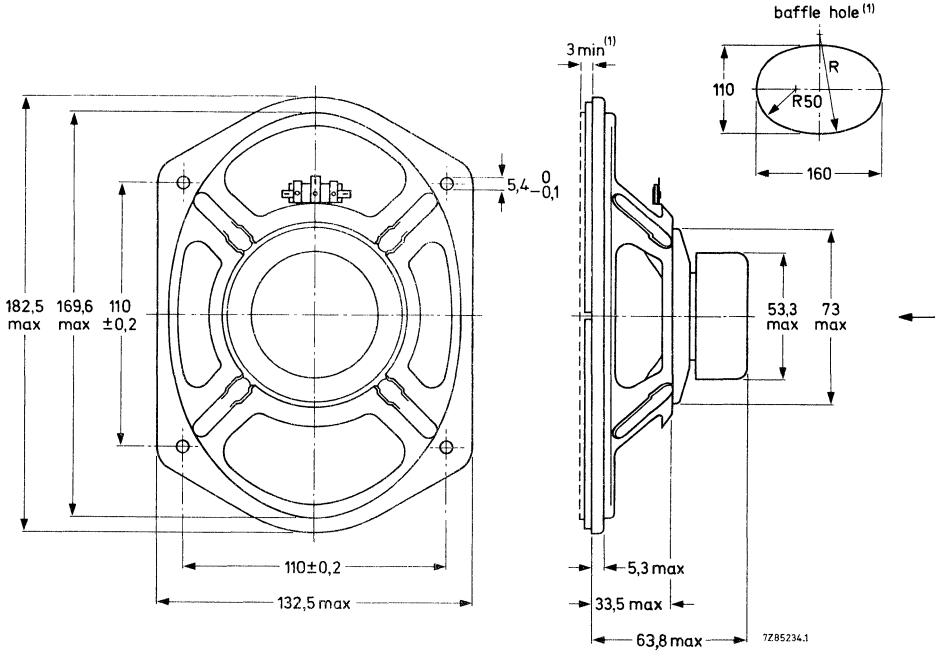


Fig. 1.

(1) Clearance depth required for cone movement at the specified power handling capacity. One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

AD57900/M4, catalogue number 2422 257 36225  
 AD57900/M8, catalogue number 2422 257 36226

these numbers apply to bulk packed loudspeakers, minimum packing quantity 28 per unit.

**FREQUENCY RESPONSE CURVE (See Fig. 2)**

Measured in anechoic room at the operating power. Loudspeaker mounted on IEC baffle according to IEC 268-5 par. 4.4.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

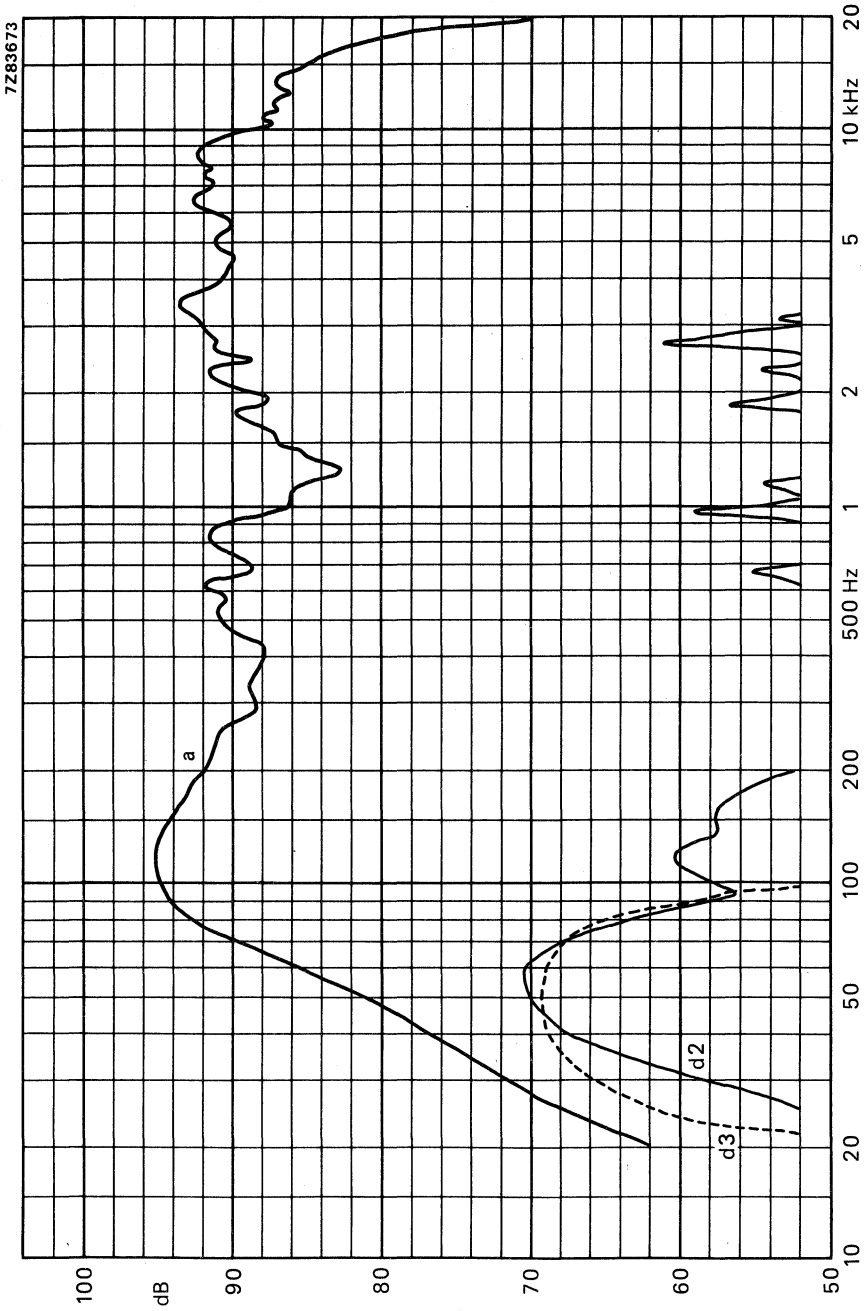


Fig. 2.

## 5 × 7 INCH MEDIUM POWER LOUDSPEAKER

## APPLICATION

The loudspeaker can be used in black and white and colour television sets. The magnet has a screened and compensated ceramic system with a very low stray magnetic field. High sensitivity at 3000 Hz.

## TECHNICAL DATA

	version	
	X4	X8
Rated impedance	4	8 Ω
Voice coil resistance	3,4	7,1 Ω
Rated frequency range	55 to 12 000 Hz	
Resonance frequency	100	105 Hz
Power handling capacity, measured without filter, loudspeaker unmounted		10 W
Maximum power		15 W
Operating power	0,7	0,45 W
Sweep voltage, frequency range: 55 to 22 000 Hz	4,5	6,3 V
Energy in air gap		65 mJ
Flux density		1,045 T
Stray magnetic field according to DIN 45578 par. 2.2.5, distance 70 mm		0,35 mT
Air-gap height		3 mm
Voice coil height	4,5	4,3 mm
Core diameter		18 mm
Magnet material	ceramic	
diameter		45 mm ←
mass		0,102 kg
Mass of loudspeaker		0,346 kg

The loudspeaker has a paper cone, a treated paper surround, and a foam plastic gasket on the flange. Connection to the loudspeaker by means of 2,8 mm (0,11 inch) tag connectors or by soldering.



Dimensions in mm

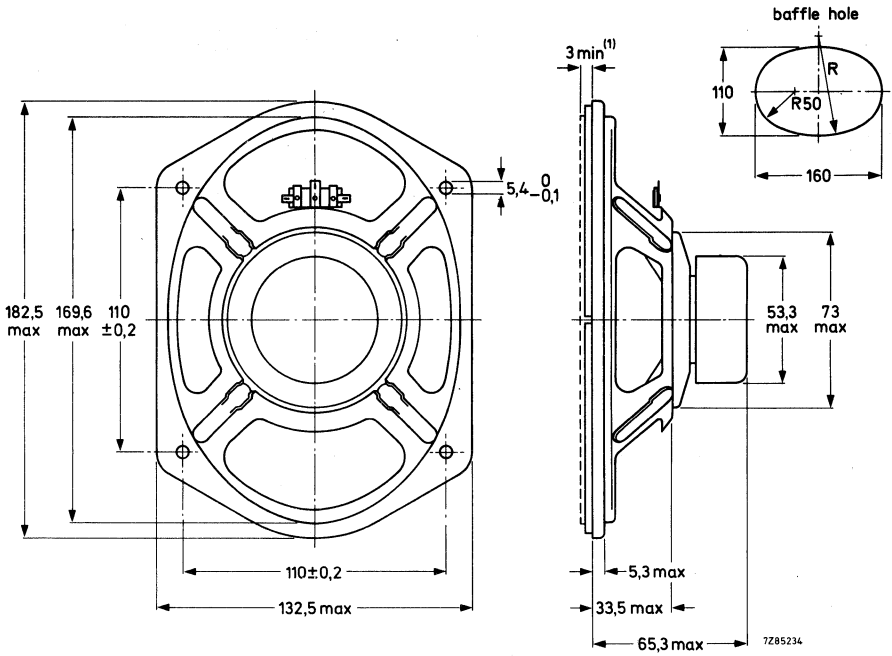


Fig. 1.

(1) Clearance depth required for cone movement at the specified power handling capacity. One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

AD57900/X4 catalogue number 2422 257 36221  
 AD57900/X8 catalogue number 2422 257 36222

these numbers apply to bulk packed loudspeakers, minimum packing quantity 28 per unit.

**FREQUENCY RESPONSE CURVES (See Fig. 2)**

Measured in anechoic room at the operating power. Loudspeaker mounted on IEC baffle according to IEC 268-5 par. 4.4.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

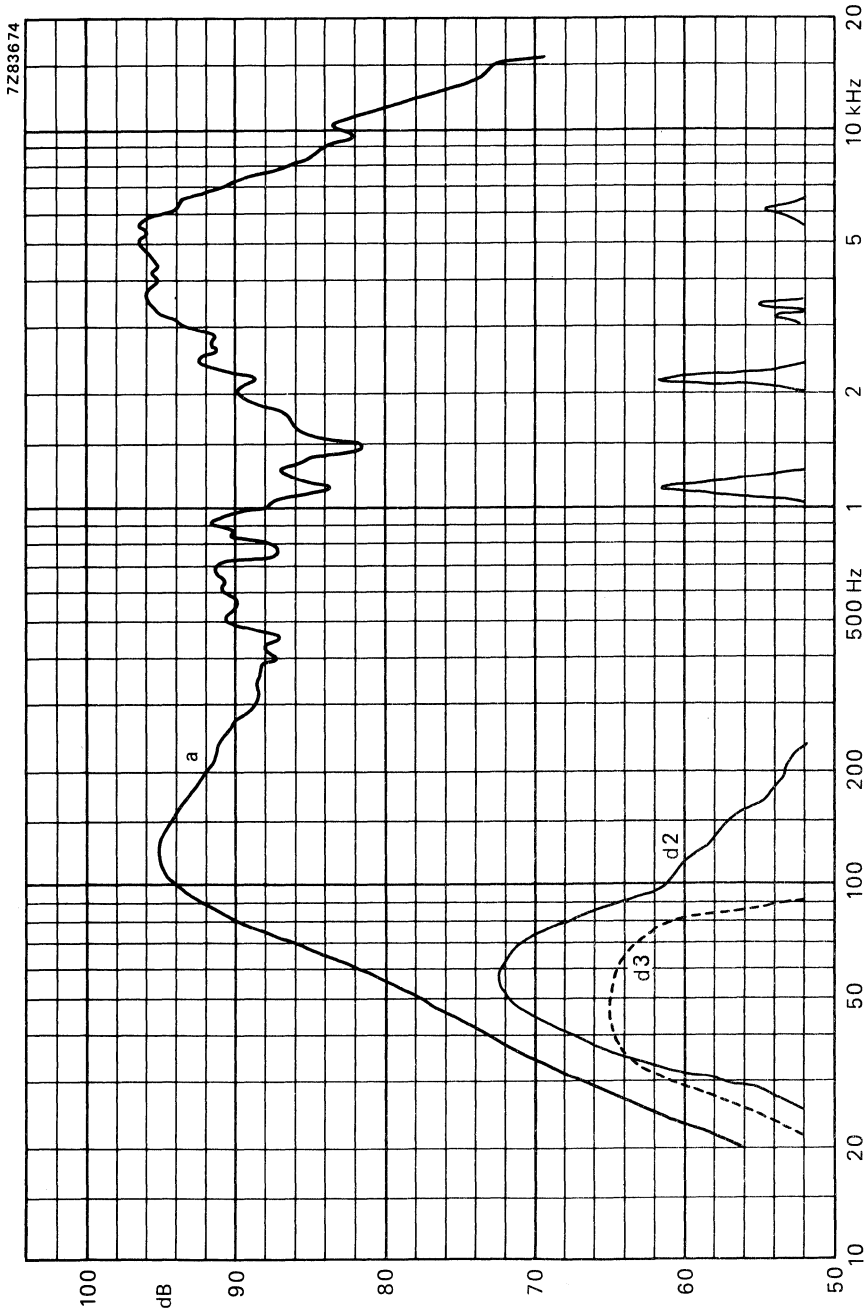


Fig. 2.



## 7 INCH HIGH POWER WOOFER LOUDSPEAKER

### APPLICATION

For high-fidelity bass reproduction in sealed acoustic enclosure. Recommended volume of enclosure 15 litres. The loudspeaker has a very low distortion.

### TECHNICAL DATA

	version	
	W4	W8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,8	7,5 $\Omega$
Rated frequency range	50 to 5000 Hz	
Resonance frequency	42	Hz
Power handling capacity, mounted in 80 l sealed enclosure, measured without filter	30	W
Maximum power on loudspeaker	60	W
Operating power	12,5	W
Sweep voltage, frequency range: 35 to 5000 Hz	5,5	7 V
Maximum excursion voltage at 20 Hz	8,5	13 V
Energy in air gap	135	140 mJ
Flux density	0,87	0,93 T
Force factor (B x l) at 1 A	4	5,5 Wb/m
Total moving mass	13,2	g
Compliance, loudspeaker unmounted	1,2	mm/N
Quality factor		
mechanical	4,57	4,33
electrical	1,26	1,33
total	0,99	1,02
Air-gap length	1,2	1 mm
Air-gap height	5	mm
Voice coil height	10	mm
Core diameter	25	mm
Magnet material	ceramic	
diameter	72	mm
mass	0,24	kg
Mass of loudspeaker	0,65	kg

The loudspeaker has a polyester surround. Connection to the loudspeakers by means of 6,3 mm (0,25 inch) tag connectors or by soldering.

Dimensions in mm

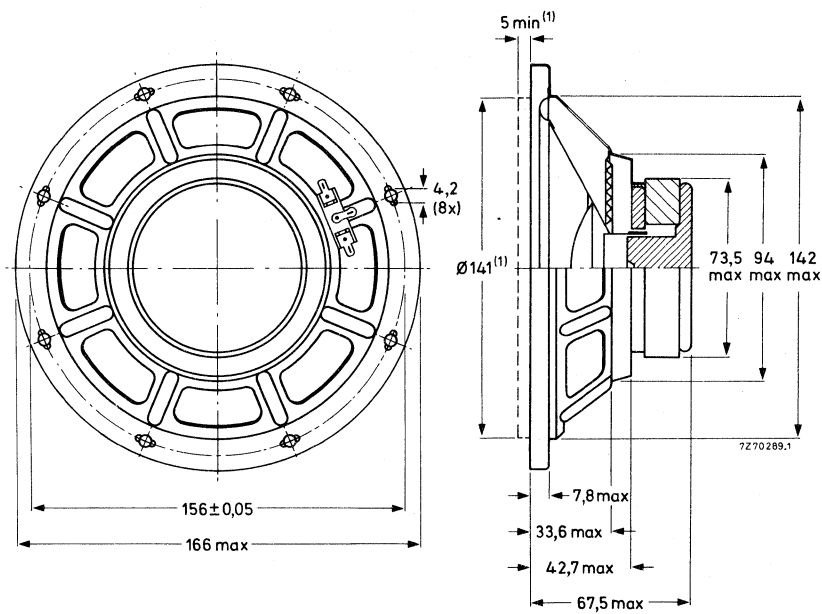


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by a red mark for in-phase connection.

→ AVAILABLE VERSIONS

- AD70602/W4, catalogue number 2422 257 47131
- AD70602/W8, catalogue number 2422 257 47132

} these numbers apply to bulk packed loudspeakers, minimum packing quantity 28 per unit.

**FREQUENCY RESPONSE CURVES** (See Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted in sealed 80 l enclosure, filled with 0,5 kg of glass wool.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

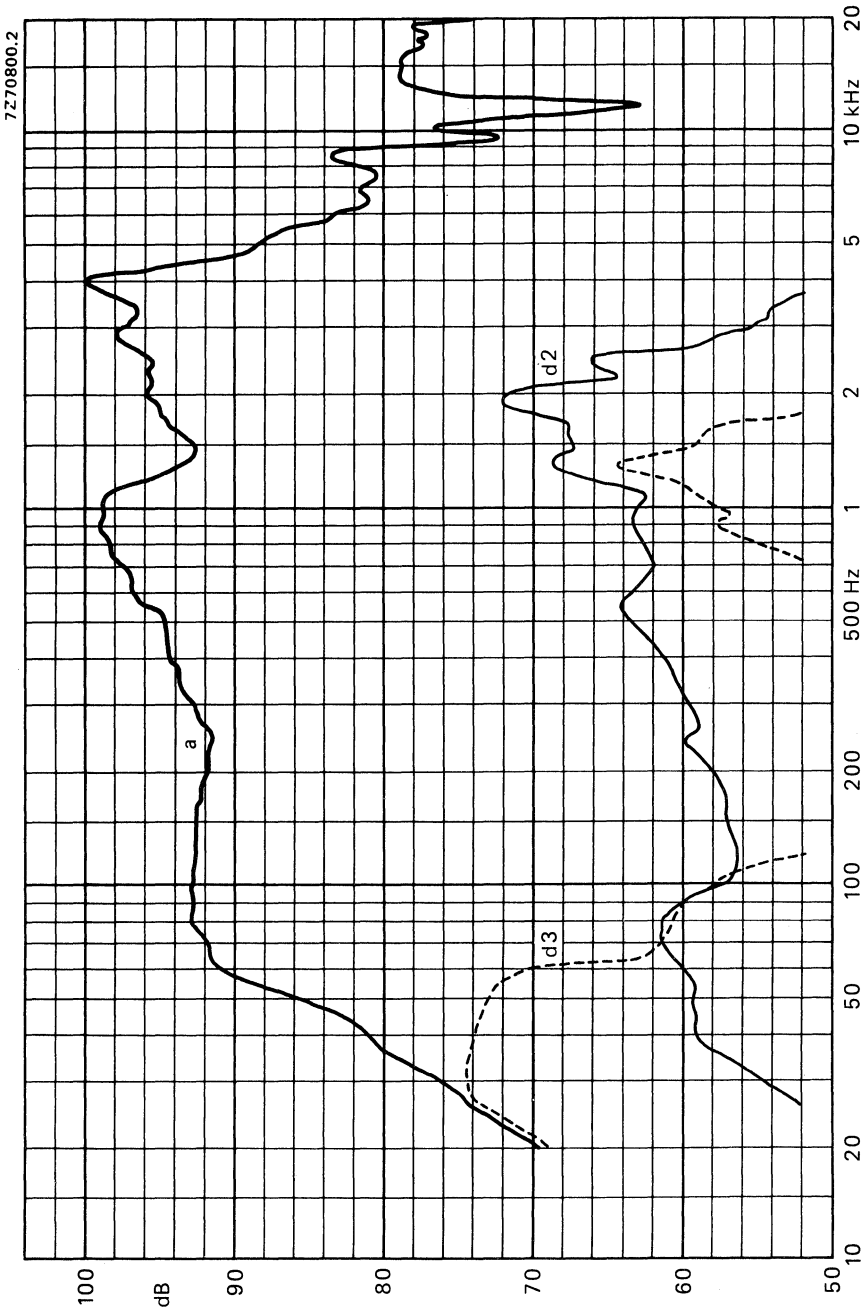


Fig. 2.

## 7 inch HIGH POWER WOOFER LOUDSPEAKER

## TECHNICAL DATA

Rated impedance	8 $\Omega$
Voice coil resistance	7,2 $\Omega$
Rated frequency range	35 to 4000 Hz
Resonance frequency	50 Hz
Power handling capacity, measured without filter, loudspeaker mounted in 15 l sealed box	40 W
Maximum power on loudspeaker	80 W
Operating power (sound level 96 dB, 1 m)	12 W
Sweep voltage (35 to 4000 Hz)	7 V
Filter	none
Energy in air gap	140 mJ
Flux density	0,72 T
Force factor (b x l) at 1 A	7,2 Wb/m
Total moving mass	11 g
Compliance, loudspeaker unmounted	0,97 mm/N
Air-gap height	5 mm
Voice coil height	10 mm
Core diameter	25 mm
Magnet material	ceramic
diameter	72 mm
mass	0,24 kg
Mass of loudspeaker	0,67 kg

Connection is by 2,8 mm (0,11 inch) or by 5,1 mm (0,2 inch) tag connectors or by soldering. The loudspeaker has a paper cone and a textile surround.

Dimensions in mm

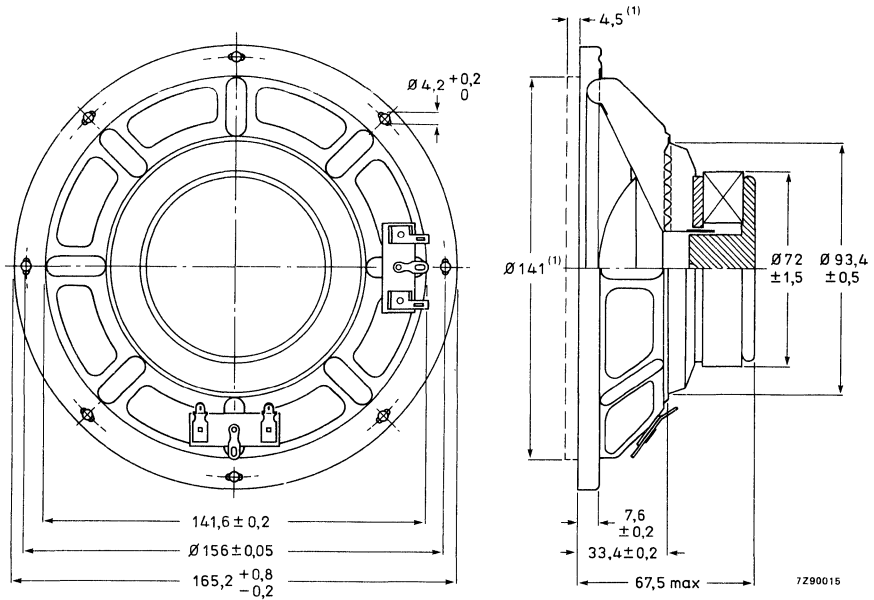


Fig. 1.

(1) Recommended baffle hole ( $\varnothing 141 \text{ mm}$ ) and clearance depth ( $4,5 \text{ mm}$ ) are required for cone movement at the specified power handling capacity. Recommended box enclosure: 15 l. One tag has a red mark to facilitate phase matching.

