PRO AUDIO CATALOGUE **05.24**

Lavoce

THE TRANSDUCER
FOR YOUR MOST
CHALLENGING PROJECTS

WWW.LAVOCESPEAKERS.COM

Lavoce
ITALIANA

USA

Lavoce Italiana
North American sales office and warehouse
Old Hickory - Tennessee

ITALY

Lavoce Italiana R&D center and International sales office at Elettromedia
Potenza Picena - Marche

CHINA

Lavoce Italiana production plant, China sales office and main warehouse
Jiashan - Zhejiang

PURE POTENZA
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THE TRANSDUCER FOR YOUR MOST CHALLENGING PROJECTS

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Lavoce Italiana

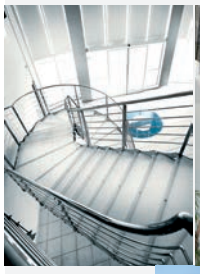
THE FOUNDATION OF LAVOCE:

THE LAVOCE ITALIANA PROJECT WAS FOUNDED IN 2008 AND OUR BRAND OFFICIALLY LAUNCHED IN 2012.

Since then, Lavoce Italiana has become a world-renowned player at the cutting-edge of high-performance LF and HF transducer design, manufacture and supply for the professional audio market.

A LIFE-LONG PASSION

Elettromedia



The Marche region: our roots

Lavoce Italiana

AN IDEA BORN IN THE BACKDROP OF THE BEAUTIFUL MARCHE REGION IN ITALY, WHERE OUR FOUNDING COMPANY ELETTROMEDIA SPA WAS ESTABLISHED IN 1987, LAVOCE ITALIANA IS THE REALIZATION OF A LIFE-LONG PASSION AND DEDICATION TO MUSIC REPRODUCTION, AUDIO QUALITY AND ELECTROACOUSTIC INNOVATION.

This heritage and commitment to achieve acoustic excellence in everything we produce has created this comprehensive range of professional audio LF and HF transducers, to offer innovative solutions for professional audio sound system designers and enthusiasts everywhere.

BEING PART OF ELETTROMEDIA GROUP, WE HAVE AN ESTABLISHED GLOBAL SALES AND SERVICE NETWORK SUPPORTED BY A LEADING ITALIAN R&D AND ENGINEERING CAPABILITY IN POTENZA PICENA, ITALY, A MODERN PRODUCTION PLANT IN JIASHAN, CHINA, AND MORE RECENTLY A NEW SALES AND WAREHOUSE OPERATION IN THE FAMED 'MUSIC CITY' OF NASHVILLE, TENNESSEE, TO SERVE OUR NORTH AMERICAN PARTNERS LOCALLY.

This enviable mix of resources and investments allow us to offer exceptional customer service and unquestionable quality and value, which is why we are the transducer category partner to many of the worlds most recognised professional audio brands.

PURE POTENZA:

At our state-of-the art R&D center in Potenza Picena, Italy, our Ph.D. infused Research Department and experienced R&D team are focused on innovation in every aspect, continuously pushing the boundaries of sound quality, product reliability and consistency of electroacoustic performance, whilst ensuring each product has that distinct cost-effective edge and design elegance synonymous with LAVOCE.

ITALIAN R&D CENTER

Italian R&D department

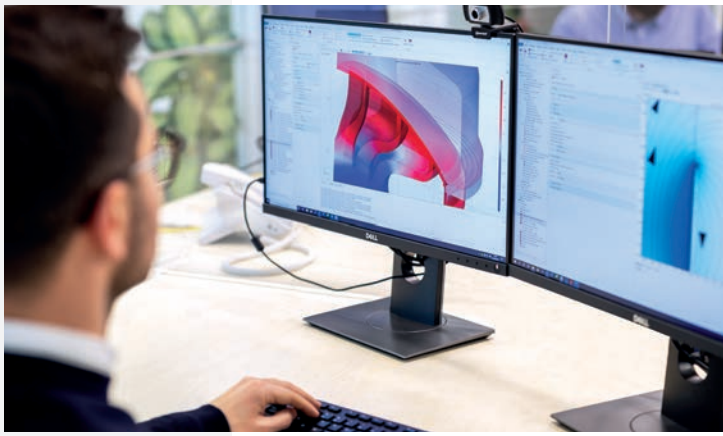
ENCOMPASSING THE SAME HIGH LEVEL OF CARE AND USING THE VERY LATEST DESIGN VALIDATION TOOLS, OUR R&D TEAM WORKS TOGETHER WITH OUR PARTNERS TO CUSTOMIZE OUR STANDARD PLATFORMS TO MEET THEIR TARGET SPECIFICATIONS OR CREATE COMPLETELY NEW GROUND-UP DESIGNS, MAKING US A ONE-STOP SOURCE FOR HIGH PERFORMANCE PROFESSIONAL AUDIO OEM OR ODM TRANSDUCER SOLUTIONS.

LOUDSPEAKER DESIGN SUITE

To increase efficiency and accuracy in the design validation process, our Research team developed five proprietary FEM applications within COMSOL® Multiphysics Modelling Software for simulating specific aspects of low frequency loudspeaker design: Lumped Parameters, Electromagnetic, Suspension, Vibroacoustic and Thermal.

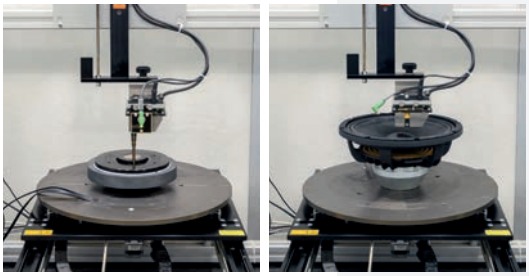
These applications culminate into a tailored graphical user interface which can realize an unlimited number of virtual prototypes, all within 5% of their physical prototype. Adopted daily by our engineers, this valuable design tool optimizes the lead-time from receipt of a customized project and performance target to supplying physical samples for approval, so our customers can plan their own project development schedule with confidence.

HF simulation suite



To aid the electroacoustic design of high frequency compression drivers, our team developed an advanced 'nonlinear' modelling technique using an elastoplastic model for moving parts and an acoustic model for phase plug channels, compression chamber and horn, which can predict the real-world frequency response and 2nd harmonic distortion of a physical prototype. And by adding the development of advanced 'linear' modelling techniques using a finite element model (2D-axi) and an optimization routine for phase plug design, our team can reduce development time and produce versatile HF devices with low distortion, linear frequency responses and the flexibility to perform equally well on differing horn flares.

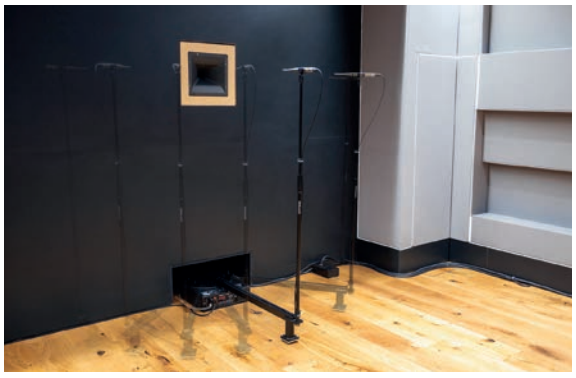
Acoustics laboratory: HF and LF 3D scanning



ACOUSTICS LABORATORY

HERE OUR R&D TEAM USE A COMPLETE FRAMEWORK FOR LOUDSPEAKER DIAGNOSTICS AND OPTIMIZATION BASED ON MATHEMATICAL MODELS THAT ACCURATELY DESCRIBE THE MULTI-PHYSICAL BEHAVIOUR OF TRANSDUCERS. THIS ENABLES QUANTITIES THAT ARE NOT PHYSICALLY OBSERVABLE TO BE MEASURED AND PROVIDES VALUABLE INFORMATION ON EVERY PHASE OF THE PRODUCT LIFECYCLE.

Acoustics laboratory: measurement room



Embracing the Klippel R&D System with the KA3 Analyzer platform, our team developed techniques and practices for the experimental measurement of all the physical quantities that govern loudspeaker behaviour in all physical domains, emphasized by the following operations:

SCAN OF THE 3D MAGNETIC FIELD IN THE AIR GAP USING KLIPPEL B-FIELD SCANNER (BFS).

DISTORTION MEASUREMENTS IN ALL MECHANICAL, ELECTRICAL, AND ACOUSTICAL DOMAINS, WITH BOTH SYNTHETICAL AND MUSICAL STIMULI.

ASSESS HEATING AND AGING OF TRANSDUCERS.

IDENTIFY THE LINEAR TRANSDUCER MODEL (THIELE/SMALL PARAMETERS).

IDENTIFY LARGE SIGNAL MODELS OF THE TRANSDUCER (NONLINEARITIES VS DISPLACEMENT).

SCAN THE 3D GEOMETRY AND MECHANICAL VIBRATION FIELD ON THE SURFACE OF THE RADIATOR.

ANALYSE VIBRATION CONTRIBUTIONS TO SOUND PRESSURE OUTPUT.

3D POLAR AND BALLOON ACOUSTIC MEASUREMENTS IN THE FAR FIELD OF THE TRANSDUCER MOUNTED ON STANDARD BAFFLE OR IN A DEDICATED ENCLOSURE.

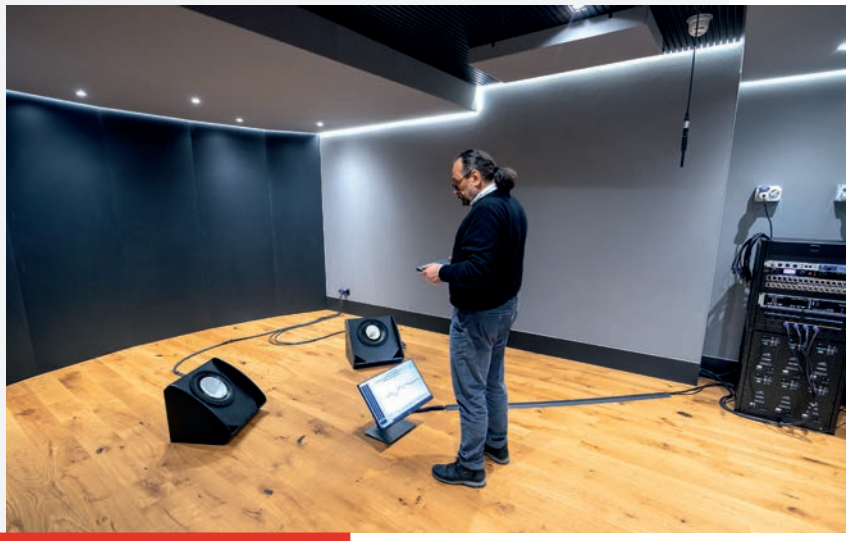
In addition to these measurement techniques and practices, unique methodologies have been developed for the analysis of the magnetic field, the modal analysis of diaphragm vibration and the radiation analysis of the spatially distributed acoustic field. This has resulted in a user-friendly and comprehensive diagnostics package for our R&D team to use and an industry leading optimization capability that offers efficiency and accuracy for our customers.

AN ESSENTIAL PART OF OUR DESIGN VALIDATION PROCESS IS TO LISTEN TO THE PHYSICAL PROTOTYPES WE PRODUCE TO IDENTIFY DEFECTS NOT CAUGHT BY MEASUREMENTS AND TO FINE TUNE THE DRIVER TO PRECISELY MEET CUSTOMER NEEDS, TECHNICALLY AND SONICALLY. TRAINED ENGINEERS CONDUCT THESE LISTENING TESTS IN A DEDICATED AND CONTROLLED LISTENING ROOM EQUIPPED WITH CUSTOM CALIBRATED INSTRUMENTS TO ENSURE THEY ARE CONSISTENT AND REPEATABLE.

LISTENING TESTS AND SONIC TUNING

To enhance this validation process, our team have researched and developed a machine learning measurement technique to predict distortion severity which is trained on listening test data from a wide range of transducers. This technique establishes a correlation between subjective perception of distortion and objective measurement metrics with definitions of distortion's severity classes for THD, bass-tone and voice-tone intermodulation (based on IEC 60268-21), and non-coherent distortion.

Listening test: from mathematical models to field testing



INNOVATORS BY TRADITION:

The advancement of acoustic performance and enhancement of customer experience have been the core guiding principles of our groups 40-year heritage. Whether an innovative optimization of an existing design concept or a completely new technology, our Research Department continue to provide our partners with the solutions and tools they need to create exceptional professional audio systems.

OUR TECHNOLOGIES

EVOCA
ADAPTIVE LOUDSPEAKER VIRTUALIZATION

LOUDSPEAKER DRIVER MODELS ARE WIDELY USED IN THE AUDIO INDUSTRY AND ACADEMIA FOR A VARIETY OF APPLICATIONS, RANGING FROM LOUDSPEAKER DESIGN AND ENGINEERING TO LOUDSPEAKER SYSTEM CONTROL THROUGH DIGITAL SIGNAL PROCESSING. OVER THE LAST TWO YEARS OUR RESEARCH TEAM HAVE BEEN EXPLORING A NEW LINEAR AND NONLINEAR VIRTUALIZATION METHOD TO CONTROL THE INPUT SIGNAL FOR A LOW FREQUENCY TRANSDUCER, WHICH CAN BE EASILY ADOPTED INTO THE LOUDSPEAKER PRODUCT DEVELOPMENT PHASE AND INCORPORATED INTO THE FINISHED SYSTEM.

Our patent pending EVOCA Adaptive Loudspeaker Virtualization technology is intended for our OEM partners with a customizable DSP development capability and uses a modelling approach based on Wave Digital Filters that can allow system engineers to tune a low frequency loudspeaker large signal performance. EVOCA technology enables any LF speaker to be virtualized with the modification of all LPM parameters and Bl(x), Kms(x) and Le(x) curves, leading to many possible performance optimizations:

VIRTUALIZATION - EXTENDED LOW FREQUENCY RESPONSE / DISTORTION REDUCTION / PHASE ALIGNMENT

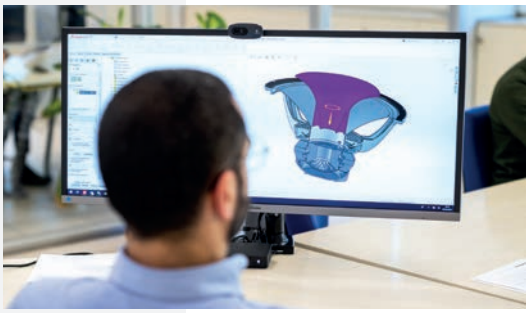
PROTECTION - BASED ON PHYSICAL THRESHOLDS / PRESERVE SIGNAL DYNAMICS

In true application terms, EVOCA has the capability to push the possibilities of system design and product performance, such as reducing cabinet volume whilst maintaining performance, simply improving acoustic performance, limiting the negative effects of LF speaker aging, or a combination of same.

Once the product has been optimized with EVOCA, this technology is embedded into a customer's DSP. A simple electrical sensor is also required in the finished product, to allow real-time parameter tracking of coil current feedback, which is based on state estimation and has no stability issues.

To find out more about EVOCA compatibility, contact sales@lavocespeakers.com

Common magnet coaxials: mechanical design



ANNULAR COMPRESSION DRIVERS

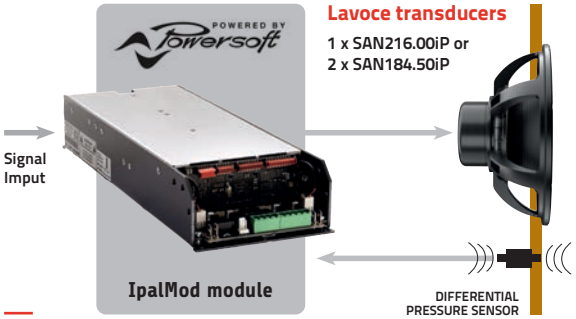
Annular diaphragm compression drivers offer higher sensitivity and an extended low frequency response compared to typical dome diaphragm designs because of their improved control over the movement of the diaphragm.
This is due to the reduced distance from voice coil to surround and means the first break-up modes of the annular diaphragm exhibit at higher frequency, contributing to a lower distortion characteristic across the whole operating frequency range, which can be very attractive for premium applications that require a higher fidelity compression driver solution.

By carefully optimising this complex annular geometry using our Loudspeaker Design Suite, our R&D team have developed the first models in our annular compression driver product category, DN10.143 (Neodymium, 110dB sensitivity) and DF10.143 (Ferrite, 107.5dB sensitivity). Both models use a High Temperature Polymer annular diaphragm with a 1.4" Edgewound CCA voice coil, and have a 70W Program Power rating, 1200-20000Hz frequency range and a recommended crossover of 1800Hz, adding more high-performance flavours to our revered compression driver range.

COMMON HF/LF MAGNET COAXIALS – CSF RANGE AND CAN RANGE

Embracing the acoustic benefits of precision crafted common magnet motors and using component parts from our industry-leading range of compression drivers, our R&D team have produced two series of impressive point source solutions for a variety of applications and price points. Each model features a single magnet, low distortion 'dual gap' motor, designed using a proprietary finite element electromagnetic model to optimize symmetry in Bl(x), to linearize Le(x) and to minimize parasitic effects and reluctance force on the LF voice coil.
This development brings the LF and HF voice coils in closer unification than traditional coaxial designs to better combine their acoustic centres for improved coherency, dispersion, and alignment optimization, creating high-performance solutions for compact portable or install systems to high-performance stage monitors and larger install systems.

The current CSF range with single ferrite magnets and steel baskets includes CSF061.70K (6.5", 300W), CSF082.00K (8", 400W), CSF102.50K (10", 500W), CSF122.50K (12", 500W) and CSF153.00K (15", 700W). Each model uses a 1.4" or 1.7" Polyimide diaphragm and surround for the high frequency and delivers an optimized frequency response from LF Fs to 20kHz.
The current CAN range with single neodymium magnets and aluminium baskets includes 12" and 13.5" models, available with our proprietary 60°x 40° horn, CAN123.00TH and CAN143.00TH, or without, CAN123.00T and CAN143.00T. Each model is rated at 700W Program Power and uses a 3" Hybrid Titanium/Polyimide diaphragm/surround for the high frequency together with our patented IIS Integral Input Surface phase plug topology and delivers an optimized frequency response from LF Fs to 20kHz.



IpalMod platform

IPAL COMPATIBLE 18" AND 21" SUBWOOFERS

Our Powersoft IpalMod compatible subwoofers, SAN184.50iP and SAN216.00iP, have been specifically developed with very low impedance (1ohm or 2ohm), high motor strength, high efficiency, high inductance and high power handling, and using our Loudspeaker Design Suite and advanced FEA techniques are optimized for Ultra-Low Distortion (Symmetric force factor Bl(x) and stiffness, Flat inductance over excursion and current L(x,i), Reduced power compression by the optimization of thermal behaviour).

The Powersoft IpalMod hardware/software amplifier platform (8500W @ 1Ω, Differential Pressure Control®, Zero Latency DSP and Virtual Speaker® technology) requires these uniquely specified speakers with very low impedance and a high inductance to squeeze all the power out of the amplifier whilst it recycles the Back Electro-Motive Force (BEMF) from the speaker in the capacitors bank of the power supply to increase the efficiency. The on-board DSP uses a closed loop reading from a Differential Pressure Sensor (DPC®), positioned on the front of the subwoofer cabinet, for changing the power output and consequently the behaviour of the connected speakers with just a few micro-seconds latency.

Partnered with our IPAL compatible subwoofers and an optimized robust cabinet design, this system culminates into an impressive increase in the mains input to acoustic output efficiency ratio and offers unprecedented acoustic performances and control of the system's sound reproduction, regardless of the acoustic load and conditions. This simply translates into double SPL output capability when compared to a traditional speaker system using the same driver size and an ultra-low distortion performance with no perceived aging of the speakers.
To find out more about IpalMod, visit: www.powersoft.com

IIS – INTEGRAL INPUT SURFACE PHASE PLUG TOPOLOGY

OUR PATENTED IIS PHASE PLUG TOPOLOGY ADDRESSES MISALIGNMENT IMPERFECTIONS TYPICALLY FOUND IN TRADITIONAL LARGE FORMAT COMPRESSION DRIVER PHASE PLUG ASSEMBLIES WHICH CAN CAUSE SEVERE DEGRADATION OF SOUND AND SIGNIFICANT VARIATIONS OF PHASE PLUG PERFORMANCE WITHIN A PRODUCTION BATCH.

Found in all our 1.4" and 2" throat compression drivers, this patented technology incorporates a smooth integral input surface part which eradicates any misalignment issues in this critical high-pressure area and together with its improved assembly topology, production batches are fully compliant to performance requirements resulting in more consistent devices without increasing material cost.

DN14.40T IIS phase plug. US Patent no. US 10,129,637

EFFICIENT MANUFACTURING:

Our wholly owned and state-of-the-art ISO9001 certified production plant is based in Jiashan, China (near Shanghai), and is home to our efficient production facility, operations teams, sampling department, testing area, quality control department and main warehouse hub.

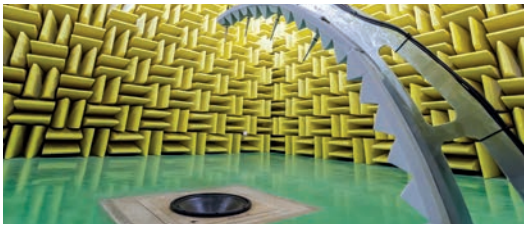
THE LAVOCE PRODUCTION PLANT

SPEAKER ASSEMBLY TAKES PLACE ON PRODUCTION LINES WHICH HAVE A CAREFULLY BALANCED MIX OF SEMI-AUTOMATED MACHINERY AND MANUAL OPERATION AND ARE DESIGNED AND DEDICATED TO ASSEMBLING SPECIFIC TYPES AND SIZES OF WOOFERS, COMPRESSION DRIVERS, COAXIALS AND SOFT DOME TWEETERS.

All production lines are driven by carefully managed three-step pre-production and mass-production procedures to validate every stage of the production process. A recently introduced PMS (Production Management System), which integrates our computer-based SOP's (Standard Operating Procedures) with the technical specifications of all production processes (product BOM, glue types, glue quantities, magnetizers to be used, etc.), enables our Production Department to have all aspects of production under complete control. And by using data matrix codes on all LF and HF products, including HF diaphragm assemblies, we also have full traceability of parts and semi-finished products, which allows constant verification of the % efficiency of the production lines and the % of rejects.

MEASUREMENT CHAMBER

Our humidity and temperature controlled semi-anechoic chamber provides a reflection-free environment, specifically designed for the precision measurement of transducer physical properties, on and off-axis frequency response and sound pressure level.



Semi-anechoic chamber

METROLOGY AND TESTING LABORATORY

Refurbished in 2022, our metrology and testing laboratory houses dedicated equipment and machinery to test for specific product and material validation requirements:

ADHESIVES - PEELING / INK DROPLET

DAMAGE PREVENTION - SINUSOIDAL AND RANDOM VIBRATION / DROP TEST

ENVIRONMENTAL - IP66 (IP6X + IPX6) / SALT SPRAY / UV SOLAR RADIATION

HAZARDOUS MATERIALS - ROHS

HUMIDITY - HOT/COLD HUMIDITY CHAMBER / CONSTANT HIGH HUMIDITY / HUMIDITY CYCLING

TEMPERATURE - HIGH AND LOW TEMPERATURE STORAGE AND OPERATION / TEMPERATURE STEP AND CYCLING / THERMAL SHOCK

Metrology and testing laboratory

POWER TEST BUILDING

All catalogue and custom OEM drivers are tested in our 150m2 purpose-designed power test area, consisting of fully automated and monitored testing systems. Our dedicated and separated rooms for power testing, life testing, operation control and test cabinet storage offer full customization of their settings and are all temperature and humidity controlled.

POWER TEST ROOM - Equipped with three Klippel Power Monitor 8 machines, 24 channels are available to execute individual AES standard or other full-power tests at the same time, including for low impedance speakers at more than 2500W (5000W Program Power).

LIFE TEST ROOM - Equipped with two True Technologies LifeTest systems, 32 channels are available to execute individual 100hr, 200hr or 500hr life tests at the same time, monitoring voice coil temperature, voltage and current, in addition to small signal parameters. Another 10 stations are available to satisfy specific customer requests, such as testing in their own supplied self-amplified cabinets or more complex systems.

These tests are designed to validate robustness, where speakers are pushed to extremes to identify their weakest part, and reliability, where drivers are subjected to accelerated life tests to obtain failure data, so we can fully optimize each product to meet their performance target and offer a real-world and trusted power rating for each product.

Power test and life test set-up

Diaphragm forming department

TOTAL QUALITY CONTROL

Customer focus, process-driven and continuous improvement are a few of the guiding principles we follow in our approach to quality control and are reflected in our ISO9001 certification. From the design and validation stages to the finished product, our quality control procedures are meticulously followed to guarantee product reliability, consistent performance and a second-to-none experience for our customers.

INCOMING QUALITY CONTROL - Rigorous supplier control plan and compliance measurement or testing of every component part.

IN-PROCESS QUALITY CONTROL - Constant recording and analysis of all critical parameters and build materials, Sweep test and 100% Klippel QC for electro-acoustical and functional aspects, including voice coil displacement.

FINISHED PRODUCT QUALITY CONTROL - Klippel QC for electro-acoustical and functional aspects, Mechanical Test, Thermal Shock Test, Product Life and Long-Term Power Handling tests.

OQC Klippel QC station and in-process glue weigth control station

IN-HOUSE DIAPHRAGM FORMING

As part of our commitment to quality control and adding value for our customers, we form all Polyester, Polyimide and High Temperature Polymer (PEEK) compression driver diaphragms in-house using automatic machinery.

GLOBAL WAREHOUSES

Catalogue products are first stored in our humidity-controlled warehouse facility in Jiashan, China, before being shipped directly to customers or to one of our global warehouses in Potenza Picena, Italy, or Tennessee, USA.
Warehoused stock is carefully managed using a FIFO system to ensure up-to-date stock availability for our customers, and through radio frequency identification (RFID) and an optical scanning system, we have full product traceability to ensure fast and accurate direct shipments to our global partners.

Finished products warehouse

COHERENTLY ALIGNED

COAXIAL POINT SOURCES

Our Coaxial Point Sources offer innovative solutions for a wide range of applications, from compact portable or install systems to high-performance stage monitors and larger install systems. Adopting precision crafted single magnet, dual gap motor designs for all ferrite and neodymium models using our optimized compression driver componentry, the closer unification of LF and HF acoustic centres ensures better coherency, dispersion, and alignment optimisation for exceptional point source delivery.

Product name	Size mm (in.)	Basket material	Magnet material	Com-mon motor	60°x40° horn	Demod. Ring		Voice coil mm (in.)	Sens. dB	AES Power W	Freq. range Hz	Xmax mm	HF Diaphragm material	Rec. Xover Hz	Nom. imp. Ω	Depth mm (in.)	Net weight kg (lb.)
CSF051.21	130 (5)	Steel	Ferrite/ Neo	-	-	-	LF	30 (1.2)	92	50	110 - 22000	3.4 (0.13)	Silk	Included	8	72.7 (2.86)	0.8 (1.8)
							HF	14 (0.6)									
CSF061.21	165 (6.5)	Steel	Ferrite/ Neo	-	-	-	LF	30 (1.2)	92,5	50	90 - 22000	3,2 (0.12)	Silk	Included	8	83.3 (3.28)	1 (2.2)
							HF	14 (0.6)									
CSF061.70K	165 (6.5)	Steel	Ferrite	▪	-	▪	LF	44 (1.7)	92	150	95 - 6000	3,9 (0.15)	Polyimide	2200	8	91,3 (3.60)	2 (4.4)
							HF	35 (1.4)	103,5	35	1500 - 20000						
CSF082.00K	200 (8)	Steel	Ferrite	▪	-	▪	LF	51 (2)	96	200	75 - 5500	5 (0.20)	Polyimide	2200	8 [4]	114,3 (4.50)	3 (6.6)
							HF	35 (1.4)	103,5	35	1500 - 20000						
CSF102.50K	250 (10)	Steel	Ferrite	▪	-	▪	LF	65 (2.5)	96	300	65 - 4000	6,25 (0.25)	Polyimide	1600	8	137,6 (5.42)	4,9 (10.9)
							HF	44,4 (1.7)	105	60	1000 - 20000						
CSF122.50K	300 (12)	Steel	Ferrite	▪	-	▪	LF	65 (2.5)	97	300	45 - 4000	6,25 (0.25)	Polyimide	1600	8	155,5 (6.12)	5,6 (12.3)
							HF	44,4 (1.7)	105	60	1000 - 20000						
CAN123.00T	300 (12)	Aluminium	Neo	▪	-	▪	LF	75 (3)	99,5	350	45 - 3500	6 (0.24)	Titanium / Polyimide	1200	8	174,9 (6.89)	4.8 (10.6)
							HF	75 (3)	105,5	80	600 - 18000						
CAN123.00TH	300 (12)	Aluminium	Neo	▪	▪	▪	LF	75 (3)	99,5	350	45 - 3500	6 (0.24)	Titanium / Polyimide	1200	8	174,9 (6.89)	5 (11)
							HF	75 (3)	106	80	600 - 18000						
CAN143.00T	340 (13.5)	Aluminium	Neo	▪	-	▪	LF	75 (3)	99	400	45 - 4500	6 (0.24)	Titanium / Polyimide	1200	8	187,7 (7.39)	5 (11)
							HF	75 (3)	105,5	80	600 - 18000						
CAN143.00TH	340 (13.5)	Aluminium	Neo	▪	▪	▪	LF	75 (3)	99	400	45 - 4500	6 (0.24)	Titanium / Polyimide	1200	8	187,7 (7.39)	5,2 (11.5)
							HF	75 (3)	106	80	600 - 18000						
CSF153.00K	380 (15)	Steel	Ferrite	▪	-	▪	LF	75 (3)	98	350	50 - 2000	7,2 (0.28)	Polyimide	1600	8	186,9 (7.36)	6,4 (14.1)
							HF	44,4 (1.7)	108	60	1000 - 20000						

Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

CSF051.21

5" COAXIAL

FERRITE WOOFER
NEODYMIUM TWEETER MAGNET
STEEL BASKET DRIVER

- 1.2 INCH WOOFER COPPER VOICE COIL
- 0.55 INCH TWEETER COPPER VOICE COIL
- 92 dB/SPL SENSITIVITY
- 100 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- EXTENDED FREQUENCY RESPONSE AND CONSTANT DIRECTIVITY
- RESONANCE FREE AND HEAVY DUTY STEEL BASKET DESIGN
- OPTIMIZED BUILT-IN CROSSOVER

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	130 - 20 (5 - 0.7)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,1
Program power (1)	W	100
AES Power rating (2)	W	50
Sensitivity (3)	dB	92
Frequency range	Hz	110 ÷ 22000
Voice coil diameter	mm (in.)	30 - 14 (1.2 - 0.55)
Chassis material	Steel	
Magnet material	Ferrite - Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	86 x 40 x 13 (3.38 x 1.57 x 0.51)
Coil material	Copper	
Former material	Polyimide	
Cone material	Water Resistant Treated Paper - PEI	
Surround material	Polycotton	
Xmax (4)	mm (in.)	3,4 (0.13)
Xmech (5)	mm (in.)	4 (0.16)
Gap height	mm (in.)	3,5 (0.14)
Voice coil winding height	mm (in.)	8,5 (0.33)
Driver displacement volume	l (ft³)	0,28 (0.01)
Recommended enclosure	l (ft³)	3,9 (0.14)
Recommended tuning	Hz	Sealed

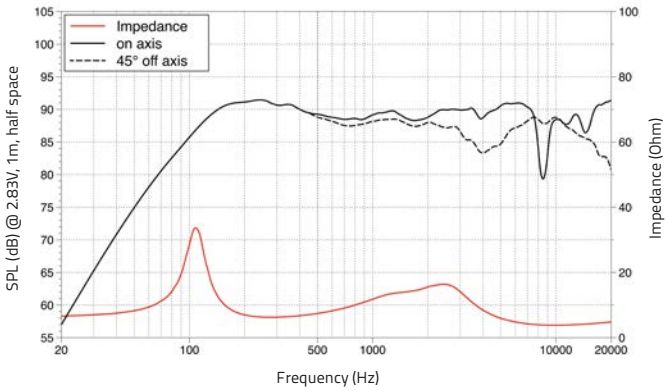
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,7
Resonance frequency	Fs	Hz	110
Moving mass	Mms	g (oz)	6,5 (0.23)
Compliance	Cms	mm/N	0,32
Force factor	BxL	N/A	5,91
Mechanical Q-factor	Qms		4,85
Electrical Q-factor	Qes		0,74
Total Q-factor	Qts		0,64
Equivalent air volume	Vas	l (ft³)	4,08 (0.14)
Voice coil Inductance	Le	mH	0,3
Diaphragm area	Sd	cm² (in.²)	95 (14.7)
Reference efficiency	Eta 0	%	0,72
Efficiency bandwidth product	EBP	Hz	149

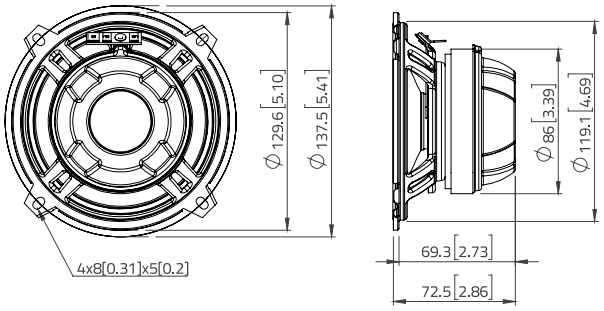
SHIPPING INFORMATION

Net weight	kg (lb.)	0,8 (1.8)
Multipack size (12) W x D x H	mm (in.)	475 x 345 x 225 (18.7 x 13.6 x 8.8)
Multipack weight	kg (lb.)	12,3 (27.1)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

CSF061.21

6.5” COAXIAL

FERRITE WOOFER
NEODYMIUM TWEETER MAGNET
STEEL BASKET DRIVER

- 1.2 INCH WOOFER COPPER VOICE COIL
- 0.55 INCH TWEETER COPPER VOICE COIL
- 92,5 dB/SPL SENSITIVITY
- 100 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- EXTENDED FREQUENCY RESPONSE AND CONSTANT DIRECTIVITY
- RESONANCE FREE AND HEAVY DUTY STEEL BASKET DESIGN
- OPTIMIZED BUILT-IN CROSSOVER

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	165 - 20 (6.5 - 0.7)
Nominal impedance	Ω	8
Minimum impedance	Ω	6
Program power (1)	W	100
AES Power rating (2)	W	50
Sensitivity (3)	dB	92,5
Frequency range	Hz	90 ÷ 22000
Voice coil diameter	mm (in.)	30 - 14 (1.2 - 0.55)
Chassis material	Steel	
Magnet material	Ferrite - Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	90 x 40 x 15 (3.54 x 1.57 x 0.59)
Coil material	Copper	
Former material	Polyimide	
Cone material	Water Resistant Treated Paper - PEI	
Surround material	Polycotton	
Xmax (4)	mm (in.)	3,2 (0.12)
Xmech (5)	mm (in.)	4,2 (0.16)
Gap height	mm (in.)	4 (0.16)
Voice coil winding height	mm (in.)	8,5 (0.33)
Driver displacement volume	l (ft³)	8 (0.28)
Recommended enclosure	l (ft³)	6.2 (0.22)
Recommended tuning	Hz	Sealed

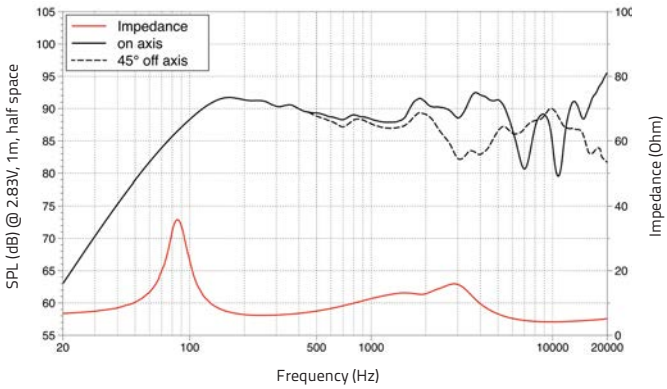
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,7
Resonance frequency	Fs	Hz	90
Moving mass	Mms	g (oz)	9,11 (0.32)
Compliance	Cms	mm/N	0,34
Force factor	BxL	N/A	6,09
Mechanical Q-factor	Qms		4,36
Electrical Q-factor	Qes		0,79
Total Q-factor	Qts		0,67
Equivalent air volume	Vas	l (ft³)	8,48 (0.3)
Voice coil Inductance	Le	mH	0,37
Diaphragm area	Sd	cm² (in.²)	132 (20.5)
Reference efficiency	Eta 0	%	0,75
Efficiency bandwidth product	EBP	Hz	114

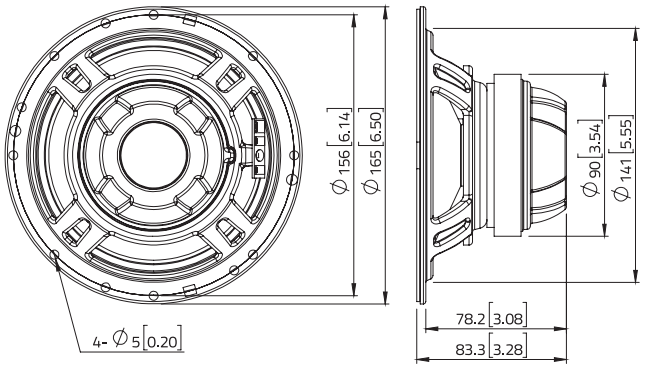
SHIPPING INFORMATION

Net weight	kg (lb.)	1 (2.2)
Multipack size (8) W x D x H	mm (in.)	381 x 365 x 220 (15 x 14.4 x 8.7)
Multipack weight	kg (lb.)	9,8 (21.6)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

CSF061.70K

6.5” COAXIAL

FERRITE COMMON HF\LF MAGNET
STEEL BASKET DRIVER

PRELIMINARY

- 1.7 INCH LF EDGEWOUND CCA VOICE COIL
- 1.4 INCH HF CCAW VOICE COIL
- 92 dB/SPL SENSITIVITY
- 300 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED COMMON MOTOR, PHASEPLUG AND DIAPHRAGM
- 95 - 20000 Hz FREQUENCY RANGE
- 100° NOMINAL COVERAGE
- POLYIMIDE HF DIAPHRAGM
- DOUBLE ALUMINIUM DEMODULATING RINGS
- COMPACT AND LIGHTWEIGHT DESIGN

GENERAL SPECIFICATIONS		LF	HF
LF Nominal diameter / HF Exit	mm (in.)	165 (6.5)	25,4 (1)
Nominal impedance	Ω	8	8
Minimum impedance	Ω	5,9	7,5
Program power (1)	W	300	70
AES Power rating (2)	W	150	35
Sensitivity (3)	dB	92	103,5
Frequency range	Hz	95 ÷ 6000	1500 ÷ 20000
Voice coil diameter	mm (in.)	44 (1.7)	35 (1.4)
Chassis material		Steel	
Magnet material		Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	130 x 57 x 14 (5.12 x 2.24 x 0.55)	
Coil material		Edgewound CCA	CCAW
Former material		Glass Fiber	Kapton
LF Cone / HF Dome material		Waterproof Treated Paper	Polyimide
Surround material		Polycotton	Polyimide
Flux density	T	0,95	1,3
Recommended crossover (4)	Hz	-	2200
Xmax (5)	mm (in.)	3,9 (0.15)	-
Xmech (6)	mm (in.)	6,4 (0.25)	-
Gap height	mm (in.)	6 (0.24)	-
Voice coil winding height	mm (in.)	10,7 (0.42)	-
Driver displacement volume	l (ft³)	0,7 (0.025)	
Recommended enclosure	l (ft³)	9 (0.32)	
Recommended tuning	Hz	Sealed	