#### AVAILABLE VERSION

AD70612/W8 catalogue number 2422 257 47622. This number is for bulk-packed loudspeakers.

#### FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted in a sealed 15 l enclosure.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.



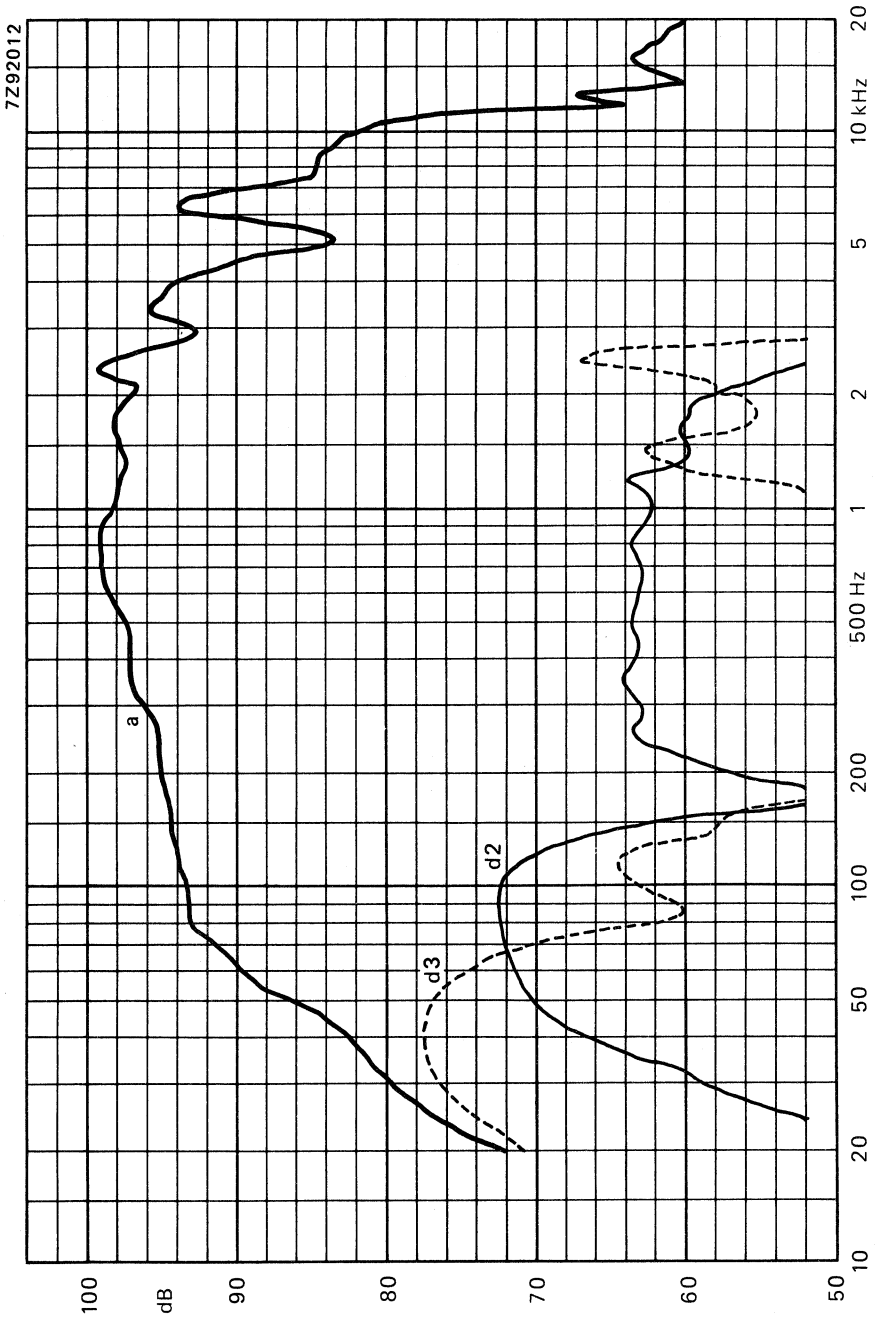


Fig. 2.

## 7 inch HIGH POWER FULL RANGE LOUDSPEAKER

## APPLICATION

For high fidelity reproduction in sealed acoustic enclosures. Maximum enclosure volume 25 litres. Smooth response from 60 to 8000 Hz.

## TECHNICAL DATA

	version	
	M4	M8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,2	7 $\Omega$
Rated frequency range	60 to 15 000 Hz	
Resonance frequency	70	Hz
Power handling capacity, measured without filter, loudspeaker unmounted	20	W
Operating power	3,05	3,15 W
Sweep voltage, frequency range: 35 to 20 000 Hz	4,5	6,3 V
Energy in air gap	127	mJ
Flux density	0,87	T
Air-gap height	5	mm
Voice coil height	6	6,3 mm
Core diameter	25	mm
Magnet material	ceramic	
diameter	72	mm
mass	0,26	kg
Mass of loudspeaker	0,745	kg

The loudspeaker has a paper dual cone and a textile surround. Connection to the loudspeaker by means of 6,3 mm (0,25 inch) tag connectors or by soldering.

Dimensions in mm

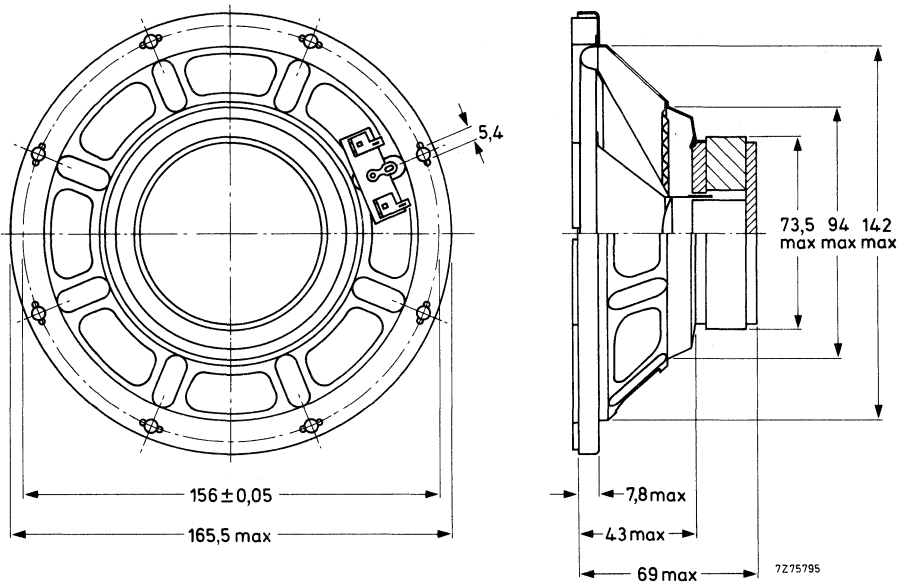


Fig. 1.

Baffle hole diameter 141 mm.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

AD70630/M4, catalogue number 2422 257 47123  
 AD70630/M8, catalogue number 2422 257 47124

} these numbers apply to bulk packed loudspeakers, minimum packing quantity 28 per unit.

**FREQUENCY RESPONSE CURVES (see Fig. 2)**

Measured in anechoic room at input power of 2,2 W. Loudspeaker mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

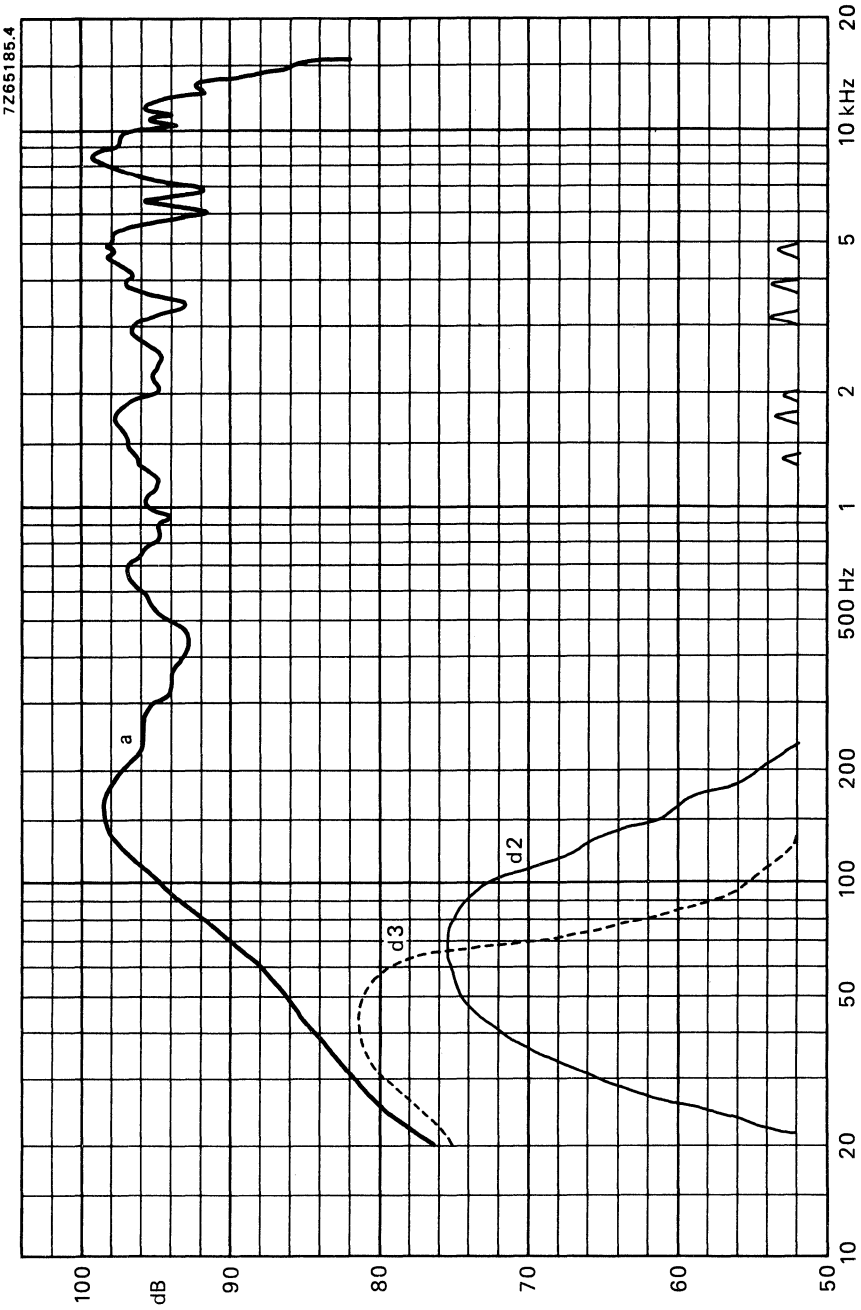


Fig. 2.

## 7 inch LOW POWER LOUDSPEAKER

### APPLICATION

Round loudspeaker for audio and video applications. AD70740 has a screened magnet system.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8 $\Omega$
Rated frequency range	70 to 13 000			Hz
Resonance frequency	100			Hz
Power handling capacity, measured without filter, loudspeaker unmounted	5			W
Operating power (sound level 90 dB, 1 m)	400			mW
Sweep voltage (100 to 20 000 Hz)	2,4	3,5	4,7	6,1 V
Filter	none			
Energy in air gap	12,7			mJ
Flux density	0,74			T
Air-gap height	2,5			mm
Voice coil height	2,7	2,2	3,0	3,6 mm
Core diameter	10			mm
Magnet material	ceramic			
→ square	28,5			mm
mass	18			g
Mass of loudspeaker	106			g

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeaker has a plastic frame and a paper cone.

Dimensions in mm

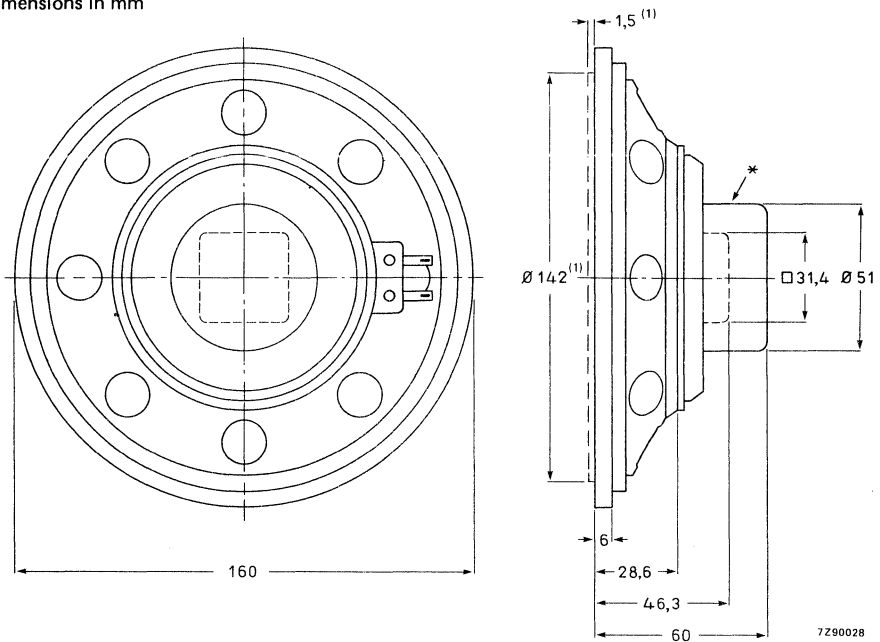


Fig. 1.

\* Screening for AD70740/X only.

(1) Recommended baffle opening ( $\phi 142$  mm) and clearance depth (1,5 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- |             |                                 |   |
|-------------|---------------------------------|---|
| AD70720/X4  | catalogue number 2403 257 27121 | } |
| AD70720/X8  | catalogue number 2403 257 27122 |   |
| AD70720/X15 | catalogue number 2403 257 27123 |   |
| AD70720/X25 | catalogue number 2403 257 27124 |   |
| AD70740/X4  | catalogue number 2403 257 27221 | } |
| AD70740/X8  | catalogue number 2403 257 27222 |   |
| AD70740/X15 | catalogue number 2403 257 27223 |   |
| AD70740/X25 | catalogue number 2403 257 27224 |   |

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

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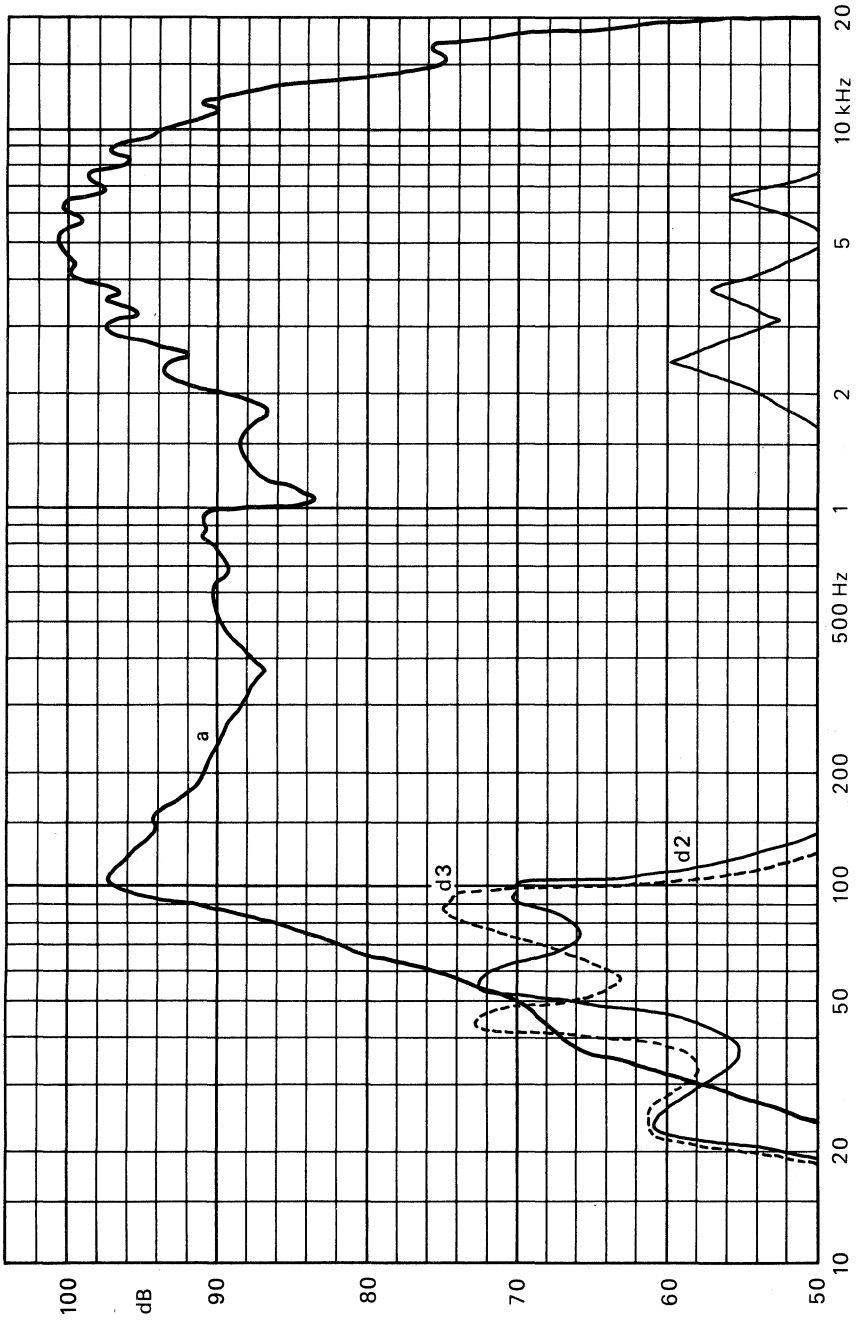


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD70725/X.  
AD70745/X.

## 7 inch LOW POWER LOUDSPEAKERS

### APPLICATION

Round loudspeaker for audio and video applications. AD70745 has a screened magnet system.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8 $\Omega$
Rated frequency range	70 to 13 000			Hz
Resonance frequency	100			Hz
Power handling capacity, measured without filter, loudspeaker unmounted	5			W
Maximum power on loudspeaker	7			W
Operating power (sound level 90 dB, 0,5 m)	400			mW
Sweep voltage (100 to 20 000 Hz)	2,4	3,5	4,7	6,1 V
Filter	none			
Energy in air gap	12,7			mJ
Flux density	0,74			T
Air-gap height	2,5			mm
Voice coil height	2,7	2,2	3,0	3,6 mm
Core diameter	10			mm
Magnet material	ceramic			
square	28,5			mm ←
mass	18			g
Mass of loudspeaker				
AD70725	100			g
AD70745	120			g

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

The loudspeaker has a plastic frame and a paper cone.



AD70725/X.  
AD70745/X.

Dimensions in mm

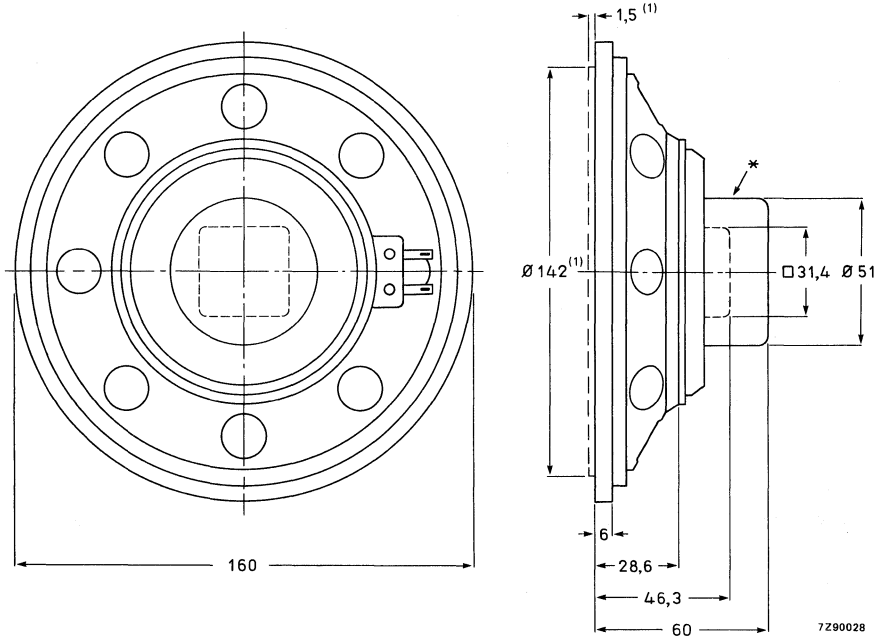


Fig. 1.

\* Screening for AD70745/X only.

(1) Recommended baffle opening ( $\phi$  142 mm) and clearance depth (1,5 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD70725/X4 catalogue number 2403 257 57121
- AD70725/X8 catalogue number 2403 257 57122
- AD70725/X15 catalogue number 2403 257 57123
- AD70725/X25 catalogue number 2403 257 57124
  
- AD70745/X4 catalogue number 2403 257 57221
- AD70745/X8 catalogue number 2403 257 57222
- AD70745/X15 catalogue number 2403 257 57223
- AD70745/X25 catalogue number 2403 257 57224

These numbers are for bulk-packed loudspeakers

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

DEVELOPMENT SAMPLE DATA

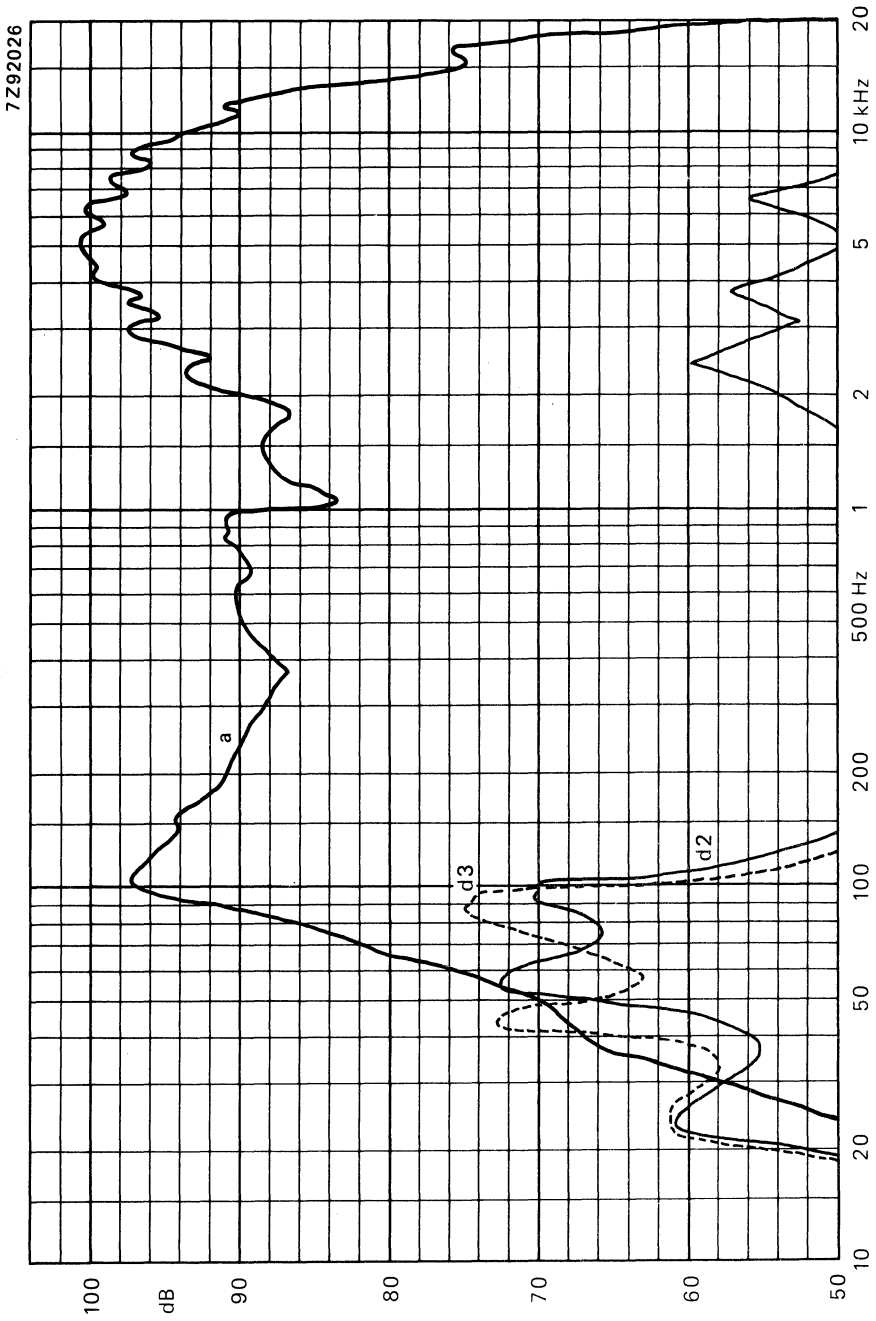


Fig. 2.

## 7 inch OCTAGONAL HIGH POWER LOUDSPEAKER

## APPLICATION

A full range loudspeaker for all audio applications.

## TECHNICAL DATA

	version			
	X4	X8	M4	M8
Rated impedance	4	8	4	8 $\Omega$
Voice coil resistance	3,4	7	3,4	7 $\Omega$
Rated frequency range	50 to 10 000		60 to 16 000 Hz	
Resonance frequency	105		100	105 Hz
Power handling capacity, measured without filter, loudspeaker unmounted	12		13	W ←
Operating power (sound level 90 dB, 1 m)	0,7		0,75	0,65 W ←
Sweep voltage (50 to 20 000 Hz)	4,9	6,9	5,1	7,2 V ←
Energy in air gap	53		53	mJ
Flux density	0,98		0,98	T
Air-gap height	3		3	mm
Voice coil height	3,9	4,5	3,9	4,5 mm
Core diameter	18		18	mm
Magnet material	ceramic			
diameter	53		53	mm
mass	0,1		0,1	kg
Mass of loudspeaker	0,3		0,3	kg

The loudspeaker has a paper cone and a treated rim. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

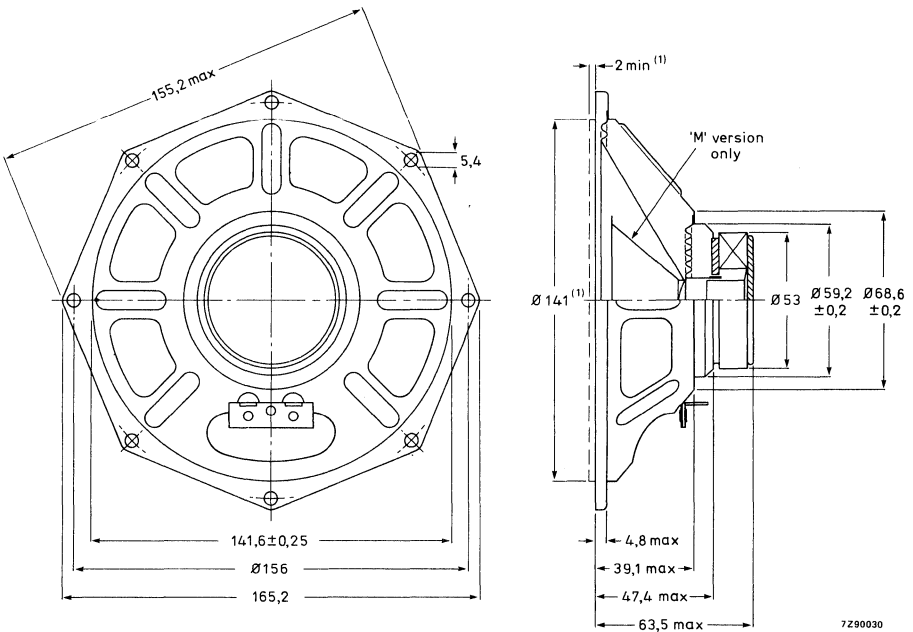


Fig. 1.

(1) Recommended baffle opening ( $\varnothing 141$  mm) and clearance depth (2 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

#### AVAILABLE VERSIONS

AD70800/X4	catalogue number 2422 257 47421
AD70800/X8	catalogue number 2422 257 47422
AD70800/M4	catalogue number 2422 257 47425
AD70800/M8	catalogue number 2422 257 47426

These numbers are for bulk-packed loudspeakers.

#### FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

7Z92028

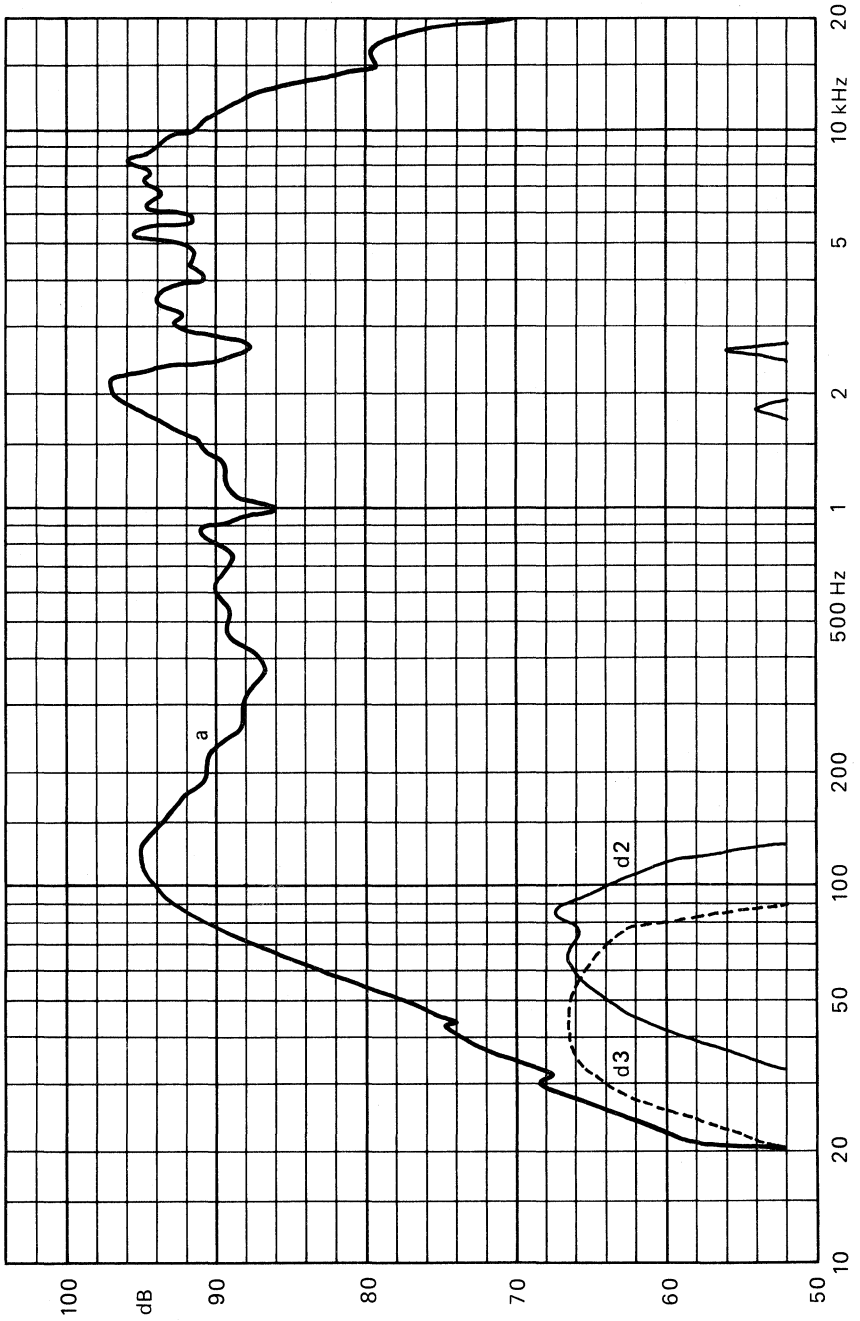


Fig. 2a AD70800/M.

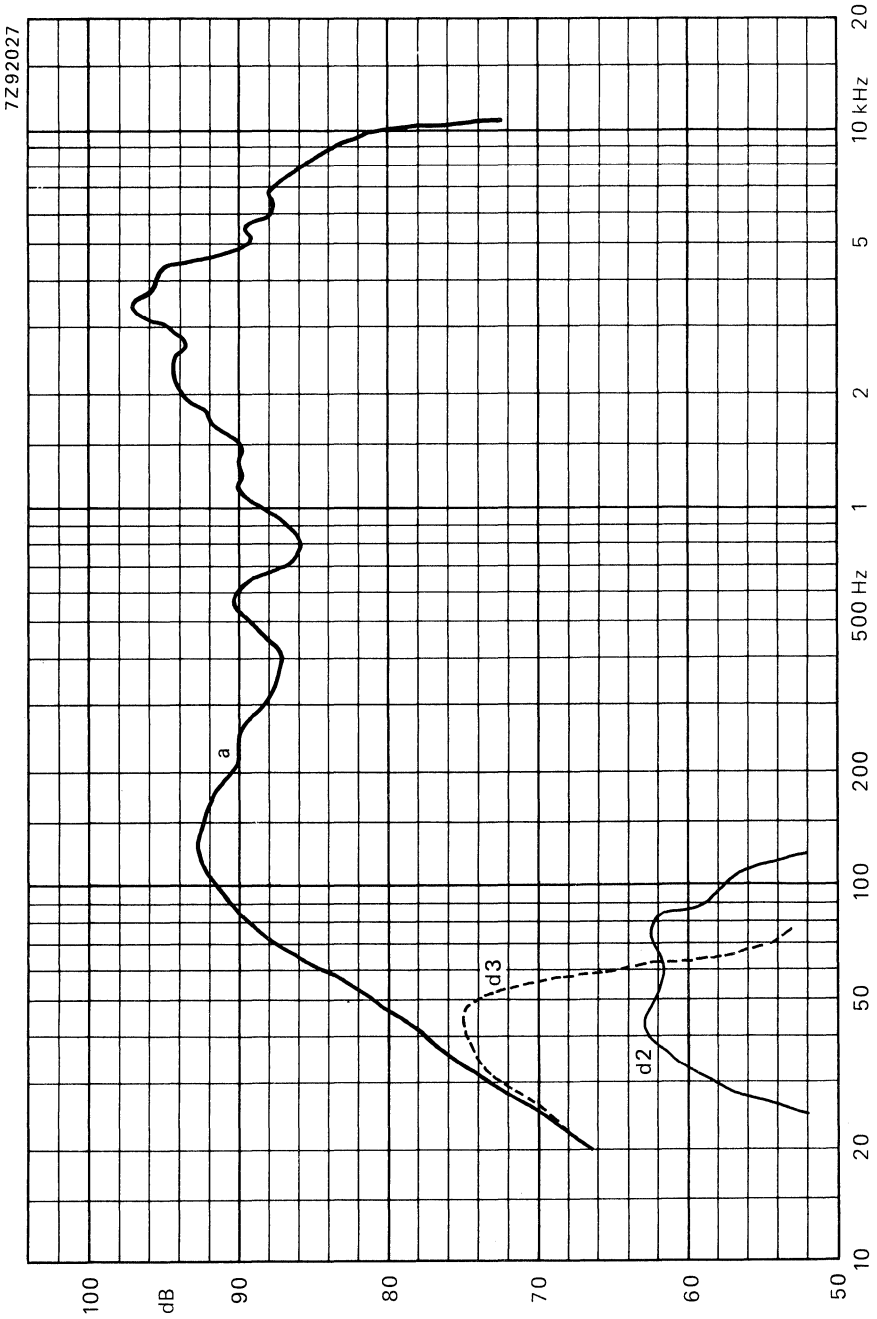


Fig. 2b AD70800/X.

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

## 7 inch WOOFER LOUDSPEAKER

economic version

- frame: zinc plated steel, yellow
- cone: paper, black
- surround: treated paper
- gaskets: foam, grey
- magnetic compensation: none
- recommended enclosure: 15 l

## TECHNICAL DATA

	version	
	W4	W8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,4	6,9 $\Omega$
Rated frequency range	8000	Hz
Resonance frequency	86	Hz
Power handling capacity, measured without filter, loudspeaker unmounted	20	W
Maximum power on loudspeaker	35	W
Operating power (sound level 96 dB, 1 m)	8	W
Sweep voltage (20 to 20 000 Hz)	3,9	5,5 W
Filter	none	
Characteristic sensitivity	to be fixed	dB
Energy in air gap	53	mJ
Flux density	0,98	T
Force factor (Bxl) at 1A	2,63	2,9 Wb/m
Piston diameter	$125 \times 10^{-3}$	m
Piston area	$12,3 \times 10^{-3}$	m <sup>2</sup>
Total moving mass	$6,3 \times 10^{-3}$	kg
Compliance, loudspeaker unmounted	$0,6 \times 10^{-3}$	m/N
Equivalent boxvolume	10,9	l
Quality factor, loudspeaker mounted in recommended volume		
mechanical, $Q_M$	4,2	4,2
electrical, $Q_E$	2,0	3,4
total, $Q_T$	1,35	1,9
Air-gap height	3	mm
Air-gap length	0,845	mm
Voice coil height	6,5	mm
Rated coil diameter	18	mm
Magnet material	ceramic	
diameter	72	mm
mass	0,1	kg
Mass of loudspeaker	0,3	kg

Connection is by 2,8 mm x 0,5 mm tag connectors or by soldering.

DEVELOPMENT SAMPLE DATA

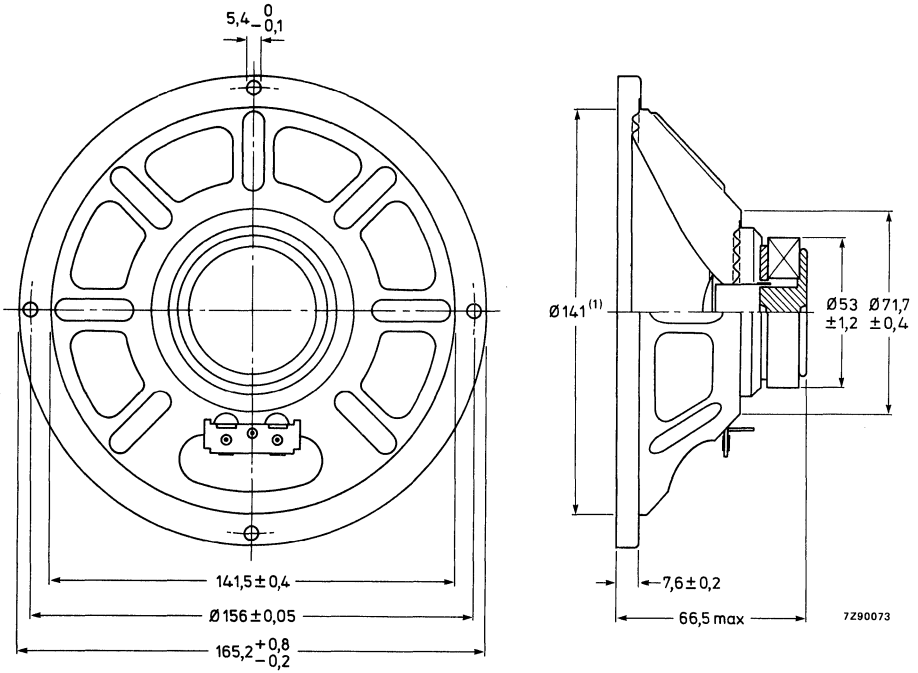


Fig. 1.

(1) Recommended baffle opening  $\varnothing 141 \text{ mm}$ .

One tag has a red mark on the + side to facilitate phase matching.

**AVAILABLE VERSIONS**

AD70804/W4 catalogue number 2422 257 27921 }  
 AD70804/W8 catalogue number 2422 257 27922 } These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.



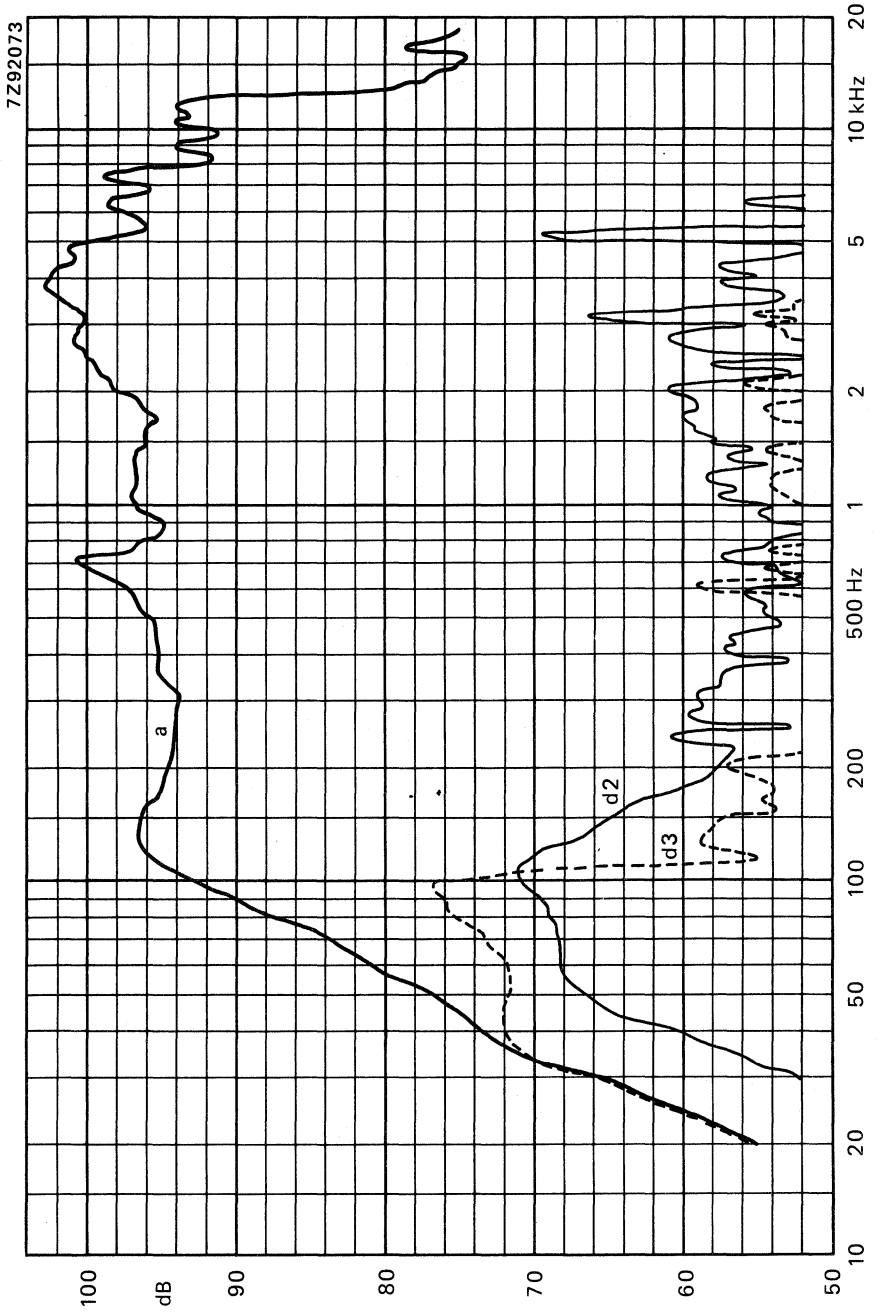


Fig. 2.

## 7 inch OCTAGONAL MEDIUM POWER LOUDSPEAKER

### APPLICATION

A full range loudspeaker for all audio applications.

### TECHNICAL DATA

	version			
	X4	X8	M4	M8
Rated impedance	4	8	4	8 $\Omega$
Voice coil resistance	3,4	7	3,4	7 $\Omega$
Rated frequency range	16 to 15 000		60 to 20 000 Hz	
Resonance frequency	105			Hz
Power handling capacity, measured without filter, loudspeaker unmounted	7			W
Operating power (sound level 90 dB, 1 m)	0,65	0,6	0,75	0,65 W
Sweep voltage (50 to 20 000 Hz)	3,8	5,3	3,8	5,3 V
Energy in air gap	38			mJ
Flux density	1,1			T
Air-gap height	2,5			mm
Voice coil height	4	4,3	4	4,3 mm
Core diameter	14,5			mm
Magnet material	ceramic			
diameter	45			mm
mass	0,05			kg
Mass of loudspeaker	0,217			kg

The loudspeaker has a paper cone. Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

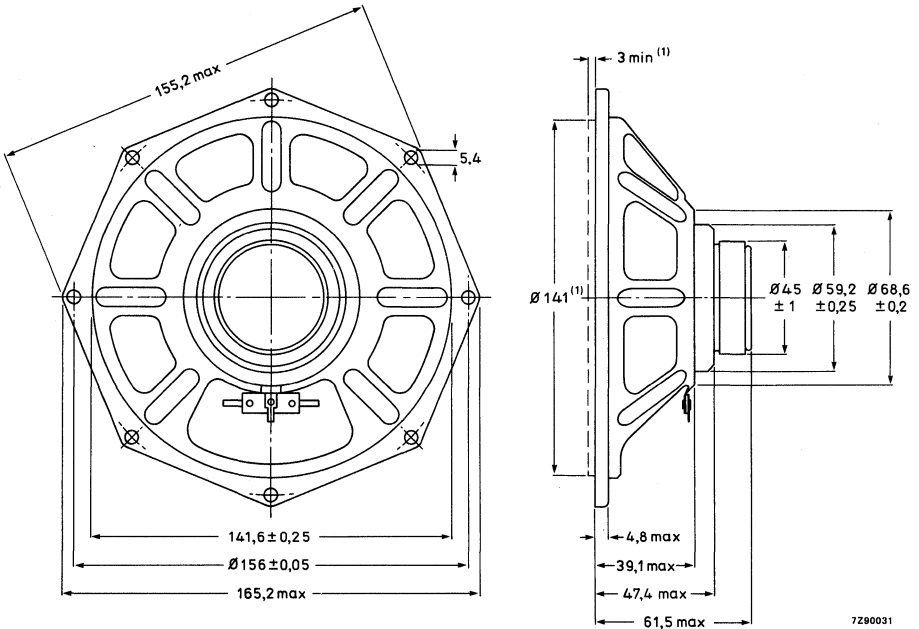


Fig. 1.