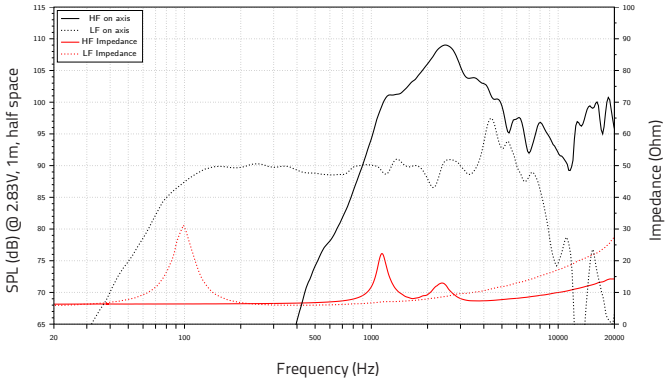
LF SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,6
Resonance frequency	Fs	Hz	97
Moving mass	Mms	g (oz)	11,9 (0.42)
Compliance	Cms	mm/N	0,23
Force factor	BxL	N/A	6,9
Mechanical Q-factor	Qms		3,76
Electrical Q-factor	Qes		0,85
Total Q-factor	Qts		0,69
Equivalent air volume	Vas	l (ft³)	6,5 (0.23)
Voice coil Inductance	Le	mH	0,3
Diaphragm area	Sd	cm² (in.²)	143 (22.17)
Reference efficiency	Eta 0	%	0,7
Efficiency bandwidth product	EBP	Hz	114

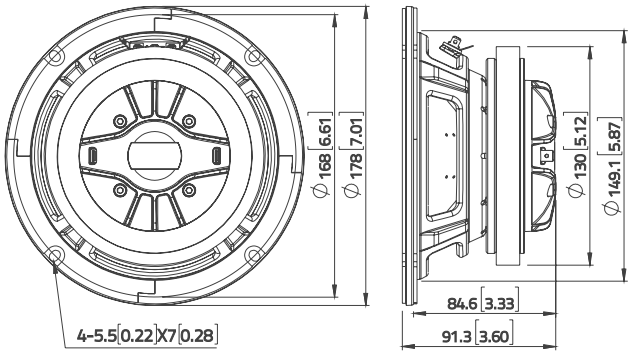
SHIPPING INFORMATION

Net weight	kg (lb.)	2 (4.4)
Multipack size (4) W x D x H	mm (in.)	410 x 224 x 269 (16.1 x 8.8 x 10.6)
Multipack weight	kg (lb.)	9,9 (21.8)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power.
(2) Tested in free air for two hours using a continuous:
LF: band-limited pink noise signal as per AES 2-1984 Rev. 2003.
HF: band-limited (2200-20000 Hz, 12dB/oct.) pink noise signal as per AES 2-1984 Rev. 2003.
(3) LF: From T/S parameters, measured with Klippel DA LPM module.
HF: Measured on axis at 2.83V, 1m, SPL averaged in the frequency range 1500 ÷ 20000 Hz.
(4) High pass filter with slope 12dB/oct. or higher.
(5) The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height.
(6) The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height.
(7) Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

CSF082.00K

8” COAXIAL

FERRITE COMMON HF\LF MAGNET
STEEL BASKET DRIVER

- 2 INCH LF EDGEWOUND CCA VOICE COIL
- 1.4 INCH HF CCAW VOICE COIL
- 96 dB/SPL SENSITIVITY
- 400 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED COMMON MOTOR, PHASEPLUG AND DIAPHRAGM
- TRIPLE ROLL SURROUND
- 75 - 20000 Hz FREQUENCY RANGE
- 100° NOMINAL COVERAGE
- POLYIMIDE HF DIAPHRAGM
- DOUBLE ALUMINIUM DEMODULATING RINGS
- COMPACT AND LIGHTWEIGHT DESIGN
- ALTERNATIVE IMPEDANCE: 4 OHM

GENERAL SPECIFICATIONS

		LF	HF
LF Nominal diameter / HF Exit	mm (in.)	200 (8)	25.4 (1)
Nominal impedance	Ω	8	8
Minimum impedance	Ω	6,9	7,5
Program power (1)	W	400	70
AES Power rating (2)	W	200	35
Sensitivity (3)	dB	96	103,5
Frequency range	Hz	75 ÷ 5500	1500 ÷ 20000
Voice coil diameter	mm (in.)	51 (2)	35 (1.4)
Chassis material		Steel	
Magnet material		Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	140 x 62 x 22 (5.51 x 2.44 x 0.87)	
Coil material		Edgewound CCA	CCAW
Former material		Glass Fiber	Kapton
LF Cone / HF Dome material		Waterproof Treated Paper	Polyimide
Surround material		Polycotton	Polyimide
Flux density	T	1	1,5
Recommended crossover (4)	Hz	-	2200
Xmax (5)	mm (in.)	5 (0.2)	-
Xmech (6)	mm (in.)	9 (0.35)	-
Gap height	mm (in.)	8 (0.31)	-
Voice coil winding height	mm (in.)	14 (0.55)	-
Driver displacement volume	l (ft³)	1.1 (0.04)	-
Recommended enclosure	l (ft³)	14.5 (0.51)	
Recommended tuning	Hz	90	

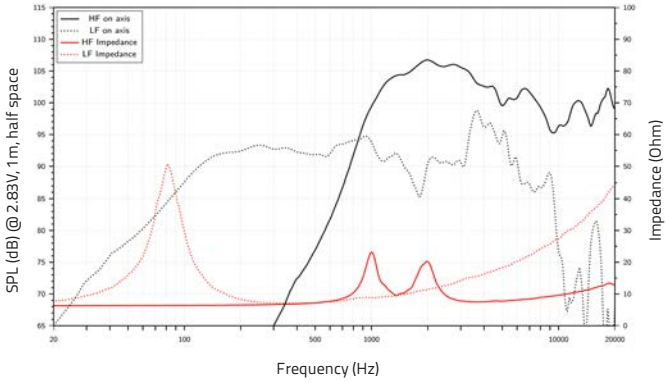
LF SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,9
Resonance frequency	Fs	Hz	81
Moving mass	Mms	g (oz)	17,9 (0.63)
Compliance	Cms	mm/N	0,216
Force factor	BxL	N/A	10,99
Mechanical Q-factor	Qms		3,48
Electrical Q-factor	Qes		0,45
Total Q-factor	Qts		0,4
Equivalent air volume	Vas	l (ft³)	14,81 (0.52)
Voice coil Inductance	Le	mH	0,46
Diaphragm area	Sd	cm² (in.²)	220 (34.1)
Reference efficiency	Eta 0	%	1,68
Efficiency bandwidth product	EBP	Hz	180

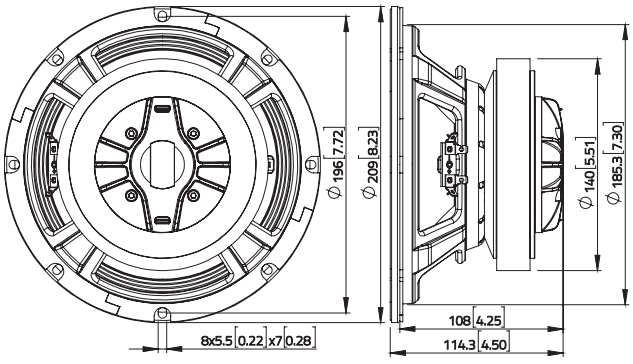
SHIPPING INFORMATION

Net weight	kg (lb.)	3 (6.6)
Multipack size (1) W x D x H	mm (in.)	244 x 235 x 165 (9.6 x 9.2 x 6.5)
Multipack weight	kg (lb.)	3,5 (7.7)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power.
(2) Tested in free air for two hours using a continuous:
LF:band-limited pink noise signal as per AES 2-1984 Rev. 2003.
HF:band-limited (1000-20000 Hz, 12dB/oct.) pink noise signal as per AES 2-1984 Rev. 2003.
(3) LF: From T/S parameters, measured with Klippel DA LPM module.
HF: Measured on axis at 2.83V, 1m, SPL averaged in the frequency range 1500 ÷ 20000 Hz.
(4) High pass filter with slope 12dB/oct. or higher.
(5) The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height.
(6) The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height.
(7) Thiele-Small parameters are measured after preconditioning: a) at 20°C - 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

CSF102.50K

10” COAXIAL

FERRITE COMMON HF\LF MAGNET
STEEL BASKET DRIVER

PRELIMINARY

- 2.5 INCH LF EDGEWOUND CCA VOICE COIL
- 1.7 INCH HF EDGEWOUND CCA VOICE COIL
- 96 dB/SPL SENSITIVITY
- 600 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED COMMON MOTOR, PHASEPLUG AND DIAPHRAGM
- 65 - 20000 Hz FREQUENCY RANGE
- 70° NOMINAL COVERAGE
- POLYIMIDE HF DIAPHRAGM
- DOUBLE ALUMINIUM DEMODULATING RINGS
- COMPACT AND LIGHTWEIGHT DESIGN

GENERAL SPECIFICATIONS

		LF	HF
LF Nominal diameter / HF Exit	mm (in.)	250 (10)	25,4 (1)
Nominal impedance	Ω	8	8
Minimum impedance	Ω	6,6	7,6
Program power (1)	W	600	120
AES Power rating (2)	W	300	60
Sensitivity (3)	dB	96	105
Frequency range	Hz	65 ÷ 4000	1000 ÷ 20000
Voice coil diameter	mm (in.)	65 (2.5)	44,4 (1.7)
Chassis material		Steel	
Magnet material		Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	175 x 85 x 22 (6.88 x 3.34 x 0.87)	
Coil material		Edgewound CCA	Edgewound CCA
Former material		Glass Fiber	Kapton
LF Cone / HF Dome material		Waterproof Treated Paper	Polyimide
Surround material		Polycotton	Polyimide
Flux density	T	1,07	1,75
Recommended crossover (4)	Hz	-	1600
Xmax (5)	mm (in.)	6,25 (0.25)	-
Xmech (6)	mm (in.)	10,25 (0.40)	-
Gap height	mm (in.)	8 (0.31)	-
Voice coil winding height	mm (in.)	16,6 (0.65)	-
Driver displacement volume	l (ft³)	1,9 (0.067)	
Recommended enclosure	l (ft³)	35 (1.24)	
Recommended tuning	Hz	65	

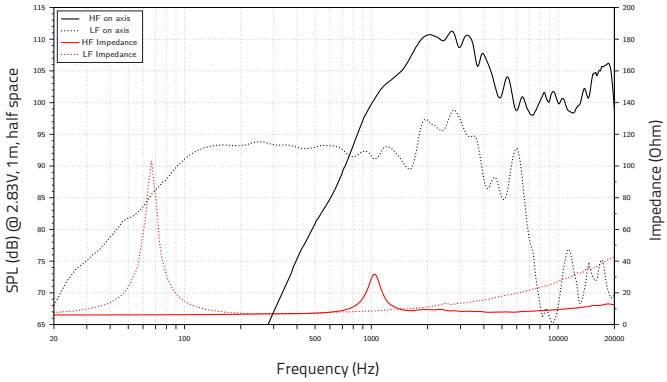
LF SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,8
Resonance frequency	Fs	Hz	65
Moving mass	Mms	g (oz)	34,2 (1.2)
Compliance	Cms	mm/N	0,17
Force factor	BxL	N/A	12,9
Mechanical Q-factor	Qms		7,39
Electrical Q-factor	Qes		0,48
Total Q-factor	Qts		0,45
Equivalent air volume	Vas	l (ft³)	29,93 (1.06)
Voice coil Inductance	Le	mH	0,46
Diaphragm area	Sd	cm² (in.²)	350 (54.25)
Reference efficiency	Eta 0	%	1,68
Efficiency bandwidth product	EBP	Hz	135

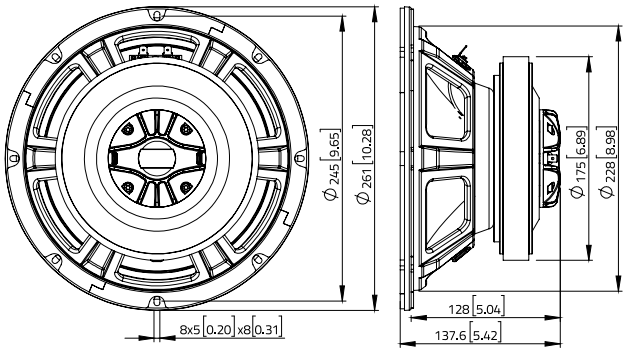
SHIPPING INFORMATION

Net weight	kg (lb.)	4,9 (10.9)
Multipack size (1) W x D x H	mm (in.)	304 x 281 x 176 (12 x 11.1 x 6.9)
Multipack weight	kg (lb.)	5,7 (12.5)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power.
(2) Tested in free air for two hours using a continuous:
LF: band-limited pink noise signal as per AES 2-1984 Rev. 2003.
HF:band-limited (1600-20000 Hz, 12dB/oct.) pink noise signal as per AES 2-1984 Rev. 2003.
(3) LF: From T/S parameters, measured with Klippel DA LPM module.
HF: Measured on axis at 2.83V, 1m, SPL averaged in the frequency range 1000 ÷ 20000 Hz.
(4) High pass filter with slope 12dB/oct. or higher.
(5) The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height.
(6) The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height.
(7) Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

CSF122.50K

12" COAXIAL

FERRITE COMMON HF\LF MAGNET
STEEL BASKET DRIVER

PRELIMINARY

- 2.5 INCH LF EDGEWOUND CCA VOICE COIL
- 1.7 INCH HF EDGEWOUND CCA VOICE COIL
- 97 DB/SPL SENSITIVITY
- 600 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED COMMON MOTOR, PHASEPLUG AND DIAPHRAGM
- 45 - 20000 Hz FREQUENCY RANGE
- 80° NOMINAL COVERAGE
- POLYIMIDE HF DIAPHRAGM
- DOUBLE ALUMINIUM DEMODULATING RINGS
- COMPACT AND LIGHTWEIGHT DESIGN

GENERAL SPECIFICATIONS

		LF	HF
LF Nominal diameter / HF Exit	mm (in.)	300 (12)	25,4 (1)
Nominal impedance	Ω	8	8
Minimum impedance	Ω	6,6	7,6
Program power (1)	W	600	120
AES Power rating (2)	W	300	60
Sensitivity (3)	dB	97	105
Frequency range	Hz	45 ÷ 4000	1000 ÷ 20000
Voice coil diameter	mm (in.)	65 (2.5)	44,4 (1.7)
Chassis material		Steel	
Magnet material		Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	185 x 85 x 22 (7.28 x 3.34 x 0.87)	
Coil material		Edgewound CCA	Edgewound CCA
Former material		Glass Fiber	Kapton
LF Cone / HF Dome material		Waterproof Treated Paper	Polyimide
Surround material		Polycotton	Polyimide
Flux density	T	1,12	1,65
Recommended crossover (4)	Hz	-	1600
Xmax (5)	mm (in.)	6,25 (0.25)	-
Xmech (6)	mm (in.)	10,25 (0.40)	-
Gap height	mm (in.)	8 (0.31)	-
Voice coil winding height	mm (in.)	16,6 (0.65)	-
Driver displacement volume	l (ft³)	3,0 (0.106)	
Recommended enclosure	l (ft³)	55 (1.94)	
Recommended tuning	Hz	55	

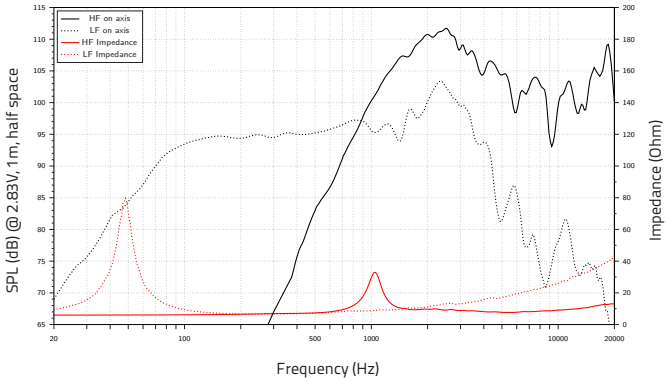
LF SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,8
Resonance frequency	Fs	Hz	47
Moving mass	Mms	g (oz)	50,8 (1.79)
Compliance	Cms	mm/N	0,23
Force factor	BxL	N/A	13,9
Mechanical Q-factor	Qms		5,80
Electrical Q-factor	Qes		0,45
Total Q-factor	Qts		0,42
Equivalent air volume	Vas	l (ft³)	89,78 (3.17)
Voice coil Inductance	Le	mH	0,46
Diaphragm area	Sd	cm² (in.²)	531 (82,31)
Reference efficiency	Eta 0	%	2,0
Efficiency bandwidth product	EBP	Hz	104

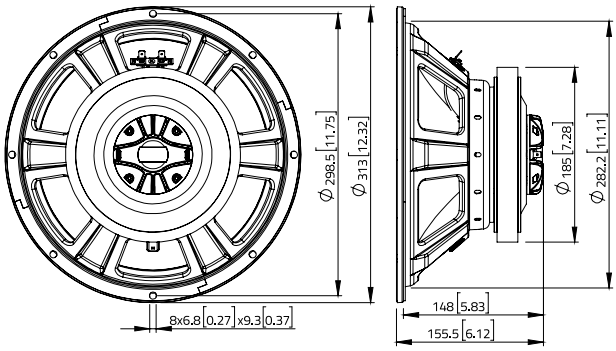
SHIPPING INFORMATION

Net weight	kg (lb.)	5,6 (12.3)
Multipack size (1) W x D x H	mm (in.)	338 x 338 x 191 (13.3 x 13.3 x 7.52)
Multipack weight	kg (lb.)	6,6 (14.6)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power.
(2) Tested in free air for two hours using a continuous:
LF: band-limited pink noise signal as per AES 2-1984 Rev. 2003.
HF:band-limited (1600-20000 Hz, 12dB/oct.) pink noise signal as per AES 2-1984 Rev. 2003.
(3) LF: From T/S parameters, measured with Klippel DA LPM module.
HF: Measured on axis at 2.83V, 1m, SPL averaged in the frequency range 1000 ÷ 20000 Hz.
(4) High pass filter with slope 12dB/oct. or higher.
(5) The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height.
(6) The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height.
(7) Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

CAN123.00T

12" COAXIAL

NEODYMIUM COMMON HF\LF MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH LF COPPER VOICE COIL
- 3 INCH HF EDGEWOUND CCA VOICE COIL
- 99,5 dB/SPL SENSITIVITY
- 700 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED COMMON MOTOR, PATENTED IIS PHASEPLUG AND DIAPHRAGM
- 45 - 18000 Hz FREQUENCY RANGE
- 80° NOMINAL COVERAGE
- COMPOSITE TITANIUM/POLYIMIDE HF DIAPHRAGM
- DOUBLE ALUMINIUM DEMODULATING RINGS
- COMPACT AND LIGHTWEIGHT DESIGN

GENERAL SPECIFICATIONS

		LF	HF
LF Nominal diameter / HF Exit	mm (in.)	300 (12)	36 (1.4)
Nominal impedance	Ω	8	8
Minimum impedance	Ω	6,2	8
Program power (1)	W	700	160
AES Power rating (2)	W	350	80
Sensitivity (3)	dB	99,5	105,5
Frequency range	Hz	45 ÷ 3500	600 ÷ 18000
Voice coil diameter	mm (in.)	75 (3)	75 (3)
Chassis material		Aluminium	
Magnet material		Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	135 x 85 x 10 (5.31 x 3.35 x 0.39)	
Coil material		Copper	Edgewound CCA
Former material		Glass Fiber	Kapton
LF Cone / HF Dome material		WP Treated Paper + WP Front Side	Titanium
Surround material		Polycotton	Polyimide
Flux density	T	1,2	1,9
Recommended crossover (4)	Hz	-	1200
Xmax (5)	mm (in.)	6 (0.24)	-
Xmech (6)	mm (in.)	10 (0.39)	-
Gap height	mm (in.)	8 (0.31)	-
Voice coil winding height	mm (in.)	16 (0.63)	-
Driver displacement volume	l (ft³)	2,7 (0.09)	-
Recommended enclosure	l (ft³)	54 (1.91)	
Recommended tuning	Hz	68	

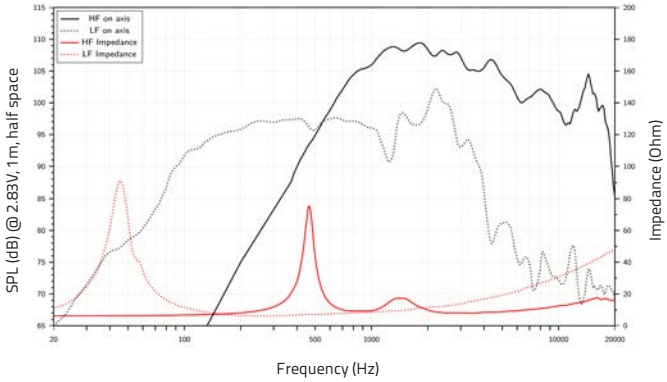
LF SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,3
Resonance frequency	Fs	Hz	46
Moving mass	Mms	g (oz)	52,5 (1.85)
Compliance	Cms	mm/N	0,23
Force factor	BxL	N/A	18,5
Mechanical Q-factor	Qms		4,0
Electrical Q-factor	Qes		0,23
Total Q-factor	Qts		0,22
Equivalent air volume	Vas	l (ft³)	91,0 (3.21)
Voice coil Inductance	Le	mH	0,50
Diaphragm area	Sd	cm² (in.²)	531 (82.31)
Reference efficiency	Eta 0	%	3,6
Efficiency bandwidth product	EBP	Hz	200

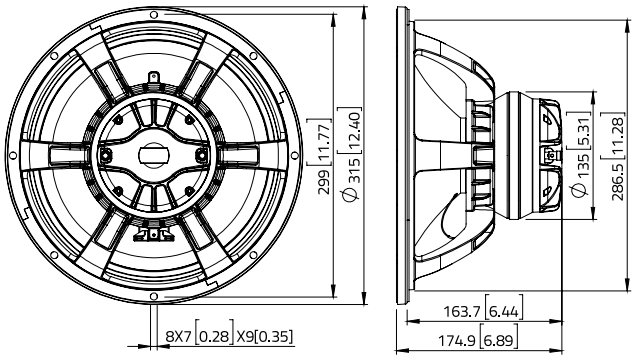
SHIPPING INFORMATION

Net weight	kg (lb.)	4,8 (10.6)
Multipack size (1) W x D x H	mm (in.)	343 x 343 x 225 (13.5 x 13.5 x 8.8)
Multipack weight	kg (lb.)	5,9 (13.0)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power.
(2) Tested in free air for two hours using a continuous:
LF:band-limited pink noise signal as per AES 2-1984 Rev. 2003.
HF:band-limited (1000-20000 Hz, 12dB/oct.) pink noise signal as per AES 2-1984 Rev. 2003.
(3) LF: From T/S parameters, measured with Klippel DA LPM module.
HF: Measured on axis at 2.83V, 1m, SPL averaged in the frequency range 600 ÷ 18000 Hz.
(4) High pass filter with slope 12dB/oct. or higher.
(5) The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height.
(6) The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height.
(7) Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

All specifications subject to change without notice_H.a

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

CAN123.00TH

12" COAXIAL

NEODYMIUM COMMON HF\LF MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH LF COPPER VOICE COIL
- 3 INCH HF EDGEWOUND CCA VOICE COIL
- 99,5 dB/SPL SENSITIVITY
- 700 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED COMMON MOTOR, PATENTED IIS PHASEPLUG AND DIAPHRAGM
- 45 - 18000 Hz FREQUENCY RANGE
- 60°x40° NOMINAL COVERAGE
- COMPOSITE TITANIUM/POLYIMIDE HF DIAPHRAGM
- DOUBLE ALUMINIUM DEMODULATING RINGS
- COMPACT AND LIGHTWEIGHT DESIGN

GENERAL SPECIFICATIONS

		LF	HF
LF Nominal diameter / HF Exit	mm (in.)	300 (12)	36 (1.4)
Nominal impedance	Ω	8	8
Minimum impedance	Ω	6,2	8
Program power (1)	W	700	160
AES Power rating (2)	W	350	80
Sensitivity (3)	dB	99,5	106
Frequency range	Hz	45 ÷ 3500	600 ÷ 18000
Voice coil diameter	mm (in.)	75 (3)	75 (3)
Chassis material		Aluminium	
Magnet material		Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	135 x 85 x 10 (5.31 x 3.35 x 0.39)	
Coil material		Copper	Edgewound CCA
Former material		Glass Fiber	Kapton
LF Cone / HF Dome material		WP Treated Paper + WP Front Side	Titanium
Surround material		Polycotton	Polyimide
Flux density	T	1,2	1,9
Recommended crossover (4)	Hz	-	1200
Xmax (5)	mm (in.)	6 (0.24)	-
Xmech (6)	mm (in.)	10 (0.39)	-
Gap height	mm (in.)	8 (0.31)	-
Voice coil winding height	mm (in.)	16 (0.63)	-
Driver displacement volume	l (ft³)	2.7 (0.09)	-
Recommended enclosure	l (ft³)	54 (1.91)	
Recommended tuning	Hz	66	

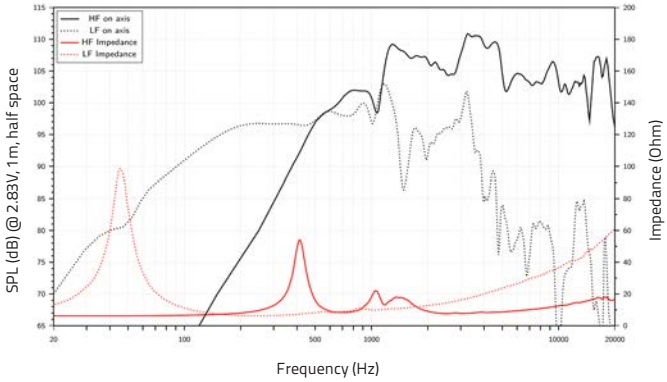
LF SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,3
Resonance frequency	Fs	Hz	46
Moving mass	Mms	g (oz)	52,5 (1.85)
Compliance	Cms	mm/N	0,23
Force factor	BxL	N/A	18,5
Mechanical Q-factor	Qms		4,0
Electrical Q-factor	Qes		0,23
Total Q-factor	Qts		0,22
Equivalent air volume	Vas	l (ft³)	91,0 (3.21)
Voice coil Inductance	Le	mH	0,50
Diaphragm area	Sd	cm² (in.²)	531 (82.31)
Reference efficiency	Eta 0	%	3,6
Efficiency bandwidth product	EBP	Hz	200

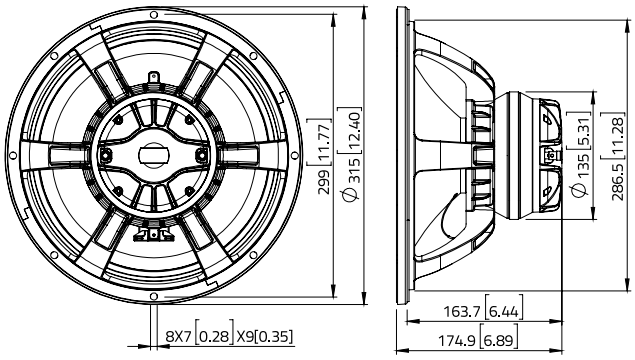
SHIPPING INFORMATION

Net weight	kg (lb.)	5 (11)
Multipack size (1) W x D x H	mm (in.)	343 x 343 x 225 (13.5 x 13.5 x 8.8)
Multipack weight	kg (lb.)	6,1 (13.4)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power.
(2) Tested in free air for two hours using a continuous:
LF:band-limited pink noise signal as per AES 2-1984 Rev. 2003.
HF:band-limited (1000-20000 Hz, 12dB/oct.) pink noise signal as per AES 2-1984 Rev. 2003.
(3) LF: From T/S parameters, measured with Klippel DA LPM module.
HF: Measured on axis at 2.83V, 1m, SPL averaged in the frequency range 600 ÷ 18000 Hz.
(4) High pass filter with slope 12dB/oct. or higher.
(5) The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height.
(6) The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height.
(7) Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WWW.LAVOCESPEAKERS.COM

Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

CAN143.00T

13.5” COAXIAL

NEODYMIUM COMMON HF\LF MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH LF COPPER VOICE COIL
- 3 INCH HF EDGEWOUND CCA VOICE COIL
- 99 dB/SPL SENSITIVITY
- 800 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED COMMON MOTOR, PATENTED IIS PHASEPLUG AND DIAPHRAGM
- 45 – 18000 Hz FREQUENCY RANGE
- 80° NOMINAL COVERAGE
- COMPOSITE TITANIUM/POLYIMIDE HF DIAPHRAGM
- DOUBLE ALUMINIUM DEMODULATING RINGS
- COMPACT AND LIGHTWEIGHT DESIGN

GENERAL SPECIFICATIONS

		LF	HF
LF Nominal diameter / HF Exit	mm (in.)	340 (13.5)	36 (1.4)
Nominal impedance	Ω	8	8
Minimum impedance	Ω	6,2	8
Program power (1)	W	800	160
AES Power rating (2)	W	400	80
Sensitivity (3)	dB	99	105,5
Frequency range	Hz	45 ÷ 4500	600 ÷ 18000
Voice coil diameter	mm (in.)	75 (3)	75 (3)
Chassis material		Aluminium	
Magnet material		Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	135 x 85 x 10 (5.31 x 3.35 x 0.39)	
Coil material		Copper	Edgewound CCA
Former material		Glass Fiber	Kapton
LF Cone / HF Dome material		WP Treated Paper + WP Front Side	Titanium
Surround material		Polycotton	Polyimide
Flux density	T	1,2	1,9
Recommended crossover (4)	Hz	-	1200
Xmax (5)	mm (in.)	6 (0.24)	-
Xmech (6)	mm (in.)	10 (0.39)	-
Gap height	mm (in.)	8 (0.31)	-
Voice coil winding height	mm (in.)	16 (0.63)	-
Driver displacement volume	l (ft³)	3,5 (0.12)	-
Recommended enclosure	l (ft³)	67,5 (2.4)	
Recommended tuning	Hz	60	

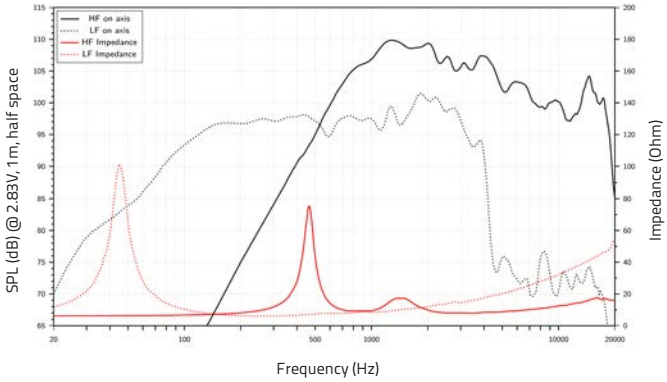
LF SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,2
Resonance frequency	Fs	Hz	44
Moving mass	Mms	g (oz)	77 (2.72)
Compliance	Cms	mm/N	0,17
Force factor	BxL	N/A	18,8
Mechanical Q-factor	Qms		6,34
Electrical Q-factor	Qes		0,31
Total Q-factor	Qts		0,3
Equivalent air volume	Vas	l (ft³)	122,31 (4.32)
Voice coil Inductance	Le	mH	0,55
Diaphragm area	Sd	cm² (in.²)	713 (110.52)
Reference efficiency	Eta 0	%	3,2
Efficiency bandwidth product	EBP	Hz	142

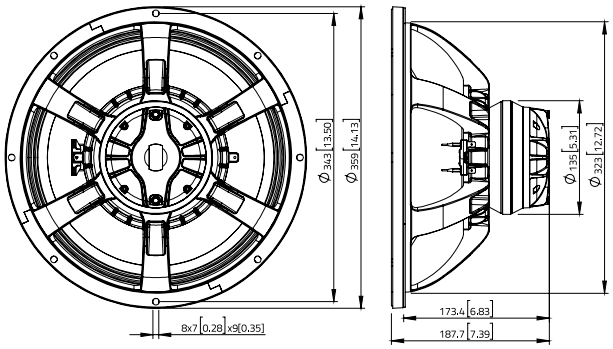
SHIPPING INFORMATION

Net weight	kg (lb.)	5 (11)
Multipack size (1) W x D x H	mm (in.)	388 x 388 x 235 (15.3 x 15.3 x 9.2)
Multipack weight	kg (lb.)	6,3 (13.9)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power.
(2) Tested in free air for two hours using a continuous:
LF:band-limited pink noise signal as per AES 2-1984 Rev. 2003.
HF:band-limited (1000-20000 Hz, 12dB/oct.) pink noise signal as per AES 2-1984 Rev. 2003.
(3) LF: From T/S parameters, measured with Klippel DA LPM module.
HF: Measured on axis at 2.83V, 1m, SPL averaged in the frequency range 600 ÷ 18000 Hz.
(4) High pass filter with slope 12dB/oct. or higher.
(5) The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height.
(6) The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height.
(7) Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

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13.5” COAXIAL

NEODYMIUM COMMON HF\LF MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH LF COPPER VOICE COIL
- 3 INCH HF EDGEWOUND CCA VOICE COIL
- 99 dB/SPL SENSITIVITY
- 800 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED COMMON MOTOR, PATENTED IIS PHASEPLUG AND DIAPHRAGM
- 45 – 18000 Hz FREQUENCY RANGE
- 60°x40° NOMINAL COVERAGE
- COMPOSITE TITANIUM/POLYIMIDE HF DIAPHRAGM
- DOUBLE ALUMINIUM DEMODULATING RINGS
- COMPACT AND LIGHTWEIGHT DESIGN

GENERAL SPECIFICATIONS

		LF	HF
LF Nominal diameter / HF Exit	mm (in.)	340 (13.5)	36 (1.4)
Nominal impedance	Ω	8	8
Minimum impedance	Ω	6,2	8
Program power (1)	W	800	160
AES Power rating (2)	W	400	80
Sensitivity (3)	dB	99	106
Frequency range	Hz	45 ÷ 4500	600 ÷ 18000
Voice coil diameter	mm (in.)	75 (3)	75 (3)
Chassis material		Aluminium	
Magnet material		Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	135 x 85 x 10 (5.31 x 3.35 x 0.39)	
Coil material		Copper	Edgewound CCA
Former material		Glass Fiber	Kapton
LF Cone / HF Dome material		WP Treated Paper + WP Front Side	Titanium
Surround material		Polycotton	Polyimide
Flux density	T	1,2	1,9
Recommended crossover (4)	Hz	-	1200
Xmax (5)	mm (in.)	6 (0.24)	-
Xmech (6)	mm (in.)	10 (0.39)	-
Gap height	mm (in.)	8 (0.31)	-
Voice coil winding height	mm (in.)	16 (0.63)	-
Driver displacement volume	l (ft³)	3,5 (0.12)	-
Recommended enclosure	l (ft³)	67,5 (2.4)	
Recommended tuning	Hz	60	

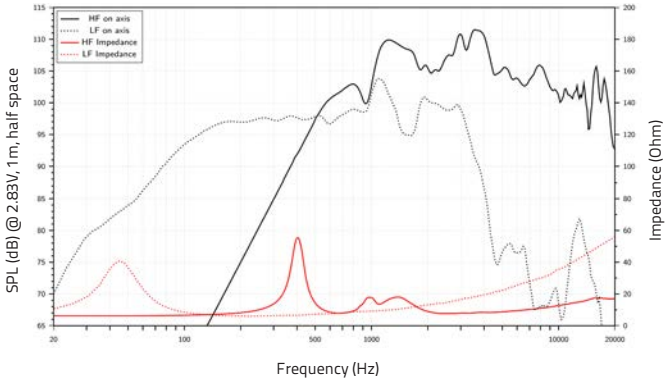
LF SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,2
Resonance frequency	Fs	Hz	44
Moving mass	Mms	g (oz)	77 (2.72)
Compliance	Cms	mm/N	0,17
Force factor	BxL	N/A	18,8
Mechanical Q-factor	Qms		6,34
Electrical Q-factor	Qes		0,31
Total Q-factor	Qts		0,3
Equivalent air volume	Vas	l (ft³)	122,31 (4.32)
Voice coil Inductance	Le	mH	0,55
Diaphragm area	Sd	cm² (in.²)	713 (110.52)
Reference efficiency	Eta 0	%	3,2
Efficiency bandwidth product	EBP	Hz	142

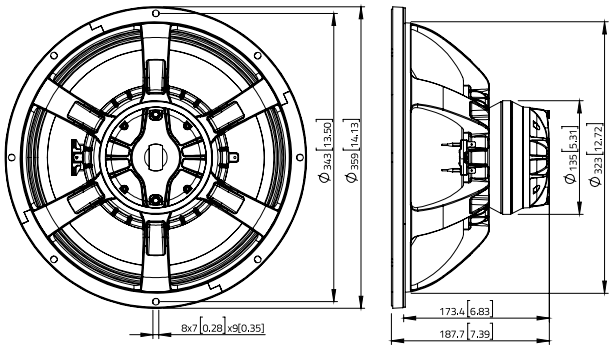
SHIPPING INFORMATION

Net weight	kg (lb.)	5,2 (11.5)
Multipack size (1) W x D x H	mm (in.)	388 x 388 x 235 (15.3 x 15.3 x 9.2)
Multipack weight	kg (lb.)	6,5 (14.3)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power.
(2) Tested in free air for two hours using a continuous:
LF:band-limited pink noise signal as per AES 2-1984 Rev. 2003.
HF:band-limited (1000-20000 Hz, 12dB/oct.) pink noise signal as per AES 2-1984 Rev. 2003.
(3) LF: From T/S parameters, measured with Klippel DA LPM module.
HF: Measured on axis at 2.83V, 1m, SPL averaged in the frequency range 600 ÷ 18000 Hz.
(4) High pass filter with slope 12dB/oct. or higher.
(5) The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height.
(6) The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height.
(7) Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

CSF153.00K

15" COAXIAL

FERRITE COMMON HF\LF MAGNET
STEEL BASKET DRIVER

PRELIMINARY

- 3 INCH LF EDGEWOUND COPPER VOICE COIL
- 1.7 INCH HF EDGEWOUND CCA VOICE COIL
- 98 dB/SPL SENSITIVITY
- 700 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED COMMON MOTOR
- 50 - 20000 Hz FREQUENCY RANGE
- 80° NOMINAL COVERAGE
- POLYIMIDE HF DIAPHRAGM
- DOUBLE ALUMINIUM DEMODULATING RINGS
- COMPACT AND LIGHTWEIGHT DESIGN

GENERAL SPECIFICATIONS		LF	HF
LF Nominal diameter / HF Exit	mm (in.)	380 (15)	25,4 (1)
Nominal impedance	Ω	8	8
Minimum impedance	Ω	6,85	7,6
Program power (1)	W	700	120
AES Power rating (2)	W	350	60
Sensitivity (3)	dB	98	108
Frequency range	Hz	50 ÷ 2000	1000 ÷ 20000
Voice coil diameter	mm (in.)	75 (3)	44,4 (1.7)
Chassis material		Steel	
Magnet material		Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	185 x 85 x 22 (7.28 x 3.35 x 0.87)	
Coil material		Edgewound Copper	Edgewound CCA
Former material		Glass Fiber	Kapton
LF Cone / HF Dome material		Waterproof Treated Paper	Polyimide
Surround material		Polycotton	Polyimide
Flux density	T	0,9	1,7
Recommended crossover (4)	Hz	-	1600
Xmax (5)	mm (in.)	7,2 (0.28)	-
Xmech (6)	mm (in.)	11,2 (0.44)	-
Gap height	mm (in.)	8 (0.31)	-
Voice coil winding height	mm (in.)	18,5 (0.73)	-
Driver displacement volume	l (ft³)	4,1 (0.14)	-
Recommended enclosure	l (ft³)	99,1 (3.5)	
Recommended tuning	Hz	51	

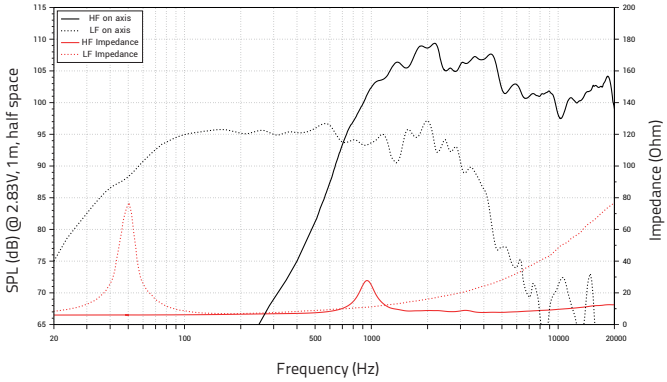
LF SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,6
Resonance frequency	Fs	Hz	50
Moving mass	Mms	g (oz)	89,6 (3.16)
Compliance	Cms	mm/N	0,113
Force factor	BxL	N/A	16,8
Mechanical Q-factor	Qms		7,97
Electrical Q-factor	Qes		0,56
Total Q-factor	Qts		0,52
Equivalent air volume	Vas	l (ft³)	117,19 (4.14)
Voice coil Inductance	Le	mH	0,83
Diaphragm area	Sd	cm² (in.²)	855 (132.52)
Reference efficiency	Eta 0	%	2,53
Efficiency bandwidth product	EBP	Hz	89

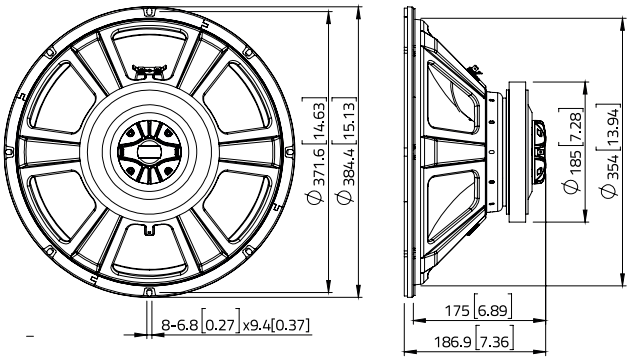
SHIPPING INFORMATION

Net weight	kg (lb.)	6,4 (14.1)
Multipack size (1) W x D x H	mm (in.)	422 x 422 x 245 (16.6 x 16.6 x 9.6)
Multipack weight	kg (lb.)	7,8 (17.2)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power.
(2) Tested in free air for two hours using a continuous:
LF:band-limited pink noise signal as per AES 2-1984 Rev. 2003.
HF:band-limited (1600-20000 Hz, 12dB/oct.) pink noise signal as per AES 2-1984 Rev. 2003.
(3) LF: From T/S parameters, measured with Klippel DA LPM module.
HF: Measured on axis at 2.83V, 1m, SPL averaged in the frequency range 1000 ÷ 20000 Hz.
(4) High pass filter with slope 12dB/oct. or higher.
(5) The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height.
(6) The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height.
(7) Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

HIGH-ENERGY PERFORMANCE

NEODYMIUM LOW FREQUENCY TRANSDUCERS

Complete optimisation of motor force factor, suspension non-linearity and heat management techniques ensure our Neodymium LF Transducers offer lightweight solutions with low distortion and reduced power compression characteristics, for premium applications that require consistency and a high-energy performance.

Product name	Size mm (in.)	Basket material	Magnet material	Voice coil mm (in.)	Sensitivity dB	AES Power W	Freq. range Hz	Xmax mm (in.)	Nominal Impedance [Options] Ω	Demod. Ring	Depth mm (in.)	Net weight kg (lb.)
WSN041.00	100 (4)	Steel	Neo	25 (1)	91,5	40	100-12000	4 (0.16)	8 [16]	-	56,1 (2.21)	0,5 (1.1)
WSN061.52	165 (6.5)	Steel	Neo	38 (1.5)	94	100	90 - 6000	3,8 (0.15)	8 [4 ; 16]	-	67,7 (2.67)	0,9 (2)
WAN061.80	165 (6.5)	Aluminium	Neo	45 (1.8)	93	200	60 - 5500	5,2 (0.2)	8	-	79,8 (3.14)	1,3 (2.9)
MAN061.80	165 (6.5)	Aluminium	Neo	45 (1.8)	94,5	150	170 - 6000	3 (0.12)	8	-	78,3 (3.08)	1,1 (2.4)
MAN062.00	165 (6.5)	Aluminium	Neo	51 (2)	98	250	100 - 4000	3,9 (0.15)	8 [16]	-	71 (2.80)	0,9 (2.03)
WAN082.01	200 (8)	Aluminium	Neo	51 (2)	96	200	80 - 5000	5,8 (0.23)	8	-	96,8 (3.81)	2,3 (5.1)
WAN082.02	200 (8)	Aluminium	Neo	51 (2)	96,5	200	80 - 5000	5,8 (0.23)	8	-	98,3 (3.87)	2,7 (5.9)
WSN102.50	250 (10)	Steel	Neo	65 (2.5)	97,5	300	75 - 3000	2,9 (0.11)	8	-	126,5 (4.98)	2,8 (6.2)
WAN102.50	250 (10)	Aluminium	Neo	65 (2.5)	97	300	80 -4000	5,1 (0.2)	8 [16]	-	109,6 (4.31)	2,8 (6.2)
WAN102.50LD	250 (10)	Aluminium	Neo	65 (2.5)	91,5	300	50 - 4000	11,5 (0.45)	8	•	129 (5.08)	4 (8.8)
WAN103.01	250 (10)	Aluminium	Neo	75 (3)	99	450	70 - 3500	5 (0.2)	8 [16]	-	110,8 (4.36)	3,1 (6.8)
WSN122.50	300 (12)	Steel	Neo	65 (2.5)	97,5	250	50 - 3000	4,7 (0.19)	8 [16]	-	134,5 (5.30)	2,1 (4.6)
WAN123.00	300 (12)	Aluminium	Neo	75 (3)	99	500	50 - 3000	6,9 (0.27)	8 [4 ; 16]	-	154,4 (6.08)	5,2 (11.4)
WAN123.01	300 (12)	Aluminium	Neo	75 (3)	98,5	500	40 - 2000	6,6 (0.26)	8	•	155,4 (6.12)	5,5 (12.1)
WAN143.00	340 (13.5)	Aluminium	Neo	75 (3)	98	500	45 - 3000	7,5 (0.29)	8	-	165 (6.50)	5,1 (11.2)
WSN152.50	380 (15)	Steel	Neo	65 (2.5)	97,5	250	45 - 3000	4,7 (0.19)	8	-	160,5 (6.32)	2,6 (5.6)
WAN153.00	380 (15)	Aluminium	Neo	75 (3)	98,5	500	45 - 3000	7 (0.28)	8	-	172,9 (6.81)	5,8 (12.7)
WAN153.01	380 (15)	Aluminium	Neo	75 (3)	100	600	40 - 2000	6,6 (0.26)	8	•	175,8 (6.92)	6,1 (13.4)

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

WSN041.00

4" WOOFER

NEODYMIUM MAGNET
STEEL BASKET DRIVER

- 1 INCH COPPER VOICE COIL
- 91,5 dB/SPL SENSITIVITY
- 80 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN
- RUBBER SURROUND MATERIAL
- ALTERNATIVE IMPEDANCE: 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	100 (4)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,5
Program power (1)	W	80
AES Power rating (2)	W	40
Sensitivity (3)	dB	91,5
Frequency range	Hz	100 ÷ 12000
Voice coil diameter	mm (in.)	25 (1)
Chassis material	Steel	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	65 x 32 x 4 (2.56 x 1.26 x 0.16)
Coil material	Copper	
Former material	Polyimide	
Cone material	Water Resistant Treated Paper	
Surround material	Rubber	
Xmax (4)	mm (in.)	4 (0.16)
Xmech (5)	mm (in.)	5,8 (0.23)
Gap height	mm (in.)	5 (0.2)
Voice coil winding height	mm (in.)	10,5 (0.41)
Driver displacement volume	l (ft³)	0,125 (0.004)
Recommended enclosure	l (ft³)	2 (0.071)
Recommended tuning	Hz	165

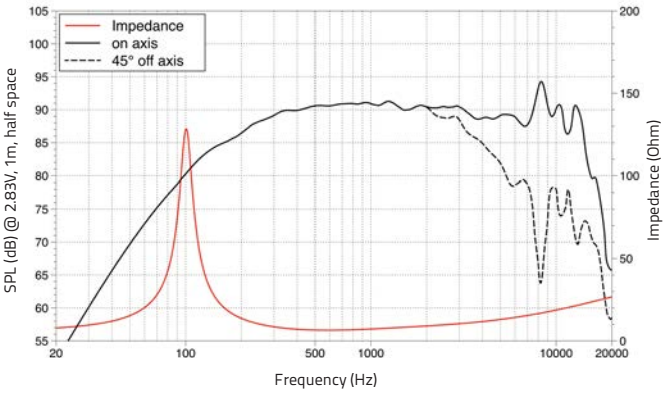
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,6
Resonance frequency	Fs	Hz	104
Moving mass	Mms	g (oz)	5,9 (0.21)
Compliance	Cms	mm/N	0,403
Force factor	BxL	N/A	8,3
Mechanical Q-factor	Qms		7,06
Electrical Q-factor	Qes		0,32
Total Q-factor	Qts		0,30
Equivalent air volume	Vas	l (ft³)	1,79 (0.06)
Voice coil Inductance	Le	mH	0,28
Diaphragm area	Sd	cm² (in.²)	56 (8.68)
Reference efficiency	Eta 0	%	0,61
Efficiency bandwidth product	EBP	Hz	325

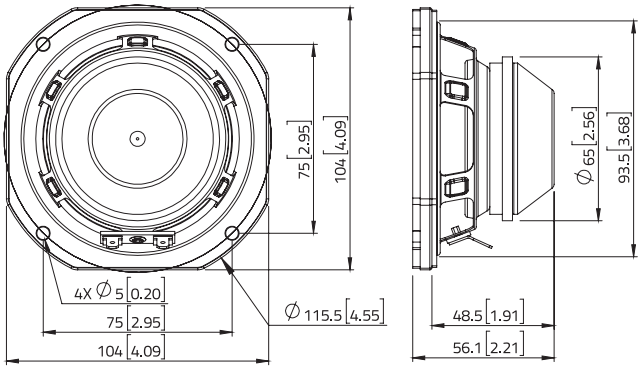
SHIPPING INFORMATION

Net weight	kg (lb.)	0,5 (1.1)
Multipack size (18) W x D x H	mm (in.)	390 x 345 x 159 (15.3 x 13.6 x 6.2)
Multipack weight	kg (lb.)	10,9 (24)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

WSN061.52

6.5” WOOFER

NEODYMIUM MAGNET
STEEL BASKET DRIVER

- 1.5 INCH COPPER VOICE COIL
- 94 dB/SPL SENSITIVITY
- 200 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN
- ALTERNATIVE IMPEDANCE: 4 OHM AND 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	165 (6.5)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,4
Program power (1)	W	250
AES Power rating (2)	W	125
Sensitivity (3)	dB	94
Frequency range	Hz	90 ÷ 6000
Voice coil diameter	mm (in.)	38 (1.5)
Chassis material	Steel	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	75 x 45 x 4 (2.95 x 1.77 x 0.16)
Coil material	Copper	
Former material	Polyimide	
Cone material	Water Resistant Treated Paper	
Surround material	Polycotton	
Xmax (4)	mm (in.)	3,8 (0.15)
Xmech (5)	mm (in.)	6,3 (0.25)
Gap height	mm (in.)	6 (0.24)
Voice coil winding height	mm (in.)	10,6 (0.42)
Driver displacement volume	l (ft³)	0,3 (0.01)
Recommended enclosure	l (ft³)	10,5 (0.37)
Recommended tuning	Hz	90

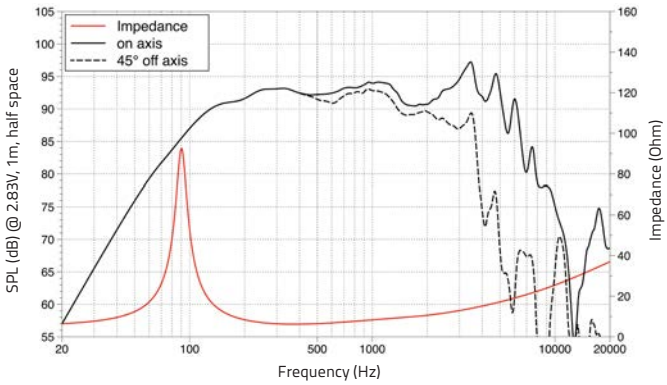
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,6
Resonance frequency	Fs	Hz	90
Moving mass	Mms	g (oz)	12,86 (0,45)
Compliance	Cms	mm/N	0,24
Force factor	BxL	N/A	9,88
Mechanical Q-factor	Qms		5,31
Electrical Q-factor	Qes		0,42
Total Q-factor	Qts		0,39
Equivalent air volume	Vas	l (ft³)	5,92 (0.21)
Voice coil Inductance	Le	mH	0,42
Diaphragm area	Sd	cm² (in.²)	132
Reference efficiency	Eta 0	%	1,01
Efficiency bandwidth product	EBP	Hz	214

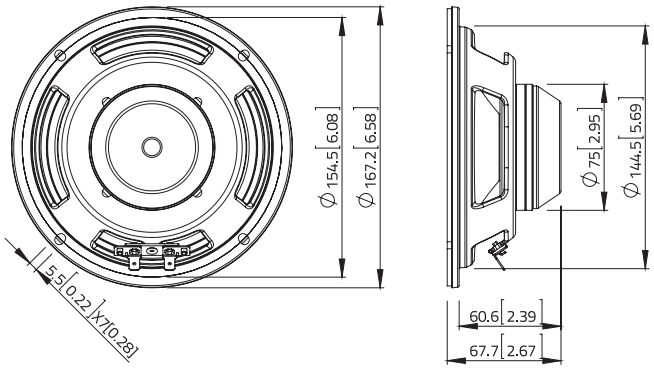
SHIPPING INFORMATION

Net weight	kg (lb.)	0,9 (2)
Multipack size (8) W x D x H	mm (in.)	415 x 375 x 218 (16.3 x 14.8 x 8.6)
Multipack weight	kg (lb.)	10 (22)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAN061.80

6.5” WOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 1.8 INCH CCAW VOICE COIL
- 93 dB/SPL SENSITIVITY
- 400 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	165 (6.5)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,3
Program power (1)	W	400
AES Power rating (2)	W	200
Sensitivity (3)	dB	93
Frequency range	Hz	60 ÷ 5500
Voice coil diameter	mm (in.)	45 (1.8)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	92 x 54 x 6 (3.62 x 2.13 x 0.24)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Proof Treated Paper	
Surround material	Rubber	
Xmax (4)	mm (in.)	5,2 (0.2)
Xmech (5)	mm (in.)	7,7 (0.3)
Gap height	mm (in.)	6 (0.24)
Voice coil winding height	mm (in.)	13,3 (0.52)
Driver displacement volume	l (ft³)	0,33 (0.01)
Recommended enclosure	l (ft³)	10 (0.35)
Recommended tuning	Hz	70

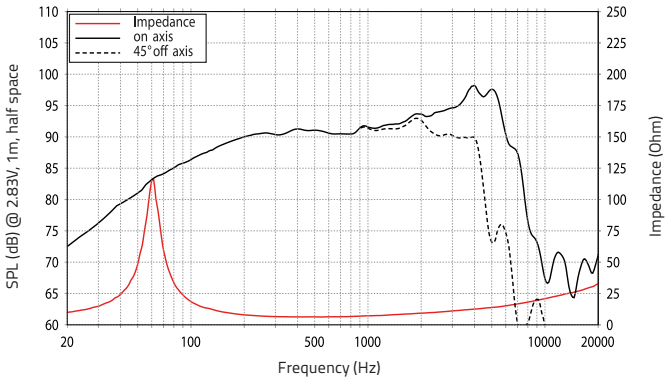
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,8
Resonance frequency	Fs	Hz	60
Moving mass	Mms	g (oz)	15,5 (0.55)
Compliance	Cms	mm/N	0,454
Force factor	BxL	N/A	10,88
Mechanical Q-factor	Qms		6,91
Electrical Q-factor	Qes		0,29
Total Q-factor	Qts		0,27
Equivalent air volume	Vas	l (ft³)	11,18 (0,39)
Voice coil Inductance	Le	mH	0,28
Diaphragm area	Sd	cm² (in.²)	132 (20,5)
Reference efficiency	Eta 0	%	0,82
Efficiency bandwidth product	EBP	Hz	207

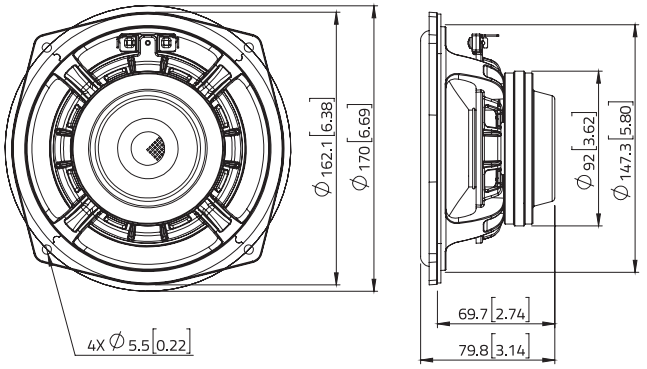
SHIPPING INFORMATION

Net weight	kg (lb.)	1,3 (2.9)
Multipack size (8) W x D x H	mm (in.)	405 x 380 x 215 (15.9 x 15 x 8.5)
Multipack weight	kg (lb.)	11,2 (24.7)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

MAN061.80

6.5” MIDRANGE

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 1.8 INCH CCAW VOICE COIL
- 94,5 dB/SPL SENSITIVITY
- 300 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- COPPER RING FOR EXTENDED FREQUENCY RESPONSE
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	165 (6.5)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,8
Program power (1)	W	300
AES Power rating (2)	W	150
Sensitivity (3)	dB	94,5
Frequency range	Hz	170 ÷ 6000
Voice coil diameter	mm (in.)	45 (1.8)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	85 x 55 x 7 (3.34 x 2.16 x 0.28)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	3 (0.12)
Xmech (5)	mm (in.)	5,5 (0.22)
Gap height	mm (in.)	6 (0.24)
Voice coil winding height	mm (in.)	9,1 (0.36)
Driver displacement volume	l (ft³)	0,4 (0.01)
Recommended enclosure	l (ft³)	7 (0.25)
Recommended tuning	Hz	Sealed

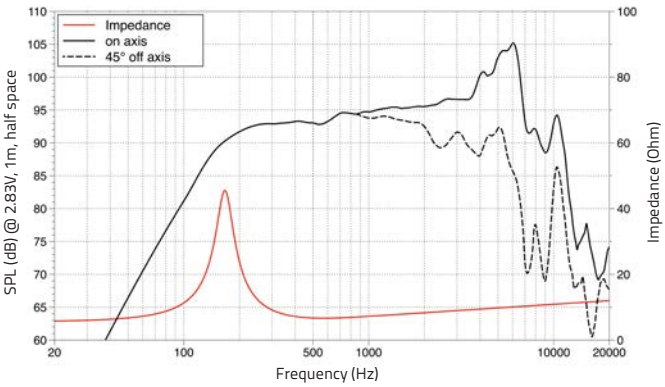
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5.56
Resonance frequency	Fs	Hz	172
Moving mass	Mms	g (oz)	13,26 (0.47)
Compliance	Cms	mm/N	0,065
Force factor	BxL	N/A	11,03
Mechanical Q-factor	Qms		4,69
Electrical Q-factor	Qes		0,65
Total Q-factor	Qts		0,57
Equivalent air volume	Vas	l (ft³)	1,59 (0.06)
Voice coil Inductance	Le	mH	0,09
Diaphragm area	Sd	cm² (in.²)	132 (20,5)
Reference efficiency	Eta 0	%	1,19
Efficiency bandwidth product	EBP	Hz	265

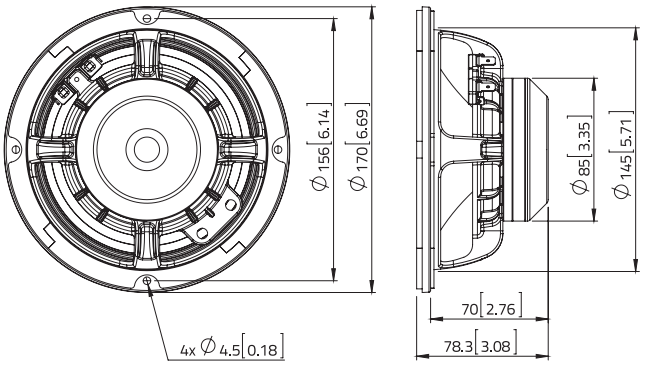
SHIPPING INFORMATION

Net weight	kg (lb.)	1,1 (2.4)
Multipack size (8) W x D x H	mm (in.)	415 x 375 x 218 (16.3 x 14.8 x 8.6)
Multipack weight	kg (lb.)	11,5 (25.3)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

MAN062.00

6.5” MIDRANGE

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 2 INCH CCAW VOICE COIL
- 98 dB/SPL SENSITIVITY
- 500 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALTERNATIVE IMPEDANCE: 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	165 (6.5)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,7
Program power (1)	W	500
AES Power rating (2)	W	250
Sensitivity (3)	dB	98
Frequency range	Hz	100 ÷ 4000
Voice coil diameter	mm (in.)	51 (2)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	50 x 9 + 48 x 5 (1.97 x 0.35 + 1.89 x 0.2)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	3,9 (0.15)
Xmech (5)	mm (in.)	6,4 (0.25)
Gap height	mm (in.)	6 (0.24)
Voice coil winding height	mm (in.)	10,8 (0.43)
Driver displacement volume	l (ft³)	0,423 (0.015)
Recommended enclosure	l (ft³)	7 (0.25)
Recommended tuning	Hz	107

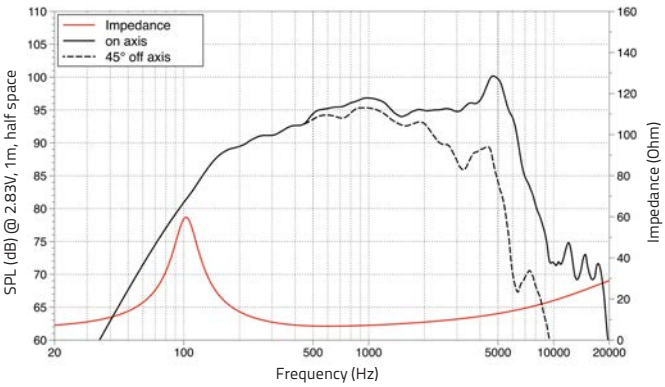
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,7
Resonance frequency	Fs	Hz	103
Moving mass	Mms	g (oz)	14,38 (0.51)
Compliance	Cms	mm/N	0,165
Force factor	BxL	N/A	12,72
Mechanical Q-factor	Qms		2,82
Electrical Q-factor	Qes		0,33
Total Q-factor	Qts		0,3
Equivalent air volume	Vas	l (ft³)	4,07 (0.1)
Voice coil Inductance	Le	mH	0,31
Diaphragm area	Sd	cm² (in.²)	132 (20.5)
Reference efficiency	Eta 0	%	1,31
Efficiency bandwidth product	EBP	Hz	312

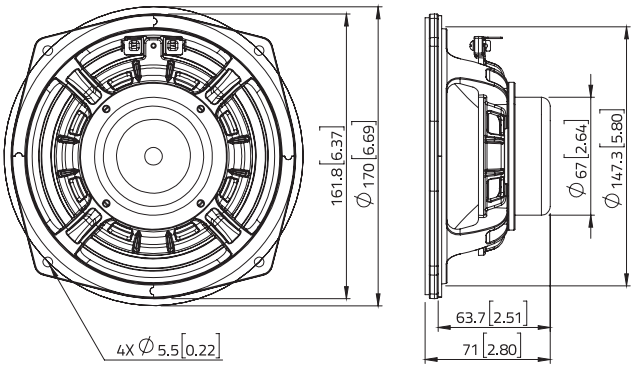
SHIPPING INFORMATION

Net weight	kg (lb.)	0,9 (2.03)
Multipack size (8) W x D x H	mm (in.)	385 x 355 x 200 (15.1 x 14 x 7.9)
Multipack weight	kg (lb.)	9,1 (20)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAN082.01

8” WOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 2 INCH CCAW VOICE COIL
- 96 dB/SPL SENSITIVITY
- 400 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	200 (8)
Nominal impedance	Ω	8
Minimum impedance	Ω	6
Program power (1)	W	400
AES Power rating (2)	W	200
Sensitivity (3)	dB	96
Frequency range	Hz	80 ÷ 5000
Voice coil diameter	mm (in.)	51 (2)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	102 x 60 x 7 (4.02 x 2.36 x 0.28)
Coil material	CCAW	
Former material	Kapton	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	5,8 (0.23)
Xmech (5)	mm (in.)	9,8 (0.38)
Gap height	mm (in.)	8 (0.31)
Voice coil winding height	mm (in.)	15,7 (0.62)
Driver displacement volume	l (ft³)	0,645 (0.023)
Recommended enclosure	l (ft³)	15 (0.53)
Recommended tuning	Hz	81

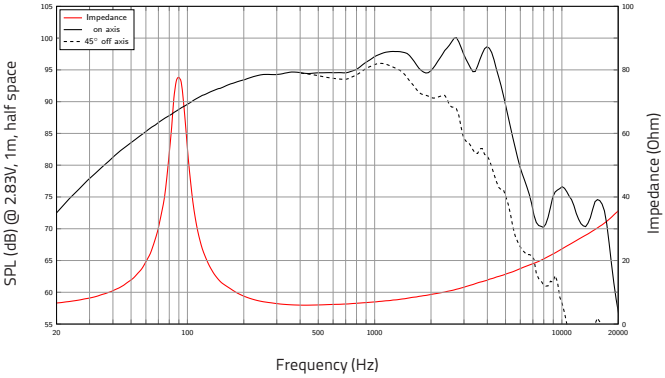
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,1
Resonance frequency	Fs	Hz	85
Moving mass	Mms	g (oz)	26,5 (0.93)
Compliance	Cms	mm/N	0,131
Force factor	BxL	N/A	14,45
Mechanical Q-factor	Qms		4,8
Electrical Q-factor	Qes		0,35
Total Q-factor	Qts		0,32
Equivalent air volume	Vas	l (ft³)	9 (0.32)
Voice coil Inductance	Le	mH	0,36
Diaphragm area	Sd	cm² (in.²)	220 (34.1)
Reference efficiency	Eta 0	%	1,55
Efficiency bandwidth product	EBP	Hz	243

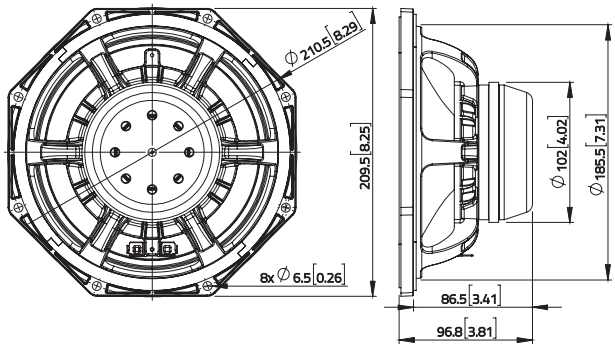
SHIPPING INFORMATION

Net weight	kg (lb.)	2,3 (5.1)
Multipack size (1) W x D x H	mm (in.)	270 x 270 x 140 (10.6 x 10.6 x 5.5)
Multipack weight	kg (lb.)	2,9 (6.4)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAN082.02

8” WOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

PRELIMINARY

- 2 INCH CCAW VOICE COIL
- 96,5 dB/SPL SENSITIVITY
- 400 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- COPPER RING FOR EXTENDED FREQUENCY RESPONSE

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	200 (8)
Nominal impedance	Ω	8
Minimum impedance	Ω	7
Program power (1)	W	400
AES Power rating (2)	W	200
Sensitivity (3)	dB	96,5
Frequency range	Hz	80 ÷ 5000
Voice coil diameter	mm (in.)	51 (2)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	110 x 70 x 8 (4.33 x 2.75 x 0.31)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	5,8 (0.23)
Xmech (5)	mm (in.)	11,3 (0.44)
Gap height	mm (in.)	10 (0.39)
Voice coil winding height	mm (in.)	16,6 (0.65)
Driver displacement volume	l (ft³)	0,65 (0.02)
Recommended enclosure	l (ft³)	7,8 (0.27)
Recommended tuning	Hz	97

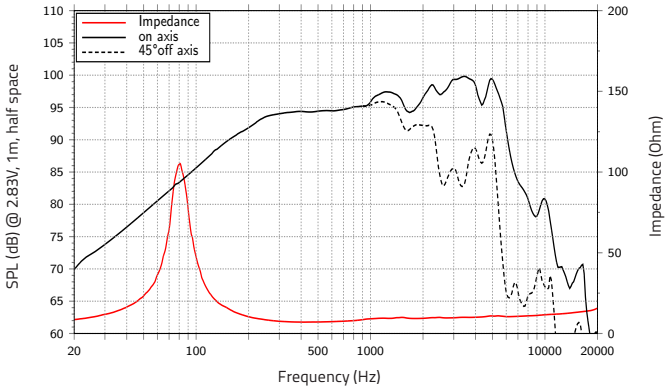
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,2
Resonance frequency	Fs	Hz	80
Moving mass	Mms	g (oz)	29,9 (1.05)
Compliance	Cms	mm/N	0,131
Force factor	BxL	N/A	17,76
Mechanical Q-factor	Qms		4,88
Electrical Q-factor	Qes		0,25
Total Q-factor	Qts		0,23
Equivalent air volume	Vas	l (ft³)	8,97 (0.32)
Voice coil Inductance	Le	mH	0,02
Diaphragm area	Sd	cm² (in.²)	220 (34.1)
Reference efficiency	Eta 0	%	1,82
Efficiency bandwidth product	EBP	Hz	320

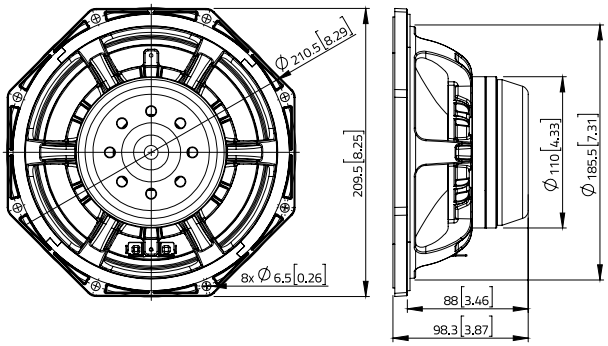
SHIPPING INFORMATION

Net weight	kg (lb.)	2,7 (5.9)
Multipack size (1) W x D x H	mm (in.)	235 x 235 x 144 (9.2 x 9.2 x 5.7)
Multipack weight	kg (lb.)	3,1 (6.8)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

WSN102.50

10" WOOFER

NEODYMIUM MAGNET
STEEL BASKET DRIVER

- 2.5 INCH CCAW VOICE COIL
- 97,5 dB/SPL SENSITIVITY
- 600 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	250 (10)
Nominal impedance	Ω	8
Minimum impedance	Ω	5,7
Program power (1)	W	600
AES Power rating (2)	W	300
Sensitivity (3)	dB	97,5
Frequency range	Hz	75 ÷ 3000
Voice coil diameter	mm (in.)	65 (2.5)
Chassis material	Steel	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	62.95 x 10 (2,48x0,39)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Polycotton	
Xmax (4)	mm (in.)	2,9 (0.11)
Xmech (5)	mm (in.)	10,6 (0.42)
Gap height	mm (in.)	13 (0.51)
Voice coil winding height	mm (in.)	12,2 (0.48)
Driver displacement volume	l (ft³)	1,1 (0.04)
Recommended enclosure	l (ft³)	30 (1.05)
Recommended tuning	Hz	80

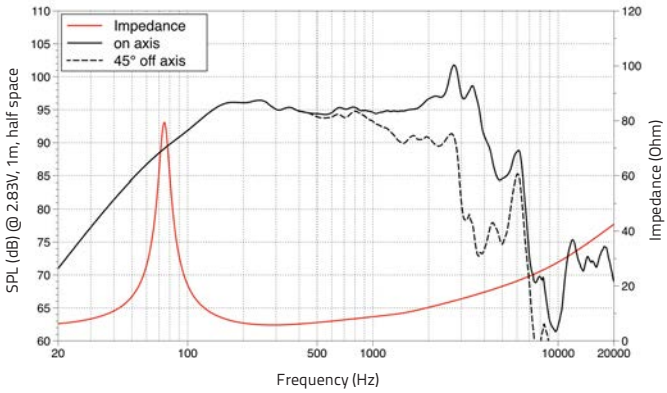
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	4,9
Resonance frequency	Fs	Hz	76
Moving mass	Mms	g (oz)	36,05 (1.27)
Compliance	Cms	mm/N	0,120
Force factor	BxL	N/A	14,05
Mechanical Q-factor	Qms		4,85
Electrical Q-factor	Qes		0,43
Total Q-factor	Qts		0,39
Equivalent air volume	Vas	l (ft³)	20,71 (0.73)
Voice coil Inductance	Le	mH	0,61
Diaphragm area	Sd	cm² (in.²)	350 (54.3)
Reference efficiency	Eta 0	%	2,10
Efficiency bandwidth product	EBP	Hz	177

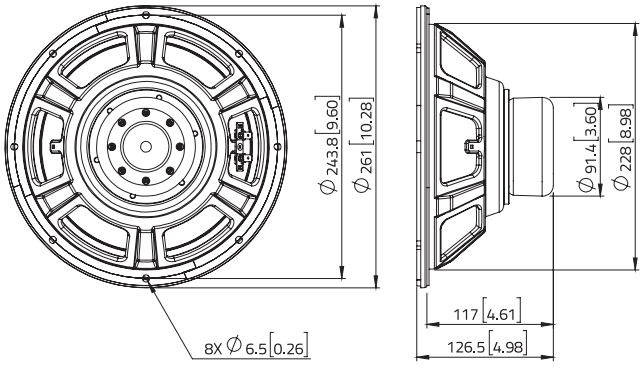
SHIPPING INFORMATION

Net weight	kg (lb.)	2,8 (6.2)
Multipack size (1) W x D x H	mm (in.)	300 x 300 x 167 (11.8 x 11.8 x 6.6)
Multipack weight	kg (lb.)	3,5 (7.7)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAN102.50

10" WOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 2.5 INCH CCAW VOICE COIL
- 97 dB/SPL SENSITIVITY
- 600 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALTERNATIVE IMPEDANCE: 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	250 (10)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,7
Program power (1)	W	600
AES Power rating (2)	W	300
Sensitivity (3)	dB	97
Frequency range	Hz	80 ÷ 4000
Voice coil diameter	mm (in.)	65 (2.5)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	64 x 8 (2.52 x 0.31)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Polycotton	
Xmax (4)	mm (in.)	5,1 (0.2)
Xmech (5)	mm (in.)	9,1 (0.36)
Gap height	mm (in.)	8 (0.31)
Voice coil winding height	mm (in.)	14,2 (0.56)
Driver displacement volume	l (ft³)	1,2 (0.04)
Recommended enclosure	l (ft³)	23 (0.81)
Recommended tuning	Hz	80

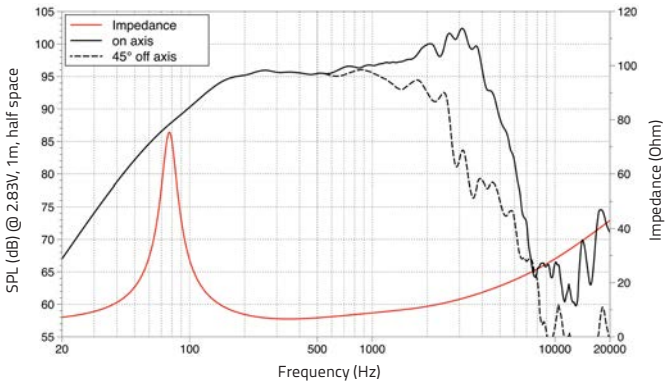
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,6
Resonance frequency	Fs	Hz	78
Moving mass	Mms	g (oz)	32,6 (1.15)
Compliance	Cms	mm/N	0,129
Force factor	BxL	N/A	15,3
Mechanical Q-factor	Qms		4,73
Electrical Q-factor	Qes		0,38
Total Q-factor	Qts		0,35
Equivalent air volume	Vas	l (ft³)	22,4 (0.79)
Voice coil Inductance	Le	mH	0,52
Diaphragm area	Sd	cm² (in.²)	350 (54.3)
Reference efficiency	Eta 0	%	2,62
Efficiency bandwidth product	EBP	Hz	205

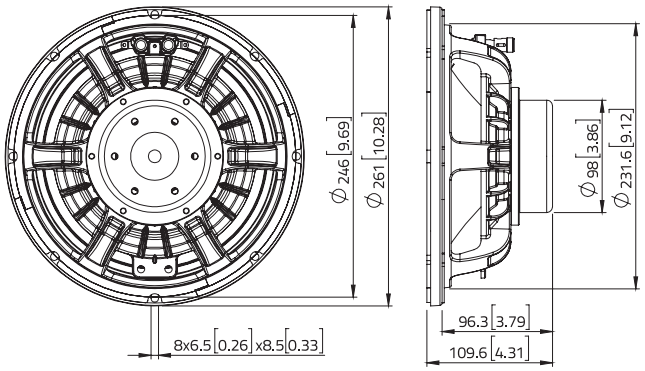
SHIPPING INFORMATION

Net weight	kg (lb.)	2,8 (6.2)
Multipack size (1) W x D x H	mm (in.)	310 x 306 x 152 (12.2 x 12 x 6)
Multipack weight	kg (lb.)	3,7 (8.1)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAN102.50LD

10" WOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 2.5 INCH COPPER VOICE COIL
- 91,5 dB/SPL SENSITIVITY
- 600 WATT PROGRAM POWER HANDLING
- ULTRA LOW DISTORTION DESIGN
- OPTIMIZED COOLING SYSTEM
- ALUMINIUM DEMODULATING RING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	250 (10)
Nominal impedance	Ω	8
Minimum impedance	Ω	8,3
Program power (1)	W	600
AES Power rating (2)	W	300
Sensitivity (3)	dB	91,5
Frequency range	Hz	50 ÷ 4000
Voice coil diameter	mm (in.)	65 (2.5)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	120 x 80 x 10 (4.72 x 3.15 x 0.39)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	11,5 (0.45)
Xmech (5)	mm (in.)	17,7 (0.7)
Gap height	mm (in.)	11 (0.43)
Voice coil winding height	mm (in.)	28,5 (1.12)
Driver displacement volume	l (ft³)	1,2 (0.04)
Recommended enclosure	l (ft³)	23 (0.81)
Recommended tuning	Hz	80

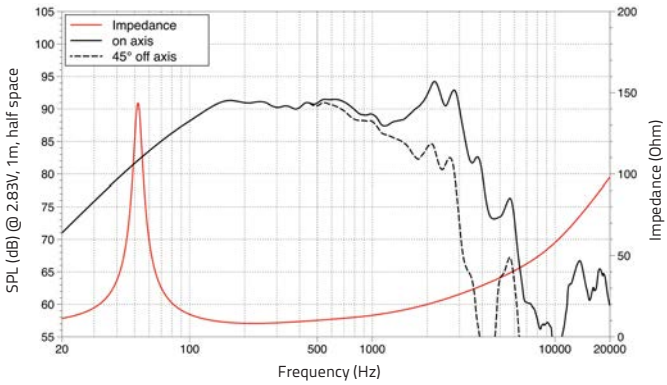
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	7,3
Resonance frequency	Fs	Hz	52
Moving mass	Mms	g (oz)	67,6 (2.38)
Compliance	Cms	mm/N	0,138
Force factor	BxL	N/A	19,64
Mechanical Q-factor	Qms		7,84
Electrical Q-factor	Qes		0,42
Total Q-factor	Qts		0,4
Equivalent air volume	Vas	l (ft³)	23,88 (0.84)
Voice coil Inductance	Le	mH	1,27
Diaphragm area	Sd	cm² (in.²)	350 (54.3)
Reference efficiency	Eta 0	%	0,78
Efficiency bandwidth product	EBP	Hz	124

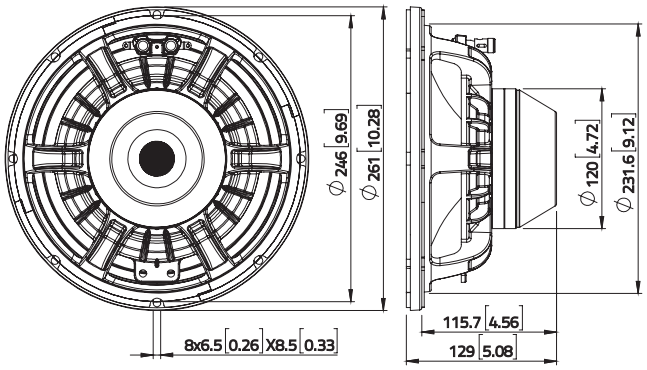
SHIPPING INFORMATION

Net weight	kg (lb.)	4 (8.8)
Multipack size (1) W x D x H	mm (in.)	300 x 300 x 165 (11.8 x 11.8 x 6.5)
Multipack weight	kg (lb.)	4,6 (10.1)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAN103.01

10" WOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH CCAW VOICE COIL
- 99 dB/SPL SENSITIVITY
- 900 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALTERNATIVE IMPEDANCE: 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	250 (10)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,6
Program power (1)	W	900
AES Power rating (2)	W	450
Sensitivity (3)	dB	99
Frequency range	Hz	70 ÷ 3500
Voice coil diameter	mm (in.)	75 (3)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	120 x 80 x 10 (4.72 x 3.15 x 0.39)
Coil material	CCAW	
Former material	Kapton	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	5 (0.2)
Xmech (5)	mm (in.)	10,1 (0.4)
Gap height	mm (in.)	9,5 (0.37)
Voice coil winding height	mm (in.)	14,7 (0.58)
Driver displacement volume	l (ft³)	1,6 (0.06)
Recommended enclosure	l (ft³)	26,3 (0.93)
Recommended tuning	Hz	97

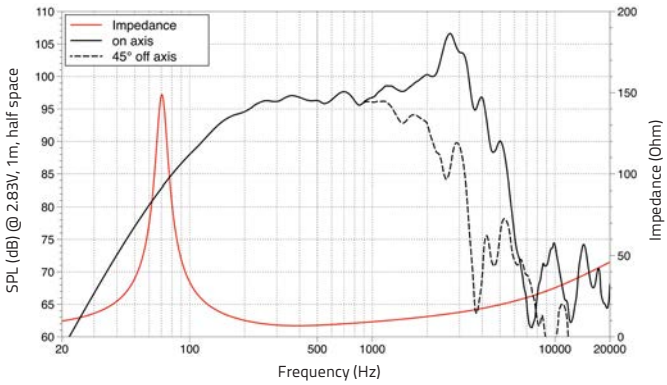
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,5
Resonance frequency	Fs	Hz	70
Moving mass	Mms	g (oz)	39,6 (1.4)
Compliance	Cms	mm/N	0,129
Force factor	BxL	N/A	20,57
Mechanical Q-factor	Qms		5,94
Electrical Q-factor	Qes		0,23
Total Q-factor	Qts		0,22
Equivalent air volume	Vas	l (ft³)	22,29 (0.79)
Voice coil Inductance	Le	mH	0,72
Diaphragm area	Sd	cm² (in.²)	350 (54.3)
Reference efficiency	Eta 0	%	3,28
Efficiency bandwidth product	EBP	Hz	304

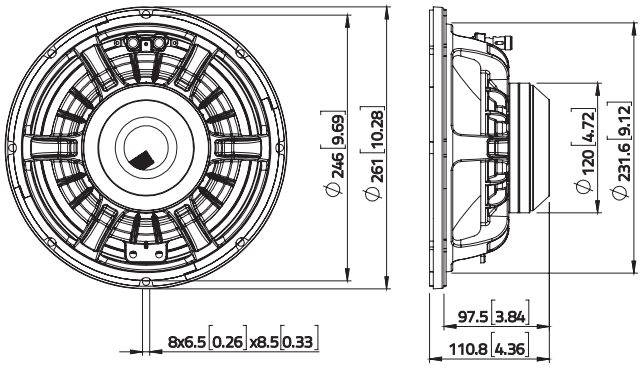
SHIPPING INFORMATION

Net weight	kg (lb.)	3,1 (6.8)
Multipack size (1) W x D x H	mm (in.)	290 x 300 x 150 (11.4 x 11.8 x 5.9)
Multipack weight	kg (lb.)	3,8 (8.4)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

WSN122.50

12" WOOFER

NEODYMIUM MAGNET
STEEL BASKET DRIVER

- 2.5 INCH CCAW VOICE COIL
- 97,5 dB/SPL SENSITIVITY
- 500 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN
- ALTERNATIVE IMPEDANCE: 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	300 (12)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,3
Program power (1)	W	500
AES Power rating (2)	W	250
Sensitivity (3)	dB	97,5
Frequency range	Hz	50 ÷ 3000
Voice coil diameter	mm (in.)	65 (2.5)
Chassis material	Steel	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	64 x 8 (2.52 x 0.31)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	4,7 (0.19)
Xmech (5)	mm (in.)	8,8 (0.35)
Gap height	mm (in.)	8,2 (0.32)
Voice coil winding height	mm (in.)	13,4 (0.53)
Driver displacement volume	l (ft³)	1,6 (0.06)
Recommended enclosure	l (ft³)	39,6 (1.4)
Recommended tuning	Hz	55

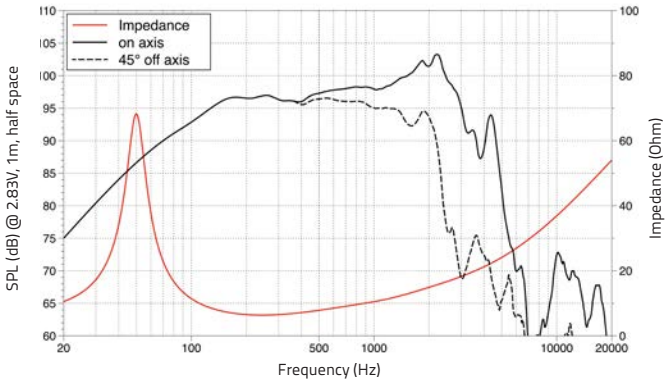
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,7
Resonance frequency	Fs	Hz	53
Moving mass	Mms	g (oz)	52,3 (1.84)
Compliance	Cms	mm/N	0,174
Force factor	BxL	N/A	15,85
Mechanical Q-factor	Qms		4,31
Electrical Q-factor	Qes		0,39
Total Q-factor	Qts		0,36
Equivalent air volume	Vas	l (ft³)	69,44 (2.45)
Voice coil Inductance	Le	mH	0,77
Diaphragm area	Sd	cm² (in.²)	531 (82.3)
Reference efficiency	Eta 0	%	2,49
Efficiency bandwidth product	EBP	Hz	136

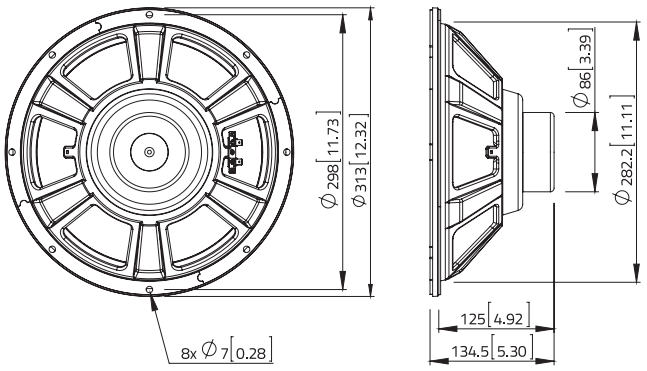
SHIPPING INFORMATION

Net weight	kg (lb.)	2,1 (4.6)
Multipack size (1) W x D x H	mm (in.)	360 x 360 x 175 (14.2 x 14.2 x 6.9)
Multipack weight	kg (lb.)	3,5 (7.7)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WAN123.00

12" WOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH CCAW VOICE COIL
- 99 dB/SPL SENSITIVITY
- 1000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALTERNATIVE IMPEDANCE: 4 OHM AND 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	300 (12)
Nominal impedance	Ω	8
Minimum impedance	Ω	5,7
Program power (1)	W	1000
AES Power rating (2)	W	500
Sensitivity (3)	dB	99
Frequency range	Hz	50 ÷ 3000
Voice coil diameter	mm (in.)	75 (3)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	75,4 x 10 (2.97 x 0.39)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	6,9 (0.27)
Xmech (5)	mm (in.)	12,7 (0.5)
Gap height	mm (in.)	10,5 (0.41)
Voice coil winding height	mm (in.)	19 (0.75)
Driver displacement volume	l (ft³)	2,4 (0.08)
Recommended enclosure	l (ft³)	62,3 (2.2)
Recommended tuning	Hz	55

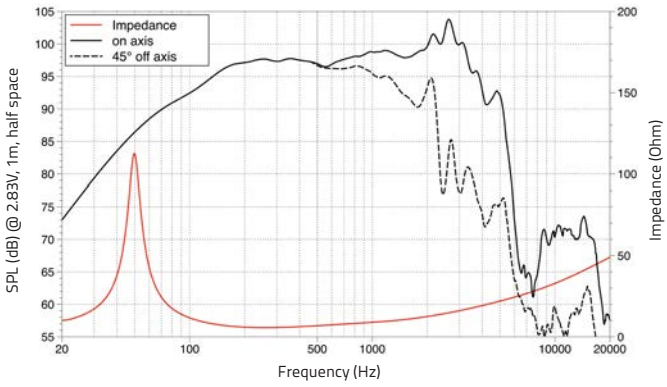
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	4,8
Resonance frequency	Fs	Hz	49
Moving mass	Mms	g (oz)	61,5 (2.17)
Compliance	Cms	mm/N	0,172
Force factor	BxL	N/A	17,9
Mechanical Q-factor	Qms		6,54
Electrical Q-factor	Qes		0,28
Total Q-factor	Qts		0,27
Equivalent air volume	Vas	l (ft³)	68,8 (2.43)
Voice coil Inductance	Le	mH	0,69
Diaphragm area	Sd	cm² (in.²)	531 (82.3)
Reference efficiency	Eta 0	%	2,75
Efficiency bandwidth product	EBP	Hz	175

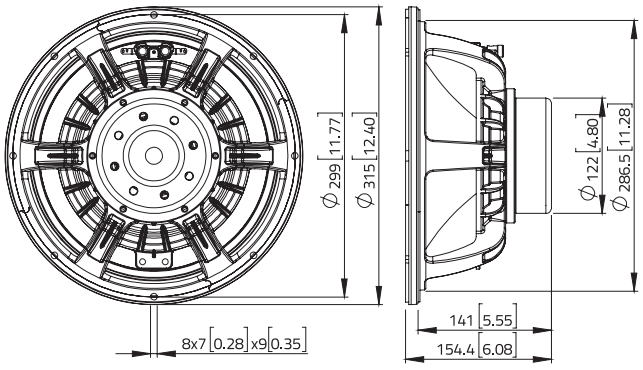
SHIPPING INFORMATION

Net weight	kg (lb.)	5,2 (11.4)
Multipack size (1) W x D x H	mm (in.)	360 x 360 x 195 (14.2 x 14.2 x 7.7)
Multipack weight	kg (lb.)	6,5 (14.3)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAN123.01

12" WOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH COPPER VOICE COIL
- 98,5 dB/SPL SENSITIVITY
- 1000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- DOUBLE ALUMINIUM DEMODULATING RINGS
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	300 (12)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,4
Program power (1)	W	1000
AES Power rating (2)	W	500
Sensitivity (3)	dB	98,5
Frequency range	Hz	40 ÷ 2000
Voice coil diameter	mm (in.)	75 (3)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	131 x 80 x 8 (5.16 x 3.15 x 0.31)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Both Sides Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	6,6 (0.26)
Xmech (5)	mm (in.)	13,3 (0.52)
Gap height	mm (in.)	11,5 (0.45)
Voice coil winding height	mm (in.)	19 (0.75)
Driver displacement volume	l (ft³)	2,5 (0.09)
Recommended enclosure	l (ft³)	41,3 (1.46)
Recommended tuning	Hz	65

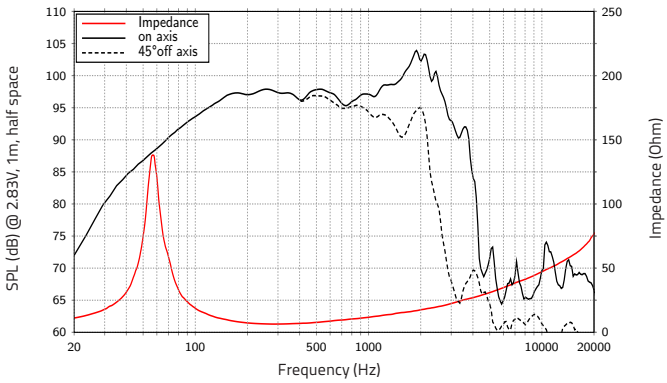
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,2
Resonance frequency	Fs	Hz	57
Moving mass	Mms	g (oz)	76,8 (2.71)
Compliance	Cms	mm/N	0,1
Force factor	BxL	N/A	24,02
Mechanical Q-factor	Qms		6,6
Electrical Q-factor	Qes		0,25
Total Q-factor	Qts		0,24
Equivalent air volume	Vas	l (ft³)	40 (1.41)
Voice coil Inductance	Le	mH	0,96
Diaphragm area	Sd	cm² (in.²)	531 (82.3)
Reference efficiency	Eta 0	%	2,92
Efficiency bandwidth product	EBP	Hz	229

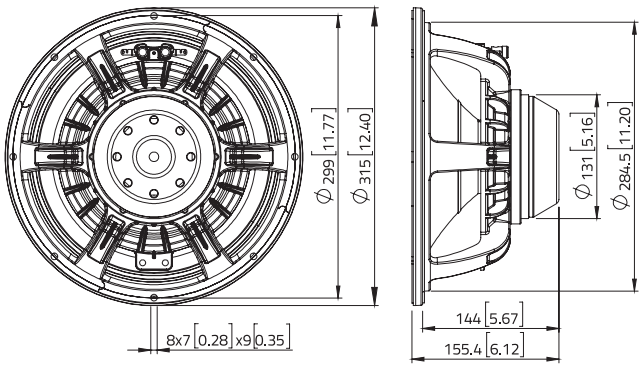
SHIPPING INFORMATION

Net weight	kg (lb.)	5,5 (12.1)
Multipack size (1) W x D x H	mm (in.)	370 x 350 x 196 (14.6 x 13.8 x 7.7)
Multipack weight	kg (lb.)	6,6 (14.5)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WAN143.00

13.5” WOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH COPPER VOICE COIL
- 98 dB/SPL SENSITIVITY
- 1000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	340 (13.5)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,3
Program power (1)	W	1000
AES Power rating (2)	W	500
Sensitivity (3)	dB	98
Frequency range	Hz	45 ÷ 3000
Voice coil diameter	mm (in.)	75 (3)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	75,4 x 10 (2.97 x 0.39)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	7,5 (0.29)
Xmech (5)	mm (in.)	13,4 (0.53)
Gap height	mm (in.)	10,5 (0.41)
Voice coil winding height	mm (in.)	20,3 (0.8)
Driver displacement volume	l (ft³)	3,2 (0.11)
Recommended enclosure	l (ft³)	58,6 (2.1)
Recommended tuning	Hz	50

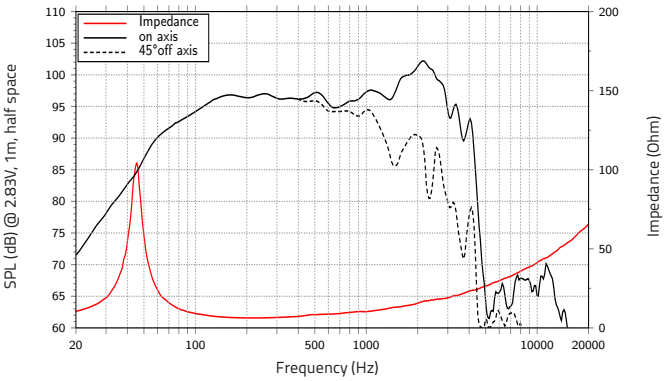
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,3
Resonance frequency	Fs	Hz	45
Moving mass	Mms	g (oz)	87 (3.07)
Compliance	Cms	mm/N	0,143
Force factor	BxL	N/A	18,7
Mechanical Q-factor	Qms		4,96
Electrical Q-factor	Qes		0,38
Total Q-factor	Qts		0,35
Equivalent air volume	Vas	l (ft³)	102,88 (3.63)
Voice coil Inductance	Le	mH	0,8
Diaphragm area	Sd	cm² (in.²)	713 (110.5)
Reference efficiency	Eta 0	%	2,42
Efficiency bandwidth product	EBP	Hz	118

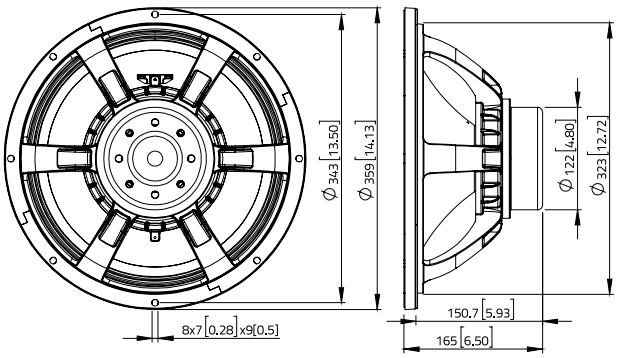
SHIPPING INFORMATION

Net weight	kg (lb.)	5,1 (11.2)
Multipack size (1) W x D x H	mm (in.)	397 x 397 x 210 (15.6 x 15.6 x 8.3)
Multipack weight	kg (lb.)	6,3 (13.9)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WSN152.50

15" WOOFER

NEODYMIUM MAGNET
STEEL BASKET DRIVER

- 2.5 INCH CCAW VOICE COIL
- 97,5 dB/SPL SENSITIVITY
- 500 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	380 (15)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,2
Program power (1)	W	500
AES Power rating (2)	W	250
Sensitivity (3)	dB	97,5
Frequency range	Hz	45 ÷ 3000
Voice coil diameter	mm (in.)	65 (2.5)
Chassis material	Steel	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	64 x 8 (2.52 x 0.31)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	4,7 (0.19)
Xmech (5)	mm (in.)	8,8 (0.35)
Gap height	mm (in.)	8,2 (0.32)
Voice coil winding height	mm (in.)	13,4 (0.53)
Driver displacement volume	l (ft³)	3,3 (0.12)
Recommended enclosure	l (ft³)	100,8 (3.56)
Recommended tuning	Hz	50

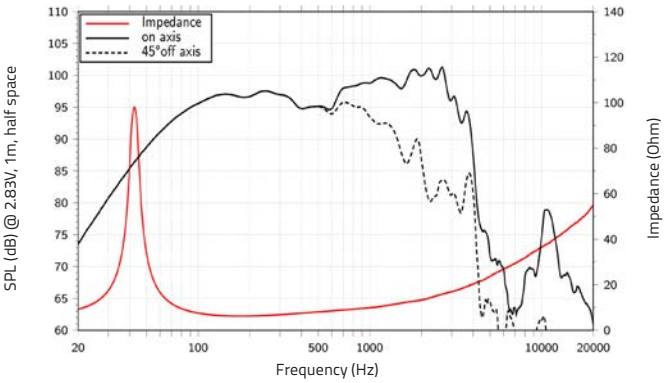
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,6
Resonance frequency	Fs	Hz	43
Moving mass	Mms	g (oz)	90,5 (3.19)
Compliance	Cms	mm/N	0,155
Force factor	BxL	N/A	16,24
Mechanical Q-factor	Qms		10,22
Electrical Q-factor	Qes		0,52
Total Q-factor	Qts		0,49
Equivalent air volume	Vas	l (ft³)	159,9 (5.65)
Voice coil Inductance	Le	mH	0,773
Diaphragm area	Sd	cm² (in.²)	855 (132.5)
Reference efficiency	Eta 0	%	2,30
Efficiency bandwidth product	EBP	Hz	83

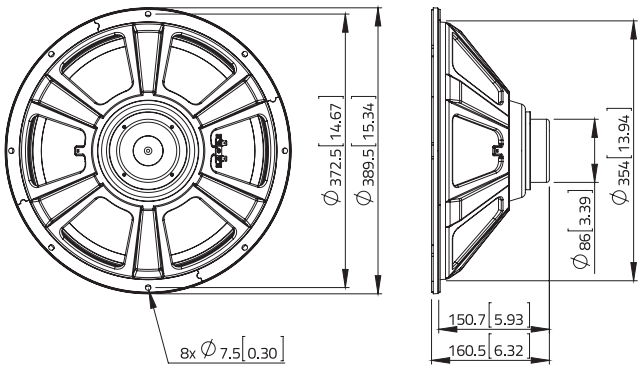
SHIPPING INFORMATION

Net weight	kg (lb.)	2,6 (5.6)
Multipack size (1) W x D x H	mm (in.)	445 x 445 x 205 (17.5 x 17.5 x 8)
Multipack weight	kg (lb.)	5 (11)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WAN153.00

15" WOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH CCAW VOICE COIL
- 98,5 dB/SPL SENSITIVITY
- 1000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	380 (15)
Nominal impedance	Ω	8
Minimum impedance	Ω	5,3
Program power (1)	W	1000
AES Power rating (2)	W	500
Sensitivity (3)	dB	98,5
Frequency range	Hz	45 ÷ 3000
Voice coil diameter	mm (in.)	75 (3)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	75,4 x 10 (2.97 x 0.39)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	7 (0.28)
Xmech (5)	mm (in.)	12,7 (0.5)
Gap height	mm (in.)	10,5 (0.41)
Voice coil winding height	mm (in.)	19 (0.75)
Driver displacement volume	l (ft³)	4,9 (0.17)
Recommended enclosure	l (ft³)	93 (3.3)
Recommended tuning	Hz	50

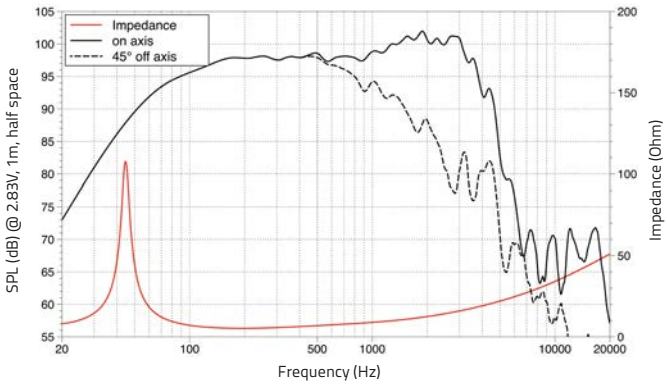
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	4,7
Resonance frequency	Fs	Hz	43
Moving mass	Mms	g (oz)	101,4 (3.58)
Compliance	Cms	mm/N	0,135
Force factor	BxL	N/A	17,33
Mechanical Q-factor	Qms		9,49
Electrical Q-factor	Qes		0,43
Total Q-factor	Qts		0,41
Equivalent air volume	Vas	l (ft³)	139,2 (4.92)
Voice coil Inductance	Le	mH	0,76
Diaphragm area	Sd	cm² (in.²)	855 (132.5)
Reference efficiency	Eta 0	%	2,49
Efficiency bandwidth product	EBP	Hz	100

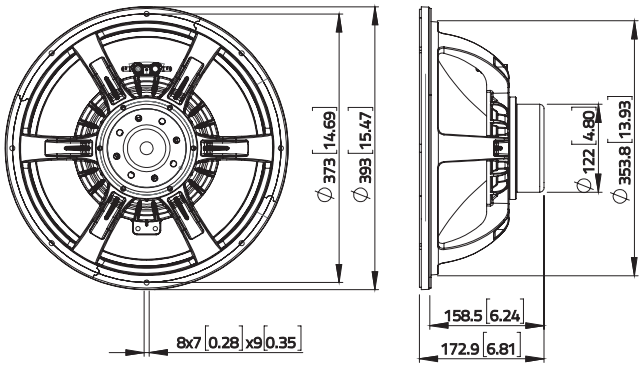
SHIPPING INFORMATION

Net weight	kg (lb.)	5,8 (12.7)
Multipack size (1) W x D x H	mm (in.)	425 x 425 x 220 (16.7 x 16.7 x 8.7)
Multipack weight	kg (lb.)	7,3 (16.1)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAN153.01

15" WOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH COPPER VOICE COIL
- 100 dB/SPL SENSITIVITY
- 1200 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- DOUBLE SPIDER
- DOUBLE ALUMINIUM DEMODULATING RINGS
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	380 (15)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,8
Program power (1)	W	1200
AES Power rating (2)	W	600
Sensitivity (3)	dB	100
Frequency range	Hz	40 ÷ 2000
Voice coil diameter	mm (in.)	75 (3)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	131 x 80 x 8 (5.16 x 3.15 x 0.31)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Both Sides Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	6,6 (0.26)
Xmech (5)	mm (in.)	13,3 (0.52)
Gap height	mm (in.)	11,5 (0.45)
Voice coil winding height	mm (in.)	19 (0.75)
Driver displacement volume	l (ft³)	4,3 (0.15)
Recommended enclosure	l (ft³)	134 (4.7)
Recommended tuning	Hz	60

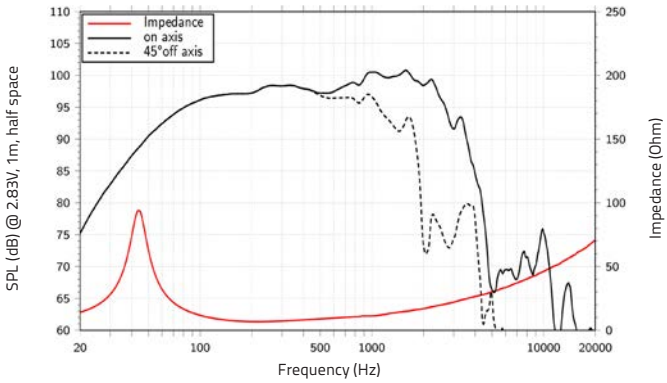
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,34
Resonance frequency	Fs	Hz	44
Moving mass	Mms	g (oz)	107,6 (3.8)
Compliance	Cms	mm/N	0,122
Force factor	BxL	N/A	24,79
Mechanical Q-factor	Qms		4,3
Electrical Q-factor	Qes		0,26
Total Q-factor	Qts		0,24
Equivalent air volume	Vas	l (ft³)	126,2 (4.46)
Voice coil Inductance	Le	mH	1,06
Diaphragm area	Sd	cm² (in.²)	855 (132.5)
Reference efficiency	Eta 0	%	3,99
Efficiency bandwidth product	EBP	Hz	169

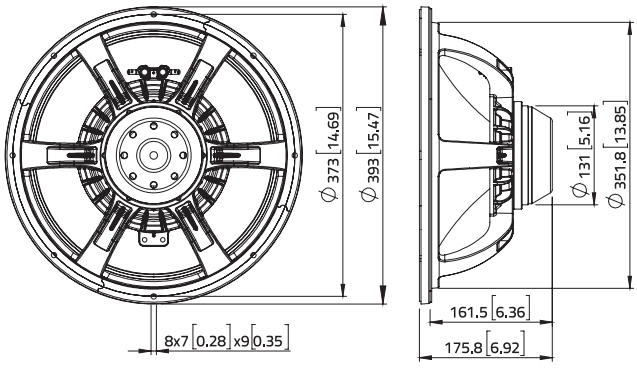
SHIPPING INFORMATION

Net weight	kg (lb.)	6,1 (13.4)
Multipack size (1) W x D x H	mm (in.)	430 x 425 x 215 (16.9 x 16.7 x 8.5)
Multipack weight	kg (lb.)	7,5 (16.5)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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DYNAMIC RESPONSE

FERRITE LOW FREQUENCY TRANSDUCERS

With a long heritage of award-winning designs from our Italian R&D team, our Ferrite LF Transducers demonstrate their expertise with smooth frequency responses, optimized linearity, and low distortion. From 3" to 15" woofers, midranges, and mid-basses, and many high-output models to choose from, the transducer for your most challenging project is right here.

Product name	Size mm (in.)	Basket material	Magnet material	Voice coil mm (in.)	Sensitivity dB	AES Power W	Freq. range Hz	Xmax mm (in.)	Nominal Impedance [Options] Ω	Demod. Ring	Depth mm (in.)	Net weight kg (lb.)
WSF030.70	70 (3)	Steel	Ferrite	20 (0.75)	85,5	30	100 - 12000	3,3 (0.13)	8	-	51 (2.01)	0,5 (1.1)
WSF051.02	130 (5)	Steel	Ferrite	25 (1)	91,5	60	100 - 5000	3,1 (0.12)	8 [16]	-	69,3 (2.73)	0,9 (2.1)
WSF061.52	165 (6.5)	Steel	Ferrite	38 (1.5)	95	125	90 - 5000	3,8 (0.15)	8 [16]	-	74,7 (2.94)	2 (4.4)
MAF061.50	165 (6.5)	Aluminium	Ferrite	38 (1.5)	96,5	120	150 - 6000	3,6 (0.14)	8	•	82 (3.23)	2,3 (5.1)
WAF061.80	165 (6.5)	Aluminium	Ferrite	45 (1.8)	91	150	65 - 5000	4,9 (0.19)	8 [16]	-	83,5 (3.29)	2,3 (5)
WSF081.82	200 (8)	Steel	Ferrite	45 (1.8)	95,5	150	80 - 5000	6,2 (0.24)	8 [16]	-	96 (3.78)	2,3 (5)
WAF082.00	200 (8)	Aluminium	Ferrite	51 (2)	95	200	80 - 3000	6,3 (0.25)	8	-	106,5 (4.19)	4 (8.8)
MAF082.00	200 (8)	Aluminium	Ferrite	51 (2)	98,5	200	90 - 5000	2,6 (0.1)	8	-	92,8 (3.65)	4,1 (9)
WSF102.00	250 (10)	Steel	Ferrite	51 (2)	97	175	60 - 4000	5,2 (0.2)	8	-	109 (4.29)	3,2 (7)
WSF102.50	250 (10)	Steel	Ferrite	65 (2.5)	97,5	250	60 - 2500	4,8 (0.19)	8	-	121,6 (4.79)	4,5 (10)
WAF102.50	250 (10)	Aluminium	Ferrite	65 (2.5)	97	250	70 - 4000	5,1 (0.2)	8	-	111,3 (4.38)	4,8 (10.5)
WAF102.51	250 (10)	Aluminium	Ferrite	65 (2.5)	95,5	350	60 - 4000	5,9 (0.23)	8	•	114,2 (4.50)	4,8 (10.5)
WAF102.50A	250 (10)	Aluminium	Ferrite	65 (2.5)	97	250	70 - 4000	4,8 (0.19)	8 [16]	-	114,3 (4.50)	4,7 (10.2)
MAF103.00	250 (10)	Aluminium	Ferrite	75 (3)	99	350	70 - 4000	2,2 (0.09)	8 [16]	-	113,9 (4.48)	6,9 (15.2)
WSF122.02	300 (12)	Steel	Ferrite	51 (2)	98	200	50 - 3000	4,3 (0.17)	8	-	133,5 (5.26)	3,5 (7.6)
FSF122.02	300 (12)	Steel	Ferrite	45 (1.8)	98,5	150	60 - 10000	3,2 (0.12)	8	-	130,9 (5.15)	4,4 (9.7)
WSF122.50	300 (12)	Steel	Ferrite	65 (2.5)	97,5	250	50 - 3000	4,7 (0.19)	8	-	137,7 (5.42)	4,7 (10.3)
WAF122.50	300 (12)	Aluminium	Ferrite	65 (2.5)	97,5	350	60 - 3000	6,1 (0.24)	8 [4]	-	151,9 (5.98)	6,3 (13.9)
WAF123.00	300 (12)	Aluminium	Ferrite	75 (3)	99	500	500 - 3000	7 (0.27)	8 [4]	-	155,9 (6.14)	8,7 (19.2)
WAF123.01	300 (12)	Aluminium	Ferrite	75 (3)	98	500	65 - 3000	7,5 (0.3)	8	•	155,9 (6.14)	8,6 (18.9)
WAF123.02	300 (12)	Aluminium	Ferrite	75 (3)	99	500	45 - 3000	4,4 (0.17)	8	•	155,9 (6.14)	9 (19.8)
WAF124.02	300 (12)	Aluminium	Ferrite	100 (4)	96,5	600	50 - 2500	8,2 (0.32)	8	•	129,6 (5.10)	8,5 (18.7)
WSF152.50	380 (15)	Steel	Ferrite	65 (2.5)	97,5	250	45 - 3000	4,7 (0.19)	8	-	165 (6.50)	5,4 (11.8)
WXF15.400	380 (15)	Aluminium	Ferrite	75 (3)	99,5	400	50 - 3000	5,2 (0.2)	8	-	156,1 (6.15)	8 (17.6)
WAF153.00	380 (15)	Aluminium	Ferrite	75 (3)	99	500	40 - 3000	7 (0.28)	8	-	174,4 (6.87)	9,4 (20.7)
WAF153.02	380 (15)	Aluminium	Ferrite	75 (3)	99,5	500	40 - 4000	4,9 (0.19)	8	•	169,3 (6.67)	8,9 (19.6)
WAF153.03	380 (15)	Aluminium	Ferrite	75 (3)	100,5	500	40 - 3000	6,7 (0.26)	8	•	177,4 (6.98)	10,7 (23.6)
WXF15.800	380 (15)	Aluminium	Ferrite	100 (4)	98	800	40 - 2000	7,7 (0.3)	8	•	147,8 (5.82)	10,4 (22.9)
WAF154.03	380 (15)	Aluminium	Ferrite	100 (4)	97,5	850	40 - 3000	5,2 (0.2)	8	•	181,8 (7.16)	11,3 (24.9)

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

WSF030.70

3" WOOFER

FERRITE MAGNET
STEEL BASKET DRIVER

- 0.75 INCH COPPER VOICE COIL
- 85.5 dB/SPL SENSITIVITY
- 60 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN
- RUBBER SURROUND MATERIAL

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	70 (3)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,9
Program power (1)	W	60
AES Power rating (2)	W	30
Sensitivity (3)	dB	85,5
Frequency range	Hz	100 ÷ 12000
Voice coil diameter	mm (in.)	20 (0.75)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	70 x 32 x 15 (2.76 x 1.26 x 0.59)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Aluminium	
Surround material	Rubber	
Xmax (4)	mm (in.)	3,3 (0.13)
Xmech (5)	mm (in.)	4,3 (0.17)
Gap height	mm (in.)	4 (0.16)
Voice coil winding height	mm (in.)	8,5 (0.33)
Driver displacement volume	l (ft³)	0,111 (0.004)
Recommended enclosure	l (ft³)	0,068 (0.003)
Recommended tuning	Hz	N/A

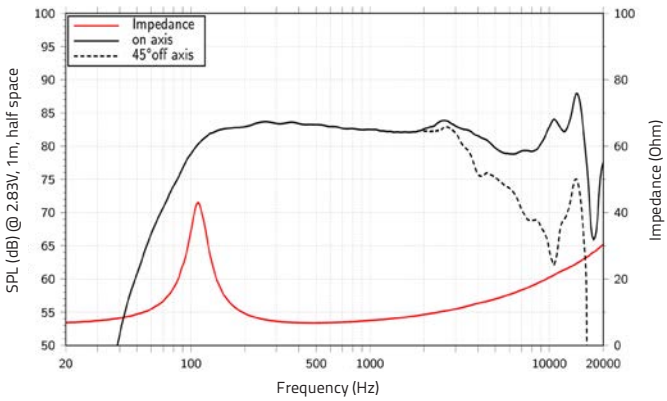
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	6,3
Resonance frequency	Fs	Hz	112
Moving mass	Mms	g (oz)	3,5 (0.12)
Compliance	Cms	mm/N	0,58
Force factor	BxL	N/A	4,65
Mechanical Q-factor	Qms		4,33
Electrical Q-factor	Qes		0,71
Total Q-factor	Qts		0,61
Equivalent air volume	Vas	l (ft³)	0,89 (0.03)
Voice coil Inductance	Le	mH	0,32
Diaphragm area	Sd	cm² (in.²)	33 (5.1)
Reference efficiency	Eta 0	%	0,17
Efficiency bandwidth product	EBP	Hz	158