(1) Recommended baffle opening ( $\phi$  141 mm) and clearance depth (3 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD70850/X4 catalogue number 2422 257 47321
- AD70850/X8 catalogue number 2422 257 47322
- AD70850/M4 catalogue number 2422 257 47331
- AD70850/M8 catalogue number 2422 257 47332

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

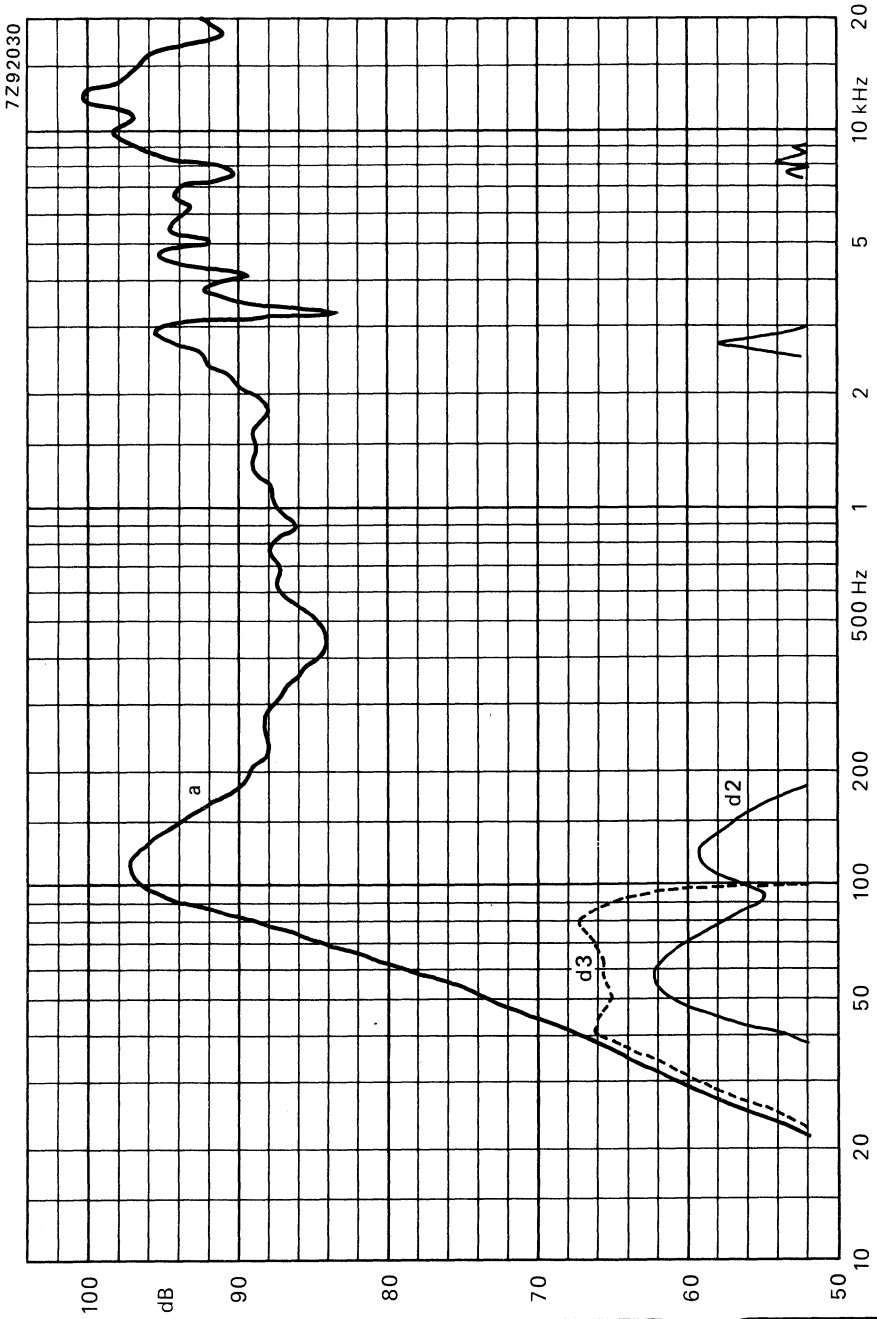


Fig. 2a AD70850/M.

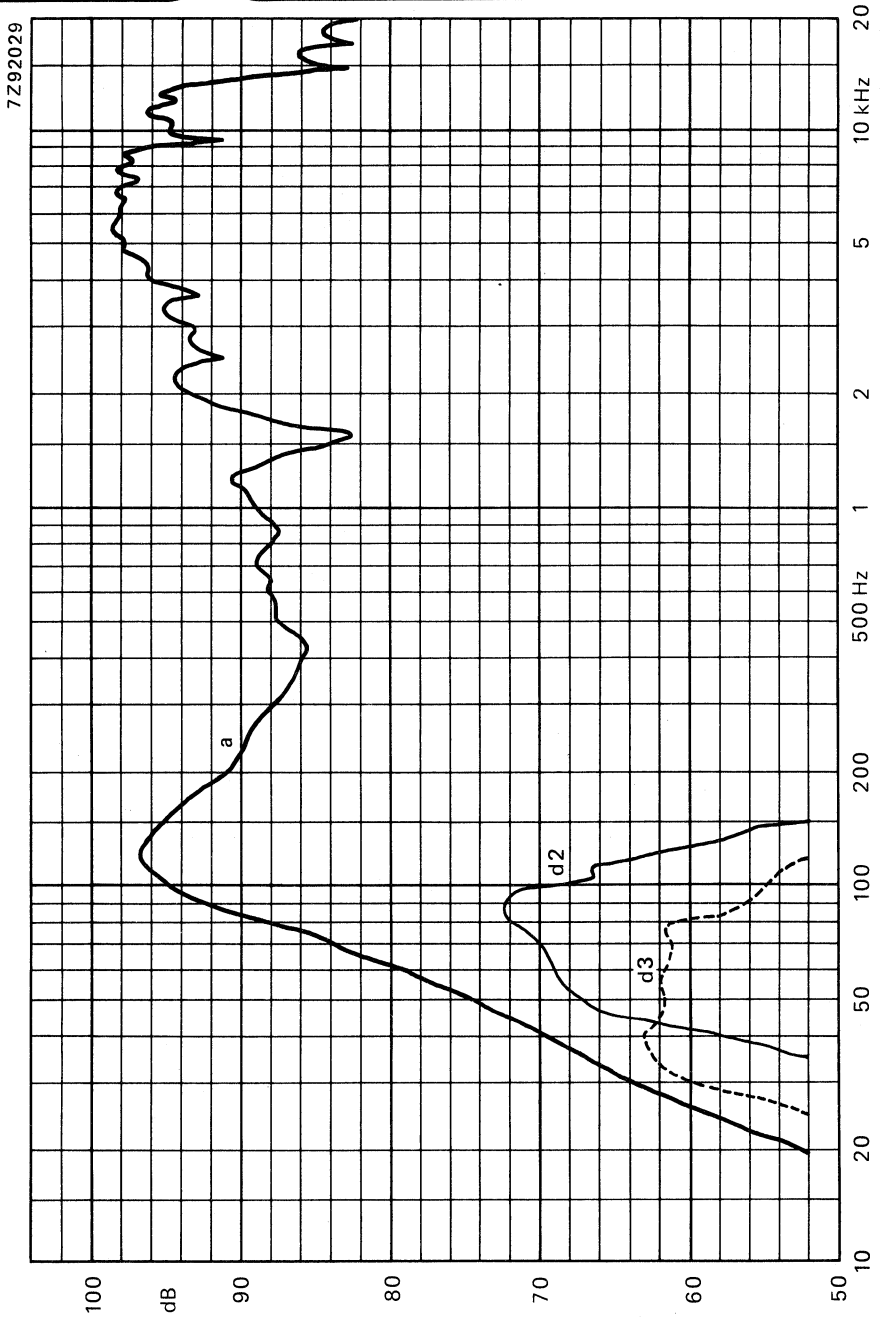


Fig. 2b AD70850/X.

## 7 inch LOW POWER LOUDSPEAKERS

### APPLICATION

Round loudspeaker with 4 mounting lugs for audio and video applications. AD77740 has a screened magnet system.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8 $\Omega$
Rated frequency range	70 to 13 000			Hz
Resonance frequency	100			Hz
Power handling capacity, measured without filter, loudspeaker unmounted	5			W
Operating power (sound level 90 dB, 1 m)	400			mW
Sweep voltage (100 to 20 000 Hz)	2,4	3,5	4,7	6,1 V
Filter	none			
Energy in air gap	12,7			mJ
Flux density	0,74			T
Air-gap height	2,5			mm
Voice coil height	2,7	2,2	3,0	3,6 mm
Core diameter	10			mm
Magnet material	ceramic			
square	28,5			mm
mass	18			g
Mass of loudspeaker	106			g

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeaker has a plastic frame and a paper cone.

AD77720/X.  
AD77740/X.

Dimensions in mm

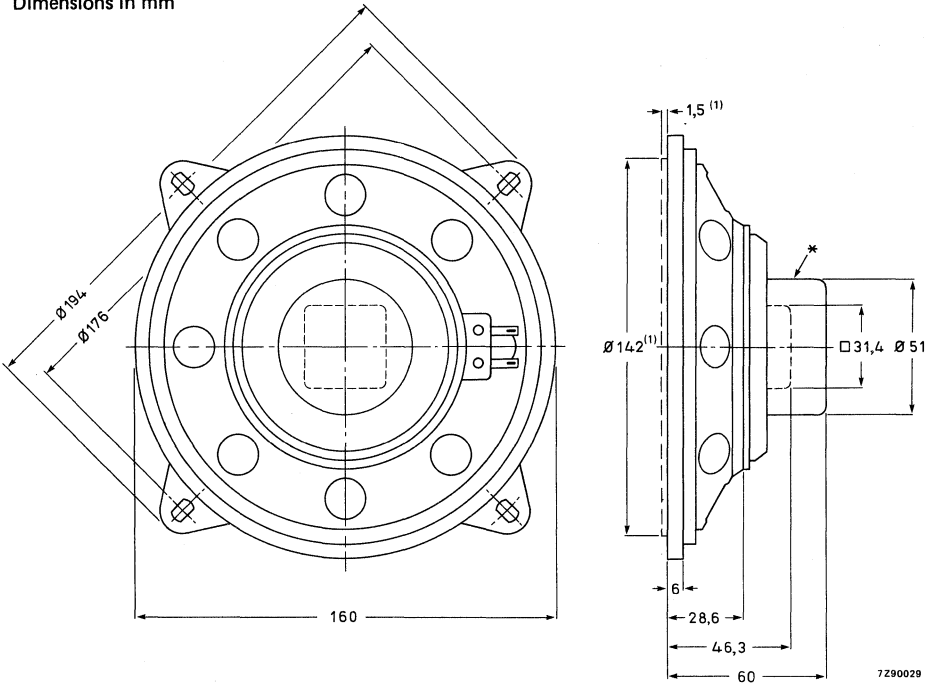


Fig. 1.

(1) Recommended baffle opening ( $\phi 142$  mm) and clearance depth (1,5 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD77720/X4 catalogue number 2403 257 27921
- AD77720/X8 catalogue number 2403 257 27922
- AD77720/X15 catalogue number 2403 257 27923
- AD77720/X25 catalogue number 2403 257 27924
- AD77740/X4 catalogue number 2403 257 27821
- AD77740/X8 catalogue number 2403 257 27822
- AD77740/X15 catalogue number 2403 257 27823
- AD77740/X25 catalogue number 2403 257 27824

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

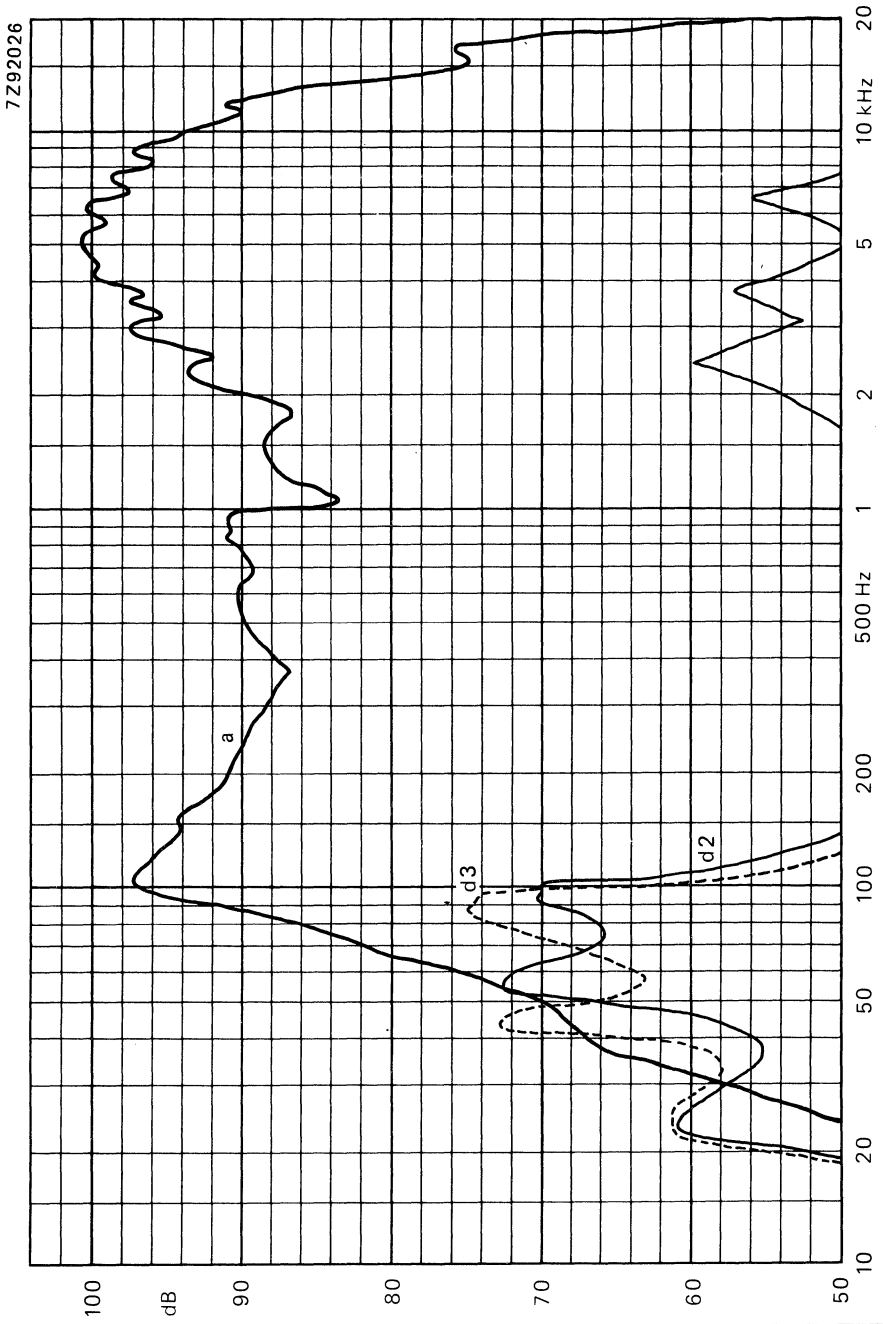


Fig. 2.



AD77725/X.  
AD77745/X.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

# 7 inch LOW POWER LOUDSPEAKERS

### APPLICATION

Round loudspeaker with 4 mounting lugs for audio and video applications. AD77745 has a screened magnet system.

### TECHNICAL DATA

	version			
	X4	X8	X15	X25
Rated impedance	4	8	15	25 $\Omega$
Voice coil resistance	3,5	7,1	13,7	22,8 $\Omega$
Rated frequency range	70 to 13 000			Hz
Resonance frequency	100			Hz
Power handling capacity, measured without filter, loudspeaker unmounted	5			W
Maximum power on loudspeaker	7			W
Operating power (sound level 90 dB, 0,5 m)	400			mW
Sweep voltage (100 to 20 000 Hz)	2,4	3,5	4,7	6,1 V
Filter	none			
Energy in air gap	12,7			mJ
Flux density	0,74			T
Air-gap height	2,5			mm
Voice coil height	2,7	2,2	3,0	3,6 mm
Core diameter	10			mm
Magnet material	ceramic			
square	28,5			mm
mass	18			g
Mass of loudspeaker				
AD77725	100			g
AD77745	120			g

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

The loudspeaker has a plastic frame and a paper cone.

Dimensions in mm

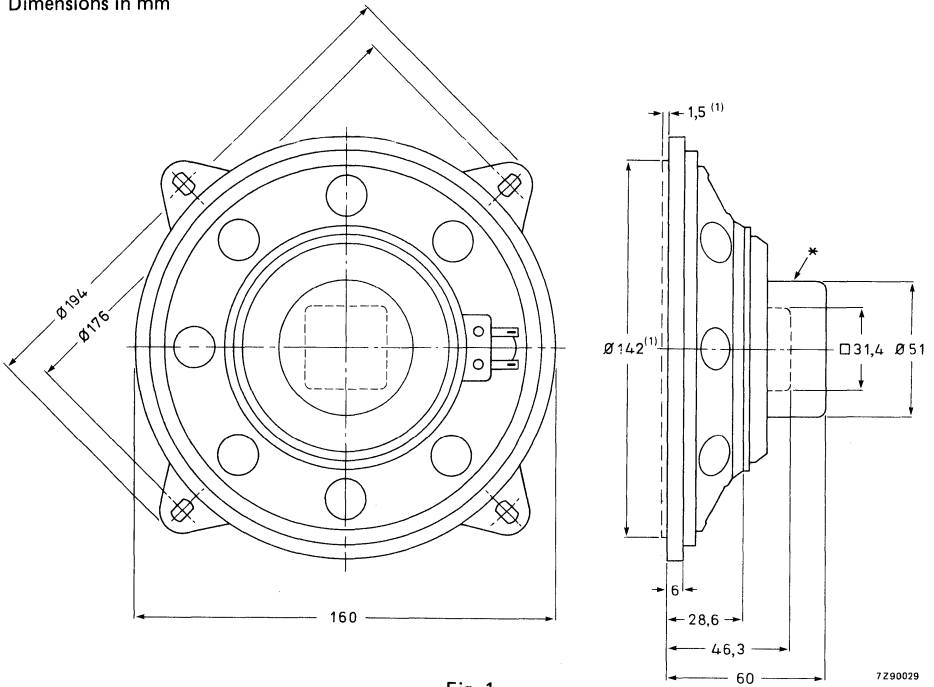


Fig. 1.

\* Screening for AD77745 only.

(1) Recommended baffle opening ( $\phi$  142 mm) and clearance depth (1,5 mm) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

- AD77725/X4 catalogue number 2403 257 57921
- AD77725/X8 catalogue number 2403 257 57922
- AD77725/X15 catalogue number 2403 257 57923
- AD77725/X25 catalogue number 2403 257 57924
  
- AD77745/X4 catalogue number 2403 257 57821
- AD77745/X8 catalogue number 2403 257 57822
- AD77745/X15 catalogue number 2403 257 57823
- AD77745/X25 catalogue number 2403 257 57824

These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

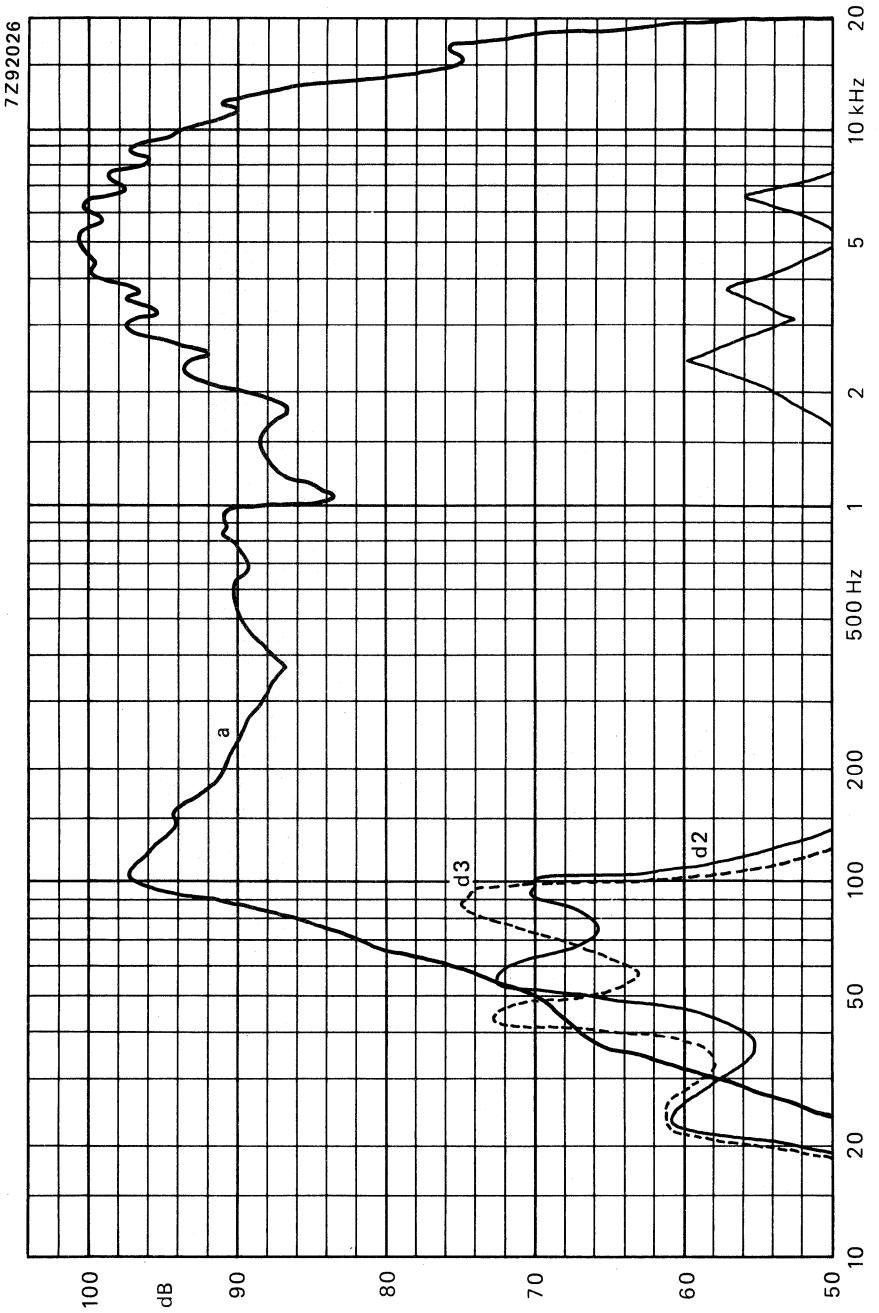


Fig. 2.

## 8 inch HIGH POWER WOOFER LOUDSPEAKER

## TECHNICAL DATA

	version	
	W6	W8
Rated impedance	6	8 $\Omega$
Voice coil resistance	5,1	6 $\Omega$
Rated frequency range	20 to 2000 Hz	
Resonance frequency	40 Hz	
Power handling capacity, measured without filter, loudspeaker mounted in 25 l sealed box	60	W
Maximum power on loudspeaker	120	W
Operating power (sound level 96 dB, 1 m)	3,2	W
Sweep voltage (20 to 2000 Hz)	7,5	9 V
Filter	none	
Energy in air gap	435	mJ
Flux density	0,89	T
Force factor (b x l) at 1 A	8,8	9 Wb/m
Total moving mass	15,5	16,5 g
Compliance, loudspeaker unmounted	1,05	1,03 mm/N
Air-gap height	9	mm
Voice coil height	13	16 mm
Core diameter	35	mm
Magnet material	ceramic	
diameter	102	mm
mass	0,58	kg
Mass of loudspeaker	1,8	kg

Connection is by 2,8 mm (0,11 inch) or by 5,1 mm (0,2 inch) tag connectors or by soldering. The loudspeaker has a paper cone and a foam plastic surround.