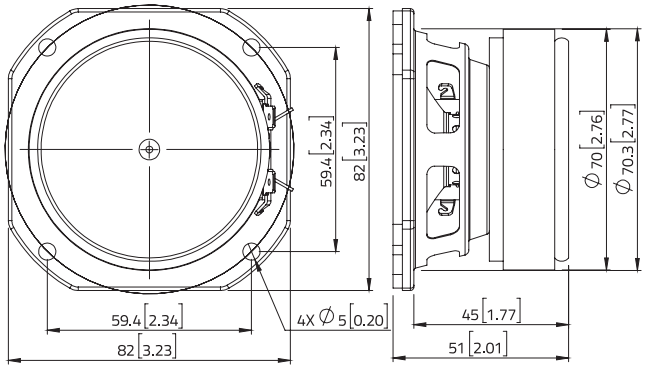
SHIPPING INFORMATION

Net weight	kg (lb.)	0,5 (1.1)
Multipack size (20) W x D x H	mm (in.)	465 x 220 x 155 (18.3 x 8.7 x 6.1)
Multipack weight	kg (lb.)	11,1 (24.5)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WSF051.02

5” WOOFER

FERRITE MAGNET
STEEL BASKET DRIVER

- 1 INCH COPPER VOICE COIL
- 91,5 dB/SPL SENSITIVITY
- 120 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN
- RUBBER SURROUND MATERIAL
- ALTERNATIVE IMPEDANCE: 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	130 (5)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,1
Program power (1)	W	120
AES Power rating (2)	W	60
Sensitivity (3)	dB	91,5
Frequency range	Hz	100 ÷ 5000
Voice coil diameter	mm (in.)	25 (1)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	90 x 32 x 15 (3.54 x 1.26 x 0.59)
Coil material	Copper	
Former material	Polyimide	
Cone material	Water Resistant Treated Paper	
Surround material	Rubber	
Xmax (4)	mm (in.)	3,1 (0.12)
Xmech (5)	mm (in.)	4,9 (0.19)
Gap height	mm (in.)	5 (0.2)
Voice coil winding height	mm (in.)	8,7 (0.34)
Driver displacement volume	l (ft³)	0,3 (0.01)
Recommended enclosure	l (ft³)	6,4 (0.23)
Recommended tuning	Hz	100

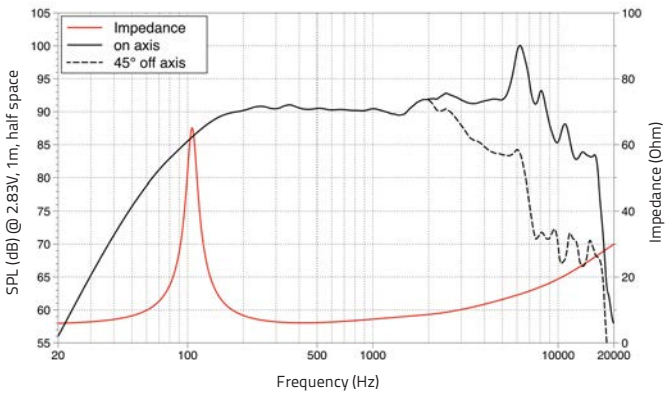
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,6
Resonance frequency	Fs	Hz	106
Moving mass	Mms	g (oz)	7,26 (0.26)
Compliance	Cms	mm/N	0,312
Force factor	BxL	N/A	6,4
Mechanical Q-factor	Qms		7,02
Electrical Q-factor	Qes		0,66
Total Q-factor	Qts		0,6
Equivalent air volume	Vas	l (ft³)	3,26 (0,12)
Voice coil Inductance	Le	mH	0,27
Diaphragm area	Sd	cm² (in.²)	86 (13,3)
Reference efficiency	Eta 0	%	0,56
Efficiency bandwidth product	EBP	Hz	161

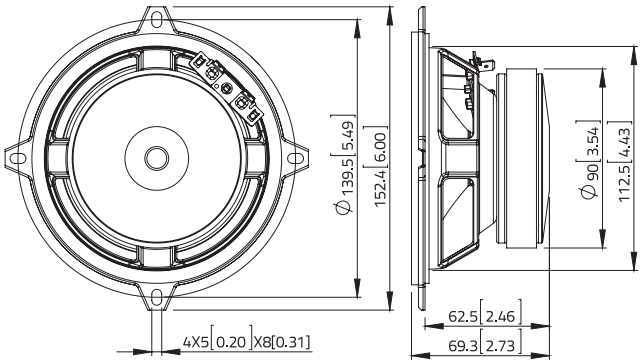
SHIPPING INFORMATION

Net weight	kg (lb.)	0,9 (2.1)
Multipack size (12) W x D x H	mm (in.)	500 x 355 x 200 (19.7 x 14 x 7.9)
Multipack weight	kg (lb.)	14,3 (31.5)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WSF061.52

6.5” WOOFER

FERRITE MAGNET
STEEL BASKET DRIVER

- 1.5 INCH COPPER VOICE COIL
- 95 dB/SPL SENSITIVITY
- 250 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN
- ALTERNATIVE IMPEDANCE: 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	165 (6.5)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,4
Program power (1)	W	250
AES Power rating (2)	W	125
Sensitivity (3)	dB	95
Frequency range	Hz	90 ÷ 5000
Voice coil diameter	mm (in.)	38 (1.5)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	115 x 45 x 20 (4.5 x 1.77 x 0.79)
Coil material	Copper	
Former material	Polyimide	
Cone material	Water Resistant Treated Paper	
Surround material	Polycotton	
Xmax (4)	mm (in.)	3,8 (0.15)
Xmech (5)	mm (in.)	6,3 (0.25)
Gap height	mm (in.)	6 (0.24)
Voice coil winding height	mm (in.)	10,6 (0.42)
Driver displacement volume	l (ft³)	0,5 (0.02)
Recommended enclosure	l (ft³)	14,2 (0.5)
Recommended tuning	Hz	95

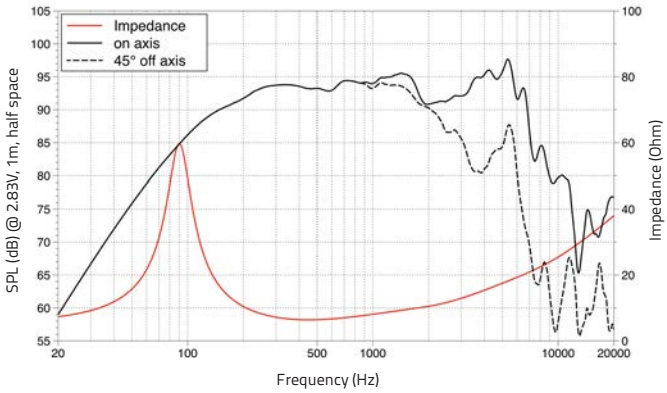
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,5
Resonance frequency	Fs	Hz	91
Moving mass	Mms	g (oz)	13,3 (0.47)
Compliance	Cms	mm/N	0,229
Force factor	BxL	N/A	10,81
Mechanical Q-factor	Qms		5,42
Electrical Q-factor	Qes		0,36
Total Q-factor	Qts		0,34
Equivalent air volume	Vas	l (ft³)	6,62 (0.23)
Voice coil Inductance	Le	mH	0,42
Diaphragm area	Sd	cm² (in.²)	143 (22.2)
Reference efficiency	Eta 0	%	1,34
Efficiency bandwidth product	EBP	Hz	253

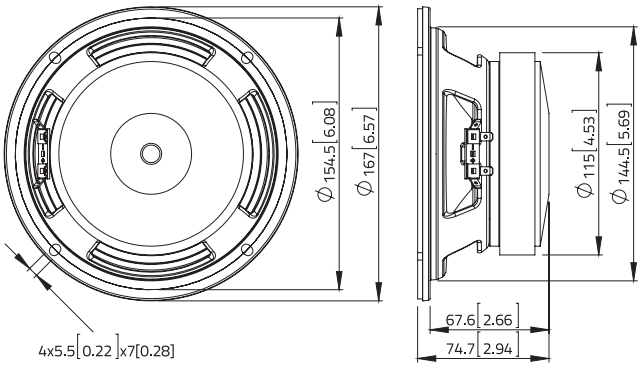
SHIPPING INFORMATION

Net weight	kg (lb.)	2 (4.4)
Multipack size (8) W x D x H	mm (in.)	391 x 373 x 206 (15.4 x 14.7 x 8.1)
Multipack weight	kg (lb.)	18,1 (39.9)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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MAF061.50

6.5” MIDRANGE

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 1.5 INCH EDGEWOUND CCA VOICE COIL
- 96.5 dB/SPL SENSITIVITY
- 240 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALUMINIUM DEMODULATION RING
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	165 (6.5)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,4
Program power (1)	W	240
AES Power rating (2)	W	120
Sensitivity (3)	dB	96,5
Frequency range	Hz	150 ÷ 6000
Voice coil diameter	mm (in.)	38 (1.5)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	120 x 60 x 20 (4.72 x 2.36 x 0.79)
Coil material	Edgewound CCAW	
Former material	Polyimide	
Cone material	Water Resistant Treated Paper	
Surround material	Polycotton	
Xmax (4)	mm (in.)	3,6 (0.14)
Xmech (5)	mm (in.)	6,1 (0.24)
Gap height	mm (in.)	6 (0.24)
Voice coil winding height	mm (in.)	10,3 (0.40)
Driver displacement volume	l (ft³)	0,529 (0.019)
Recommended enclosure	l (ft³)	5,04 (0.178)
Recommended tuning	Hz	150

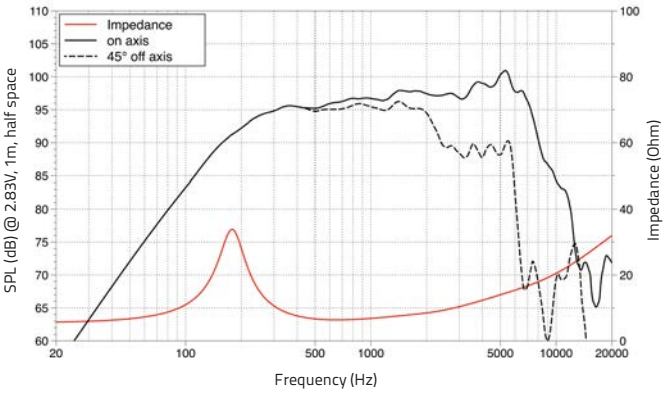
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,5
Resonance frequency	Fs	Hz	177
Moving mass	Mms	g (oz)	10,4 (0.37)
Compliance	Cms	mm/N	0,077
Force factor	BxL	N/A	10,54
Mechanical Q-factor	Qms		5,77
Electrical Q-factor	Qes		0,57
Total Q-factor	Qts		0,52
Equivalent air volume	Vas	l (ft³)	1,9 (0.07)
Voice coil Inductance	Le	mH	0,29
Diaphragm area	Sd	cm² (in.²)	132 (20.5)
Reference efficiency	Eta 0	%	1,78
Efficiency bandwidth product	EBP	Hz	311

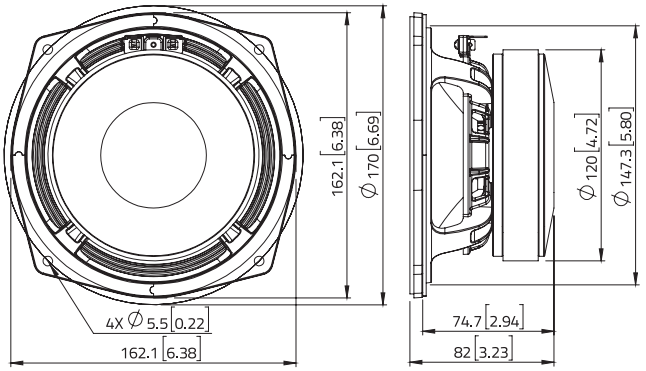
SHIPPING INFORMATION

Net weight	kg (lb.)	2,3 (5.1)
Multipack size (8) W x D x H	mm (in.)	380 x 357 x 207 (15 x 14 x 8.1)
Multipack weight	kg (lb.)	19,3 (42.5)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAF061.80

6.5” WOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 1.8 INCH CCAW VOICE COIL
- 91 dB/SPL SENSITIVITY
- 300 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RUBBER SURROUND MATERIAL
- ALTERNATIVE IMPEDANCE: 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	165 (6.5)
Nominal impedance	Ω	8
Minimum impedance	Ω	5,4
Program power (1)	W	300
AES Power rating (2)	W	150
Sensitivity (3)	dB	91
Frequency range	Hz	65 ÷ 5000
Voice coil diameter	mm (in.)	45 (1.8)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	120 x 60 x 20 (4.72 x 2.36 x 0.79)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Rubber	
Xmax (4)	mm (in.)	4,9 (0.19)
Xmech (5)	mm (in.)	7,4 (0.29)
Gap height	mm (in.)	6 (0.24)
Voice coil winding height	mm (in.)	12,8 (0.50)
Driver displacement volume	l (ft³)	0,8 (0.03)
Recommended enclosure	l (ft³)	10,2 (0.36)
Recommended tuning	Hz	80

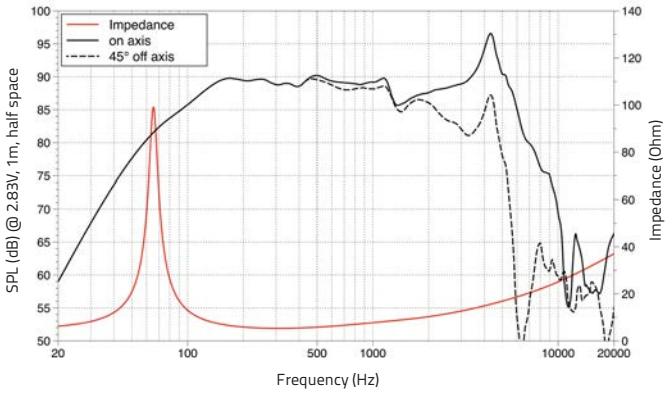
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	4,7
Resonance frequency	Fs	Hz	65
Moving mass	Mms	g (oz)	20,1 (0.71)
Compliance	Cms	mm/N	0,294
Force factor	BxL	N/A	9,46
Mechanical Q-factor	Qms		8,82
Electrical Q-factor	Qes		0,44
Total Q-factor	Qts		0,42
Equivalent air volume	Vas	l (ft³)	7,26 (0.26)
Voice coil Inductance	Le	mH	0,34
Diaphragm area	Sd	cm² (in.²)	132 (20.5)
Reference efficiency	Eta 0	%	0,45
Efficiency bandwidth product	EBP	Hz	148

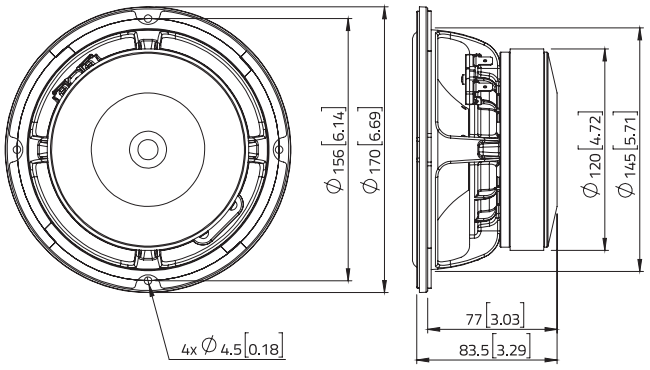
SHIPPING INFORMATION

Net weight	kg (lb.)	2,3 (5)
Multipack size (8) W x D x H	mm (in.)	410 x 375 x 235 (16.1 x 14.8 x 9.2)
Multipack weight	kg (lb.)	20,6 (45.4)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WSF081.82

8” WOOFER

FERRITE MAGNET
STEEL BASKET DRIVER

- 1.8 INCH COPPER VOICE COIL
- 95,5 dB/SPL SENSITIVITY
- 300 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN
- ALTERNATIVE IMPEDANCE: 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	200 (8)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,5
Program power (1)	W	300
AES Power rating (2)	W	150
Sensitivity (3)	dB	95,5
Frequency range	Hz	80 ÷ 5000
Voice coil diameter	mm (in.)	45 (1.8)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	120 x 60 x 22 (4.72 x 2.36 x 0.87)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Polycotton	
Xmax (4)	mm (in.)	6,2 (0.24)
Xmech (5)	mm (in.)	10,2 (0.40)
Gap height	mm (in.)	8 (0.31)
Voice coil winding height	mm (in.)	16,5 (0.65)
Driver displacement volume	l (ft³)	0,8 (0.03)
Recommended enclosure	l (ft³)	23 (0.97)
Recommended tuning	Hz	80

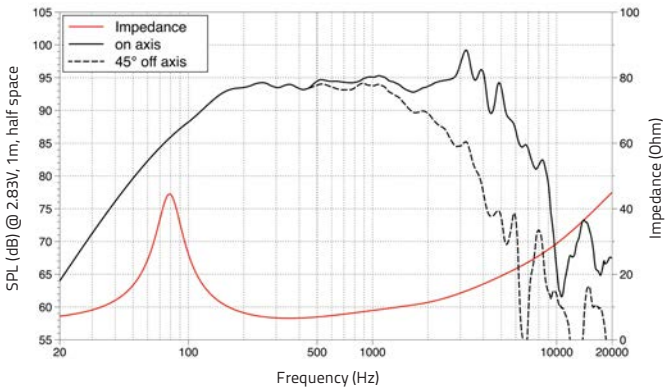
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,7
Resonance frequency	Fs	Hz	79
Moving mass	Mms	g (oz)	19,4 (0.68)
Compliance	Cms	mm/N	0,209
Force factor	BxL	N/A	11,25
Mechanical Q-factor	Qms		2,95
Electrical Q-factor	Qes		0,43
Total Q-factor	Qts		0,38
Equivalent air volume	Vas	l (ft³)	14,3 (0.5)
Voice coil Inductance	Le	mH	0,49
Diaphragm area	Sd	cm² (in.²)	220 (34.1)
Reference efficiency	Eta 0	%	1,58
Efficiency bandwidth product	EBP	Hz	184

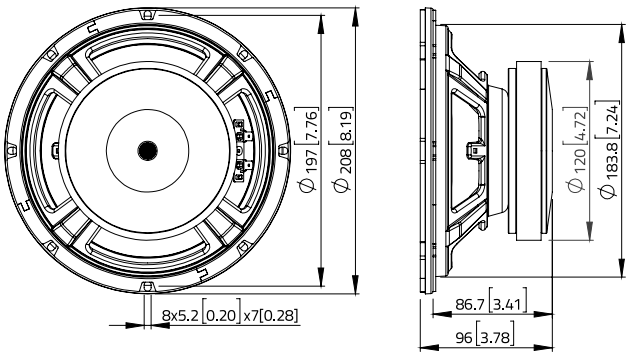
SHIPPING INFORMATION

Net weight	kg (lb.)	2,3 (5)
Multipack size (1) W x D x H	mm (in.)	262 x 268 x 142 (10.3 x 10.5 x 5.6)
Multipack weight	kg (lb.)	3,2 (7)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WAF082.00

8" WOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 2 INCH CCAW VOICE COIL
- 95 dB/SPL SENSITIVITY
- 400 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- COPPER RING FOR EXTENDED FREQUENCY RESPONSE

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	200 (8)
Nominal impedance	Ω	8
Minimum impedance	Ω	7
Program power (1)	W	400
AES Power rating (2)	W	200
Sensitivity (3)	dB	95
Frequency range	Hz	80 ÷ 3000
Voice coil diameter	mm (in.)	51 (2)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	145 x 70 x 22 (5.71 x 2.76 x 0.87)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Polycotton	
Xmax (4)	mm (in.)	6,3 (0.25)
Xmech (5)	mm (in.)	10,5 (0.41)
Gap height	mm (in.)	8,2 (0.32)
Voice coil winding height	mm (in.)	16,8 (0.66)
Driver displacement volume	l (ft³)	1 (0.04)
Recommended enclosure	l (ft³)	19,84 (0.70)
Recommended tuning	Hz	80

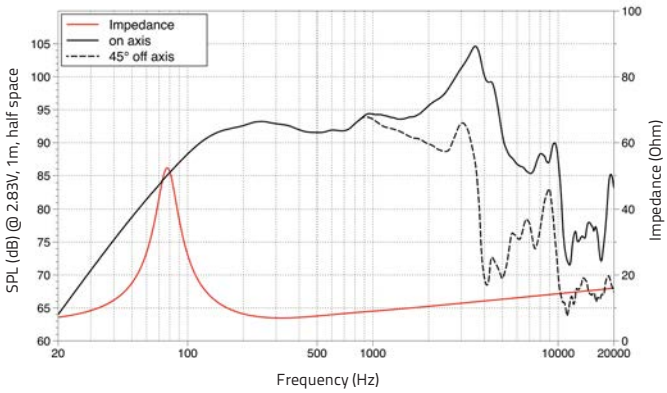
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,5
Resonance frequency	Fs	Hz	78
Moving mass	Mms	g (oz)	23,6 (0.83)
Compliance	Cms	mm/N	0,174
Force factor	BxL	N/A	12,51
Mechanical Q-factor	Qms		3,66
Electrical Q-factor	Qes		0,41
Total Q-factor	Qts		0,37
Equivalent air volume	Vas	l (ft³)	11,92 (0.42)
Voice coil Inductance	Le	mH	0,185
Diaphragm area	Sd	cm² (in.²)	220 (34.1)
Reference efficiency	Eta 0	%	1,36
Efficiency bandwidth product	EBP	Hz	190

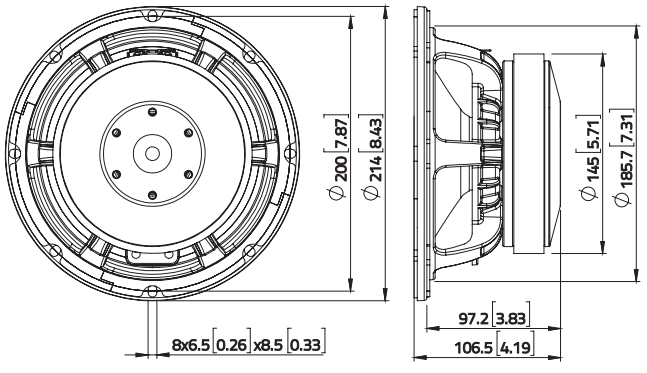
SHIPPING INFORMATION

Net weight	kg (lb.)	4 (8.8)
Multipack size (1) W x D x H	mm (in.)	265 x 265 x 140 (10.4 x 10.4 x 5.5)
Multipack weight	kg (lb.)	4,6 (10.1)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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MAF082.00

8” MIDRANGE

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 2 INCH COPPER VOICE COIL
- 98,5 dB/SPL SENSITIVITY
- 400 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- COPPER RING FOR EXTENDED FREQUENCY RESPONSE
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	200 (8)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,5
Program power (1)	W	400
AES Power rating (2)	W	200
Sensitivity (3)	dB	98,5
Frequency range	Hz	90 ÷ 5000
Voice coil diameter	mm (in.)	51 (2)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	155 x 60 x 17,5 (6.1 x 2.36 x 0.69)
Coil material	Copper	
Former material	Polyimide	
Cone material	Water Resistant Treated Paper	
Surround material	Polycotton	
Xmax (4)	mm (in.)	2,6 (0.1)
Xmech (5)	mm (in.)	6,6 (0.26)
Gap height	mm (in.)	8 (0.31)
Voice coil winding height	mm (in.)	9,2 (0.36)
Driver displacement volume	l (ft³)	0,99 (0.035)
Recommended enclosure	l (ft³)	14,7 (0.52)
Recommended tuning	Hz	100

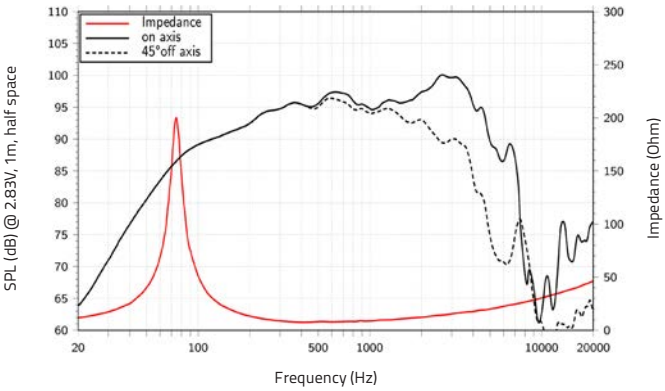
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,8
Resonance frequency	Fs	Hz	75
Moving mass	Mms	g (oz)	20,6 (0.73)
Compliance	Cms	mm/N	0,217
Force factor	BxL	N/A	17,33
Mechanical Q-factor	Qms		6,47
Electrical Q-factor	Qes		0,19
Total Q-factor	Qts		0,18
Equivalent air volume	Vas	l (ft³)	13,54 (0,48)
Voice coil Inductance	Le	mH	0,54
Diaphragm area	Sd	cm² (in.²)	210 (32,6)
Reference efficiency	Eta 0	%	2,95
Efficiency bandwidth product	EBP	Hz	395

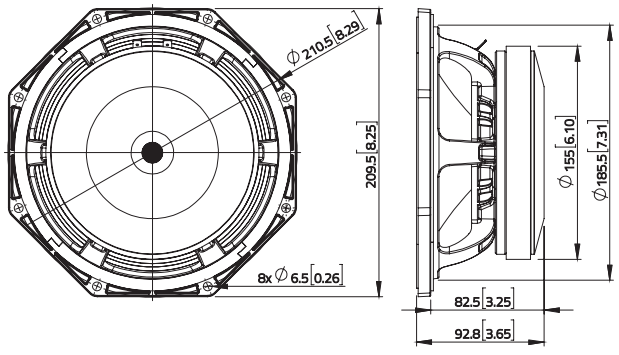
SHIPPING INFORMATION

Net weight	kg (lb.)	4,1 (9)
Multipack size (1) W x D x H	mm (in.)	270 x 270 x 140 (10.6 x 10.6 x 5.5)
Multipack weight	kg (lb.)	4,7 (10.4)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WSF102.00

10" WOOFER

FERRITE MAGNET
STEEL BASKET DRIVER

- 2 INCH CCAW VOICE COIL
- 97 dB/SPL SENSITIVITY
- 350 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	250 (10)
Nominal impedance	Ω	8
Minimum impedance	Ω	5,9
Program power (1)	W	350
AES Power rating (2)	W	175
Sensitivity (3)	dB	97
Frequency range	Hz	60 ÷ 4000
Voice coil diameter	mm (in.)	51 (2)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	140 x 60 x 17 (5.51 x 2.36 x 0.67)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	5,2 (0.2)
Xmech (5)	mm (in.)	9,4 (0.37)
Gap height	mm (in.)	8,2 (0.32)
Voice coil winding height	mm (in.)	14,6 (0.57)
Driver displacement volume	l (ft³)	1,2 (0.04)
Recommended enclosure	l (ft³)	25,7 (0.91)
Recommended tuning	Hz	70

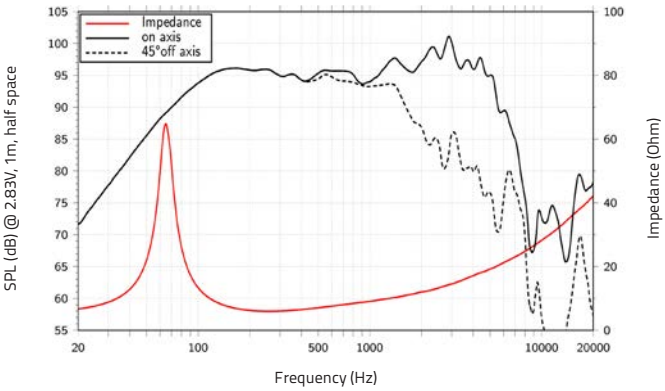
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,2
Resonance frequency	Fs	Hz	65
Moving mass	Mms	g (oz)	30,4 (1.07)
Compliance	Cms	mm/N	0,196
Force factor	BxL	N/A	11,62
Mechanical Q-factor	Qms		5,73
Electrical Q-factor	Qes		0,48
Total Q-factor	Qts		0,45
Equivalent air volume	Vas	l (ft³)	34,03 (1.2)
Voice coil Inductance	Le	mH	0,5
Diaphragm area	Sd	cm² (in.²)	350 (54.3)
Reference efficiency	Eta 0	%	1,88
Efficiency bandwidth product	EBP	Hz	135

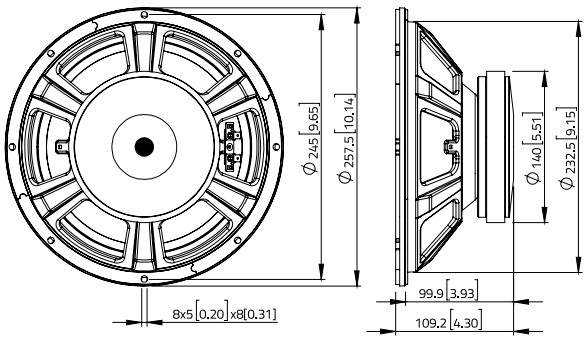
SHIPPING INFORMATION

Net weight	kg (lb.)	3,2 (7)
Multipack size (1) W x D x H	mm (in.)	300 x 310 x 150 (11.8 x 12.2 x 5.9)
Multipack weight	kg (lb.)	4,1 (9)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WSF102.50

10" WOOFER

FERRITE MAGNET
STEEL BASKET DRIVER

- 2.5 INCH EDGEWOUND CCA VOICE COIL
- 97.5 dB/SPL SENSITIVITY
- 500 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	250 (10)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,5
Program power (1)	W	500
AES Power rating (2)	W	250
Sensitivity (3)	dB	97,5
Frequency range	Hz	60 ÷ 2500
Voice coil diameter	mm (in.)	65 (2.5)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	156 x 80 x 20 (6.14 x 3.15 x 0.79)
Coil material	Edgewound CCA	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Polycotton	
Xmax (4)	mm (in.)	4,8 (0.19)
Xmech (5)	mm (in.)	8,8 (0.35)
Gap height	mm (in.)	8 (0.31)
Voice coil winding height	mm (in.)	13,7 (0.54)
Driver displacement volume	l (ft³)	1,4 (0.05)
Recommended enclosure	l (ft³)	29,5 (1.04)
Recommended tuning	Hz	73

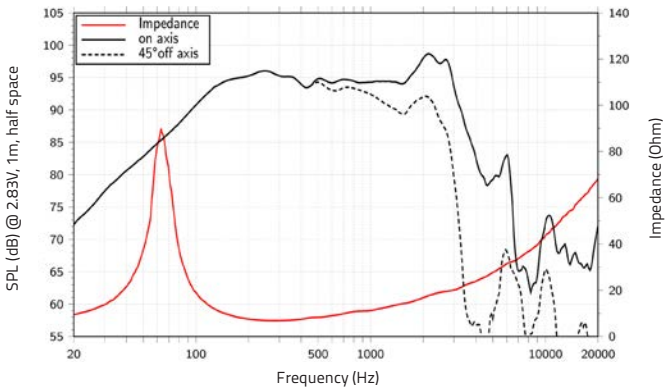
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,6
Resonance frequency	Fs	Hz	64
Moving mass	Mms	g (oz)	33 (1.16)
Compliance	Cms	mm/N	0,189
Force factor	BxL	N/A	15,06
Mechanical Q-factor	Qms		5,32
Electrical Q-factor	Qes		0,33
Total Q-factor	Qts		0,31
Equivalent air volume	Vas	l (ft³)	32,69 (1.15)
Voice coil Inductance	Le	mH	0,82
Diaphragm area	Sd	cm² (in.²)	350 (54.3)
Reference efficiency	Eta 0	%	2,48
Efficiency bandwidth product	EBP	Hz	194

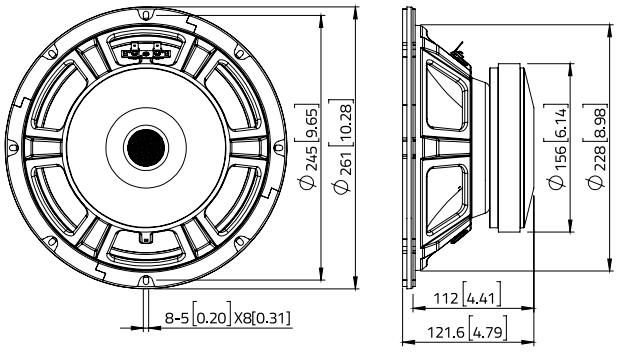
SHIPPING INFORMATION

Net weight	kg (lb.)	4,5 (10)
Multipack size (1) W x D x H	mm (in.)	305 x 305 x 160 (12 x 12 x 6.3)
Multipack weight	kg (lb.)	5,5 (12.1)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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10" WOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 2.5 INCH CCAW VOICE COIL
- 97 dB/SPL SENSITIVITY
- 500 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	250 (10)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,7
Program power (1)	W	500
AES Power rating (2)	W	250
Sensitivity (3)	dB	97
Frequency range	Hz	70 ÷ 4000
Voice coil diameter	mm (in.)	65 (2.5)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	156 x 80 x 20 (6.14 x 3.15 x 0.79)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Polycotton	
Xmax (4)	mm (in.)	5,1 (0.2)
Xmech (5)	mm (in.)	9,1 (0.36)
Gap height	mm (in.)	8 (0.31)
Voice coil winding height	mm (in.)	14,2 (0.56)
Driver displacement volume	l (ft³)	1,6 (0.06)
Recommended enclosure	l (ft³)	36 (1.27)
Recommended tuning	Hz	75

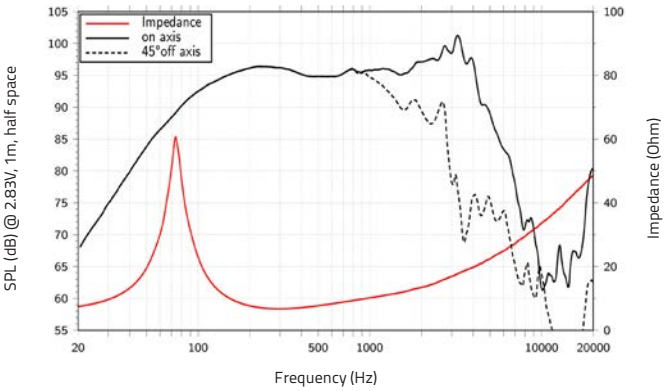
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,7
Resonance frequency	Fs	Hz	74
Moving mass	Mms	g (oz)	33,7 (1.19)
Compliance	Cms	mm/N	0,136
Force factor	BxL	N/A	14,62
Mechanical Q-factor	Qms		4,01
Electrical Q-factor	Qes		0,12
Total Q-factor	Qts		0,38
Equivalent air volume	Vas	l (ft³)	23,66 (0.84)
Voice coil Inductance	Le	mH	0,68
Diaphragm area	Sd	cm² (in.²)	350 (54.3)
Reference efficiency	Eta 0	%	2,22
Efficiency bandwidth product	EBP	Hz	617

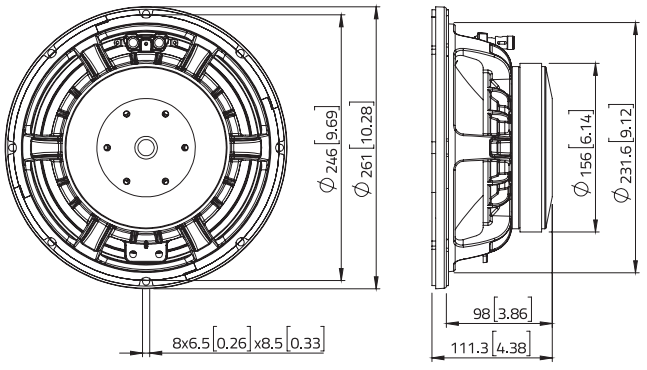
SHIPPING INFORMATION

Net weight	kg (lb.)	4,8 (10.5)
Multipack size (1) W x D x H	mm (in.)	303 x 303 x 152 (11.9 x 11.9 x 6)
Multipack weight	kg (lb.)	5,7 (12.5)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAF102.51

10” WOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 2.5 INCH CCAW VOICE COIL
- 95,5 DB/SPL SENSITIVITY
- 700 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALUMINIUM DEMODULATING RING

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	250 (10)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,5
Program power (1)	W	700
AES Power rating (2)	W	350
Sensitivity (3)	dB	95,5
Frequency range	Hz	70 ÷ 4000
Voice coil diameter	mm (in.)	65 (2.5)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	156 x 80 x 20 (6.1 x 3.15 x 0.79)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	5,95 (0.23)
Xmech (5)	mm (in.)	11,45 (0.45)
Gap height	mm (in.)	10 (0.39)
Voice coil winding height	mm (in.)	16,9 (0.67)
Driver displacement volume	l (ft³)	1,6 (0.06)
Recommended enclosure	l (ft³)	35,4 (1.25)
Recommended tuning	Hz	70

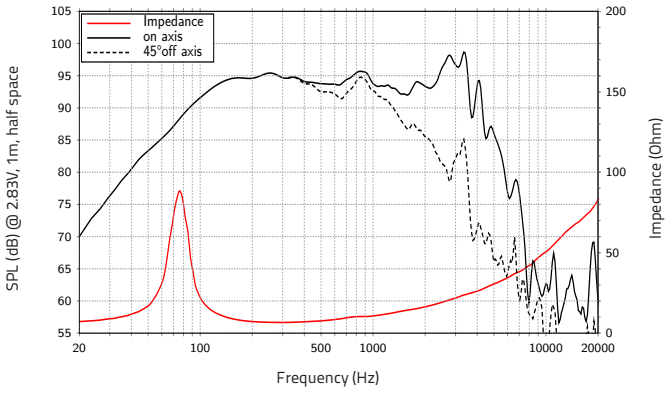
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,7
Resonance frequency	Fs	Hz	70
Moving mass	Mms	g (oz)	42,5 (1.5)
Compliance	Cms	mm/N	0,12
Force factor	BxL	N/A	15,6
Mechanical Q-factor	Qms		7,16
Electrical Q-factor	Qes		0,44
Total Q-factor	Qts		0,42
Equivalent air volume	Vas	l (ft³)	21,4 (0.75)
Voice coil Inductance	Le	mH	0,9
Diaphragm area	Sd	cm² (in.²)	350 (54.2)
Reference efficiency	Eta 0	%	1,56
Efficiency bandwidth product	EBP	Hz	160

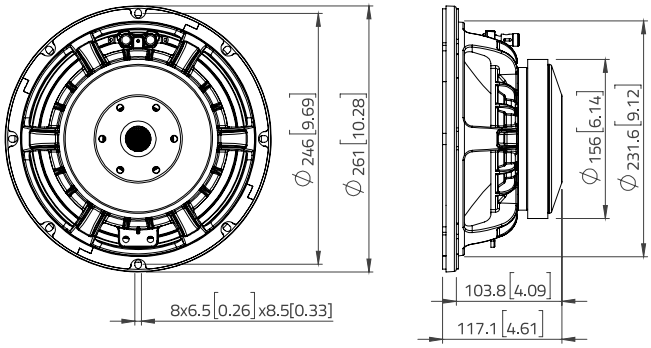
SHIPPING INFORMATION

Net weight	kg (lb.)	4,8 (10.5)
Multipack size (1) W x D x H	mm (in.)	307 x 307 x 152 (12.1 x 12.1 x 6)
Multipack weight	kg (lb.)	5,6 (12.3)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAF102.50A

10" WOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 2.5 INCH EDGEWOUND CCA VOICE COIL
- 97 dB/SPL SENSITIVITY
- 500 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALTERNATIVE IMPEDANCE: 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	250 (10)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,5
Program power (1)	W	500
AES Power rating (2)	W	250
Sensitivity (3)	dB	97
Frequency range	Hz	70 ÷ 4000
Voice coil diameter	mm (in.)	65 (2.5)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	156 x 80 x 20 (6.14 x 3.15 x 0.79)
Coil material	Edgewound CCA	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	4,8 (0.19)
Xmech (5)	mm (in.)	8,8 (0.35)
Gap height	mm (in.)	8 (0.31)
Voice coil winding height	mm (in.)	13,7 (0.54)
Driver displacement volume	l (ft³)	1,5 (0.05)
Recommended enclosure	l (ft³)	39 (1.38)
Recommended tuning	Hz	70

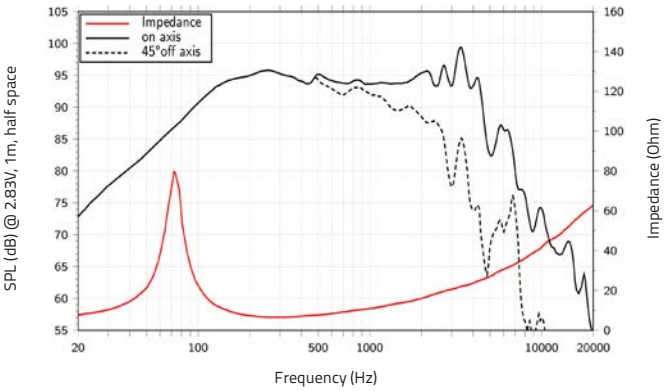
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,5
Resonance frequency	Fs	Hz	73
Moving mass	Mms	g (oz)	38,4 (1.35)
Compliance	Cms	mm/N	0,125
Force factor	BxL	N/A	15,8
Mechanical Q-factor	Qms		5,34
Electrical Q-factor	Qes		0,38
Total Q-factor	Qts		0,36
Equivalent air volume	Vas	l (ft³)	21,68 (0.77)
Voice coil Inductance	Le	mH	0,8
Diaphragm area	Sd	cm² (in.²)	350 (54.3)
Reference efficiency	Eta 0	%	2,09
Efficiency bandwidth product	EBP	Hz	192

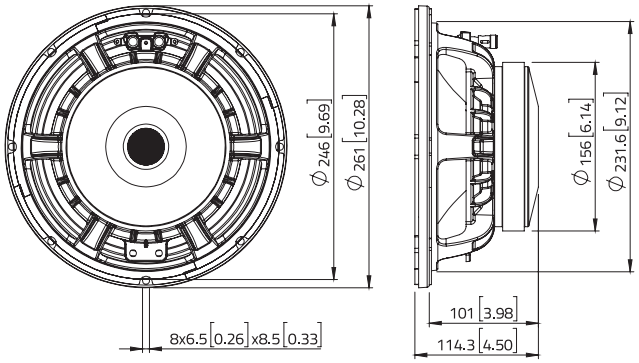
SHIPPING INFORMATION

Net weight	kg (lb.)	4,7 (10.2)
Multipack size (1) W x D x H	mm (in.)	300 x 300 x 155 (11.8 x 11.8 x 6.1)
Multipack weight	kg (lb.)	5,5 (12.3)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

MAF103.00

10” MIDRANGE

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH COPPER VOICE COIL
- 99 dB/SPL SENSITIVITY
- 700 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALTERNATIVE IMPEDANCE: 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	250 (10)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,3
Program power (1)	W	700
AES Power rating (2)	W	350
Sensitivity (3)	dB	99
Frequency range	Hz	70 ÷ 4000
Voice coil diameter	mm (in.)	75 (3)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	200 x 85 x 20 (7.87 x 3.35 x 0.79)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Polycotton	
Xmax (4)	mm (in.)	2,2 (0.09)
Xmech (5)	mm (in.)	6,2 (0.24)
Gap height	mm (in.)	8 (0.31)
Voice coil winding height	mm (in.)	8,3 (0.33)
Driver displacement volume	l (ft³)	1,8 (0.064)
Recommended enclosure	l (ft³)	25,9 (0.92)
Recommended tuning	Hz	85

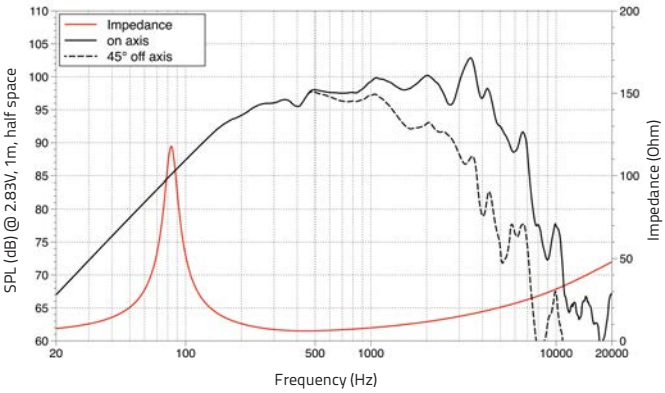
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,2
Resonance frequency	Fs	Hz	85
Moving mass	Mms	g (oz)	41 (1.45)
Compliance	Cms	mm/N	0,086
Force factor	BxL	N/A	20,62
Mechanical Q-factor	Qms		5,77
Electrical Q-factor	Qes		0,27
Total Q-factor	Qts		0,25
Equivalent air volume	Vas	l (ft³)	14,88 (0.53)
Voice coil Inductance	Le	mH	0,58
Diaphragm area	Sd	cm² (in.²)	350 (54.3)
Reference efficiency	Eta 0	%	3,28
Efficiency bandwidth product	EBP	Hz	315

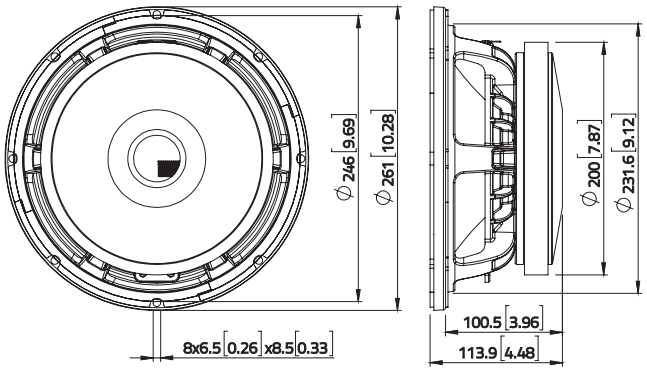
SHIPPING INFORMATION

Net weight	kg (lb.)	6,9 (15.2)
Multipack size (1) W x D x H	mm (in.)	310 x 310 x 105,4 (12.2 x 12.2 x 4.1)
Multipack weight	kg (lb.)	7,8 (16.3)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

WSF122.02

12" WOOFER

FERRITE MAGNET
STEEL BASKET DRIVER

- 2 INCH COPPER VOICE COIL
- 98 dB/SPL SENSITIVITY
- 400 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	300 (12)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,0
Program power (1)	W	400
AES Power rating (2)	W	200
Sensitivity (3)	dB	98
Frequency range	Hz	50 ÷ 3000
Voice coil diameter	mm (in.)	51 (2)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	140 x 60 x 17 (5.51 x 2.36 x 0.67)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Polycotton	
Xmax (4)	mm (in.)	4,3 (0.17)
Xmech (5)	mm (in.)	8,3 (0.33)
Gap height	mm (in.)	8 (0.31)
Voice coil winding height	mm (in.)	12,6 (0.5)
Driver displacement volume	l (ft³)	1,9 (0.07)
Recommended enclosure	l (ft³)	59,8 (2.11)
Recommended tuning	Hz	55

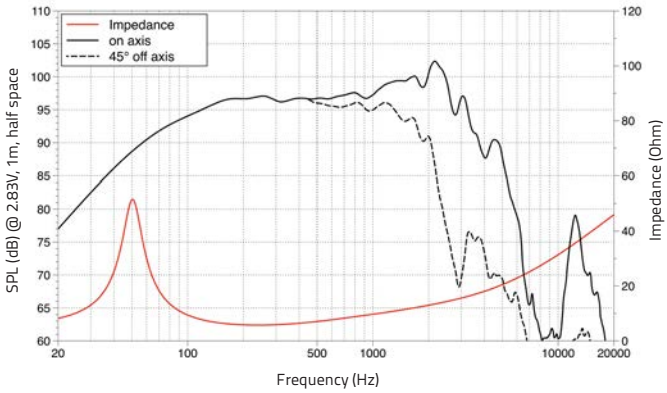
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,2
Resonance frequency	Fs	Hz	51
Moving mass	Mms	g (oz)	44,8 (1.58)
Compliance	Cms	mm/N	0,222
Force factor	BxL	N/A	12,81
Mechanical Q-factor	Qms		4,02
Electrical Q-factor	Qes		0,45
Total Q-factor	Qts		0,41
Equivalent air volume	Vas	l (ft³)	88,39 (3.12)
Voice coil Inductance	Le	mH	0,53
Diaphragm area	Sd	cm² (in.²)	531 (82.3)
Reference efficiency	Eta 0	%	2,42
Efficiency bandwidth product	EBP	Hz	113

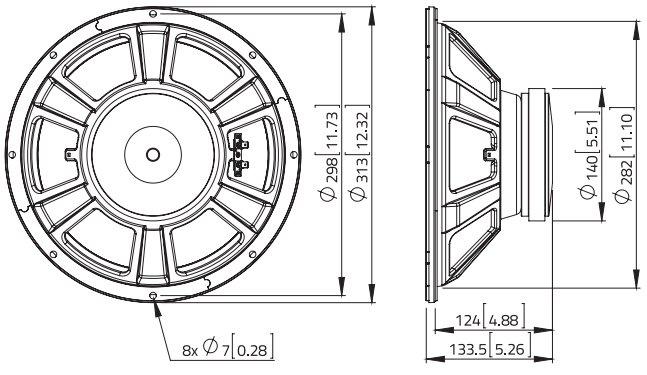
SHIPPING INFORMATION

Net weight	kg (lb.)	3,5 (7.6)
Multipack size (1) W x D x H	mm (in.)	365 x 360 x 175 (14.4 x 14.2 x 6.9)
Multipack weight	kg (lb.)	4,9 (10.8)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

FSF122.02

12” FULLRANGE

FERRITE MAGNET
STEEL BASKET DRIVER

- 1.8 INCH COPPER VOICE COIL
- 98,5 dB/SPL SENSITIVITY
- 300 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- DUAL CONE FOR EXTENDED FREQUENCY RESPONSE
- SMOOTH AND SILKY TONE
- RESONANCE FREE AND HEAVY DUTY STEEL BASKET DESIGN

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	300 (12)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,5
Program power (1)	W	300
AES Power rating (2)	W	150
Sensitivity (3)	dB	98,5
Frequency range	Hz	60 ÷ 10000
Voice coil diameter	mm (in.)	45 (1.8)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	156 x 75 x 20 (6.14 x 2.95 x 0.78)
Coil material	Copper	
Former material	Polyimide	
Cone material	Water Resistant Treated Paper	
Surround material	Polycotton	
Xmax (4)	mm (in.)	3,2 (0.12)
Xmech (5)	mm (in.)	7,2 (0.28)
Gap height	mm (in.)	8 (0.31)
Voice coil winding height	mm (in.)	10,4 (0.41)
Driver displacement volume	l (ft³)	2,32 (0.082)
Recommended enclosure	l (ft³)	36,75 (1.30)
Recommended tuning	Hz	90

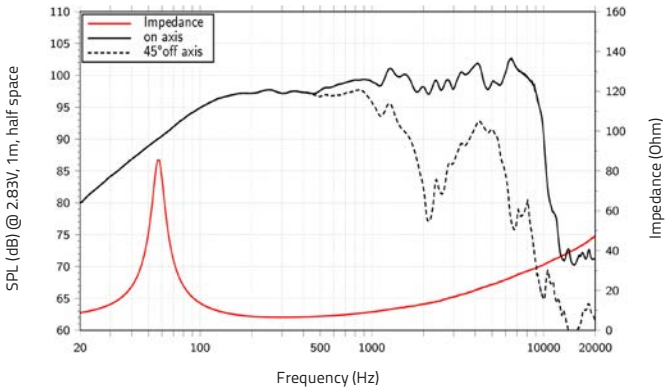
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,9
Resonance frequency	Fs	Hz	59
Moving mass	Mms	g (oz)	42,5 (1.5)
Compliance	Cms	mm/N	0,172
Force factor	BxL	N/A	14,76
Mechanical Q-factor	Qms		5,18
Electrical Q-factor	Qes		0,43
Total Q-factor	Qts		0,39
Equivalent air volume	Vas	l (ft³)	68,7 (2.43)
Voice coil Inductance	Le	mH	0,55
Diaphragm area	Sd	cm² (in.²)	531 (82.3)
Reference efficiency	Eta 0	%	3,15
Efficiency bandwidth product	EBP	Hz	137

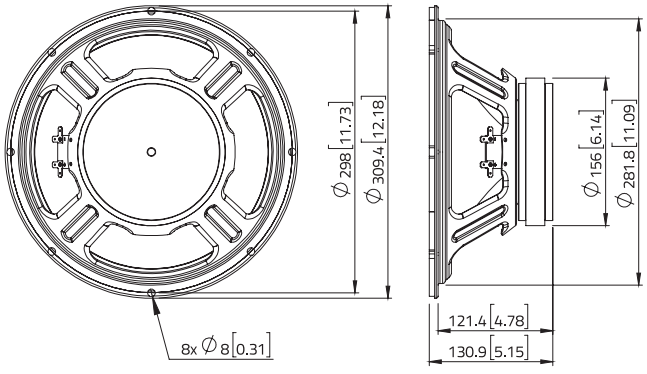
SHIPPING INFORMATION

Net weight	kg (lb.)	4,4 (9.7)
Multipack size (1) W x D x H	mm (in.)	365 x 365 x 175 (14.4 x 14.4 x 6.9)
Multipack weight	kg (lb.)	5,8 (12.8)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WSF122.50

12" WOOFER

FERRITE MAGNET
STEEL BASKET DRIVER

- 2.5 INCH COPPER VOICE COIL
- 97,5 dB/SPL SENSITIVITY
- 500 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	300 (12)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,6
Program power (1)	W	500
AES Power rating (2)	W	250
Sensitivity (3)	dB	97,5
Frequency range	Hz	50 ÷ 3000
Voice coil diameter	mm (in.)	65 (2.5)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	160 x 70 x 20 (6.3 x 2.76 x 0.79)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	4,7 (0.19)
Xmech (5)	mm (in.)	8,8 (0.35)
Gap height	mm (in.)	8,2 (0.32)
Voice coil winding height	mm (in.)	13,4 (0.53)
Driver displacement volume	l (ft³)	2 (0.07)
Recommended enclosure	l (ft³)	46,7 (1.65)
Recommended tuning	Hz	55

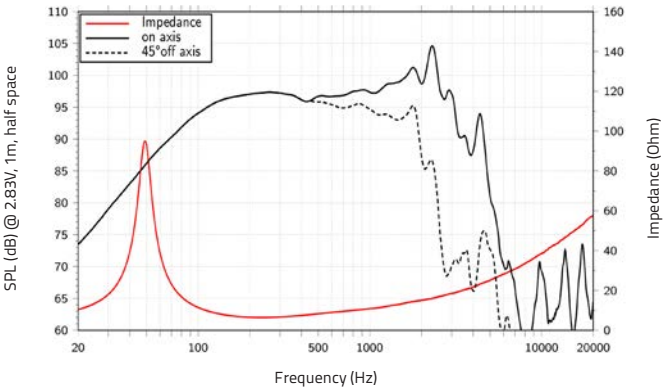
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,6
Resonance frequency	Fs	Hz	49
Moving mass	Mms	g (oz)	58,5 (2.06)
Compliance	Cms	mm/N	0,18
Force factor	BxL	N/A	17,1
Mechanical Q-factor	Qms		5,54
Electrical Q-factor	Qes		0,35
Total Q-factor	Qts		0,33
Equivalent air volume	Vas	l (ft³)	71,72 (2.53)
Voice coil Inductance	Le	mH	0,76
Diaphragm area	Sd	cm² (in.²)	531 (82.3)
Reference efficiency	Eta 0	%	2,37
Efficiency bandwidth product	EBP	Hz	140

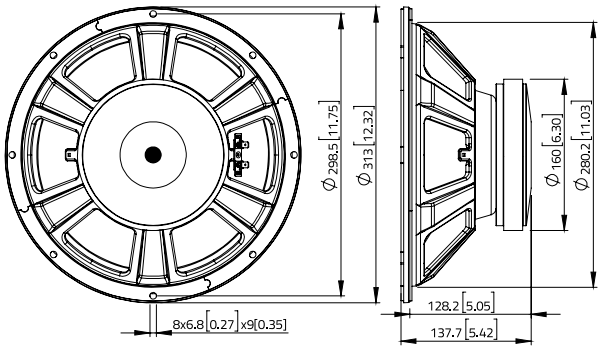
SHIPPING INFORMATION

Net weight	kg (lb.)	4,7 (10.3)
Multipack size (1) W x D x H	mm (in.)	340 x 340 x 230 (13.4 x 13.4 x 9)
Multipack weight	kg (lb.)	6 (13.3)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAF122.50

12" WOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 2.5 INCH CCAW VOICE COIL
- 97,5 dB/SPL SENSITIVITY
- 700 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- TRIPLE ROLL SURROUND
- ALTERNATIVE IMPEDANCE: 4 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	300 (12)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,8
Program power (1)	W	700
AES Power rating (2)	W	350
Sensitivity (3)	dB	97,5
Frequency range	Hz	60 ÷ 3000
Voice coil diameter	mm (in.)	65 (2.5)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	170 x 75 x 20 (6.69 x 2.95 x 0.79)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	6,1 (0.24)
Xmech (5)	mm (in.)	11,6 (0.46)
Gap height	mm (in.)	10 (0.39)
Voice coil winding height	mm (in.)	17,2 (0.68)
Driver displacement volume	l (ft³)	2,6 (0.09)
Recommended enclosure	l (ft³)	50 (1.77)
Recommended tuning	Hz	65

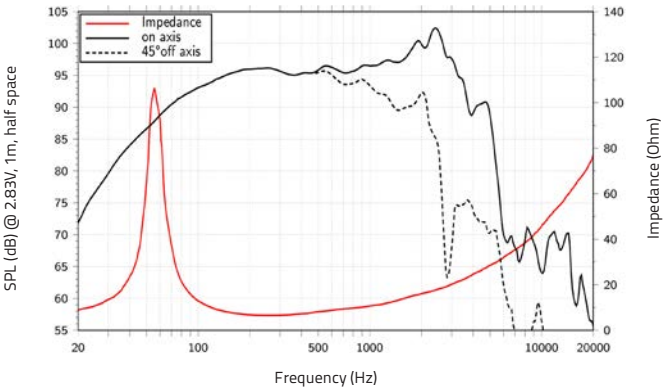
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,6
Resonance frequency	Fs	Hz	56
Moving mass	Mms	g (oz)	62,1 (2.19)
Compliance	Cms	mm/N	0,128
Force factor	BxL	N/A	17,9
Mechanical Q-factor	Qms		6,41
Electrical Q-factor	Qes		0,39
Total Q-factor	Qts		0,36
Equivalent air volume	Vas	l (ft³)	50,95 (1.8)
Voice coil Inductance	Le	mH	0,94
Diaphragm area	Sd	cm² (in.²)	531 (82.3)
Reference efficiency	Eta 0	%	2,29
Efficiency bandwidth product	EBP	Hz	144

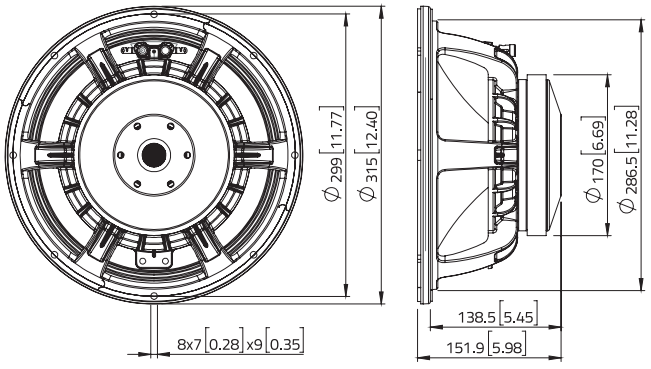
SHIPPING INFORMATION

Net weight	kg (lb.)	6,3 (13.9)
Multipack size (1) W x D x H	mm (in.)	362 x 362 x 195 (14.2 x 14.2 x 7.7)
Multipack weight	kg (lb.)	7,7 (17)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WAF123.00

12" WOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH CCAW VOICE COIL
- 99 dB/SPL SENSITIVITY
- 1000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALTERNATIVE IMPEDANCE: 4 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	300 (12)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,5
Program power (1)	W	1000
AES Power rating (2)	W	500
Sensitivity (3)	dB	99
Frequency range	Hz	500 ÷ 3000
Voice coil diameter	mm (in.)	75 (3)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	190 x 95 x 25 (7.48 x 3.74 x 0.98)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	7 (0.27)
Xmech (5)	mm (in.)	12,5 (0.49)
Gap height	mm (in.)	10 (0.39)
Voice coil winding height	mm (in.)	19 (0.75)
Driver displacement volume	l (ft³)	2,8 (0.09)
Recommended enclosure	l (ft³)	70,8 (2.5)
Recommended tuning	Hz	55

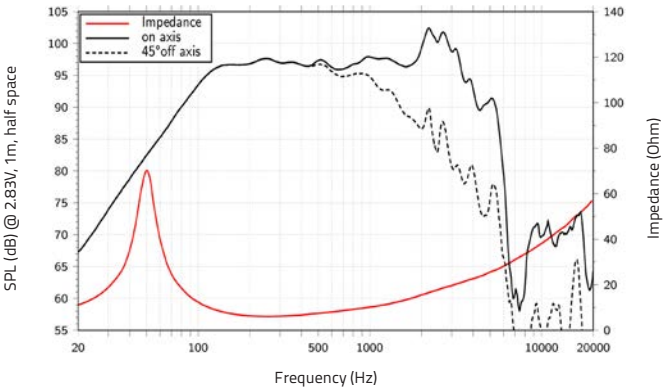
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	4,7
Resonance frequency	Fs	Hz	50
Moving mass	Mms	g (oz)	61,5 (2.17)
Compliance	Cms	mm/N	0,16
Force factor	BxL	N/A	17,95
Mechanical Q-factor	Qms		4,26
Electrical Q-factor	Qes		0,29
Total Q-factor	Qts		0,27
Equivalent air volume	Vas	l (ft³)	63,85 (2.25)
Voice coil Inductance	Le	mH	0,79
Diaphragm area	Sd	cm² (in.²)	531 (82.3)
Reference efficiency	Eta 0	%	2,80
Efficiency bandwidth product	EBP	Hz	172

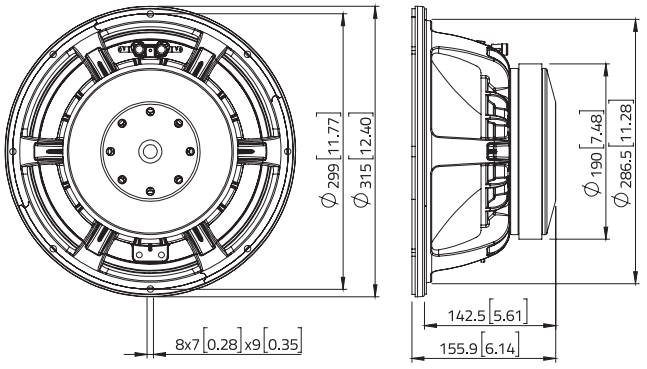
SHIPPING INFORMATION

Net weight	kg (lb.)	8,7 (19.2)
Multipack size (1) W x D x H	mm (in.)	340 x 340 x 230 (13.4 x 13.4 x 9)
Multipack weight	kg (lb.)	9,8 (21.6)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAF123.01

12" WOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH CCAW VOICE COIL
- 98 dB/SPL SENSITIVITY
- 1000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALUMINIUM DEMODULATING RING

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	300 (12)
Nominal impedance	Ω	8
Minimum impedance	Ω	5,6
Program power (1)	W	1000
AES Power rating (2)	W	500
Sensitivity (3)	dB	98
Frequency range	Hz	65 ÷ 3000
Voice coil diameter	mm (in.)	75 (3)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	190 x 95 x 25 (7.48 x 3.74 x 0.98)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	7,5 (0.3)
Xmech (5)	mm (in.)	13 (0.51)
Gap height	mm (in.)	10 (0.39)
Voice coil winding height	mm (in.)	20 (0.79)
Driver displacement volume	l (ft³)	2,8 (0.1)
Recommended enclosure	l (ft³)	61,7 (2.18)
Recommended tuning	Hz	70

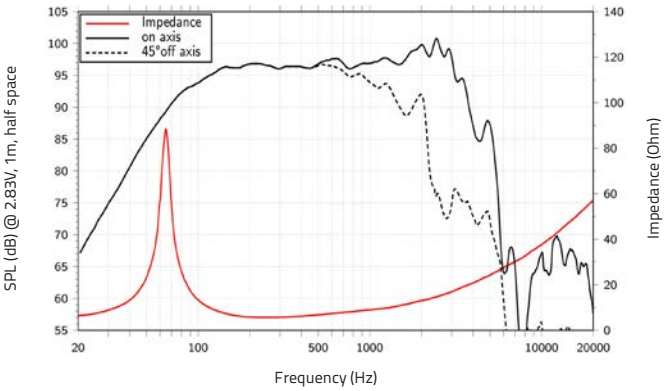
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	4,8
Resonance frequency	Fs	Hz	65
Moving mass	Mms	g (oz)	63,2 (2.23)
Compliance	Cms	mm/N	0,096
Force factor	BxL	N/A	17,08
Mechanical Q-factor	Qms		6,32
Electrical Q-factor	Qes		0,42
Total Q-factor	Qts		0,4
Equivalent air volume	Vas	l (ft³)	38,24
Voice coil Inductance	Le	mH	0,75
Diaphragm area	Sd	cm² (in.²)	531 (82.3)
Reference efficiency	Eta 0	%	2,34
Efficiency bandwidth product	EBP	Hz	155

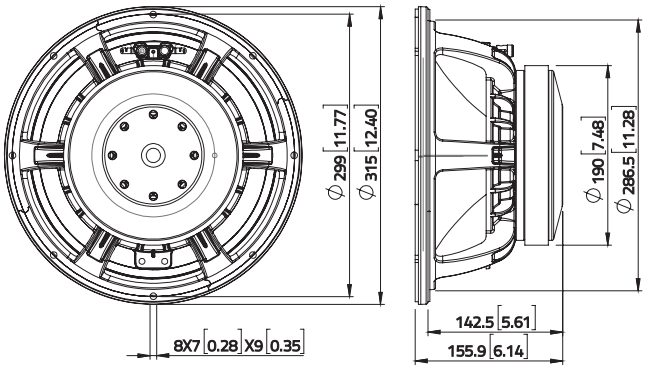
SHIPPING INFORMATION

Net weight	kg (lb.)	8,6 (18.9)
Multipack size (1) W x D x H	mm (in.)	360 x 362 x 198 (14.2 x 14.2 x 7.8)
Multipack weight	kg (lb.)	10,1 (22.3)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAF123.02

12" WOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH CCAW VOICE COIL
- 99 dB/SPL SENSITIVITY
- 1000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALUMINIUM DEMODULATING RING

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	300 (12)
Nominal impedance	Ω	8
Minimum impedance	Ω	6
Program power (1)	W	1000
AES Power rating (2)	W	500
Sensitivity (3)	dB	99
Frequency range	Hz	45 ÷ 3000
Voice coil diameter	mm (in.)	75 (3)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	200 x 95 x 25 (7.87 x 3.74 x 0.98)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	4,4 (0.17)
Xmech (5)	mm (in.)	9,9 (0.39)
Gap height	mm (in.)	10 (0.39)
Voice coil winding height	mm (in.)	13,8 (0.54)
Driver displacement volume	l (ft³)	2,8 (0.1)
Recommended enclosure	l (ft³)	72,9 (2.87)
Recommended tuning	Hz	60

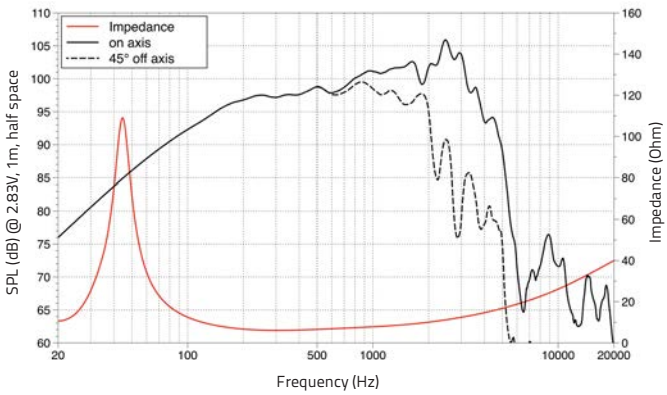
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,2
Resonance frequency	Fs	Hz	47
Moving mass	Mms	g (oz)	56,5 (1.99)
Compliance	Cms	mm/N	0,202
Force factor	BxL	N/A	18,25
Mechanical Q-factor	Qms		5,29
Electrical Q-factor	Qes		0,26
Total Q-factor	Qts		0,25
Equivalent air volume	Vas	l (ft³)	80,41 (2.84)
Voice coil Inductance	Le	mH	0,48
Diaphragm area	Sd	cm² (in.²)	531 (82.3)
Reference efficiency	Eta 0	%	3,12
Efficiency bandwidth product	EBP	Hz	181

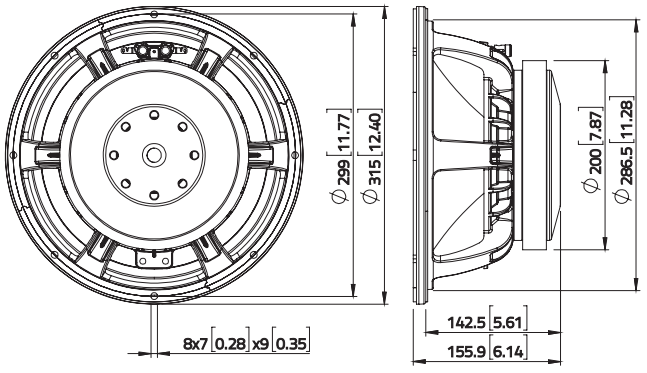
SHIPPING INFORMATION

Net weight	kg (lb.)	9 (19.8)
Multipack size (1) W x D x H	mm (in.)	365 x 365 x 195 (14.4 x 14.4 x 7.7)
Multipack weight	kg (lb.)	10,6 (23.4)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WAF124.02

12" WOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH CCAW VOICE COIL
- 96,5 dB/SPL SENSITIVITY
- 1200 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALUMINIUM DEMODULATING RING
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	300 (12)
Nominal impedance	Ω	8
Minimum impedance	Ω	5,6
Program power (1)	W	1200
AES Power rating (2)	W	600
Sensitivity (3)	dB	96,5
Frequency range	Hz	50 ÷ 2500
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	200 x 110 x 22 (7.87 x 4.33 x 0.87)
Coil material	CCAW	
Former material	Polyimide	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	8,2 (0.32)
Xmech (5)	mm (in.)	13,7 (0.54)
Gap height	mm (in.)	10 (0.39)
Voice coil winding height	mm (in.)	21,4 (0.84)
Driver displacement volume	l (ft³)	2,93 (0.104)
Recommended enclosure	l (ft³)	56 (1.98)
Recommended tuning	Hz	65

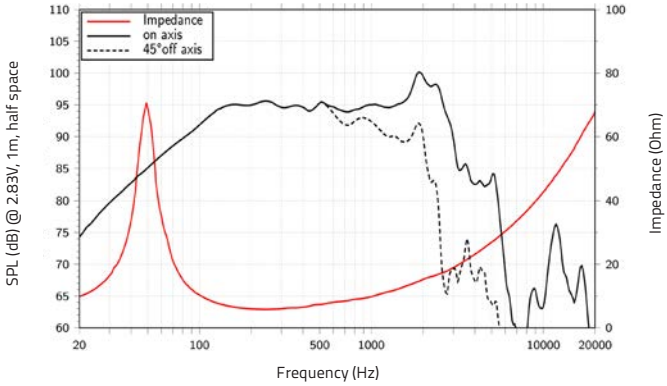
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5
Resonance frequency	Fs	Hz	49
Moving mass	Mms	g (oz)	76,9 (2.71)
Compliance	Cms	mm/N	0,134
Force factor	BxL	N/A	18,23
Mechanical Q-factor	Qms		5,08
Electrical Q-factor	Qes		0,36
Total Q-factor	Qts		0,33
Equivalent air volume	Vas	l (ft³)	53,65 (1.89)
Voice coil Inductance	Le	mH	0,9
Diaphragm area	Sd	cm² (in.²)	531 (82.3)
Reference efficiency	Eta 0	%	1,74
Efficiency bandwidth product	EBP	Hz	136

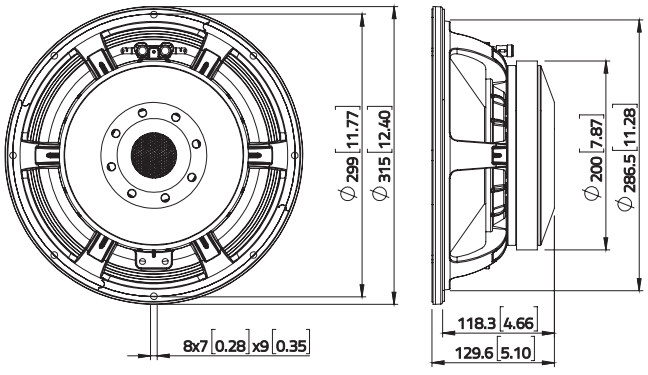
SHIPPING INFORMATION

Net weight	kg (lb.)	8,5 (18.7)
Multipack size (1) W x D x H	mm (in.)	370 x 350 x 170 (14.6 x 13.8 x 6.7)
Multipack weight	kg (lb.)	9,4 (20.7)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

WSF152.50

15" WOOFER

FERRITE MAGNET
STEEL BASKET DRIVER

- 2.5 INCH COPPER VOICE COIL
- 97,5 dB/SPL SENSITIVITY
- 500 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	380 (15)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,3
Program power (1)	W	500
AES Power rating (2)	W	250
Sensitivity (3)	dB	97,5
Frequency range	Hz	45 ÷ 3000
Voice coil diameter	mm (in.)	65 (2.5)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	160 x 70 x 20 (6.3 x 2.76 x 0.79)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	4,7 (0.19)
Xmech (5)	mm (in.)	8,8 (0.35)
Gap height	mm (in.)	8,2 (0.32)
Voice coil winding height	mm (in.)	13,4 (0.53)
Driver displacement volume	l (ft³)	3,8 (0.13)
Recommended enclosure	l (ft³)	86,3 (3.4)
Recommended tuning	Hz	50

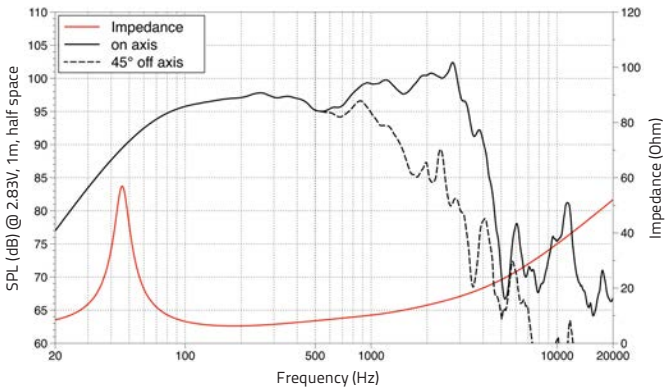
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,6
Resonance frequency	Fs	Hz	46
Moving mass	Mms	g (oz)	90,3 (3.19)
Compliance	Cms	mm/N	0,133
Force factor	BxL	N/A	16,16
Mechanical Q-factor	Qms		5,12
Electrical Q-factor	Qes		0,56
Total Q-factor	Qts		0,50
Equivalent air volume	Vas	l (ft³)	137,9 (4.87)
Voice coil Inductance	Le	mH	0,77
Diaphragm area	Sd	cm² (in.²)	855 (132.5)
Reference efficiency	Eta 0	%	2,29
Efficiency bandwidth product	EBP	Hz	82

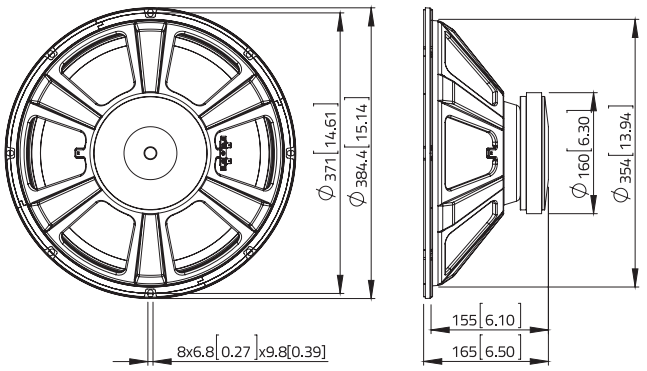
SHIPPING INFORMATION

Net weight	kg (lb.)	5,4 (11.9)
Multipack size (18) W x D x H	mm (in.)	445 x 445 x 210 (17.5 x 17.5 x 8.3)
Multipack weight	kg (lb.)	7,6 (16.7)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

WXF15.400

15" WOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH CCAW VOICE COIL
- 99,5 dB/SPL SENSITIVITY
- 800 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	380 (15)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,5
Program power (1)	W	800
AES Power rating (2)	W	400
Sensitivity (3)	dB	99,5
Frequency range	Hz	50 ÷ 3000
Voice coil diameter	mm (in.)	75 (3)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	190 x 82 x 20 (7.48 x 3.23 x 0.79)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Polycotton	
Xmax (4)	mm (in.)	5,2 (0.2)
Xmech (5)	mm (in.)	10,7 (0.42)
Gap height	mm (in.)	10 (0.39)
Voice coil winding height	mm (in.)	15,5 (0.61)
Driver displacement volume	l (ft³)	4.26 (0.15)
Recommended enclosure	l (ft³)	84,9 (3)
Recommended tuning	Hz	60

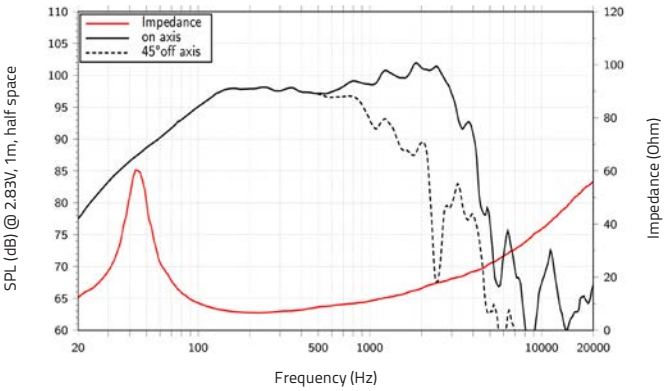
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,6
Resonance frequency	Fs	Hz	44
Moving mass	Mms	g (oz)	78,9 (2.78)
Compliance	Cms	mm/N	0,164
Force factor	BxL	N/A	18,92
Mechanical Q-factor	Qms		3,55
Electrical Q-factor	Qes		0,34
Total Q-factor	Qts		0,31
Equivalent air volume	Vas	l (ft³)	170,04 (6)
Voice coil Inductance	Le	mH	0,84
Diaphragm area	Sd	cm² (in.²)	855 (132.5)
Reference efficiency	Eta 0	%	4,09
Efficiency bandwidth product	EBP	Hz	129