Dimensions in mm

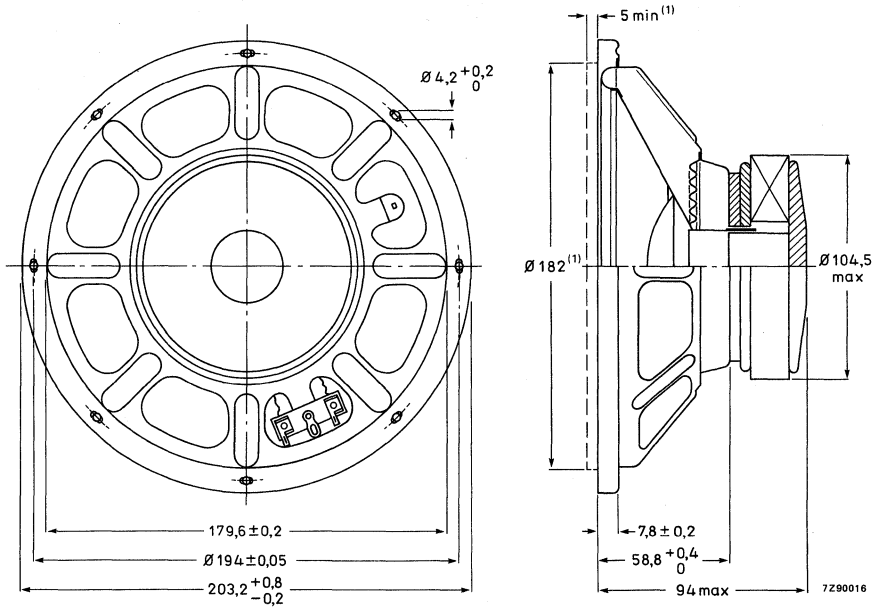


Fig. 1.

(1) Recommended baffle hole ( $\phi 182$  mm) and clearance depth (5 mm) are required for cone movement at the specified power handling capacity. Recommended box enclosure: 25 l. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD80110/W6 catalogue number 2422 257 48824

AD80110/W8 catalogue number 2422 257 48822

} These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted in a sealed 25 l enclosure.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

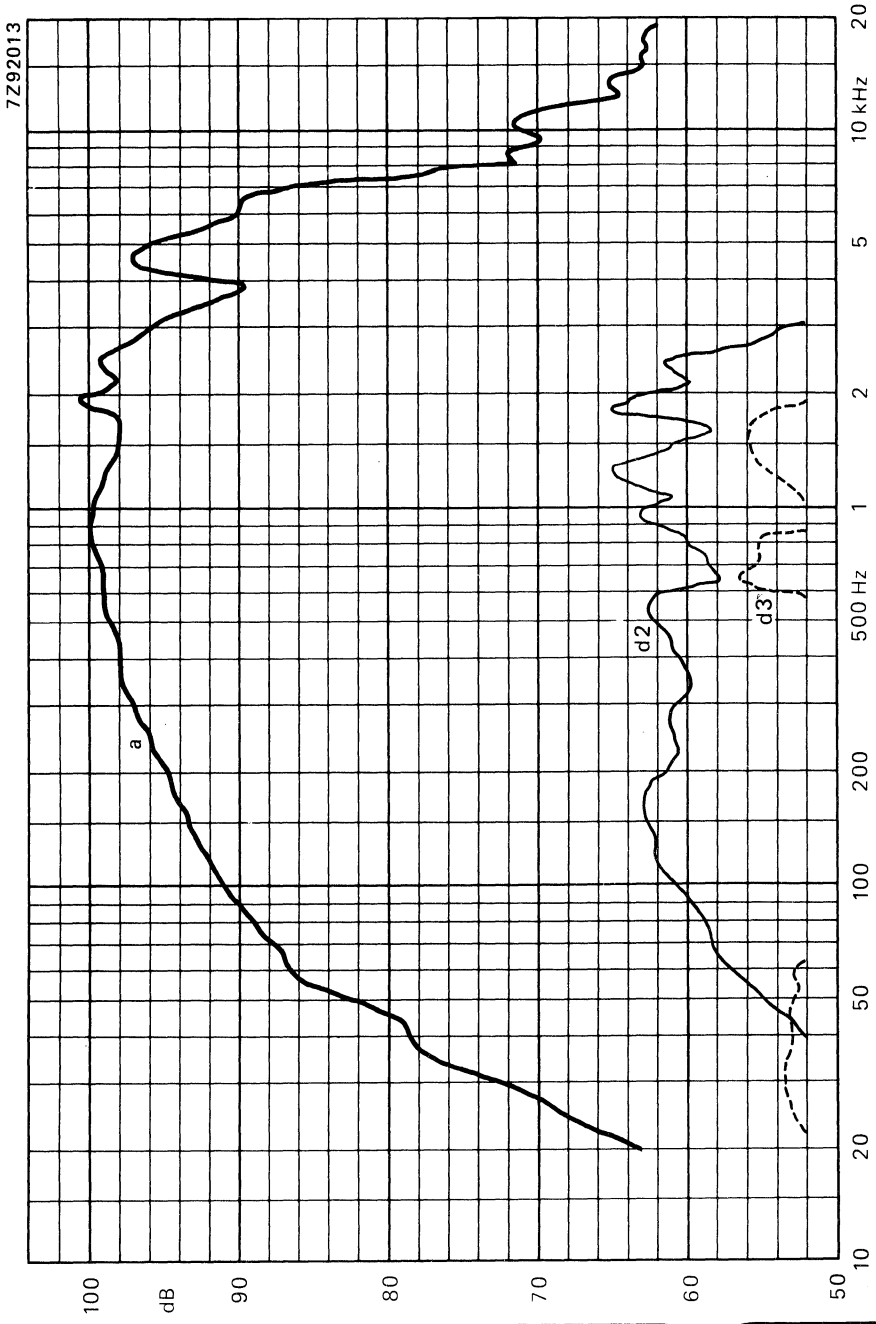


Fig. 2.

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

## 8 inch FLAT DIAPHRAGM WOOFER LOUDSPEAKER

### TECHNICAL DATA

Rated impedance	8 $\Omega$
Voice coil resistance	6 $\Omega$
Rated frequency range	20 to 600 Hz
Resonance frequency	50 Hz
Power handling capacity, loudspeaker unmounted	50 W
Max. power on loudspeaker	100 W
Operating power (sound level 96 dB, 1 m)	8 W
Sweep voltage (20 to 3500 Hz)	8 V
Filter	none
Energy in air gap	305 mJ
Flux density	1 T
Force factor (B x l) at 1 A	6,1 Wb/m
Total moving mass, loudspeaker mounted	20 g
Compliance, loudspeaker unmounted	0,54 mm/N
Air-gap height	5 mm
Air-gap length	1,55 mm
Voice coil height	9 mm
Coil diameter	35 mm
Piston diameter	0,16 m
Piston area	200.10 <sup>-4</sup> m <sup>2</sup>
Magnet material	ceramic
diameter	102 mm
mass	0,58 kg
Mass of loudspeaker	1,5 kg
Equivalent box volume	26 l
Recommended box volume	25 l
Rim material	rubber

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

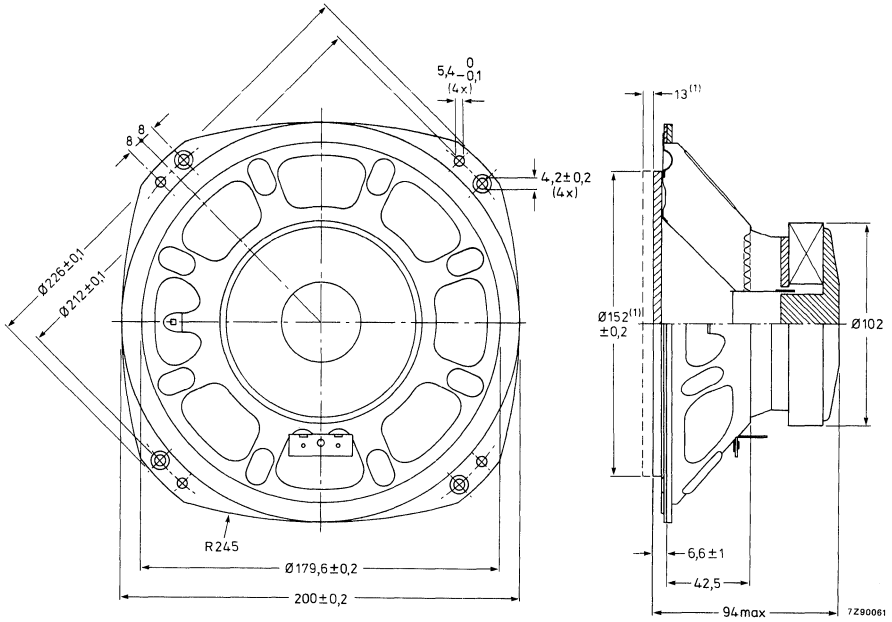


Fig. 1.

(1) Recommended baffle opening ( $\phi$  152 mm) and mounting clearance (13 mm) are required for cone movement at the specified power handling capacity.

One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSION**

AD80111/W8 catalogue number 2422 257 48826 This number is for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted in recommended box volume.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

DEVELOPMENT SAMPLE DATA



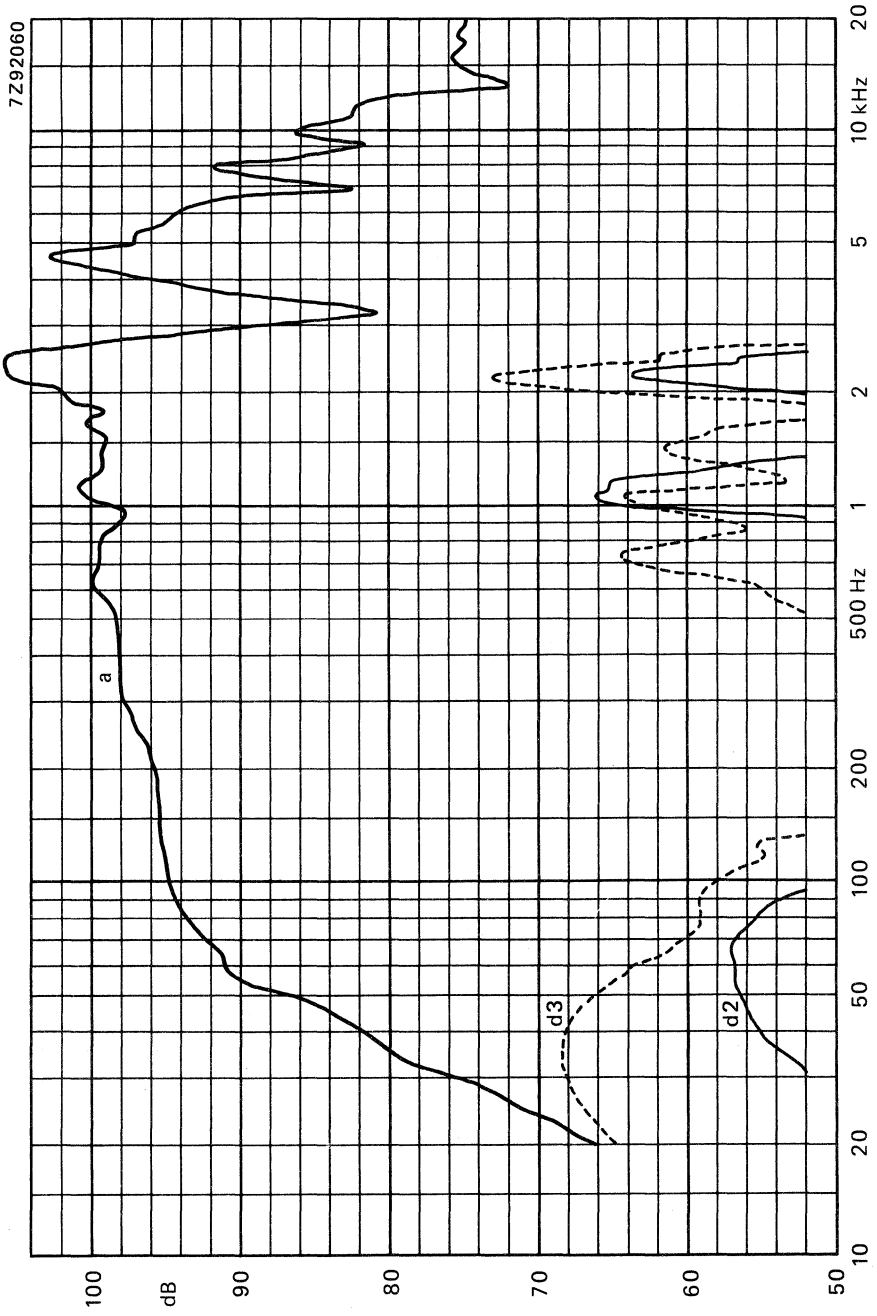


Fig. 2.

## DEVELOPMENT SAMPLE DATA

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

AD80400/W8

## 8 INCH WOOFER LOUDSPEAKER

with smooth roll-off

- frame: octagonal, zinc plated, yellow
- cone: paper black
- surround: textile
- gaskets: foam
- magnetical compensation: none
- recommended enclosure: 25 l

### TECHNICAL DATA

Rated impedance	8 $\Omega$
Voice coil resistance	13,3 $\Omega$
Rated frequency range	60 to 8000 Hz
Resonance frequency	62 Hz
Power handling capacity (1 min. on, 2 min. out: 300 h)	40 W
Maximum power on loudspeaker	70 W
Operating power (sound level 96 dB, 1 m)	9,2 W
Sweep voltage (20 to 4000 Hz)	9 V
Filter	none
Characteristic sensitivity	t.b.a. dB
Energy in air gap	80,3 mJ
Flux density	0,85 T
Force factor (B x l) at 1 A	6,3 Wb/m
Piston diameter	160 x 10 <sup>-3</sup> m
Piston area	20 x 10 <sup>-3</sup> m <sup>2</sup>
Total moving mass	10,45 x 10 <sup>-3</sup> kg
Compliance, loudspeaker unmounted	0,71 x 10 <sup>-3</sup> m/N
Equivalent box volume	34 l
Quality factor, loudspeaker unmounted	
Q mechanical	4,9
Q electrical	1,20
Q total	0,96
Air-gap height	3 mm
Air-gap length	1,525 mm
Voice coil height	3 mm
Coil diameter	18 mm
Magnet material	ceramic
diameter	60 mm ←
mass	0,15 kg
Mass of loudspeaker	0,47 kg
Connection is by 2,8 mm x 0,5 mm tag connectors or by soldering.	

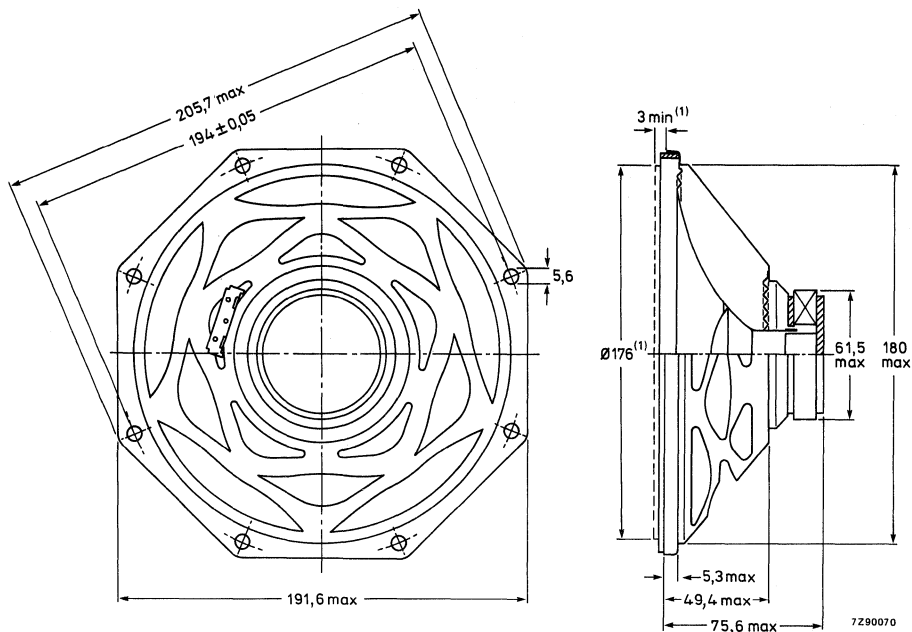


Fig. 1.

Recommended baffle opening ( $\phi$  176 mm) and mounting clearance (3 mm) are required for cone movement at the specified power handling capacity. One tag (+ side) has a red mark to facilitate phase matching.

#### AVAILABLE VERSION

AD80400/W8 catalogue number 2422 257 28222 This number is for bulk-packed loudspeakers.

#### FREQUENCY RESPONSE CURVES (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure

Curves d2 and d3: 2nd and 3rd harmonic distortion.

DEVELOPMENT SAMPLE DATA

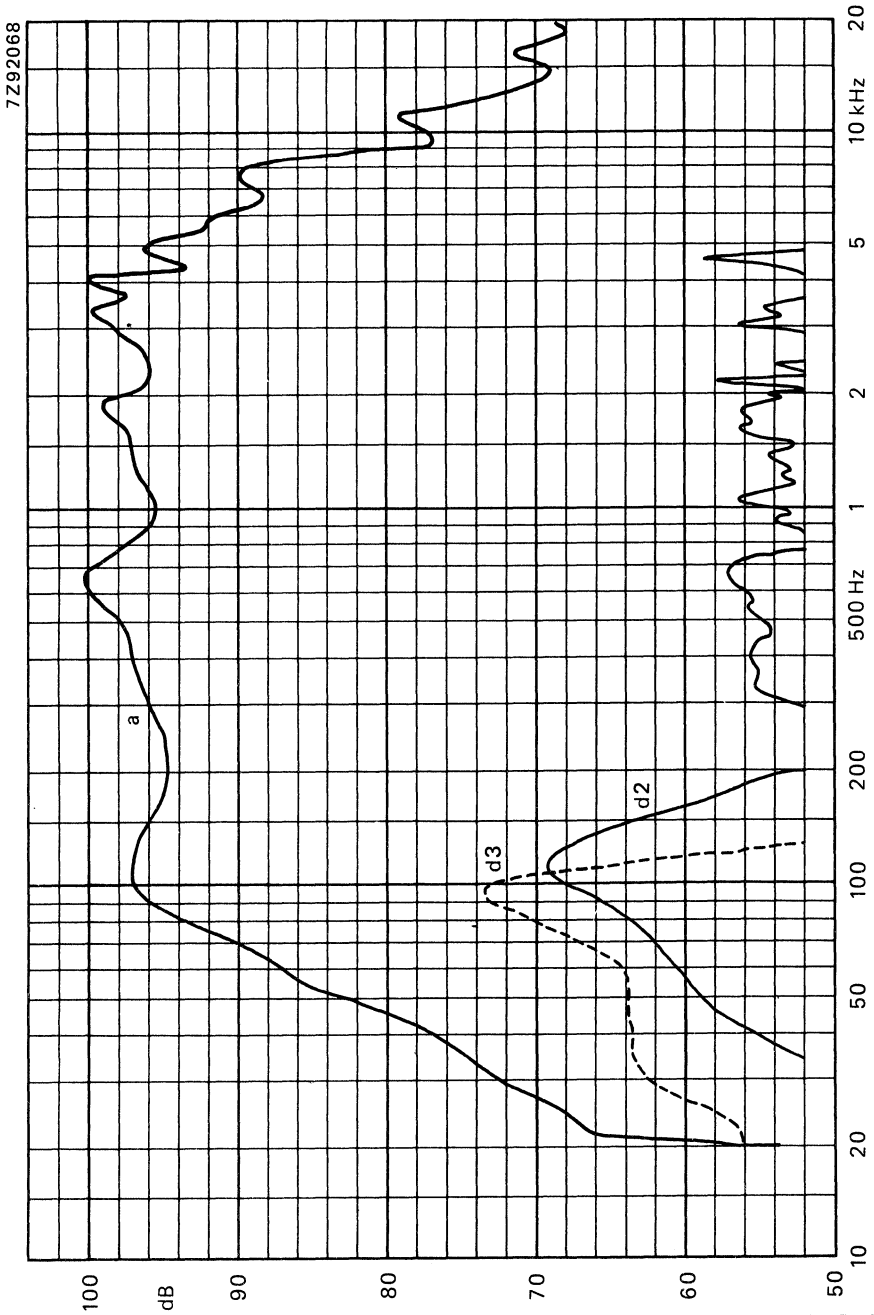


Fig. 2.

## 8 inch HIGH POWER WOOFER LOUDSPEAKER

## APPLICATION

For hi-fi enclosures, recommended box volume 25 l.

## TECHNICAL DATA

Rated impedance	8 $\Omega$
Voice coil resistance	6,8 $\Omega$
Rated frequency range	45 to 7000 Hz
Resonance frequency	50 Hz
Power handling capacity, measured without filter, loudspeaker unmounted	35 W
Maximum power on loudspeaker	70 W
Operating power (sound level 96 dB, 1 m)	7 W
Sweep voltage (20 to 4000 Hz)	7,5 V
Filter	none
Energy in air gap	81,7 mJ
Flux density	0,55 T
Force factor (b x l) at 1 A	4,2 Wb/m
Total moving mass, loudspeaker mounted	13,4 g
Compliance, loudspeaker unmounted	0,83 mm/N
Air-gap height	5 mm
Voice coil height	7 mm
Coil diameter	25 mm
Magnet material	ceramic
diameter	60 mm
mass	100 g
Mass of loudspeaker	680 g

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeaker has a paper cone and a foam rim.

Dimensions in mm

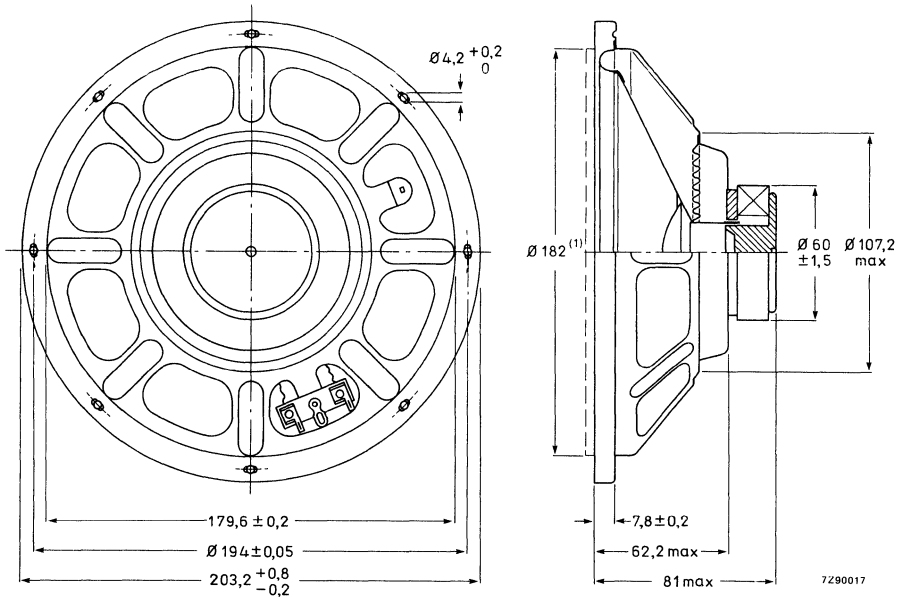


Fig. 1.