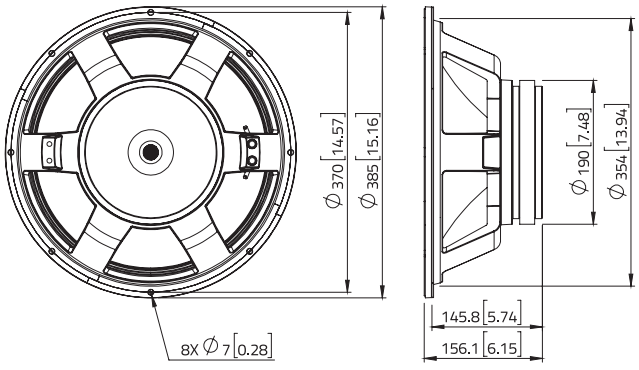
SHIPPING INFORMATION

Net weight	kg (lb.)	8 (17.6)
Multipack size (1) W x D x H	mm (in.)	415 x 427 x 205 (16.3 x 16.8 x 8.1)
Multipack weight	kg (lb.)	9,5 (20.9)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WAF153.00

15" WOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH CCAW VOICE COIL
- 99 dB/SPL SENSITIVITY
- 1000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	380 (15)
Nominal impedance	Ω	8
Minimum impedance	Ω	5,5
Program power (1)	W	1000
AES Power rating (2)	W	500
Sensitivity (3)	dB	99
Frequency range	Hz	40 ÷ 3000
Voice coil diameter	mm (in.)	75 (3)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	190 x 95 x 25 (7.48 x 3.74 x 0.98)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	7 (0.28)
Xmech (5)	mm (in.)	12,5 (0.49)
Gap height	mm (in.)	10 (0.39)
Voice coil winding height	mm (in.)	19 (0.75)
Driver displacement volume	l (ft³)	4,8 (0.17)
Recommended enclosure	l (ft³)	102 (3.60)
Recommended tuning	Hz	50

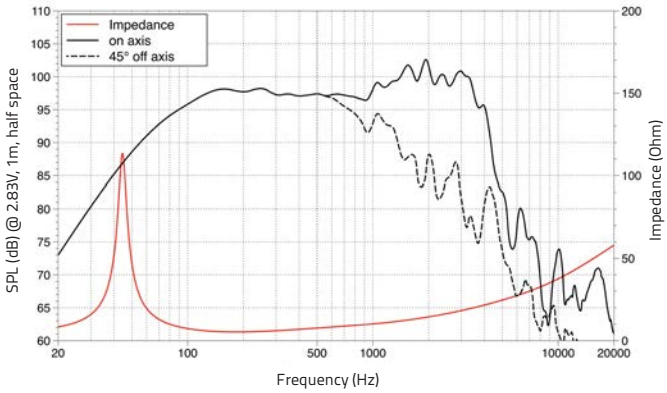
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	4,7
Resonance frequency	Fs	Hz	43
Moving mass	Mms	g (oz)	99,2 (3.5)
Compliance	Cms	mm/N	0,141
Force factor	BxL	N/A	17,88
Mechanical Q-factor	Qms		9,00
Electrical Q-factor	Qes		0,39
Total Q-factor	Qts		0,37
Equivalent air volume	Vas	l (ft³)	146,26 (5.17)
Voice coil Inductance	Le	mH	0,91
Diaphragm area	Sd	cm² (in.²)	855 (132.5)
Reference efficiency	Eta 0	%	2,78
Efficiency bandwidth product	EBP	Hz	110

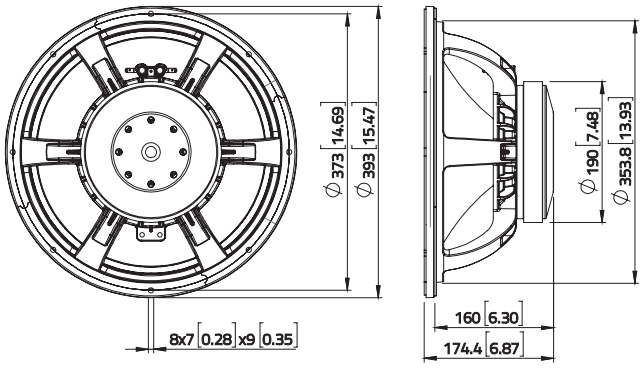
SHIPPING INFORMATION

Net weight	kg (lb.)	9,4 (20.7)
Multipack size (1) W x D x H	mm (in.)	410 x 410 x 260 (16.1 x 16.1 x 10.2)
Multipack weight	kg (lb.)	10,7 (23.6)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAF153.02

15" WOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 3 INCH CCAW VOICE COIL
- 99,5 dB/SPL SENSITIVITY
- 1000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- DOUBLE ALUMINIUM DEMODULATING RINGS
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	380 (15)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,2
Program power (1)	W	1000
AES Power rating (2)	W	500
Sensitivity (3)	dB	99,5
Frequency range	Hz	40 ÷ 4000
Voice coil diameter	mm (in.)	75 (3)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	200 x 85 x 20 (7.87 x 3.35 x 0.79)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	4,9 (0.19)
Xmech (5)	mm (in.)	10,4 (0.41)
Gap height	mm (in.)	10 (0.39)
Voice coil winding height	mm (in.)	14,8 (0.58)
Driver displacement volume	l (ft³)	4,50 (0.159)
Recommended enclosure	l (ft³)	93,4 (2.30)
Recommended tuning	Hz	50

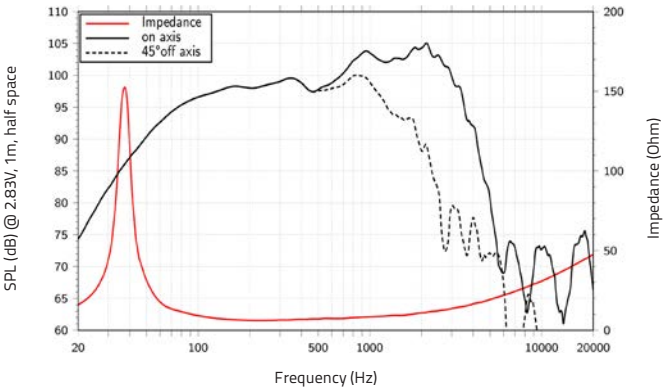
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,1
Resonance frequency	Fs	Hz	36
Moving mass	Mms	g (oz)	86,6 (3.05)
Compliance	Cms	mm/N	0,221
Force factor	BxL	N/A	18,51
Mechanical Q-factor	Qms		8,72
Electrical Q-factor	Qes		0,3
Total Q-factor	Qts		0,29
Equivalent air volume	Vas	l (ft³)	229,13 (8.09)
Voice coil Inductance	Le	mH	0,49
Diaphragm area	Sd	cm² (in.²)	855 (132.5)
Reference efficiency	Eta 0	%	3,56
Efficiency bandwidth product	EBP	Hz	120

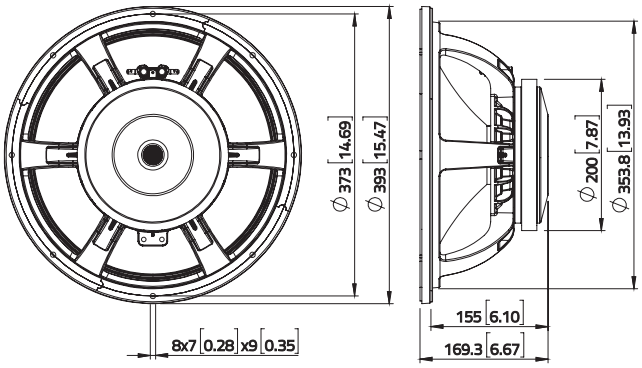
SHIPPING INFORMATION

Net weight	kg (lb.)	8,9 (19.6)
Multipack size (1) W x D x H	mm (in.)	420 x 420 x 210 (16.5 x 16.5 x 8.3)
Multipack weight	kg (lb.)	10,3 (23.1)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAF153.03

15” WOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

PRELIMINARY

- 3 INCH COPPER VOICE COIL
- 100,5 dB/SPL SENSITIVITY
- 1000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALUMINIUM DEMODULATING RING

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	380 (15)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,2
Program power (1)	W	1000
AES Power rating (2)	W	500
Sensitivity (3)	dB	100,5
Frequency range	Hz	40 ÷ 3000
Voice coil diameter	mm (in.)	75 (3)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	210 x 90 x 25 (8.27 x 3.54 x 0.98)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	6,7 (0.26)
Xmech (5)	mm (in.)	13 (0.51)
Gap height	mm (in.)	11 (0.44)
Voice coil winding height	mm (in.)	19 (0.75)
Driver displacement volume	l (ft³)	5 (0.18)
Recommended enclosure	l (ft³)	70 (2.5)
Recommended tuning	Hz	59

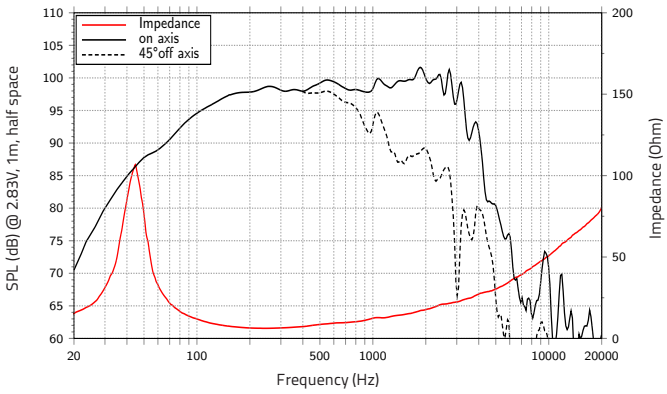
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,2
Resonance frequency	Fs	Hz	44
Moving mass	Mms	g (oz)	106,5 (3.76)
Compliance	Cms	mm/N	0,123
Force factor	BxL	N/A	25,26
Mechanical Q-factor	Qms		4,93
Electrical Q-factor	Qes		0,24
Total Q-factor	Qts		0,23
Equivalent air volume	Vas	l (ft³)	127 (4.48)
Voice coil Inductance	Le	mH	1,09
Diaphragm area	Sd	cm² (in.²)	855 (86.5)
Reference efficiency	Eta 0	%	4,32
Efficiency bandwidth product	EBP	Hz	183

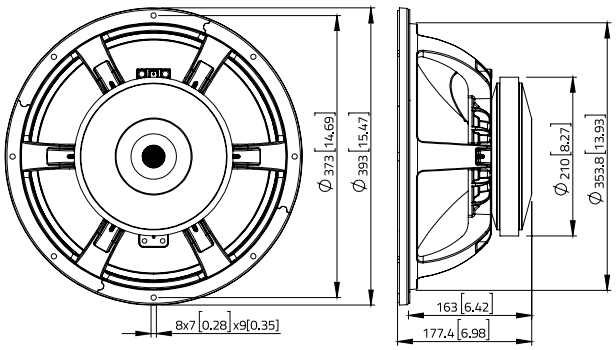
SHIPPING INFORMATION

Net weight	kg (lb.)	10,7 (23.6)
Multipack size (1) W x D x H	mm (in.)	422 x 422 x 223 (16.6 x 16.6 x 8.8)
Multipack weight	kg (lb.)	12,4 (27.3)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WXF15.800

15" WOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH EDGEWOUND CCA VOICE COIL
- 98 dB/SPL SENSITIVITY
- 1600 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALUMINIUM DEMODULATING RING
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	380 (15)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,2
Program power (1)	W	1600
AES Power rating (2)	W	800
Sensitivity (3)	dB	98
Frequency range	Hz	40 ÷ 2000
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	220 x 110 x 20 (8.66 x 4.33 x 0.79)
Coil material	Edgewound CCA	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Polycotton	
Xmax (4)	mm (in.)	7,7 (0.3)
Xmech (5)	mm (in.)	11,7 (0.46)
Gap height	mm (in.)	8 (0.31)
Voice coil winding height	mm (in.)	19,4 (0.76)
Driver displacement volume	l (ft³)	4.38 (0.154)
Recommended enclosure	l (ft³)	120 (4.2)
Recommended tuning	Hz	50

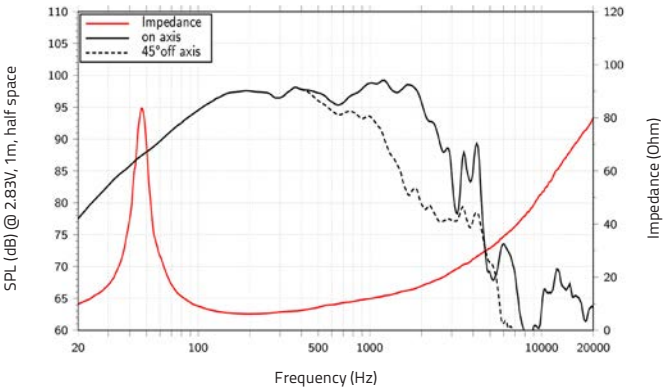
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,1
Resonance frequency	Fs	Hz	47
Moving mass	Mms	g (oz)	130,6 (4.61)
Compliance	Cms	mm/N	0,087
Force factor	BxL	N/A	22,62
Mechanical Q-factor	Qms		6,14
Electrical Q-factor	Qes		0,39
Total Q-factor	Qts		0,36
Equivalent air volume	Vas	l (ft³)	90,34 (3.19)
Voice coil Inductance	Le	mH	0,92
Diaphragm area	Sd	cm² (in.²)	855 (132.5)
Reference efficiency	Eta 0	%	2,35
Efficiency bandwidth product	EBP	Hz	121

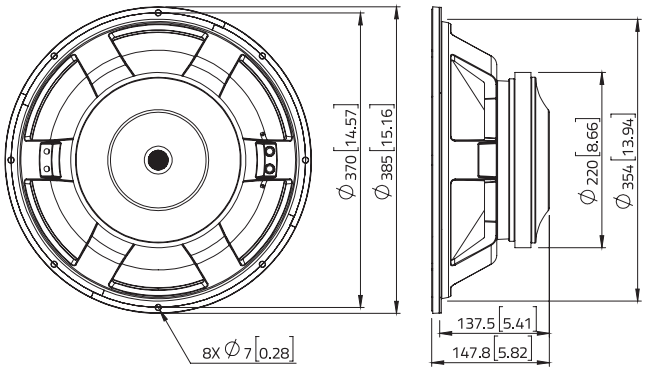
SHIPPING INFORMATION

Net weight	kg (lb.)	10,4 (22.9)
Multipack size (1) W x D x H	mm (in.)	445 x 445 x 195 (17.5 x 17.5 x 7.7)
Multipack weight	kg (lb.)	12,8 (28.2)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WAF154.03

15" WOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH CCAW VOICE COIL
- 97,5 dB/SPL SENSITIVITY
- 1700 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- COPPER RING FOR EXTENDED FREQUENCY RESPONSE
- DOUBLE ALUMINIUM DEMODULATING RINGS
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	380 (15)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,4
Program power (1)	W	1700
AES Power rating (2)	W	850
Sensitivity (3)	dB	97,5
Frequency range	Hz	40 ÷ 3000
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	220 x 110 x 25 (8.66 x 4.33x 0.98)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	5,2 (0.2)
Xmech (5)	mm (in.)	14,1 (0.56)
Gap height	mm (in.)	14,5 (0.57)
Voice coil winding height	mm (in.)	17,7 (0.7)
Driver displacement volume	l (ft³)	5,20 (0.184)
Recommended enclosure	l (ft³)	99,6 (3.52)
Recommended tuning	Hz	65

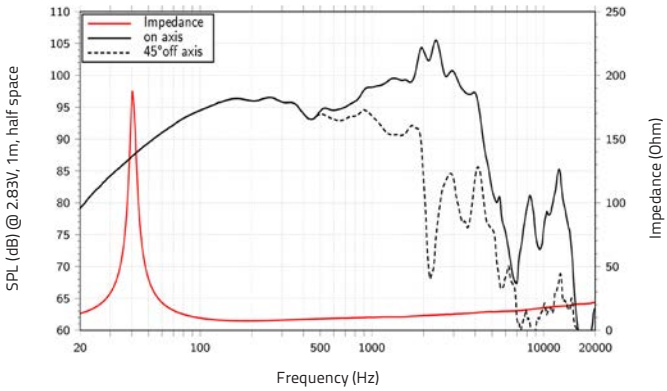
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	6,0
Resonance frequency	Fs	Hz	40
Moving mass	Mms	g (oz)	113,3 (3.99)
Compliance	Cms	mm/N	0,141
Force factor	BxL	N/A	21,83
Mechanical Q-factor	Qms		10,86
Electrical Q-factor	Qes		0,36
Total Q-factor	Qts		0,35
Equivalent air volume	Vas	l (ft³)	146,12 (5.16)
Voice coil Inductance	Le	mH	0,36
Diaphragm area	Sd	cm² (in.²)	855 (132.5)
Reference efficiency	Eta 0	%	2,48
Efficiency bandwidth product	EBP	Hz	111

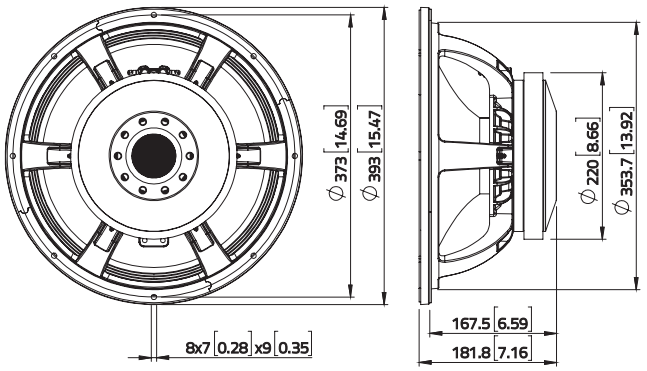
SHIPPING INFORMATION

Net weight	kg (lb.)	11,3 (24.9)
Multipack size (1) W x D x H	mm (in.)	422 x 422 x 231 (16.6 x 16.6 x 9.1)
Multipack weight	kg (lb.)	12,9 (28.4)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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ROBUST AND POWERFUL

SUBWOOFERS

From 8" to 21", all our Subwoofers are created for very high-power handling and low power compression, whilst maintaining voice coil linearity and a low distortion characteristic at high excursion limits. Intense validation pushes the boundaries of their intended application to deliver a comprehensive range of robust and powerful devices that will not let you down.

Product name	Size mm (in.)	Basket material	Magnet material	Voice coil mm (in.)	Sensitivity dB	AES Power W	Freq. range Hz	Xmax mm (in.)	Nominal Impedance [Options] Ω	Demod. Ring	Depth mm (in.)	Net weight kg (lb.)
SSF082.00L	200 (8)	Steel	Ferrite	51 (2)	88	350	50 -500	9,2 (0.36)	8 [4]	-	122,6 (4.83)	4,1 (9)
SSF102.40	250 (10)	Steel	Ferrite	61 (2.4)	88,5	250	40 - 500	8,3 (0.33)	8 [4]	-	95,5 (3.76)	3,5 (7.6)
SSF102.50L	250 (10)	Steel	Ferrite	65 (2.5)	90,5	400	50 - 500	11,4 (0.45)	8	-	138,8 (5.46)	7,1 (15.6)
SSF122.50L	300 (12)	Steel	Ferrite	65 (2.5)	93,5	400	40 - 500	11,5 (0.45)	8	-	154,8 (6.09)	8,7 (19.2)
WAF124.01	300 (12)	Aluminium	Ferrite	100 (4)	96,5	1000	40 - 100	8,3 (0.33)	8	-	139,4 (5.49)	12,1 (26.6)
WAN124.01	300 (12)	Aluminium	Neo	100 (4)	95,5	1000	40 - 2000	8,3 (0.33)	8	-	140,6 (5.54)	7,5 (16.5)
SSF153.00	380 (15)	Steel	Ferrite	75 (3)	98	400	45 - 2000	6,7 (0.26)	8 [4]	-	168,3 (6.63)	8,5 (18.8)
WAF154.02	380 (15)	Aluminium	Ferrite	100 (4)	96	800	40 - 1000	7,6 (0.3)	8	-	172,8 (6.80)	10,2 (22.5)
WAF154.01	380 (15)	Aluminium	Ferrite	100 (4)	97	1000	40 - 1000	9,1 (0.36)	8	•	184,1 (7.25)	13,3 (29.2)
WAN154.01	380 (15)	Aluminium	Neo	100 (4)	97,5	1000	45 - 1000	8,6 (0.34)	8	•	185,3 (7.30)	8,2 (18)
WAF154.00	380 (15)	Aluminium	Ferrite	100 (4)	96	1500	40 - 3000	12,1 (0.48)	8	•	196,3 (7.73)	15,5 (34.1)
WAN154.00	380 (15)	Aluminium	Neo	100 (4)	95	1500	40 - 1000	12,4 (0.48)	8	•	193,9 (7.63)	9,2 (20.2)
SAF184.01	460 (18)	Aluminium	Ferrite	100 (4)	98	700	30 - 1400	6,6 (0.26)	8	-	208 (8.19)	11,9 (26.1)
SAF184.05	460 (18)	Aluminium	Ferrite	100 (4)	96	1000	30 - 2500	7,7 (0.3)	8	-	205,5 (8.09)	12,5 (27.5)
SAF184.02	460 (18)	Aluminium	Ferrite	100 (4)	96,5	1200	40 - 1000	8,4 (0.33)	8	•	215,2 (8.47)	13,5 (29.8)
SAN184.02	460 (18)	Aluminium	Neo	100 (4)	96,5	1200	40 - 1000	8,6 (0.34)	8 [4]	•	217,4 (8.56)	9 (19.8)
SAF184.03	460 (18)	Aluminium	Ferrite	100 (4)	96	1500	30 - 1000	12,1 (0.48)	8 [4]	•	227,4 (8.95)	16,4 (36)
SAF184.04	460 (18)	Aluminium	Ferrite	100 (4)	95	1500	35 - 1000	12,5 (0.49)	8 [4]	•	228 (8.98)	16,1 (35.5)
SAN184.03	460 (18)	Aluminium	Neo	100 (4)	96	1500	30 - 1000	12,5 (0.49)	8	•	225,1 (8.86)	11 (24.3)
SAF184.50	460 (18)	Aluminium	Ferrite	115 (4.5)	96	1800	30 - 1000	12,5 (0.49)	8 [4]	•	224,8 (8.85)	16,8 (37)
SAN184.50	460 (18)	Aluminium	Neo	115 (4.5)	97	1700	30 - 1000	15,4 (0.61)	8 [4]	•	233,9 (9.21)	13,5 (29.8)
SAN184.51	460 (18)	Aluminium	Neo	115 (4.5)	97,5	1700	30 - 1000	19,5 (0.77)	2	•	243 (9.57)	14,4 (31.7)
SAN184.50iP	460 (18)	Aluminium	Neo	115 (4.5)	98	1700	30 - 1000	19,25 (0.76)	2 [1]	•	243,5 (9.59)	15,1 (33.3)
SAF214.50	530 (21)	Aluminium	Ferrite	115 (4.5)	96	2000	30 - 1000	12,5 (0.49)	8	•	249,6 (9.83)	18,2 (40.1)
SAN214.50	530 (21)	Aluminium	Neo	115 (4.5)	98	1700	30 - 1000	15,4 (0.60)	8 [4]	•	258,7 (10.19)	15,2 (33.4)
SAN215.30	530 (21)	Aluminium	Neo	134 (5.3)	97	2000	30 - 1000	14,9 (0.59)	8 [4]	•	261,2 (10.28)	17 (37.5)
SAN216.00iP	530 (21)	Aluminium	Neo	152 (6)	99	2500	35 - 1000	20,8 (0.82)	1	•	266,7 (10.50)	20,7 (45.6)

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

SSF082.00L

8" SUBWOOFER

FERRITE MAGNET
STEEL BASKET DRIVER

- 2 INCH CCAW VOICE COIL
- 88 dB/SPL SENSITIVITY
- 700 WATT PROGRAM POWER HANDLING
- LONG THROW DESIGN
- 29,4 mm (1.1 INCH) PEAK TO PEAK MAXIMUM EXCURSION
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN
- OPTIMIZED COOLING SYSTEM
- RUBBER SURROUND MATERIAL
- ALTERNATIVE IMPEDANCE: 4 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	200 (8)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,6
Program power (1)	W	700
AES Power rating (2)	W	350
Sensitivity (3)	dB	88
Frequency range	Hz	50 ÷ 500
Voice coil diameter	mm (in.)	51 (2)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	140 x 62 x 20 (5.51 x 2.44 x 0.79)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Rubber	
Xmax (4)	mm (in.)	9,2 (0.36)
Xmech (5)	mm (in.)	14,7 (0.58)
Gap height	mm (in.)	10 (0.39)
Voice coil winding height	mm (in.)	23,5 (0.92)
Driver displacement volume	l (ft³)	1 (0.04)
Recommended enclosure	l (ft³)	25,5 (0.90)
Recommended tuning	Hz	60

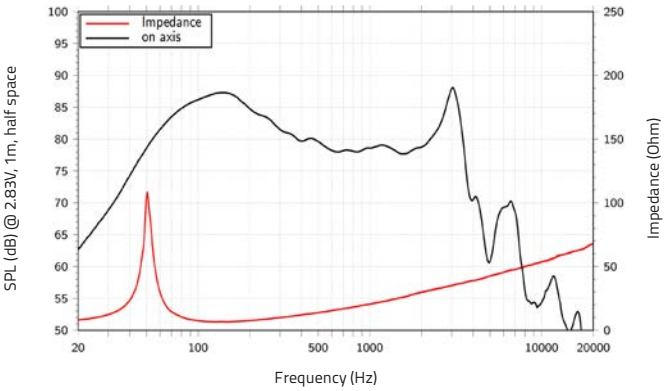
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,2
Resonance frequency	Fs	Hz	52
Moving mass	Mms	g (oz)	66,3 (2.34)
Compliance	Cms	mm/N	0,144
Force factor	BxL	N/A	14,67
Mechanical Q-factor	Qms		9,94
Electrical Q-factor	Qes		0,52
Total Q-factor	Qts		0,49
Equivalent air volume	Vas	l (ft³)	9,84 (0.35)
Voice coil Inductance	Le	mH	2,51
Diaphragm area	Sd	cm² (in.²)	220 (34.1)
Reference efficiency	Eta 0	%	0,25
Efficiency bandwidth product	EBP	Hz	100

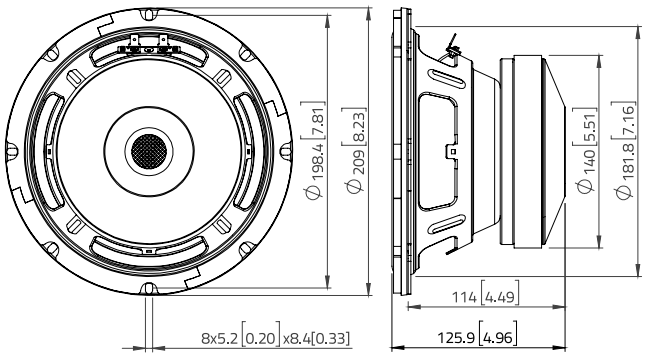
SHIPPING INFORMATION

Net weight	kg (lb.)	4,1 (9)
Multipack size (1) W x D x H	mm (in.)	267 x 267 x 170 (10.5 x 10.5 x 6.7)
Multipack weight	kg (lb.)	4,6 (10.1)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

SSF102.40

10" SUBWOOFER

FERRITE MAGNET
STEEL BASKET DRIVER

- 2.4 INCH CCAW VOICE COIL
- 88,5 dB/SPL SENSITIVITY
- 500 WATT PROGRAM POWER HANDLING
- 24,6 mm (0.9 INCH) PEAK TO PEAK MAXIMUM EXCURSION
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- 83 mm INSTALLATION DEPTH
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN
- RUBBER SURROUND MATERIAL
- ALTERNATIVE IMPEDANCE: 4 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	250 (10)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,7
Program power (1)	W	500
AES Power rating (2)	W	250
Sensitivity (3)	dB	88,5
Frequency range	Hz	40 ÷ 500
Voice coil diameter	mm (in.)	61 (2.4)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	140 x 70 x 20 (5.51 x 2.76 x 0.79)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Rubber	
Xmax (4)	mm (in.)	8,3 (0.33)
Xmech (5)	mm (in.)	12,3 (0.48)
Gap height	mm (in.)	8 (0.31)
Voice coil winding height	mm (in.)	20,5 (0.81)
Driver displacement volume	l (ft³)	1,5 (0.3)
Recommended enclosure	l (ft³)	37,7 (1.50)
Recommended tuning	Hz	45

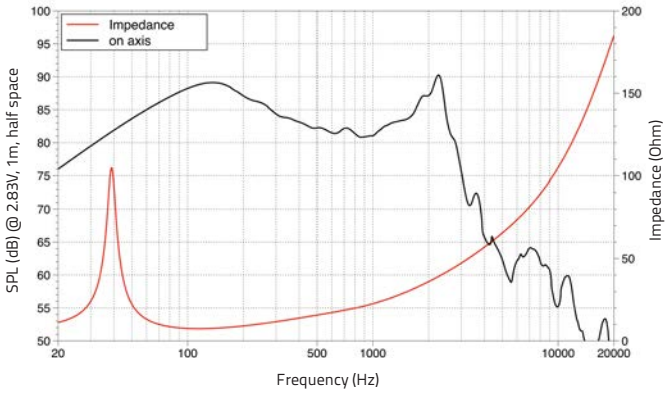
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	6,7
Resonance frequency	Fs	Hz	39
Moving mass	Mms	g (oz)	73,4 (2.59)
Compliance	Cms	mm/N	0,228
Force factor	BxL	N/A	14,01
Mechanical Q-factor	Qms		8,96
Electrical Q-factor	Qes		0,61
Total Q-factor	Qts		0,57
Equivalent air volume	Vas	l (ft³)	39,54 (1.4)
Voice coil Inductance	Le	mH	2,42
Diaphragm area	Sd	cm² (in.²)	350 (54.3)
Reference efficiency	Eta 0	%	0,36
Efficiency bandwidth product	EBP	Hz	64

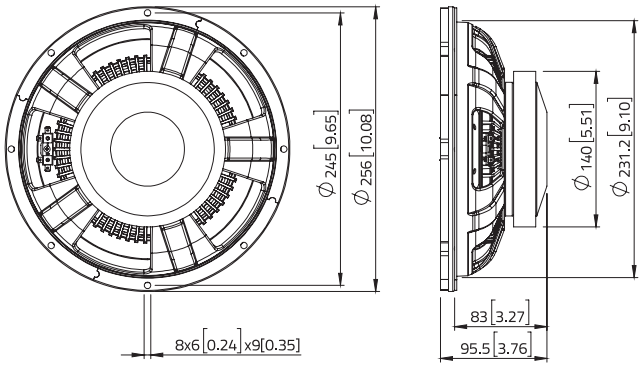
SHIPPING INFORMATION

Net weight	kg (lb.)	3,5 (7.6)
Multipack size (1) W x D x H	mm (in.)	300 x 300 x 205 (11.8 x 11.8 x 8)
Multipack weight	kg (lb.)	4,2 (9.2)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

SSF102.50L

10" SUBWOOFER

FERRITE MAGNET
STEEL BASKET DRIVER

- 2.5 INCH CCAW VOICE COIL
- 90,5 dB/SPL SENSITIVITY
- 800 WATT PROGRAM POWER HANDLING
- LONG THROW DESIGN
- 33,8 mm (1.3 INCH) PEAK TO PEAK MAXIMUM EXCURSION
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN
- OPTIMIZED COOLING SYSTEM
- RUBBER SURROUND MATERIAL

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	250 (10)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,5
Program power (1)	W	800
AES Power rating (2)	W	400
Sensitivity (3)	dB	90,5
Frequency range	Hz	50 ÷ 500
Voice coil diameter	mm (in.)	65 (2.5)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	170 x 80 x 25 (6.69 x 3.15 x 0.98)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Rubber	
Xmax (4)	mm (in.)	11,4 (0.45)
Xmech (5)	mm (in.)	16,9 (0.66)
Gap height	mm (in.)	10 (0.39)
Voice coil winding height	mm (in.)	27,8 (1.09)
Driver displacement volume	l (ft³)	1,6 (0.06)
Recommended enclosure	l (ft³)	29,7 (1.05)
Recommended tuning	Hz	55

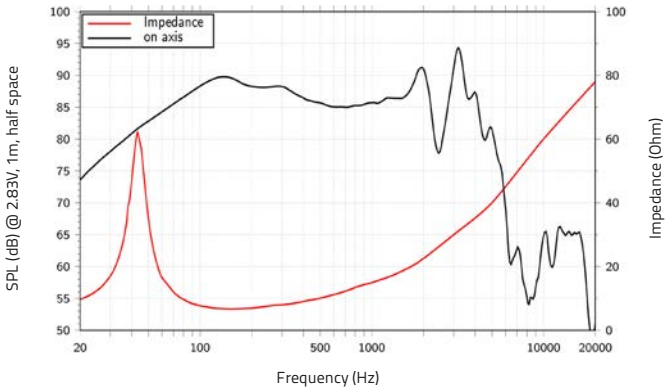
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,7
Resonance frequency	Fs	Hz	44
Moving mass	Mms	g (oz)	74,54 (2.63)
Compliance	Cms	mm/N	0,177
Force factor	BxL	N/A	14,71
Mechanical Q-factor	Qms		5,6
Electrical Q-factor	Qes		0,54
Total Q-factor	Qts		0,49
Equivalent air volume	Vas	l (ft³)	30,68 (1.08)
Voice coil Inductance	Le	mH	1,33
Diaphragm area	Sd	cm² (in.²)	350 (54.3)
Reference efficiency	Eta 0	%	0,46
Efficiency bandwidth product	EBP	Hz	81

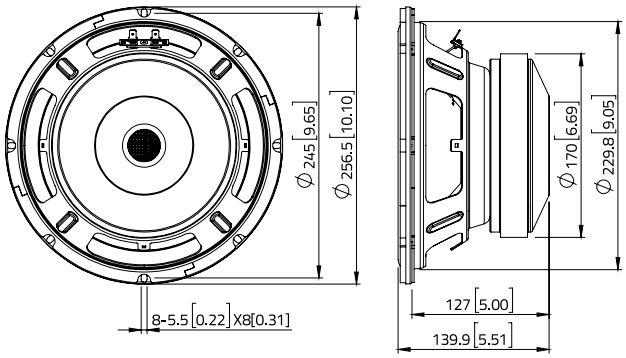
SHIPPING INFORMATION

Net weight	kg (lb.)	7,1 (15.6)
Multipack size (1) W x D x H	mm (in.)	300 x 300 x 190 (11.8 x 11.8 x 7.5)
Multipack weight	kg (lb.)	8,2 (18)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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SSF122.50L

12" SUBWOOFER

FERRITE MAGNET
STEEL BASKET DRIVER

- 2.5 INCH CCAW VOICE COIL
- 93,5 dB/SPL SENSITIVITY
- 800 WATT PROGRAM POWER HANDLING
- LONG THROW DESIGN
- 34 mm (1.3 INCH) PEAK TO PEAK MAXIMUM EXCURSION
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN
- OPTIMIZED COOLING SYSTEM
- RUBBER SURROUND MATERIAL

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	300 (12)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,5
Program power (1)	W	800
AES Power rating (2)	W	400
Sensitivity (3)	dB	93,5
Frequency range	Hz	40 ÷ 500
Voice coil diameter	mm (in.)	65 (2.5)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	193 x 80 x 25 (7.6 x 3.15 x 0.98)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Rubber	
Xmax (4)	mm (in.)	11,5 (0.45)
Xmech (5)	mm (in.)	17 (0.67)
Gap height	mm (in.)	10 (0.39)
Voice coil winding height	mm (in.)	28,1 (1.11)
Driver displacement volume	l (ft³)	2,9 (0.1)
Recommended enclosure	l (ft³)	46,2 (1.63)
Recommended tuning	Hz	46

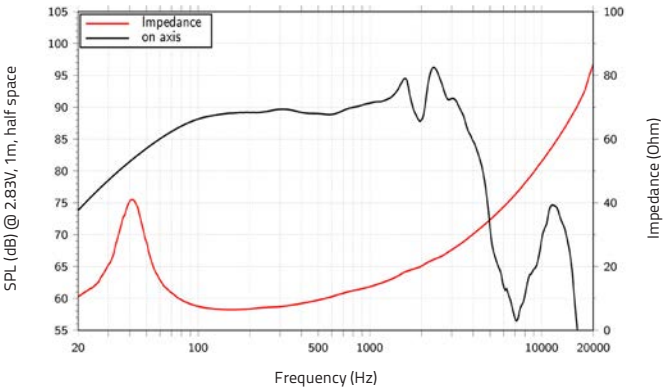
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,5
Resonance frequency	Fs	Hz	42
Moving mass	Mms	g (oz)	99,39 (3.51)
Compliance	Cms	mm/N	0,145
Force factor	BxL	N/A	17,64
Mechanical Q-factor	Qms		5,36
Electrical Q-factor	Qes		0,46
Total Q-factor	Qts		0,43
Equivalent air volume	Vas	l (ft³)	57,79 (2.04)
Voice coil Inductance	Le	mH	1,21
Diaphragm area	Sd	cm² (in.²)	531 (82.3)
Reference efficiency	Eta 0	%	0,88
Efficiency bandwidth product	EBP	Hz	91

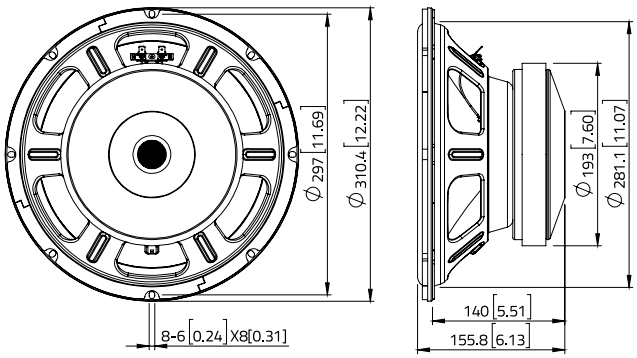
SHIPPING INFORMATION

Net weight	kg (lb.)	8,7 (19.2)
Multipack size (1) W x D x H	mm (in.)	365 x 360 x 196 (14.4 x 14.2 x 7.7)
Multipack weight	kg (lb.)	10,2 (22.4)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAF124.01

12" SUBWOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH COPPER VOICE COIL
- 96,5 dB/SPL SENSITIVITY
- 2000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALUMINIUM DEMODULATING RING
- DOUBLE SILICON SPIDER
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	300 (12)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,4
Program power (1)	W	2000
AES Power rating (2)	W	1000
Sensitivity (3)	dB	96,5
Frequency range	Hz	40 ÷ 1000
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	220 x 120 x 25 (8.66 x 4.72 x 0.98)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Both Sides Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	8,3 (0.33)
Xmech (5)	mm (in.)	15,3 (0.6)
Gap height	mm (in.)	12 (0.47)
Voice coil winding height	mm (in.)	22,7 (0.89)
Driver displacement volume	l (ft³)	3,2 (0.11)
Recommended enclosure	l (ft³)	59,4 (2.10)
Recommended tuning	Hz	55