(1) Recommended baffle hole ( $\varnothing 182 \text{ mm}$ ) and clearance depth ( $5 \text{ mm}$ ) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSION**

AD80405/W8 catalogue number 2422 257 28122. This number is for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

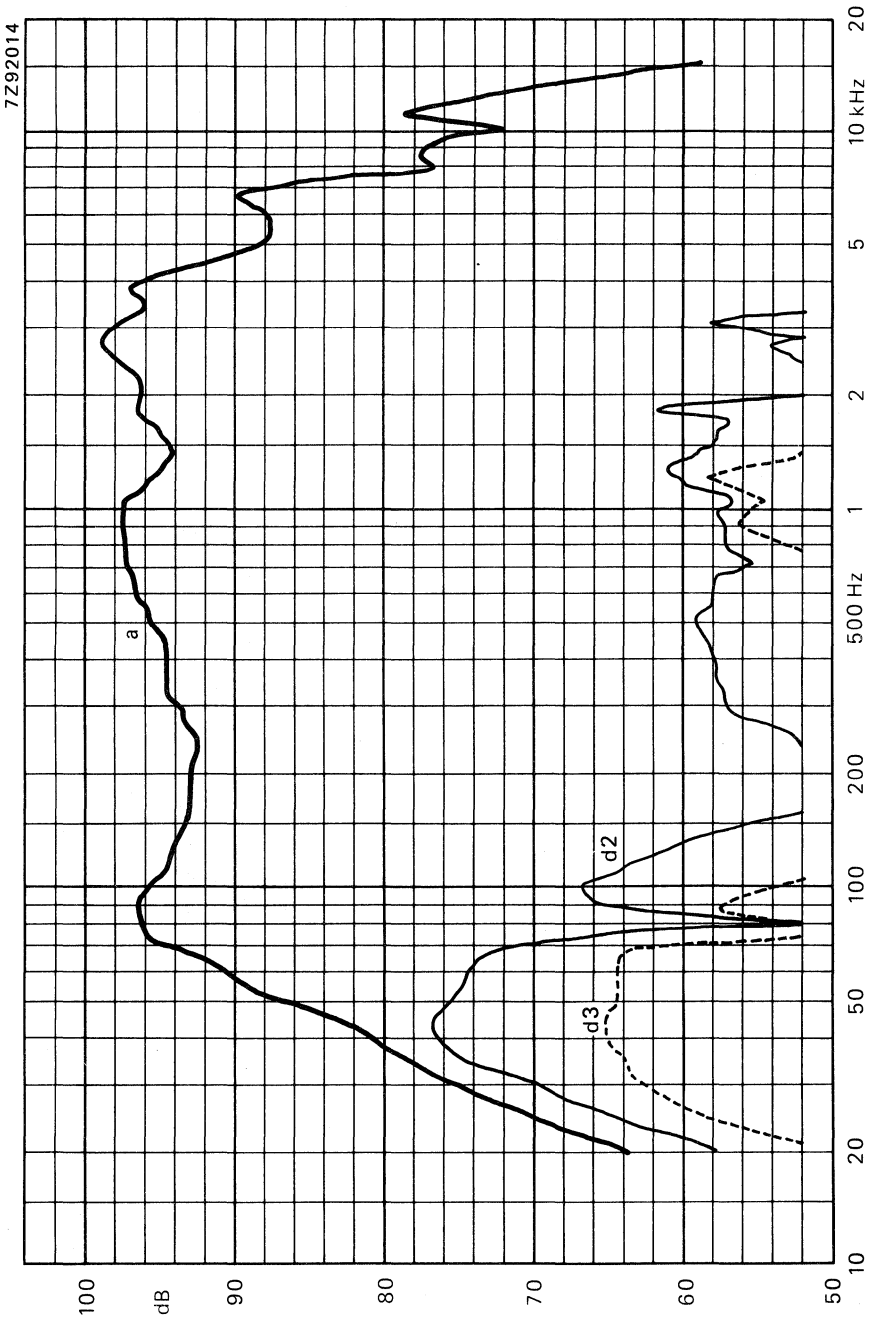


Fig. 2.

## 8 INCH HIGH POWER WOOFER LOUDSPEAKERS

### APPLICATION

For high-fidelity reproduction in sealed acoustic enclosures. Maximum enclosure volume 25 litres.  
Maximum recommended crossover frequency 2000 Hz.

### TECHNICAL DATA

	version	
	W4	W8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,6	7 $\Omega$
Rated frequency range	50 to 2000 Hz	
Resonance frequency	42	Hz
Power handling capacity, measured without filter, mounted in 25 l sealed enclosure	50	W
Maximum power on loudspeaker	100	W
Operating power	5	W
Sweep voltage (frequency range 35 to 3000 Hz)	5	6,3 V
Maximum excursion voltage at 20 Hz	7	V
Characteristic sensitivity	to be established *	
Energy in air gap	135	mJ
Flux density	0,87	T
Force factor (B x l) at 1 A	4	5,5 Wb/m
Total moving mass	14	g
Compliance, loudspeaker unmounted	1,12	mm/N
Air-gap height	5	mm
Voice coil height	10	mm
Core diameter	25	mm
Magnet material	ceramic	
diameter	72	mm
mass	0,26	kg
Mass of loudspeaker	0,8	kg

The loudspeaker has a polyester surround. Connection to the loudspeaker by means of 5,1 mm (0,2 inch) or 2,8 mm (0,11 inch) tag connectors or by soldering.



Dimensions in mm

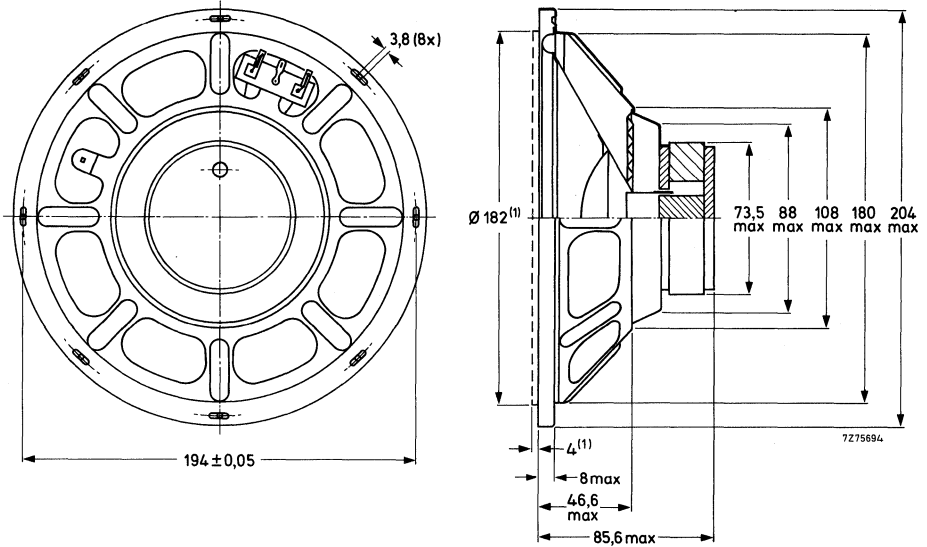


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by a red mark for in-phase connection.

→ AVAILABLE VERSIONS

AD80602/W4, catalogue number 2422 257 48331  
 AD80602/W8, catalogue number 2422 257 48332

} these numbers apply to bulk packed loudspeakers, minimum packing quantity 12 per unit.

FREQUENCY RESPONSE CURVES (See Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted in sealed 25 l enclosure, filled with 1 kg of glasswool.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

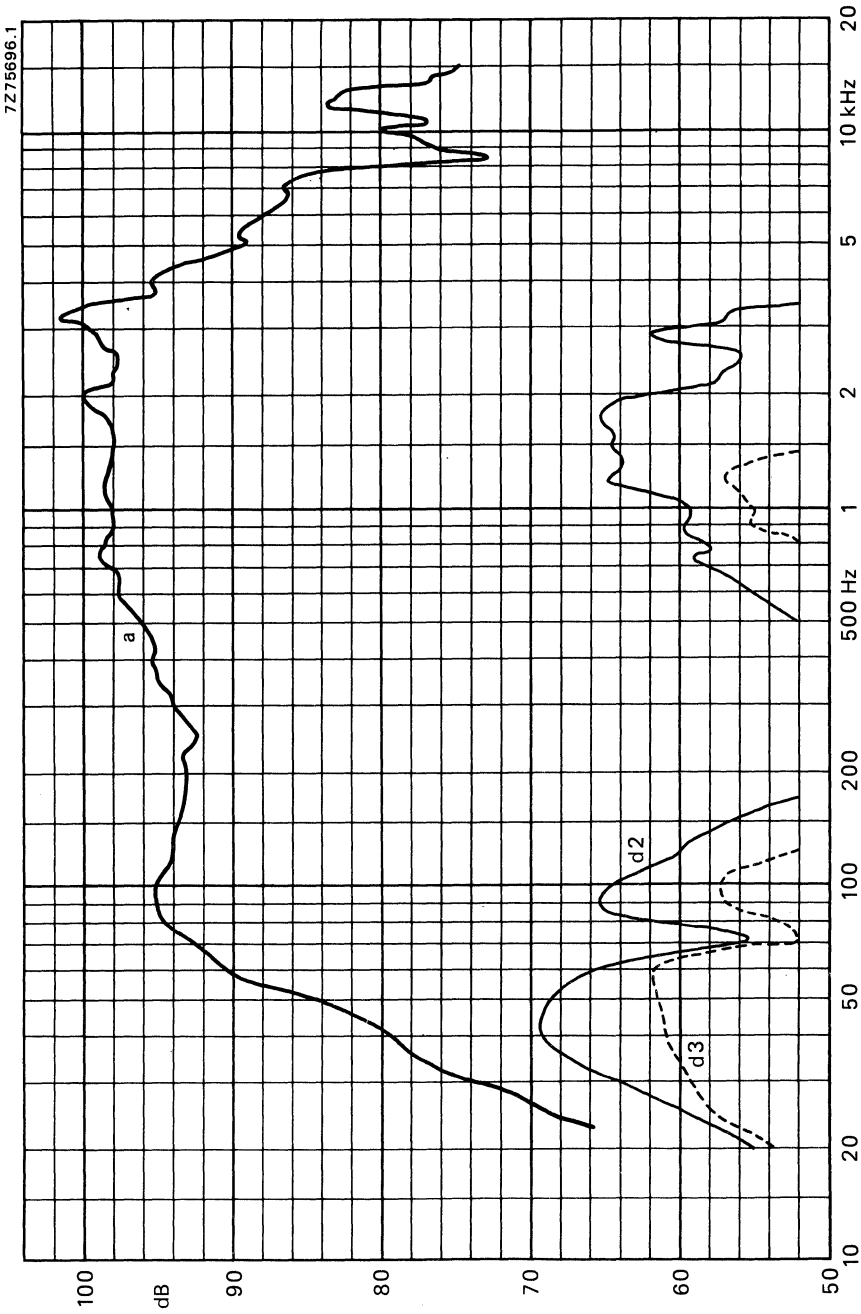


Fig. 2.

## 8 INCH HIGH POWER WOOFER LOUDSPEAKER

## APPLICATION

For bass reproduction in high economy enclosures. Recommended volume enclosure 25 litres. The loudspeaker has a smooth roll-off allowing a 6 dB per octave filter.

## TECHNICAL DATA

Rated impedance	6 $\Omega$
Voice coil resistance	4,9 $\Omega$
Rated frequency range	60 to 4000 Hz
Resonance frequency	50 Hz
Power handling capacity, mounted in 25 l sealed enclosure, measured without filter	40 W
Maximum power on loudspeaker	60 W
Operating power	4 W
Sweep voltage, frequency range: 35 to 4000 Hz	6 V
Quality factor	
mechanical	6,2
electrical	1,5
total	1,2
Characteristic sensitivity	to be established
Energy in air gap	166 mJ
Flux density	0,66 T
Force factor (B x l) at 1 A	4,6 Wb/m
Total moving mass	13,4 g
Compliance, loudspeaker unmounted	0,83 mm/N
Air-gap length	1,6 mm
Air-gap height	5 mm
Voice coil height	6,5 mm
Core diameter	25 mm
Magnet material	ceramic
diameter	72 mm
mass	0,16 kg
Mass of loudspeaker	0,65 kg

The loudspeaker has a paper cone and a foam rubber surround. Connection to the loudspeaker by means of 5,1 mm (0,2 inch) or 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

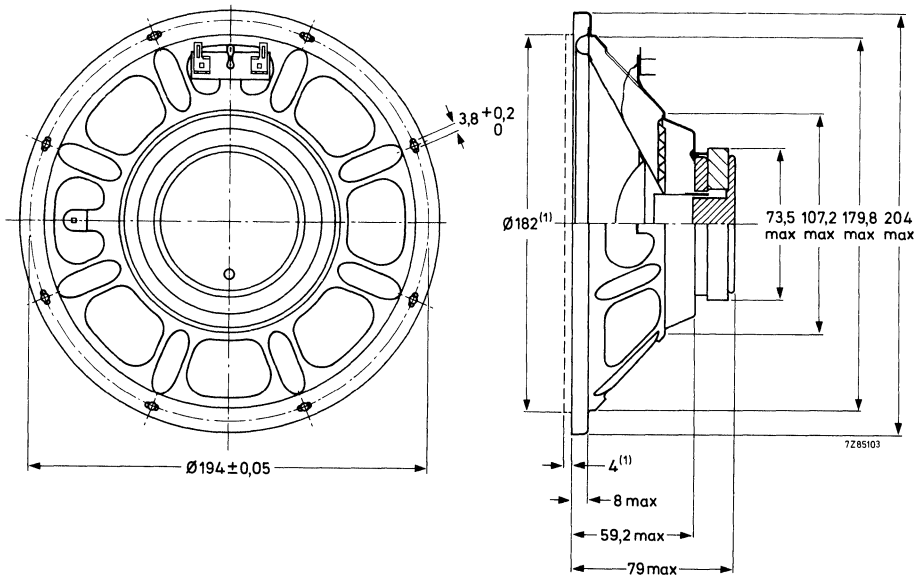


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSION**

AD80605/W6, catalogue number 2422 257 48325

{ this number applies to bulk packed loudspeakers, minimum packing quantity 12 per unit.

**FREQUENCY RESPONSE CURVES** (see Fig: 2)

Measured in half free field at the operating power. Loudspeaker mounted in sealed 25 l enclosure.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

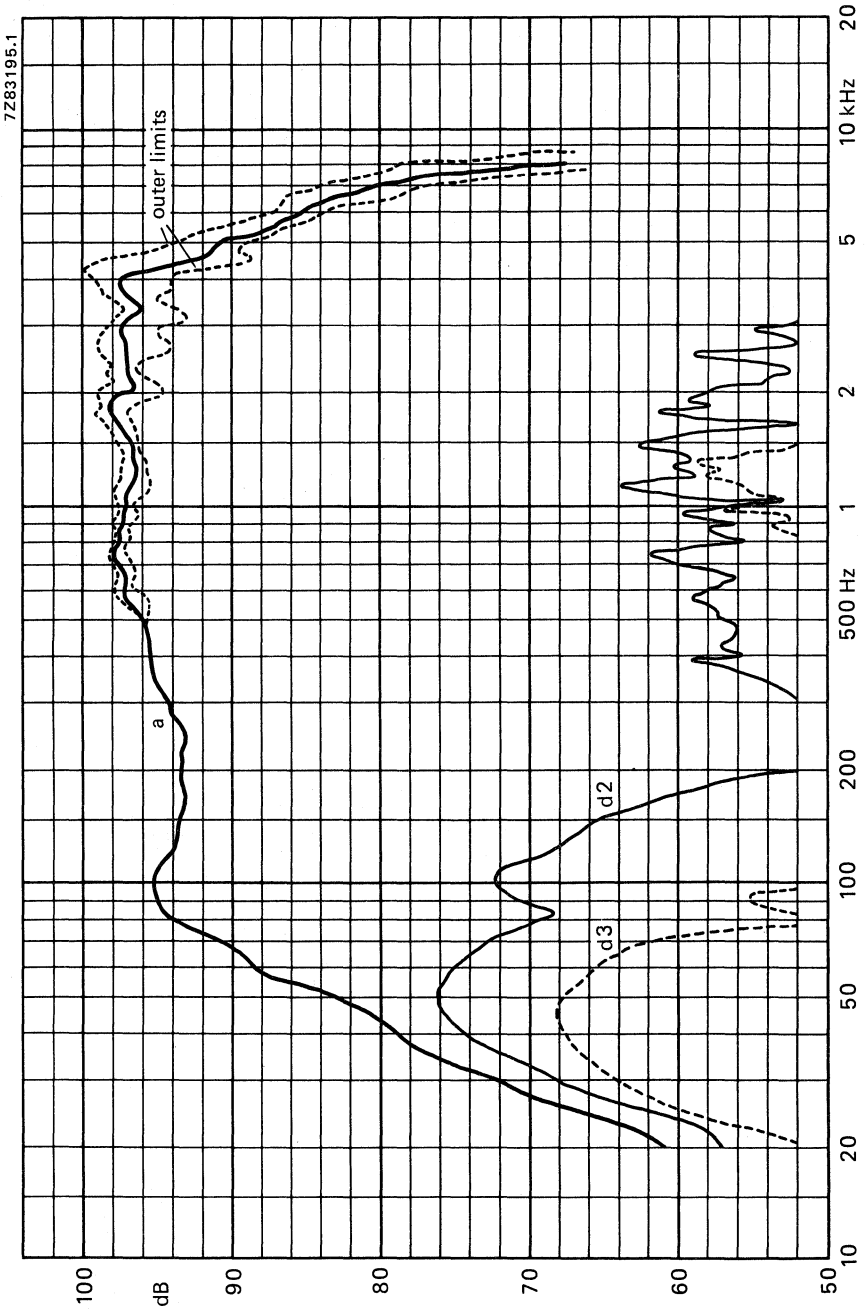


Fig. 2.

## 8 inch HIGH POWER WOOFER LOUDSPEAKER

- frame: steel, zinc plated, yellow
- cone: paper, black
- surround: foam

### TECHNICAL DATA

	version		
	W4	W6	W8
Rated impedance	4	6	8 $\Omega$
Voice coil resistance	3,4	4,6	6,3 $\Omega$
Resonance frequency	36	40	38 Hz
Power handling capacity, measured without filter, loudspeaker unmounted		50	W
Maximum power on loudspeaker		100	W
Operating power (sound level 96 dB, 1 m)		6	W
Sweep voltage (35 to 3500 Hz)	4	4,8	5,5 V
Filter		none	
Excursion voltage at 20 Hz	6		8,5 V
Energy in air gap		134	mJ
Flux density		0,64	T
Force factor (b x l) at 1 A	4,9	6	6 Wb/m
Total moving mass	18	18,9	16 g
Compliance, loudspeaker unmounted	1,16	0,93	1,18 mm/W
Air-gap length		1,9	mm
Air-gap height		5	mm
Voice coil height		12	mm
Coil diameter		25	mm
Magnet material		ceramic	
diameter		72	mm
mass		0,26	kg
Mass of loudspeaker		0,81	kg
Recommended box volume		25	l

A second connecting plate permits support of a filter capacitor.

Connection is by 5,1 mm (0,2 inch) or 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeaker has a paper cone and a foam plastic surround.

Dimensions in mm

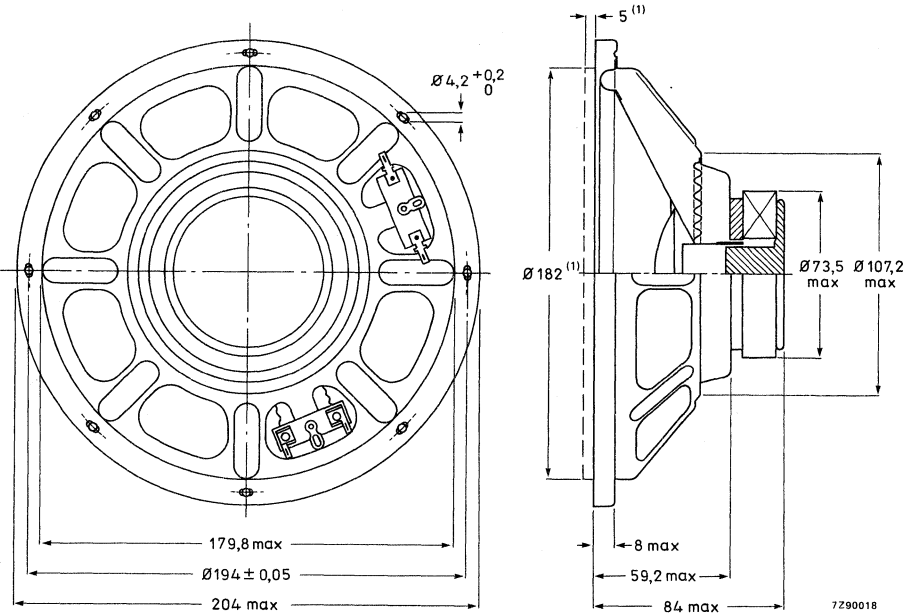


Fig. 1.

(1) Recommended baffle hole ( $\varnothing 182$  mm) and clearance depth (5 mm) are required for cone movement at the specified power handling capacity. Recommended box enclosure: 25 l. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD80806/W4	catalogue number 2422 257 48231	} These numbers are for bulk-packed loudspeakers, minimum packing quantity 8 per unit.
AD80606/W6	catalogue number 2422 257 48238	
AD80606/W8	catalogue number 2422 257 48232	

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted in 25 l enclosure.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

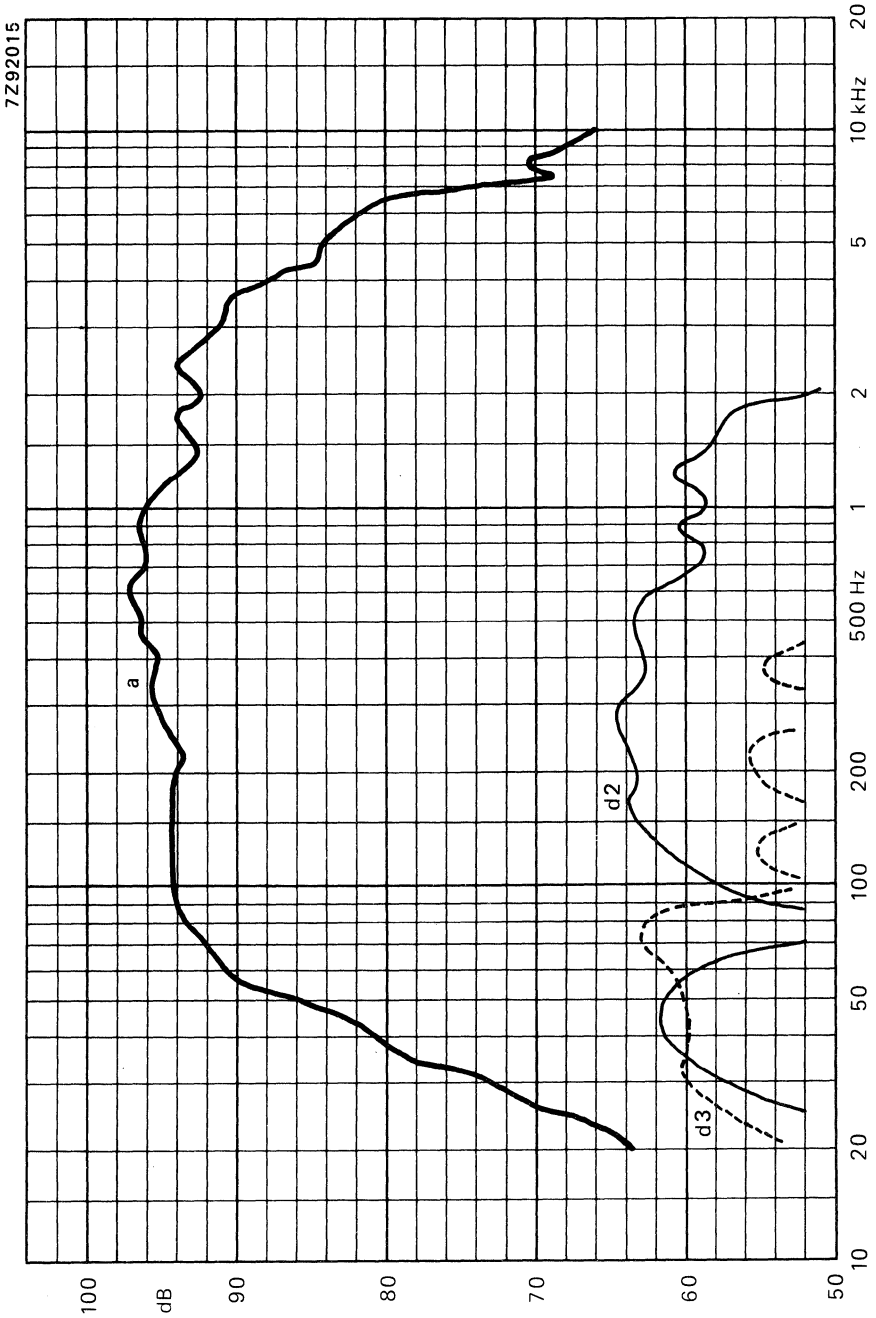


Fig. 2.



## 8 INCH HIGH POWER WOOFER LOUDSPEAKERS

## APPLICATION

For high-fidelity reproduction in sealed acoustic enclosures. Maximum enclosure volume 25 litres. Maximum recommended crossover frequency 2500 Hz.

## TECHNICAL DATA

	version	
	W4	W8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,8	7 $\Omega$
Rated frequency range	50 to 4000 Hz	
Resonance frequency	39	Hz
Power handling capacity, measured without filter, mounted in 25 l sealed enclosure	50	W
Maximum power on loudspeaker	100	W
Operating power	3,8	W
Sweep voltage (frequency range 35 to 3000 Hz)	5	6,3 V
Energy in air gap	229	240 mJ
Flux density	1,1	1,2 T
Force factor (B x l) at 1 A	5,4	6,5 Wb/m
Total moving mass	17,5	g
Compliance, loudspeaker unmounted	1,02	mm/N
Air-gap height	5	mm
Voice coil height	10	mm
Core diameter	25	mm
Magnet material	ceramic	
diameter	90	mm
mass	0,45	kg
Mass of loudspeaker	1,15	kg

The loudspeaker has a paper cone and a polyester surround. Connection to the loudspeaker by means of 5,1 mm (0,2 inch) or 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

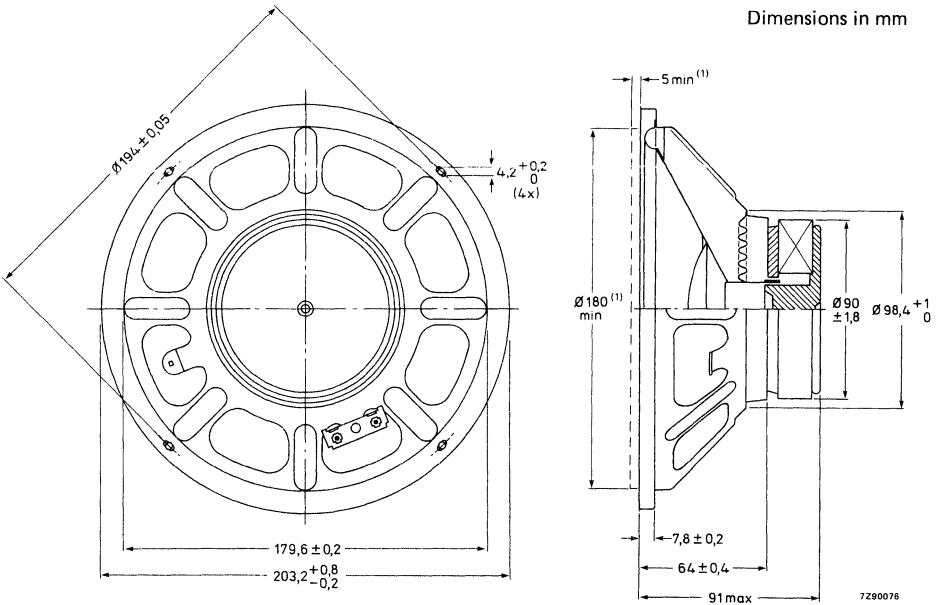


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSIONS**

AD80652/W4, catalogue number 2422 257 48531  
 AD80652/W8, catalogue number 2422 257 48532

these numbers apply to bulk packed loudspeakers, minimum packing quantity 10 per unit.

**FREQUENCY RESPONSE CURVES** (See Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker mounted in sealed 25 l enclosure, filled with 1 kg of glasswool.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

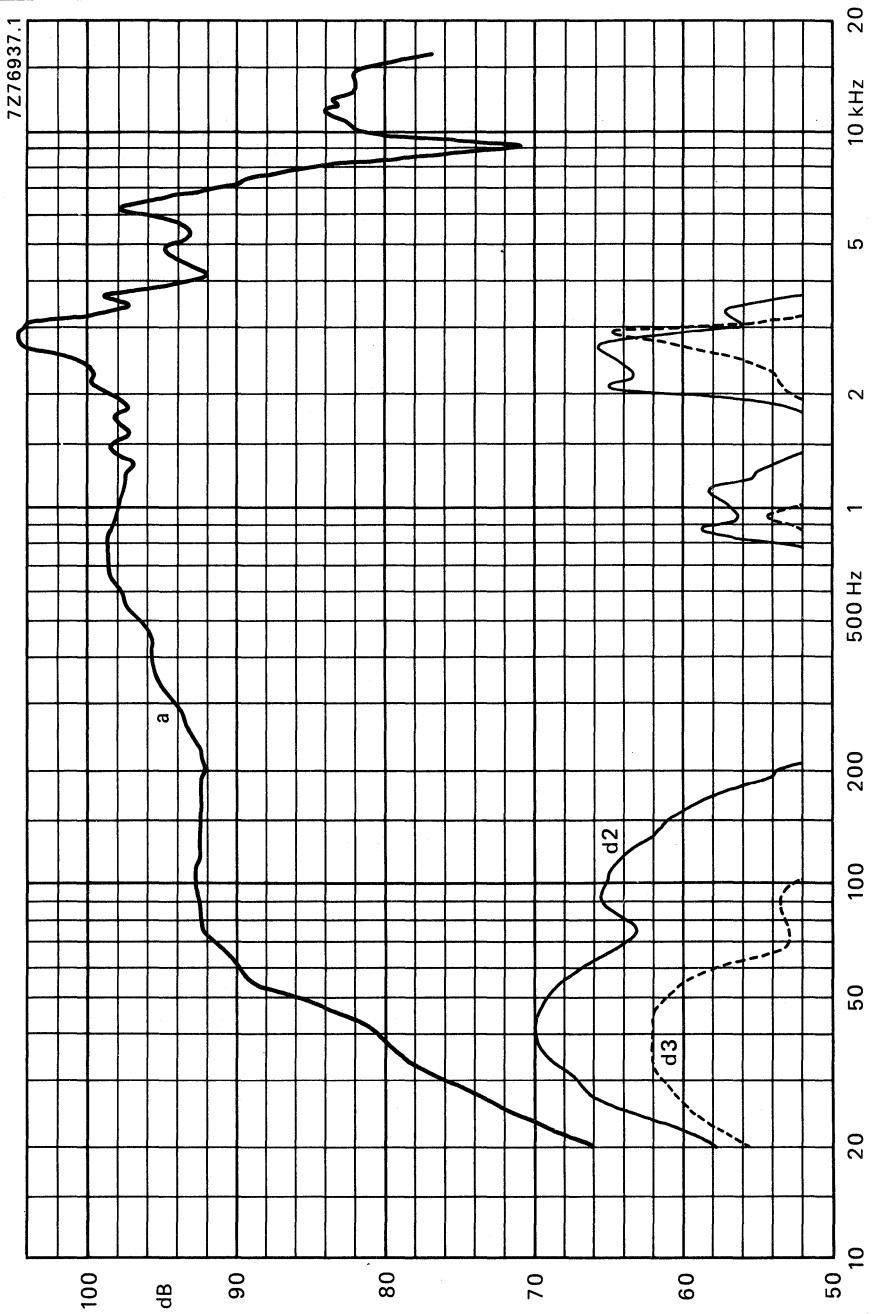


Fig. 2.

## 8 inch HIGH POWER WOOFER LOUDSPEAKER

### APPLICATION

For hi-fi enclosures, recommended box volume 25 l.

### TECHNICAL DATA

Rated impedance	8 $\Omega$
Voice coil resistance	6 $\Omega$
Rated frequency range	50 to 7000 Hz
Resonance frequency	35 Hz
Power handling capacity, measured without filter, loudspeaker unmounted	55 W
Maximum power on loudspeaker	110 W
Operating power (sound level 96 dB, 1 m)	4 W
Sweep voltage (20 to 3500 Hz)	8,5 V
Filter	none
Energy in air gap	249 mJ
Flux density	0,99 T
Force factor (b x l) at 1 A	6,7 Wb/m
Total moving mass, loudspeaker mounted	18,5 g
Compliance, loudspeaker unmounted	1,19 mm/N
Air-gap height	5 mm
Voice coil height	16 mm
Coil diameter	35 mm
Magnet material	ceramic
diameter	90 mm
mass	0,51 kg
Mass of loudspeaker	1,35 kg

Connection is by 2,8 mm (0,11 inch) tag connectors or by soldering. The loudspeaker has a paper cone and a foam rim.

Dimensions in mm

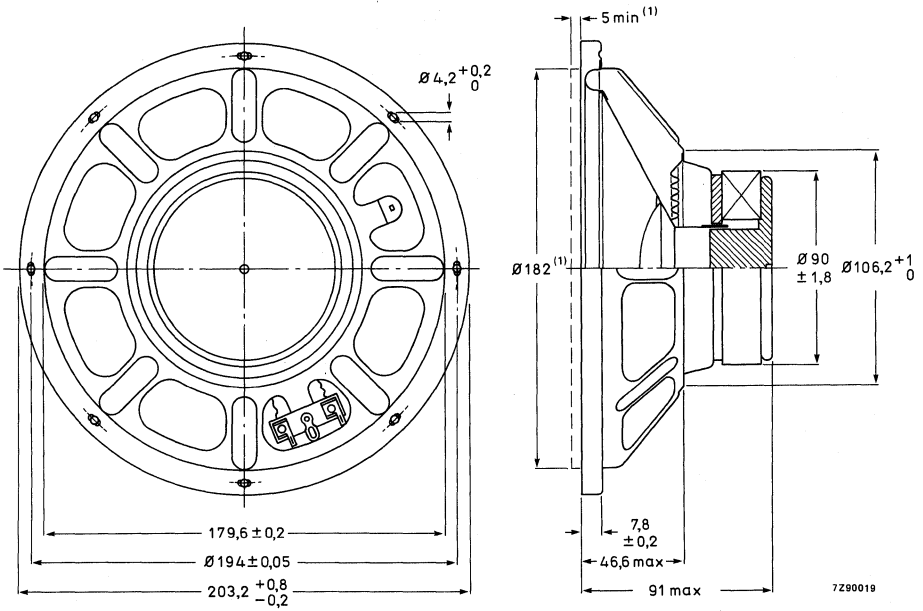


Fig. 1.

(1) Recommended baffle hole ( $\varnothing 182 \text{ mm}$ ) and clearance depth ( $5 \text{ mm}$ ) are required for cone movement at the specified power handling capacity. Recommended box enclosure:  $25 \text{ l}$ . One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSION**

AD80680/W8 catalogue number 2422 257 48922. This number is for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

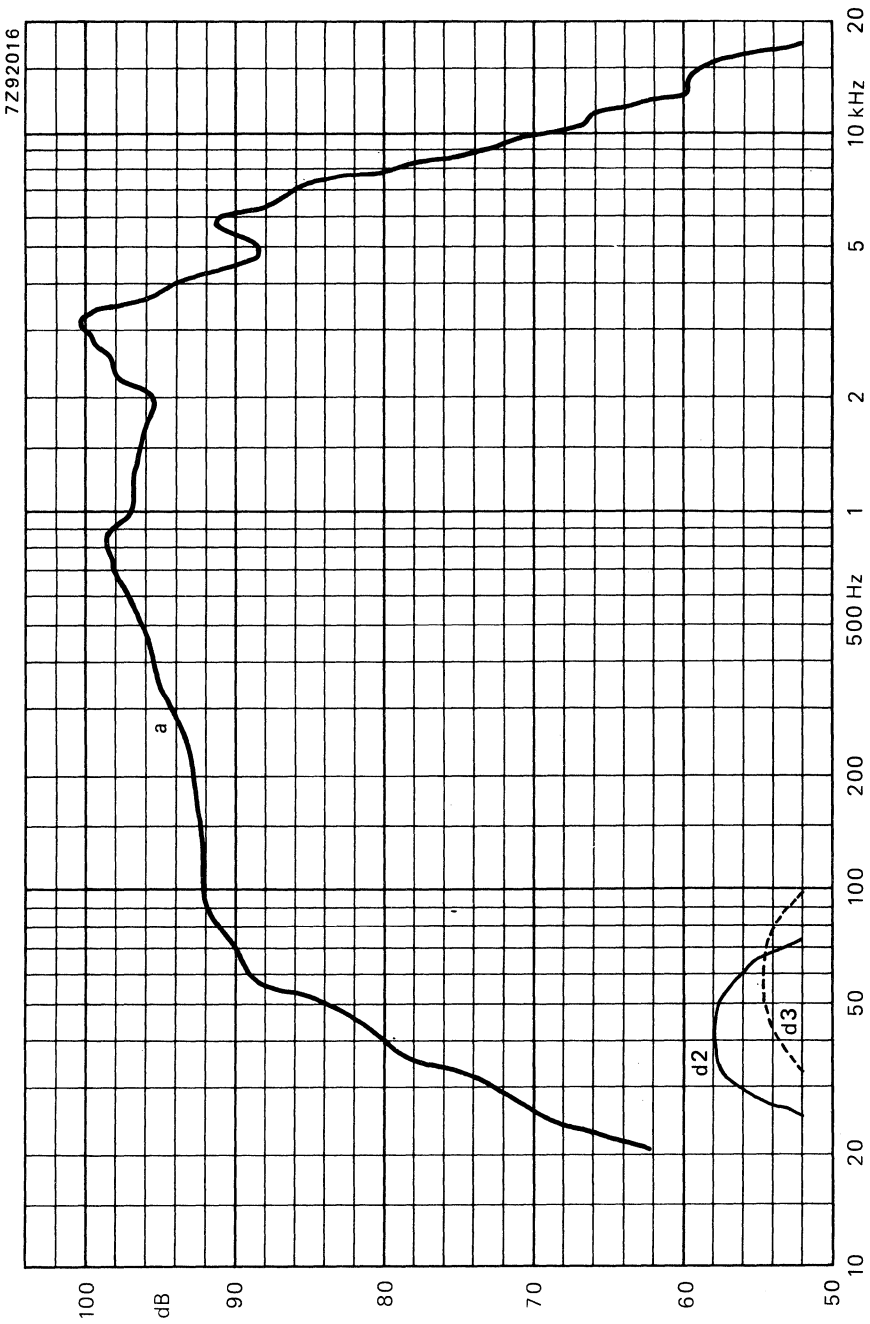


Fig. 2.

This information is derived from development samples made available for evaluation. It does not necessarily imply that the device will go into regular production.

## 8 inch FLAT DIAPHRAGM WOOFER LOUDSPEAKER

## TECHNICAL DATA

	versions	
	W4	W8
Rated impedance	4	8 $\Omega$
Voice coil resistance	3,6	6 $\Omega$
Rated frequency range	20 to 2000 Hz	
Resonance frequency	48	47 Hz
Power handling capacity, loudspeaker unmounted	50 W	
Max. power on loudspeaker	100 W	
Operating power (sound level 96 dB, 1 m)	8 W	
Sweep voltage (20 to 3500 Hz)	9	8 V
Filter	none	
Energy in air gap	210	249 mJ
Flux density	0,88	0,99 T
Force factor (B x l) at 1 A	5,4	6,1 Wb/m
Total moving mass, loudspeaker mounted	20 g	
Compliance, loudspeaker unmounted	0,58	0,61 mm/N
Air-gap height	5 mm	
Air-gap length	1,4 mm	
Voice coil height	9 mm	
Coil diameter	35 mm	
Piston diameter	0,163 m	
Piston area	0,021 m <sup>2</sup>	
Magnet material	ceramic	
diameter	90 mm	
mass	0,415 kg.	
Mass of loudspeaker	1,25 kg	
Equivalent box volume	30,7	32,2 l
Recommended box volume	25 l	
Rim material	rubber	

Connection is by 2,8 mm x 0,5 mm tag connectors by soldering.

Dimensions in mm

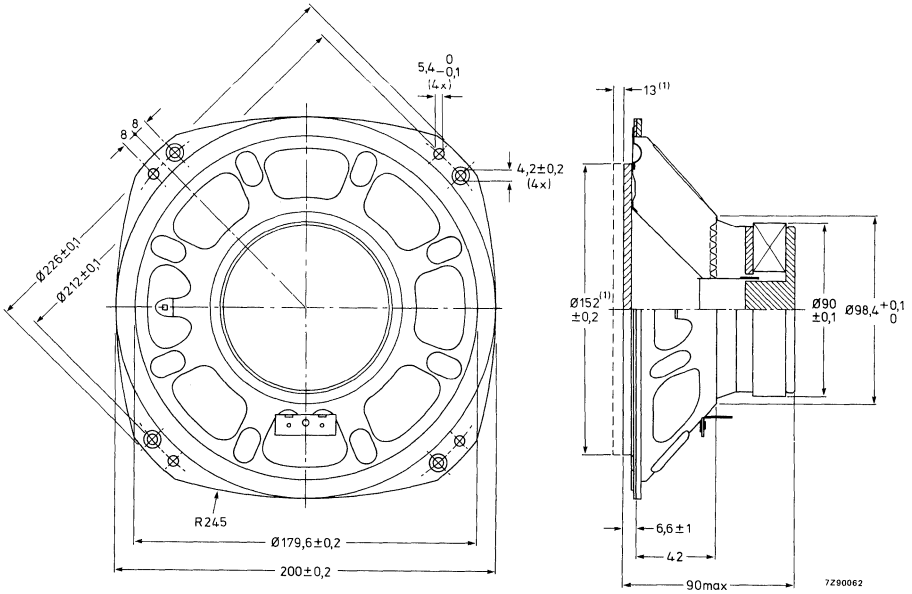


Fig. 1.

DEVELOPMENT SAMPLE DATA

Recommended baffle opening ( $\phi 152$  mm) and mounting clearance ( $13$  mm) are required for cone movement at the specified power handling capacity.

One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSION**

AD80681/W4 catalogue number 2422 257 50023 }  
 AD80681/W8 catalogue number 2422 257 50021 } These numbers are for bulk-packed loudspeakers.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted in recommended box volume.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.



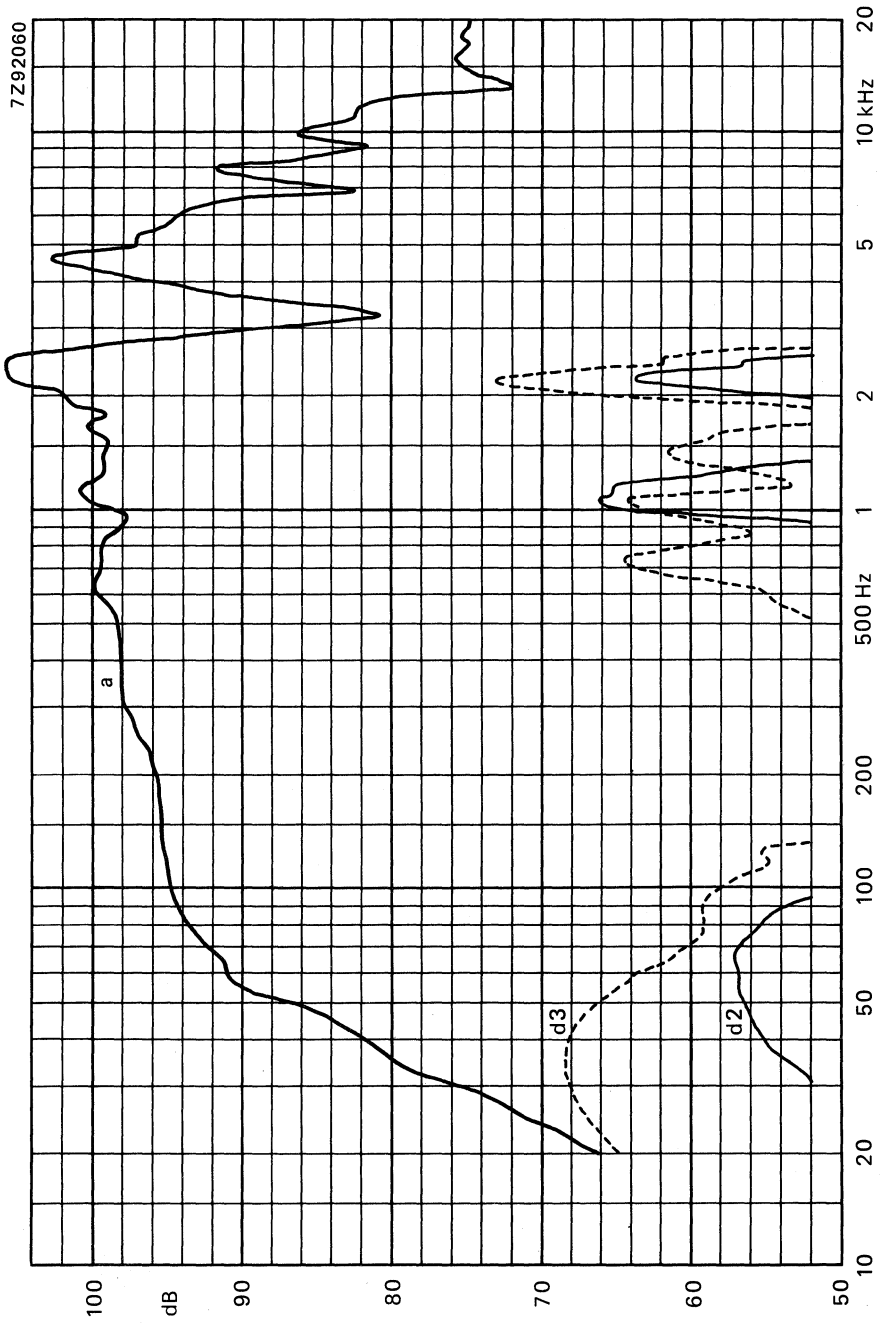


Fig. 2.

## 8 inch OCTAGONAL HIGH POWER LOUDSPEAKER

- frame: metal
- cone: paper
- surround: treated
- coil former: aluminium

## TECHNICAL DATA

	version				
	P4	X4	X8	M4	M8
Rated impedance	4	4	8	4	8 $\Omega$
Voice coil resistance	3,4	3,4	7	3,4	7 $\Omega$
Rated frequency range	55 to 6000		45 to 7000		55 to 20 000 Hz
Resonance frequency	75	85	95		85 Hz
Power handling capacity, measured without filter, loudspeaker unmounted	10		13		10 W
Maximum power on loudspeaker	20		30		27 W
Operating power (sound level 90 dB, 1 m)	0,81		0,7	0,75	0,65 W
Sweep voltage (50 to 20 000 Hz)	4,5	5,1	7,2	5,5	7,75 V
Characteristic sensitivity	91				dB/W/m
Energy in air gap	52		53		53 mJ
Flux density	0,68		0,98		0,98 T
Air-gap height	3		3		3 mm
Voice coil height	6,5	3,9	4,5	3,9	4,5 mm
Core diameter	18		18		18 mm
Magnet material	ceramic		ceramic		
diameter	53		53		53 mm
mass	0,1		0,1		0,1 kg
Mass of loudspeaker	0,37		0,4		0,36 kg

Connection is by 2,8 mm x 0,5 mm tag connectors or by soldering.

Dimensions in mm

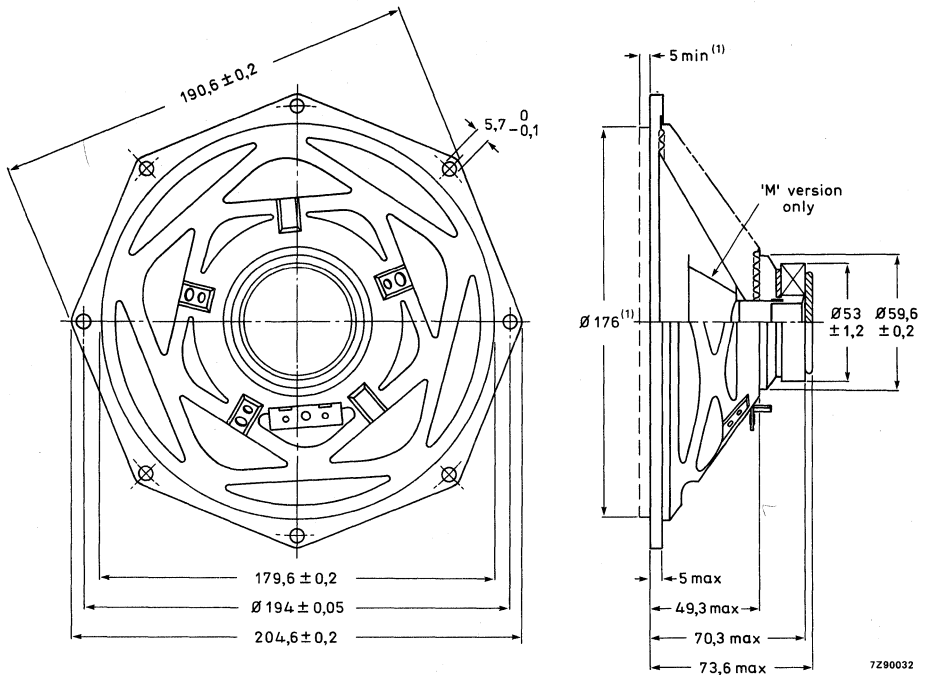


Fig. 1.

(1) Recommended baffle opening ( $\varnothing 176 \text{ mm}$ ) and clearance depth ( $5 \text{ mm}$ ) are required for cone movement at the specified power handling capacity. One tag has a red mark to facilitate phase matching.

**AVAILABLE VERSIONS**

AD80800/X4	catalogue number 2422 257 38721	} These numbers are for bulk-packed loudspeakers.
AD80800/X8	catalogue number 2422 257 38722	
AD80800/M4	catalogue number 2422 257 38725	
AD80800/M8	catalogue number 2422 257 38726	
AD80800/P4	catalogue number 2422 257 38735	

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Measured in anechoic room at the operating power. Loudspeaker front mounted on IEC baffle.

Curve a: Sound pressure.

Curves d2 and d3: 2nd and 3rd harmonic distortion.

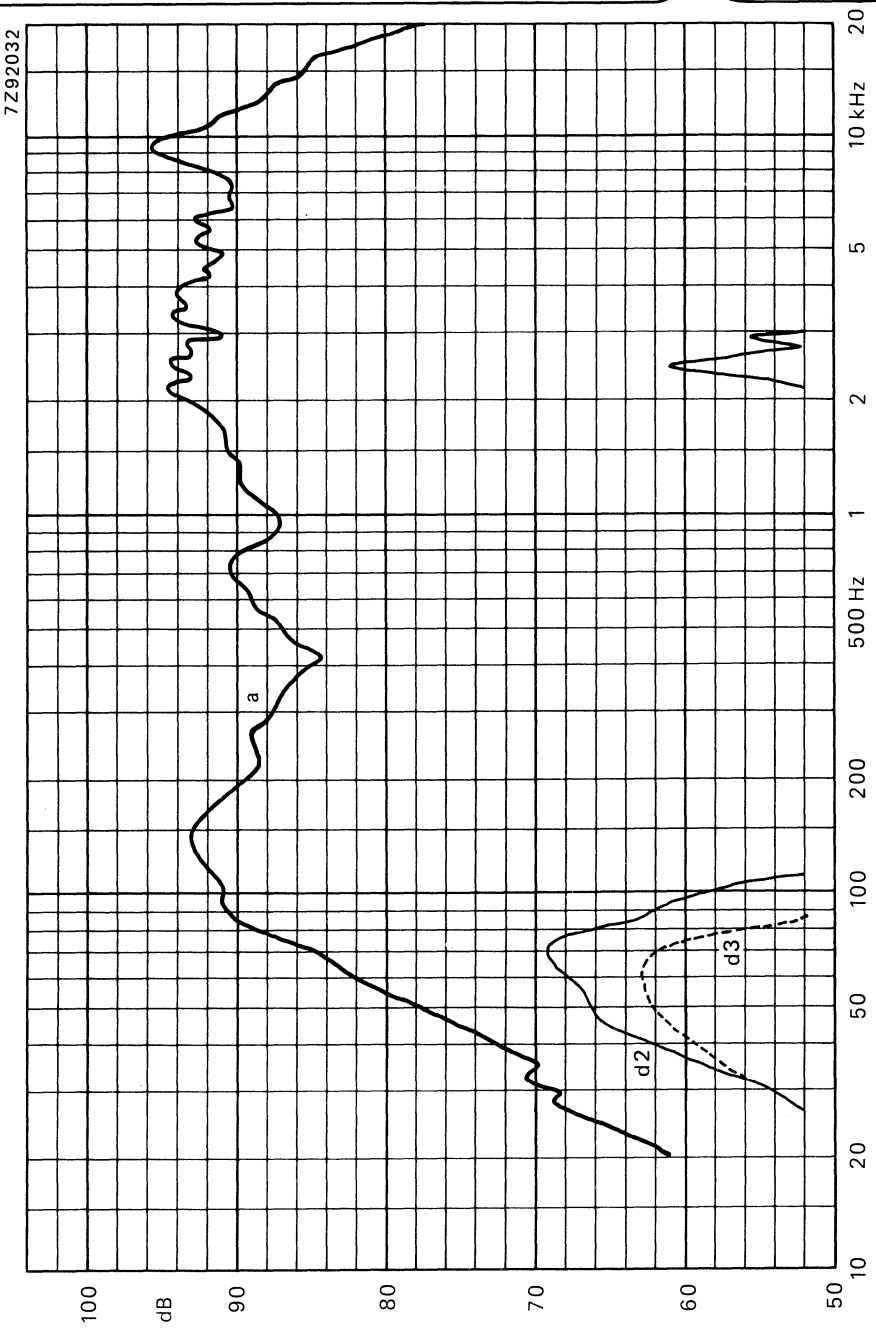


Fig. 4 AD80800/M.

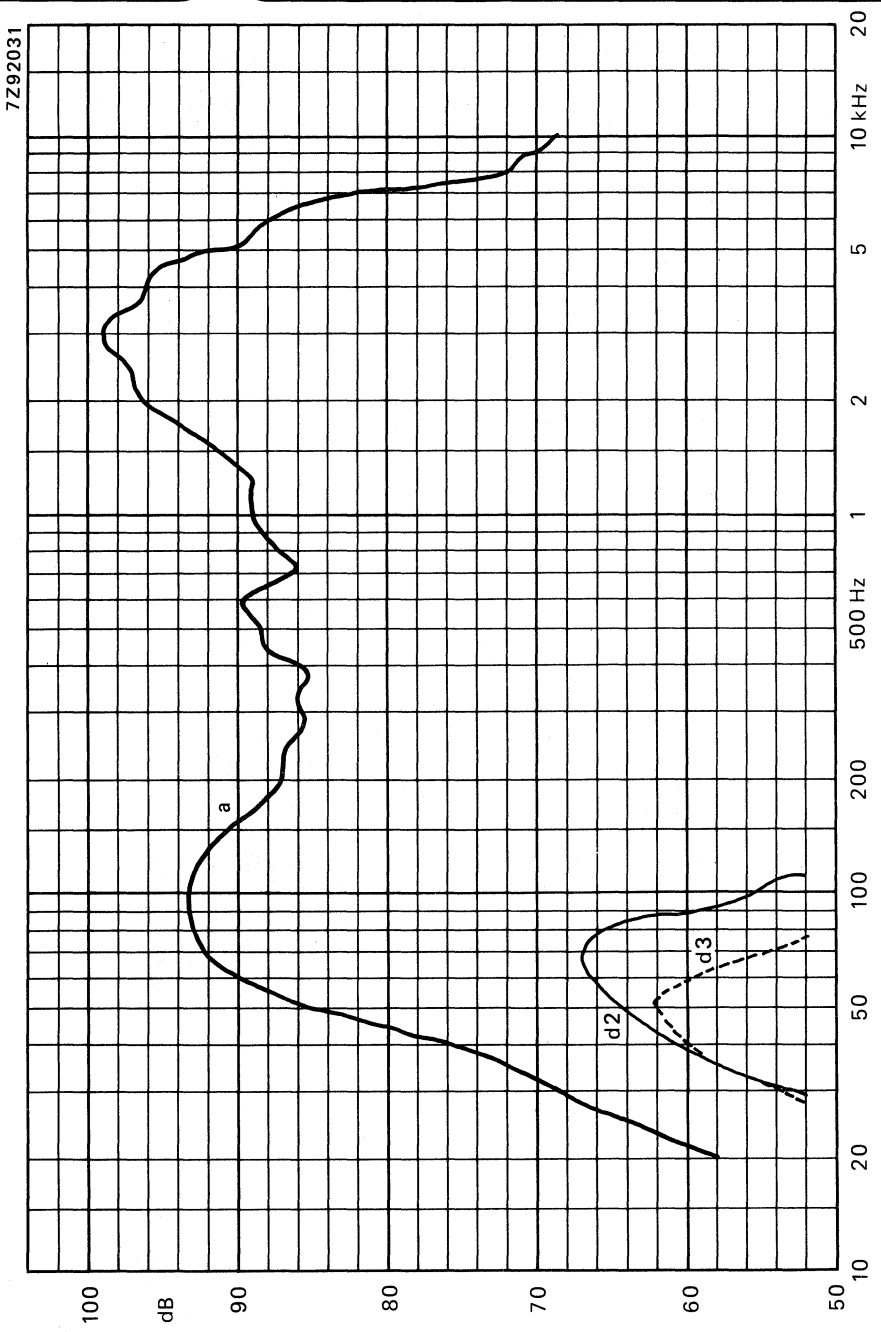


Fig. 3 AD80800/X.

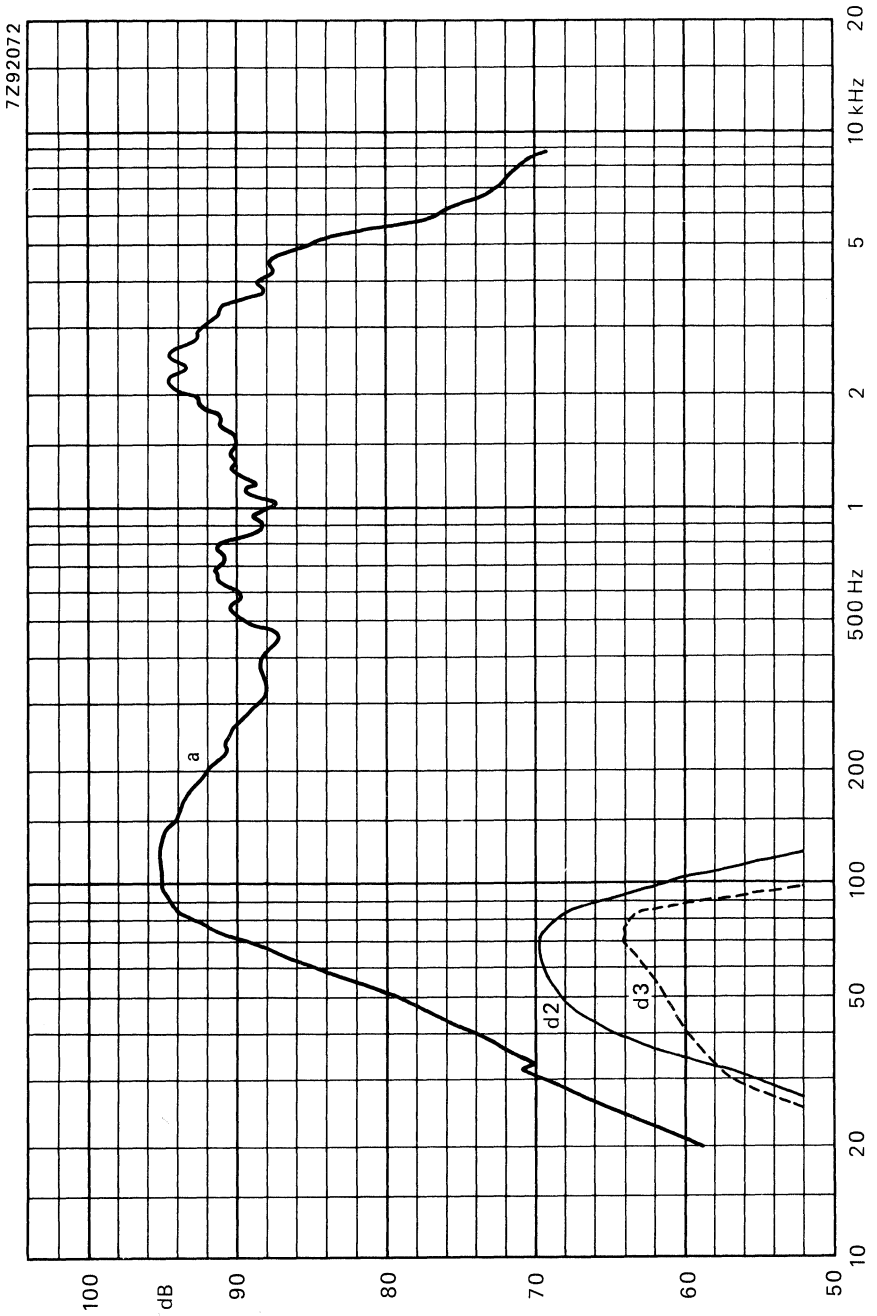


Fig. 4 AD80800/P.

## 8½ inch HIGH POWER FULL RANGE LOUDSPEAKER

### APPLICATION

A full range loudspeaker for studio monitoring equipment and domestic bass reflex enclosures for high fidelity reproduction from 45 Hz to 19 kHz.

### TECHNICAL DATA

Rated impedance	8 $\Omega$
Voice coil resistance	6,4 $\Omega$
Frequency range	45 to 19 000 Hz
Resonance frequency	50 Hz
Power handling capacity measured without filter	
loudspeaker mounted in sealed enclosure < 30 l	20 W
loudspeaker mounted in sealed enclosure > 30 l	10 W
Operating power	1,3 W
Sweep voltage, frequency range: 35 to 20 000 Hz	6,3 V
Energy in air gap	203 mJ
Flux density	0,9 T
Air-gap height	6 mm
Voice coil height	8,9 mm
Core diameter	34 mm
Magnet material	ceramic
→ diameter	90 mm
mass	0,4 kg
Mass of loudspeaker	1,32 kg

The loudspeaker has a paper dual cone and surround and a cork gasket on the flange.

Connection to the loudspeaker by means of 2,8 mm (0,11 inch) tag connectors or by soldering.

Dimensions in mm

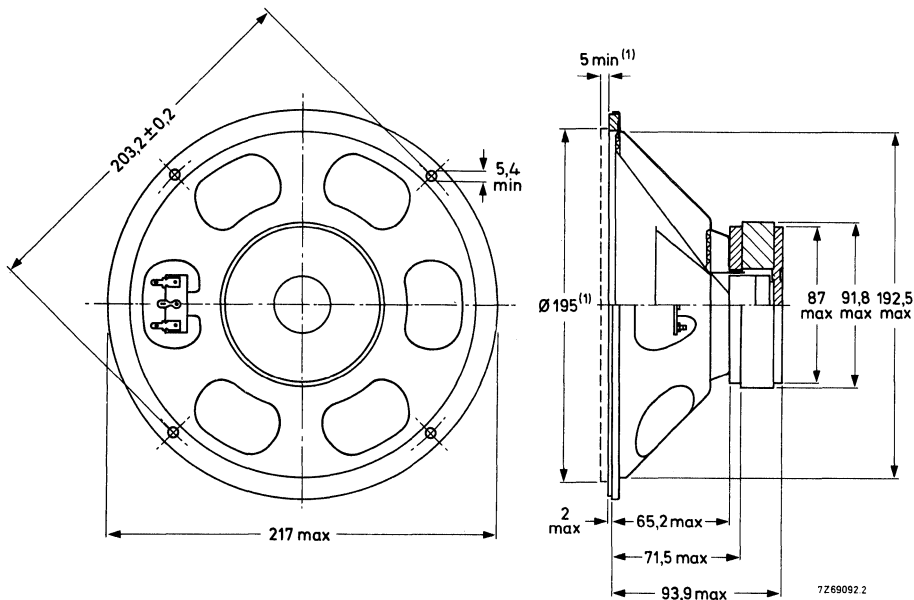


Fig. 1.

(1) Baffle hole and clearance depth required for cone movement at the specified power handling capacity.

One tag is indicated by a red mark for in-phase connection.

**AVAILABLE VERSION**

9710/M8, catalogue number 2422 257 48121

this number applies to bulk packed loudspeakers, minimum packing quantity 8 per unit.

**FREQUENCY RESPONSE CURVES** (see Fig. 2)

Curve a: Sound pressure measured in anechoic room, loudspeaker mounted on IEC baffle.  
 Curves d2 and d3: 2nd and 3rd harmonic distortion, measured at the operating power of 1,3 W in anechoic room, loudspeaker mounted in sealed 80 l enclosure, filled with 1 kg of glass wool.



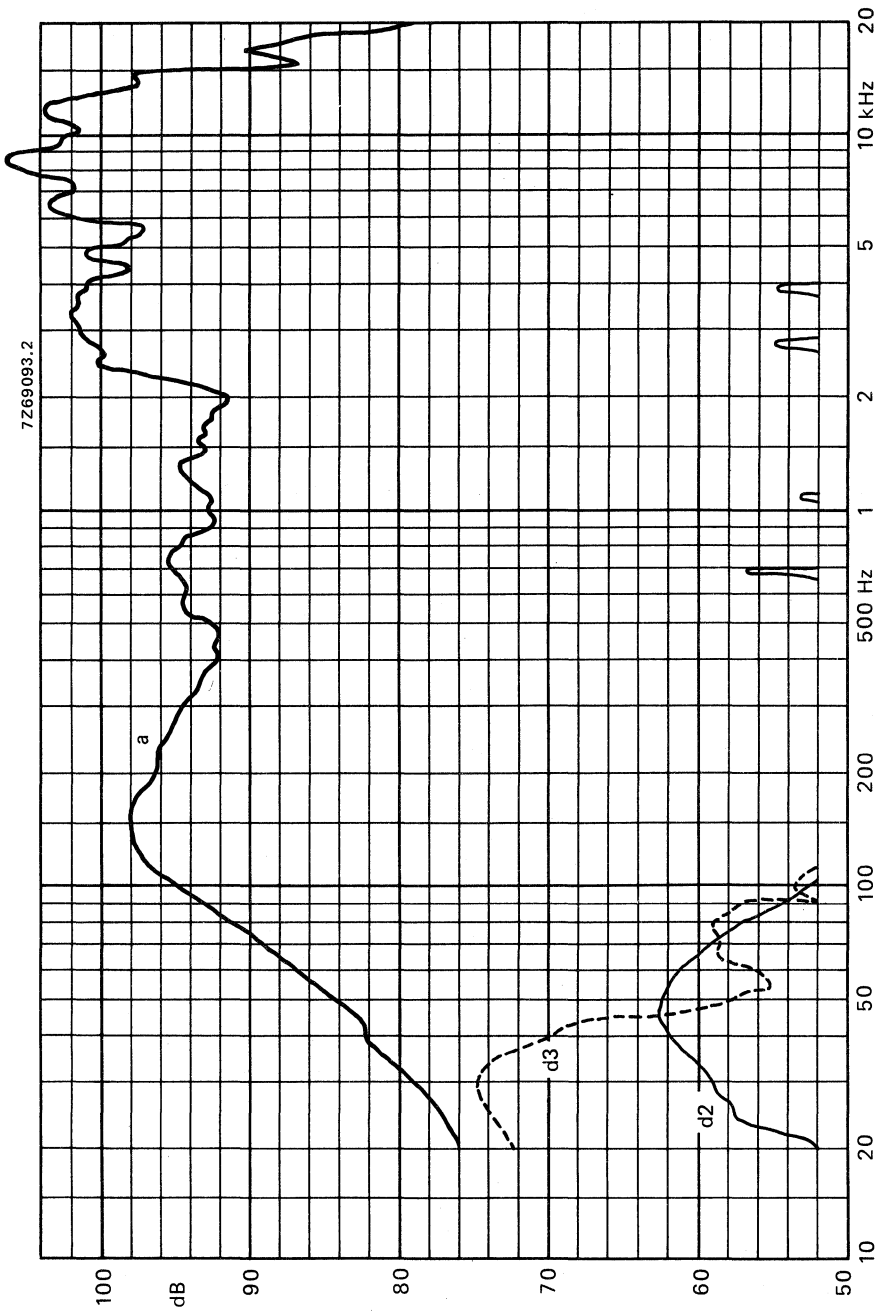


Fig. 2.

NOTES

NOTES

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