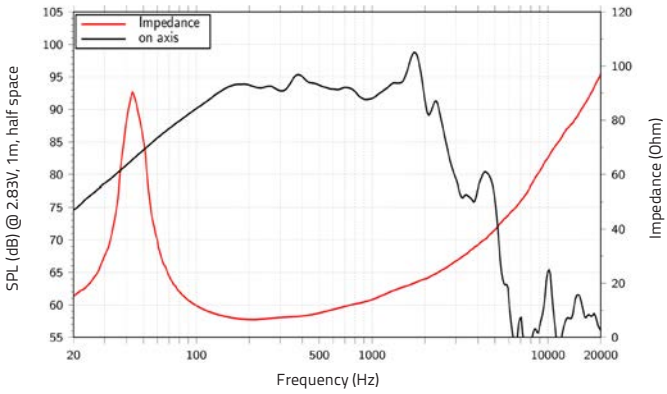
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,2
Resonance frequency	Fs	Hz	43
Moving mass	Mms	g (oz)	102,6 (3.62)
Compliance	Cms	mm/N	0,13
Force factor	BxL	N/A	25,4
Mechanical Q-factor	Qms		4,1
Electrical Q-factor	Qes		0,23
Total Q-factor	Qts		0,22
Equivalent air volume	Vas	l (ft³)	51,87 (1.83)
Voice coil Inductance	Le	mH	1,45
Diaphragm area	Sd	cm² (in.²)	531 (82.3)
Reference efficiency	Eta 0	%	1,70
Efficiency bandwidth product	EBP	Hz	187

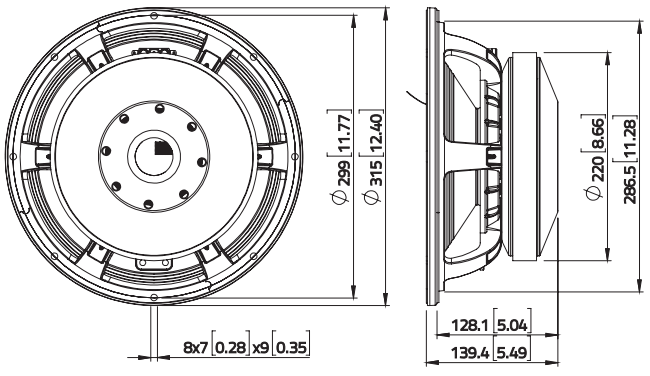
SHIPPING INFORMATION

Net weight	kg (lb.)	12,1 (26.6)
Multipack size (1) W x D x H	mm (in.)	361 x 361 x 202 (14.2 x 14.2 x 7.9)
Multipack weight	kg (lb.)	13,3 (29.3)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAN124.01

12" SUBWOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH COPPER VOICE COIL
- 95,5 dB/SPL SENSITIVITY
- 2000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALUMINIUM DEMODULATING RING
- DOUBLE SILICON SPIDER
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	300 (12)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,4
Program power (1)	W	2000
AES Power rating (2)	W	1000
Sensitivity (3)	dB	95,5
Frequency range	Hz	40 ÷ 2000
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	97 x 31 x 9 (3.82 x 1.22 x 0.35)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Both Sides Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	8,3 (0.33)
Xmech (5)	mm (in.)	16,8 (0.66)
Gap height	mm (in.)	14 (0.55)
Voice coil winding height	mm (in.)	23,7 (0.93)
Driver displacement volume	l (ft³)	2,5 (0.09)
Recommended enclosure	l (ft³)	59 (2.08)
Recommended tuning	Hz	55

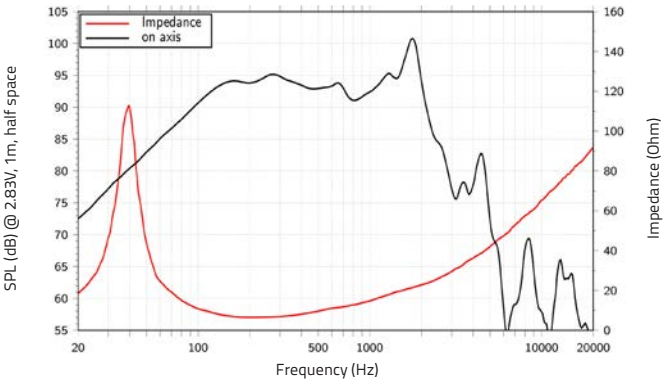
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,2
Resonance frequency	Fs	Hz	39
Moving mass	Mms	g (oz)	103,2 (3.64)
Compliance	Cms	mm/N	0,144
Force factor	BxL	N/A	26
Mechanical Q-factor	Qms		5,09
Electrical Q-factor	Qes		0,22
Total Q-factor	Qts		0,21
Equivalent air volume	Vas	l (ft³)	57,27 (2.02)
Voice coil Inductance	Le	mH	1,57
Diaphragm area	Sd	cm² (in.²)	531 (82.3)
Reference efficiency	Eta 0	%	1,47
Efficiency bandwidth product	EBP	Hz	177

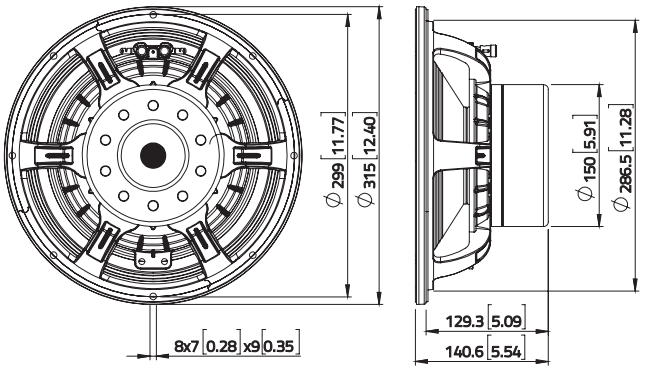
SHIPPING INFORMATION

Net weight	kg (lb.)	7,5 (16.5)
Multipack size (1) W x D x H	mm (in.)	361 x 361 x 202 (14.2 x 14.2 x 7.9)
Multipack weight	kg (lb.)	8,9 (19.6)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

SSF153.00

15" SUBWOOFER

FERRITE MAGNET
STEEL BASKET DRIVER

- 3 INCH COPPER VOICE COIL
- 98 dB/SPL SENSITIVITY
- 800 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY BASKET DESIGN
- TRIPLE ROLL SURROUND
- ALTERNATIVE IMPEDANCE: 4 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	380 (15)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,0
Program power (1)	W	800
AES Power rating (2)	W	400
Sensitivity (3)	dB	98
Frequency range	Hz	45 ÷ 2000
Voice coil diameter	mm (in.)	75 (3)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	192 x 83 x 20 (7.56 x 3.27 x 0.79)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	6,7 (0.26)
Xmech (5)	mm (in.)	12,6 (0.5)
Gap height	mm (in.)	10,5 (0.41)
Voice coil winding height	mm (in.)	18,6 (0.73)
Driver displacement volume	l (ft³)	4,1 (0.14)
Recommended enclosure	l (ft³)	94,3 (3.33)
Recommended tuning	Hz	52

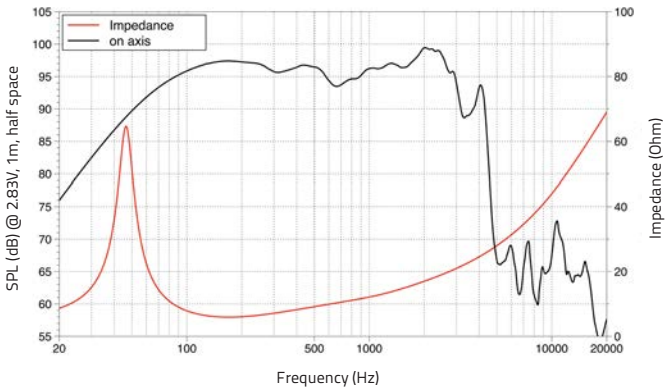
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,1
Resonance frequency	Fs	Hz	47
Moving mass	Mms	g (oz)	103,7 (3.66)
Compliance	Cms	mm/N	0,113
Force factor	BxL	N/A	18,65
Mechanical Q-factor	Qms		5,19
Electrical Q-factor	Qes		0,44
Total Q-factor	Qts		0,41
Equivalent air volume	Vas	l (ft³)	116,92 (4.13)
Voice coil Inductance	Le	mH	1,06
Diaphragm area	Sd	cm² (in.²)	855 (132.5)
Reference efficiency	Eta 0	%	2,56
Efficiency bandwidth product	EBP	Hz	107

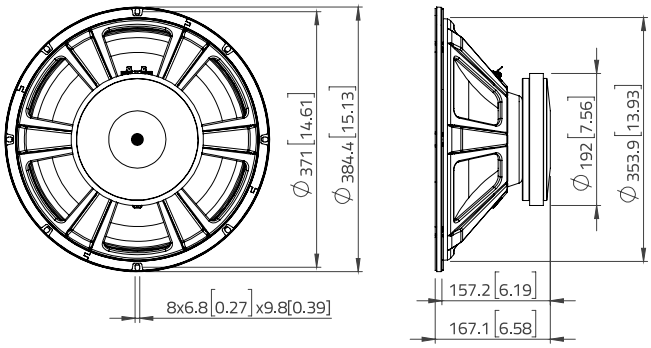
SHIPPING INFORMATION

Net weight	kg (lb.)	8,5 (18.8)
Multipack size (1) W x D x H	mm (in.)	448 x 440 x 220 (17.6 x 17.3 x 8.7)
Multipack weight	kg (lb.)	10 (22)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAF154.02

15" SUBWOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH COPPER VOICE COIL
- 96 dB/SPL SENSITIVITY
- 1600 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- DOUBLE SILICON SPIDER
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	380 (15)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,3
Program power (1)	W	1600
AES Power rating (2)	W	800
Sensitivity (3)	dB	96
Frequency range	Hz	40 ÷ 1000
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	200 x 110 x 22 (7.87 x 4.33 x 0.87)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	7,6 (0.3)
Xmech (5)	mm (in.)	13,5 (0.53)
Gap height	mm (in.)	10,5 (0.41)
Voice coil winding height	mm (in.)	20,5 (0.81)
Driver displacement volume	l (ft³)	4,6 (0.16)
Recommended enclosure	l (ft³)	93,8 (3.31)
Recommended tuning	Hz	45

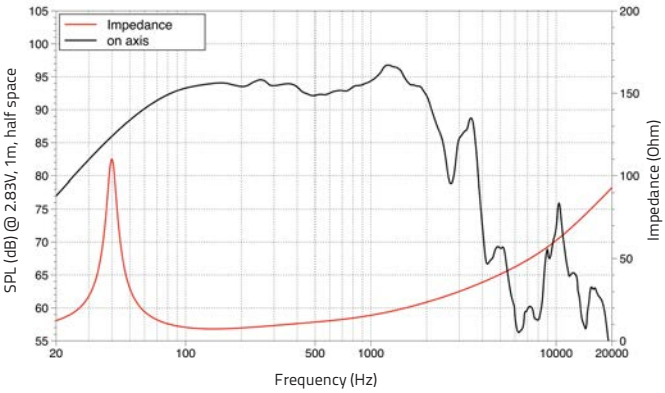
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,8
Resonance frequency	Fs	Hz	41
Moving mass	Mms	g (oz)	148,6 (5.24)
Compliance	Cms	mm/N	0,101
Force factor	BxL	N/A	22,95
Mechanical Q-factor	Qms		9,51
Electrical Q-factor	Qes		0,42
Total Q-factor	Qts		0,4
Equivalent air volume	Vas	l (ft³)	104,65 (3.7)
Voice coil Inductance	Le	mH	1,75
Diaphragm area	Sd	cm² (in.²)	855 (132.5)
Reference efficiency	Eta 0	%	1,66
Efficiency bandwidth product	EBP	Hz	98

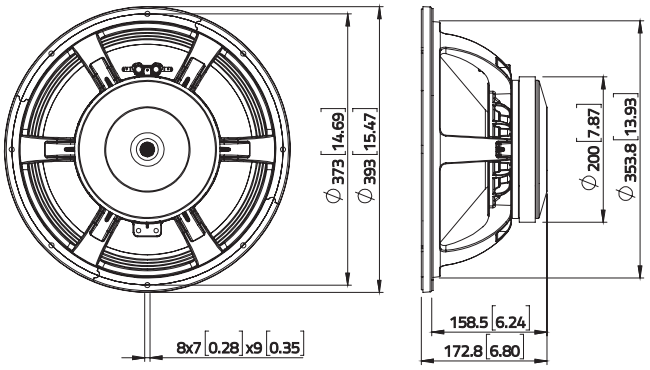
SHIPPING INFORMATION

Net weight	kg (lb.)	10,2 (22.5)
Multipack size (1) W x D x H	mm (in.)	410 x 410 x 260 (16.1 x 16.1 x 10.2)
Multipack weight	kg (lb.)	11,7 (25.8)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAF154.01

15" SUBWOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH COPPER VOICE COIL
- 97 dB/SPL SENSITIVITY
- 2000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALUMINIUM DEMODULATING RING
- DOUBLE SILICON SPIDER
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	380 (15)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,7
Program power (1)	W	2000
AES Power rating (2)	W	1000
Sensitivity (3)	dB	97
Frequency range	Hz	40 ÷ 1000
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	220 x 110 x 25 (8.66 x 4.33 x 0.98)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	9,1 (0.36)
Xmech (5)	mm (in.)	16,1 (0.63)
Gap height	mm (in.)	12 (0.47)
Voice coil winding height	mm (in.)	24,2 (0.95)
Driver displacement volume	l (ft³)	5,4 (0.19)
Recommended enclosure	l (ft³)	94,1 (3.32)
Recommended tuning	Hz	50

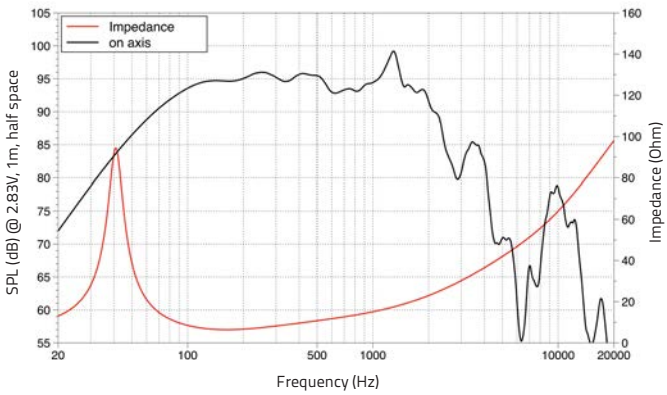
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,2
Resonance frequency	Fs	Hz	42
Moving mass	Mms	g (oz)	165,8 (5.85)
Compliance	Cms	mm/N	0,086
Force factor	BxL	N/A	26,5
Mechanical Q-factor	Qms		5,6
Electrical Q-factor	Qes		0,33
Total Q-factor	Qts		0,31
Equivalent air volume	Vas	l (ft³)	88,56
Voice coil Inductance	Le	mH	1,67
Diaphragm area	Sd	cm² (in.²)	855 (132.5)
Reference efficiency	Eta 0	%	1,95
Efficiency bandwidth product	EBP	Hz	127

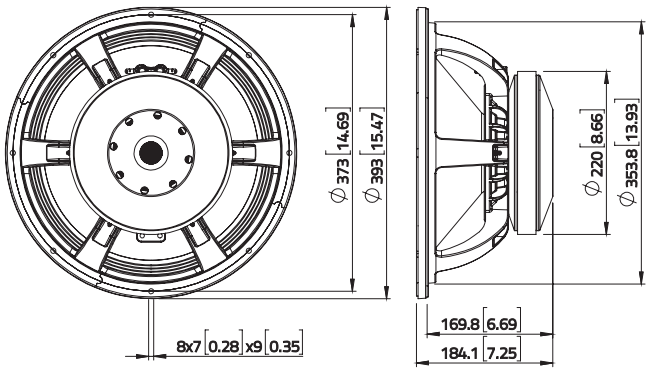
SHIPPING INFORMATION

Net weight	kg (lb.)	13,3 (29.2)
Multipack size (1) W x D x H	mm (in.)	422 x 422 x 231 (16.6 x 16.6 x 9.1)
Multipack weight	kg (lb.)	14,8 (32.6)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WAN154.01

15" SUBWOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH COPPER VOICE COIL
- 97,5 dB/SPL SENSITIVITY
- 2000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- DOUBLE SILICON SPIDER
- ALUMINIUM DEMODULATING RING
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	380 (15)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,3
Program power (1)	W	2000
AES Power rating (2)	W	1000
Sensitivity (3)	dB	97,5
Frequency range	Hz	45 ÷ 1000
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	97 x 31 x 9 (3.82 x 1.22 x 0.35)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	8,6 (0.34)
Xmech (5)	mm (in.)	17,1 (0.67)
Gap height	mm (in.)	14 (0.55)
Voice coil winding height	mm (in.)	24,2 (0.95)
Driver displacement volume	l (ft³)	4,4 (0.16)
Recommended enclosure	l (ft³)	136,1 (4.81)
Recommended tuning	Hz	48

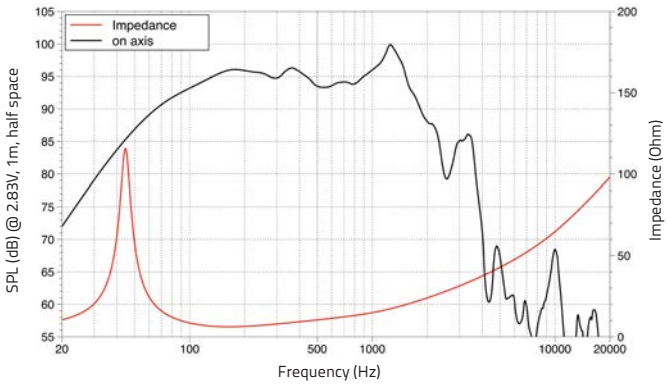
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,1
Resonance frequency	Fs	Hz	43
Moving mass	Mms	g (oz)	154,8 (5.46)
Compliance	Cms	mm/N	0,086
Force factor	BxL	N/A	25,37
Mechanical Q-factor	Qms		7,27
Electrical Q-factor	Qes		0,34
Total Q-factor	Qts		0,32
Equivalent air volume	Vas	l (ft³)	89,3 (3.15)
Voice coil Inductance	Le	mH	1,69
Diaphragm area	Sd	cm² (in.²)	855 (132.5)
Reference efficiency	Eta 0	%	2,11
Efficiency bandwidth product	EBP	Hz	126

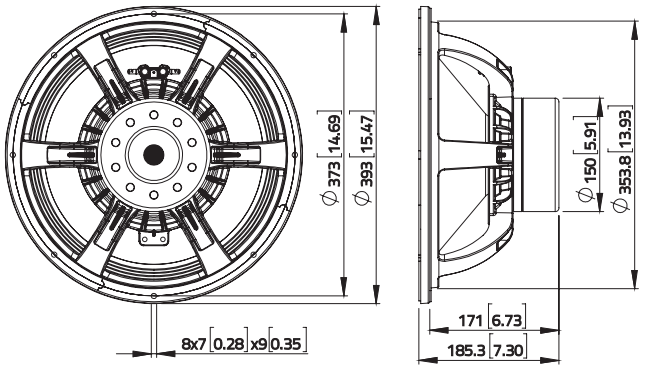
SHIPPING INFORMATION

Net weight	kg (lb.)	8,2 (18)
Multipack size (1) W x D x H	mm (in.)	425 x 430 x 225 (16.7 x 16.9 x 8.8)
Multipack weight	kg (lb.)	9,8 (21.6)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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WAF154.00

15” SUBWOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH COPPER VOICE COIL
- 96 dB/SPL SENSITIVITY
- 3000 W PROGRAM POWER HANDLING
- FEM OPTIMIZED FERRITE MOTOR AND SUSPENSIONS
- 42,8 mm (1.7 INCH) PEAK TO PEAK EXCURSION
- OPTIMIZED COOLING SYSTEM
- ALUMINIUM DEMODULATING RING
- DOUBLE SILICON SPIDER
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	380 (15)
Nominal impedance	Ω	8
Minimum impedance	Ω	8
Program power (1)	W	3000
AES Power rating (2)	W	1500
Sensitivity (3)	dB	96
Frequency range	Hz	40 ÷ 3000
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	220 x 115 x 30 (8.66 x 4.53 x 1.18)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	12,1 (0.48)
Xmech (5)	mm (in.)	21,4 (0.84)
Gap height	mm (in.)	15 (0.59)
Voice coil winding height	mm (in.)	31,7 (1.25)
Driver displacement volume	l (ft³)	5,4 (0.19)
Recommended enclosure	l (ft³)	107,6 (3.8)
Recommended tuning	Hz	45

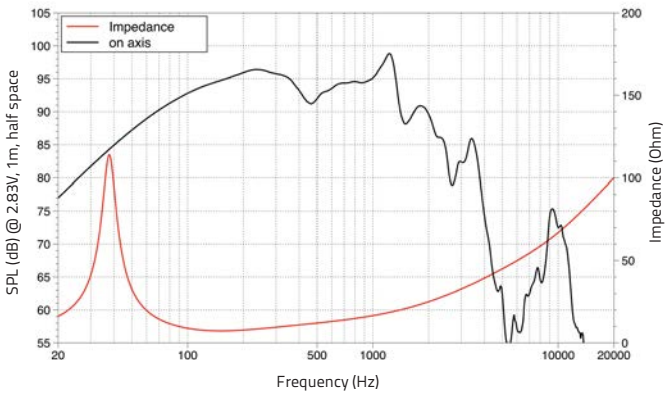
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,8
Resonance frequency	Fs	Hz	38
Moving mass	Mms	g (oz)	167,3 (5.9)
Compliance	Cms	mm/N	0,106
Force factor	BxL	N/A	27,35
Mechanical Q-factor	Qms		5,74
Electrical Q-factor	Qes		0,31
Total Q-factor	Qts		0,29
Equivalent air volume	Vas	l (ft³)	109,68 (3.87)
Voice coil Inductance	Le	mH	1,88
Diaphragm area	Sd	cm² (in.²)	855 (132.5)
Reference efficiency	Eta 0	%	1,83
Efficiency bandwidth product	EBP	Hz	123

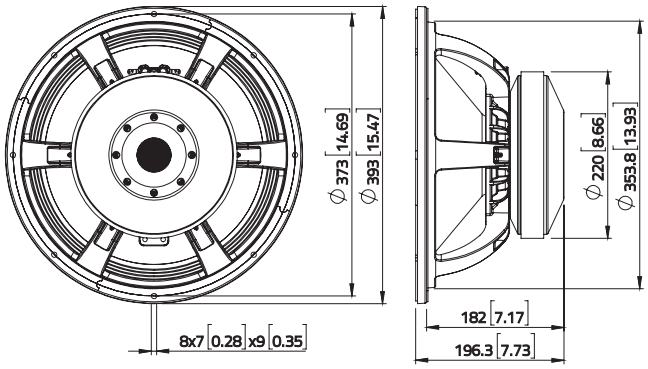
SHIPPING INFORMATION

Net weight	kg (lb.)	15,5 (34.1)
Multipack size (1) W x D x H	mm (in.)	420 x 420 x 240 (16.5 x 16.5 x 9.4)
Multipack weight	kg (lb.)	17 (37.5)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

WAN154.00

15" SUBWOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH COPPER VOICE COIL
- 95 dB/SPL SENSITIVITY
- 3000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- 44,8 mm (1.8 INCH) PEAK TO PEAK EXCURSION
- OPTIMIZED COOLING SYSTEM
- DOUBLE SILICON SPIDER
- ALUMINIUM DEMODULATING RING
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	380 (15)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,3
Program power (1)	W	3000
AES Power rating (2)	W	1500
Sensitivity (3)	dB	95
Frequency range	Hz	40 ÷ 1000
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	97 x 31 x 14 (3.82 x 1.22 x 0.55)
Coil material	Copper	
Former material	Fiber Glass	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	12,4 (0.48)
Xmech (5)	mm (in.)	22,4 (0.88)
Gap height	mm (in.)	16 (0.63)
Voice coil winding height	mm (in.)	32,8 (1.29)
Driver displacement volume	l (ft³)	5,4 (0.19)
Recommended enclosure	l (ft³)	97,8 (3.85)
Recommended tuning	Hz	42

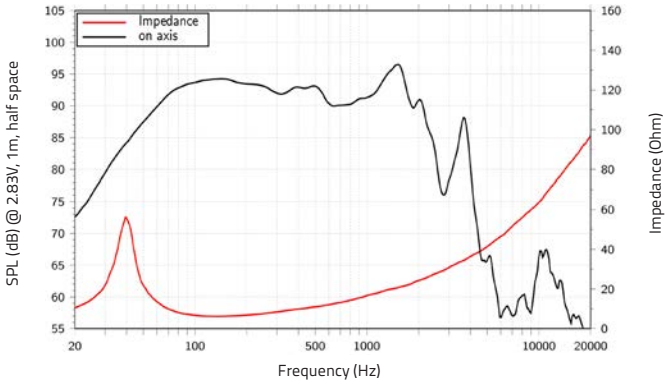
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,1
Resonance frequency	Fs	Hz	40
Moving mass	Mms	g (oz)	197,78 (6.98)
Compliance	Cms	mm/N	0,08
Force factor	BxL	N/A	24,88
Mechanical Q-factor	Qms		4,48
Electrical Q-factor	Qes		0,41
Total Q-factor	Qts		0,38
Equivalent air volume	Vas	l (ft³)	82,76 (2.92)
Voice coil Inductance	Le	mH	1,48
Diaphragm area	Sd	cm² (in.²)	855 (132.5)
Reference efficiency	Eta 0	%	1,24
Efficiency bandwidth product	EBP	Hz	98

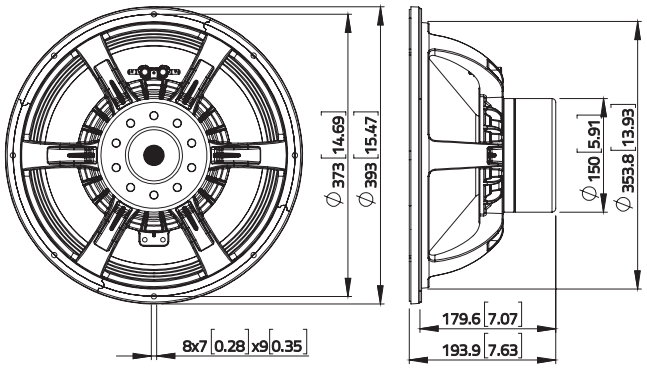
SHIPPING INFORMATION

Net weight	kg (lb.)	9,2 (20.2)
Multipack size (1) W x D x H	mm (in.)	423 x 423 x 240 (16.6 x 16.6 x 9.4)
Multipack weight	kg (lb.)	10,8 (23.8)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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SAF184.01

18" SUBWOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH COPPER VOICE COIL
- 98 dB/SPL SENSITIVITY
- 1400 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- DOUBLE SILICON SPIDER

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	460 (18)
Nominal impedance	Ω	8
Minimum impedance	Ω	5,8
Program power (1)	W	1400
AES Power rating (2)	W	700
Sensitivity (3)	dB	98
Frequency range	Hz	30 ÷ 1400
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	220 x 110 x 25 (8.66 x 4.33 x 0.98)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Both Sides Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	6,6 (0.26)
Xmech (5)	mm (in.)	12,9 (0.51)
Gap height	mm (in.)	11 (0.43)
Voice coil winding height	mm (in.)	18,8 (0.74)
Driver displacement volume	l (ft³)	8,5 (0.3)
Recommended enclosure	l (ft³)	159 (5.62)
Recommended tuning	Hz	40

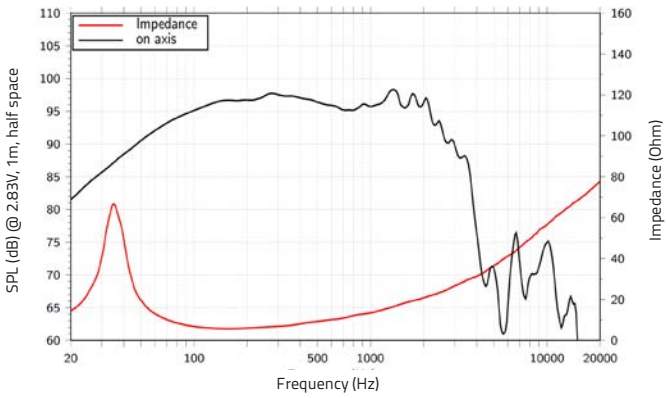
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	4,8
Resonance frequency	Fs	Hz	35
Moving mass	Mms	g (oz)	199,82 (7.05)
Compliance	Cms	mm/N	0,102
Force factor	BxL	N/A	25,15
Mechanical Q-factor	Qms		4,22
Electrical Q-factor	Qes		0,33
Total Q-factor	Qts		0,31
Equivalent air volume	Vas	l (ft³)	192,78 (6.81)
Voice coil Inductance	Le	mH	1,52
Diaphragm area	Sd	cm² (in.²)	1150 (178.3)
Reference efficiency	Eta 0	%	2,39
Efficiency bandwidth product	EBP	Hz	106

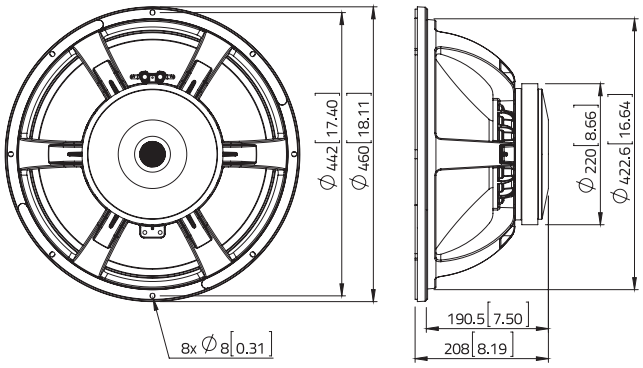
SHIPPING INFORMATION

Net weight	kg (lb.)	11,9 (26.1)
Multipack size (1) W x D x H	mm (in.)	490 x 490 x 250 (19.3 x 19.3 x 9.8)
Multipack weight	kg (lb.)	14,6 (32.2)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

SAF184.05

18" SUBWOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH COPPER VOICE COIL
- 96 dB/SPL SENSITIVITY
- 2000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- DOUBLE SILICON SPIDER

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	460 (18)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,4
Program power (1)	W	2000
AES Power rating (2)	W	1000
Sensitivity (3)	dB	96
Frequency range	Hz	40 ÷ 2000
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	220 x 110 x 25 (8.66 x 4.33 x 0.98)
Coil material	Copper	
Former material	Glass fiber	
Cone material	Water Resistant Treated Paper + Water Proof Both Sides Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	7,7 (0.3)
Xmech (5)	mm (in.)	13,2 (0.52)
Gap height	mm (in.)	10 (0.39)
Voice coil winding height	mm (in.)	20,3 (0.8)
Driver displacement volume	l (ft³)	7,42 (0.262)
Recommended enclosure	l (ft³)	178,2 (7.0)
Recommended tuning	Hz	45

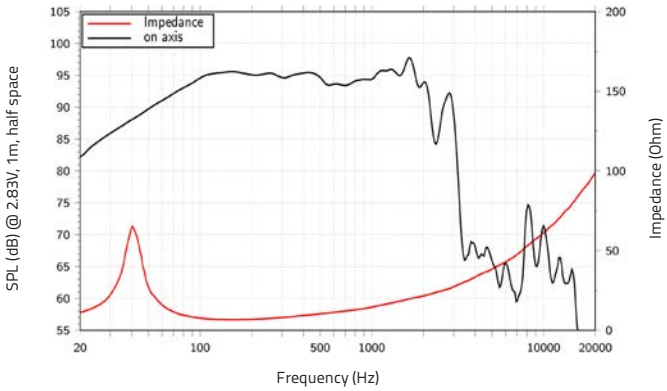
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,7
Resonance frequency	Fs	Hz	40
Moving mass	Mms	g (oz)	220,7 (7.78)
Compliance	Cms	mm/N	0,072
Force factor	BxL	N/A	25,59
Mechanical Q-factor	Qms		5,42
Electrical Q-factor	Qes		0,48
Total Q-factor	Qts		0,44
Equivalent air volume	Vas	l (ft³)	134,76 (4.76)
Voice coil Inductance	Le	mH	1,51
Diaphragm area	Sd	cm² (in.²)	1150 (178.3)
Reference efficiency	Eta 0	%	1,71
Efficiency bandwidth product	EBP	Hz	83

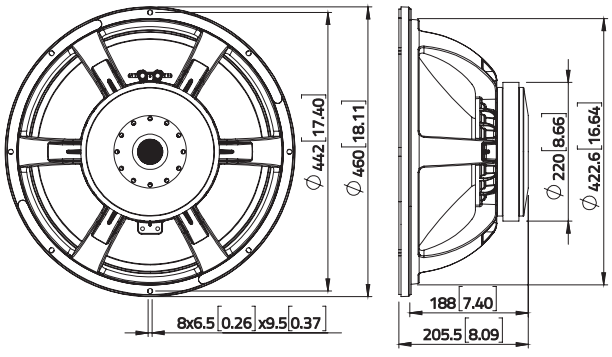
SHIPPING INFORMATION

Net weight	kg (lb.)	12,5 (27.5)
Multipack size (1) W x D x H	mm (in.)	490 x 490 x 250 (19.3 x 19.3 x 9.8)
Multipack weight	kg (lb.)	14,9 (32.8)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

SAF184.02

18" SUBWOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH COPPER VOICE COIL
- 96,5 dB/SPL SENSITIVITY
- 2400 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALUMINIUM DEMODULATING RING
- DOUBLE SILICON SPIDER
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	460 (18)
Nominal impedance	Ω	8
Minimum impedance	Ω	5,8
Program power (1)	W	2400
AES Power rating (2)	W	1200
Sensitivity (3)	dB	96,5
Frequency range	Hz	40 ÷ 1000
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	220 x 120 x 25 (8.66 x 4.72 x 0.98)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	8,4 (0.33)
Xmech (5)	mm (in.)	15,4 (0.61)
Gap height	mm (in.)	12 (0.47)
Voice coil winding height	mm (in.)	22,7 (0.89)
Driver displacement volume	l (ft³)	8,5 (0.3)
Recommended enclosure	l (ft³)	160 (5.7)
Recommended tuning	Hz	38

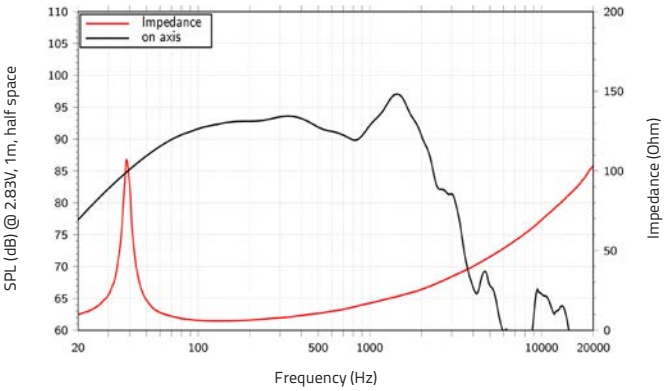
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	4,9
Resonance frequency	Fs	Hz	38
Moving mass	Mms	g (oz)	239,2 (8.44)
Compliance	Cms	mm/N	0,072
Force factor	BxL	N/A	25,5
Mechanical Q-factor	Qms		6,48
Electrical Q-factor	Qes		0,43
Total Q-factor	Qts		0,41
Equivalent air volume	Vas	l (ft³)	136,63 (4.83)
Voice coil Inductance	Le	mH	1,69
Diaphragm area	Sd	cm² (in.²)	1150 (178.3)
Reference efficiency	Eta 0	%	1,68
Efficiency bandwidth product	EBP	Hz	88

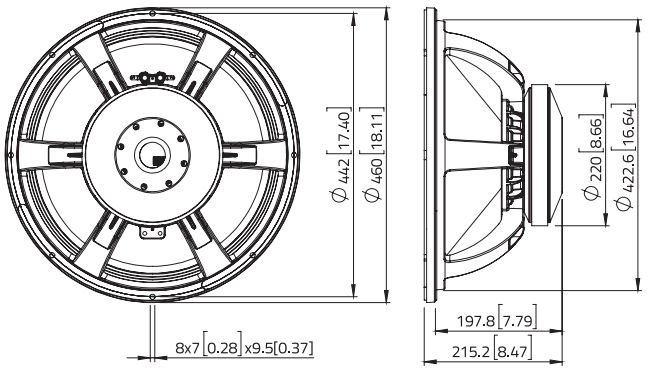
SHIPPING INFORMATION

Net weight	kg (lb.)	13,5 (29.8)
Multipack size (1) W x D x H	mm (in.)	478 x 478 x 270 (18.8 x 18.8 x 10.6)
Multipack weight	kg (lb.)	15,5 (34.2)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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SAN184.02

18" SUBWOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH COPPER VOICE COIL
- 96,5 dB/SPL SENSITIVITY
- 2400 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- OPTIMIZED COOLING SYSTEM
- ALUMINIUM DEMODULATING RING
- DOUBLE SILICON SPIDER
- TRIPLE ROLL SURROUND
- ALTERNATIVE IMPEDANCE: 4 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	460 (18)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,1
Program power (1)	W	2400
AES Power rating (2)	W	1200
Sensitivity (3)	dB	96,5
Frequency range	Hz	40 ÷ 1000
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	97 x 20 x 9 (3.82 x 0.79 x 0.35)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Both Sides Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	8,6 (0.34)
Xmech (5)	mm (in.)	17,1 (0.67)
Gap height	mm (in.)	14 (0.55)
Voice coil winding height	mm (in.)	24,2 (0.95)
Driver displacement volume	l (ft³)	7,8 (0.28)
Recommended enclosure	l (ft³)	176,4 (6.94)
Recommended tuning	Hz	42

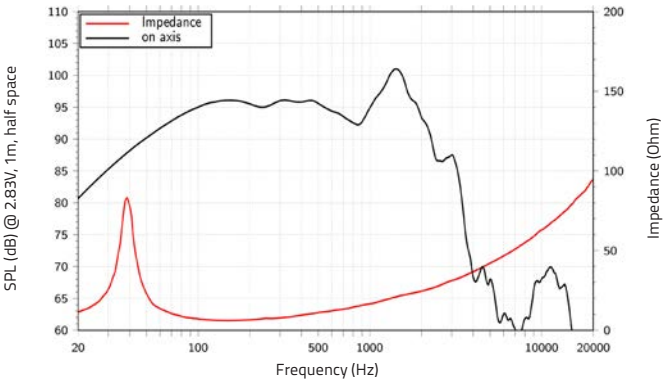
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,4
Resonance frequency	Fs	Hz	38
Moving mass	Mms	g (oz)	245,9 (8.67)
Compliance	Cms	mm/N	0,07
Force factor	BxL	N/A	26,95
Mechanical Q-factor	Qms		4,99
Electrical Q-factor	Qes		0,44
Total Q-factor	Qts		0,40
Equivalent air volume	Vas	l (ft³)	149,55 (5.28)
Voice coil Inductance	Le	mH	1,88
Diaphragm area	Sd	cm² (in.²)	1220 (189.1)
Reference efficiency	Eta 0	%	1,81
Efficiency bandwidth product	EBP	Hz	86

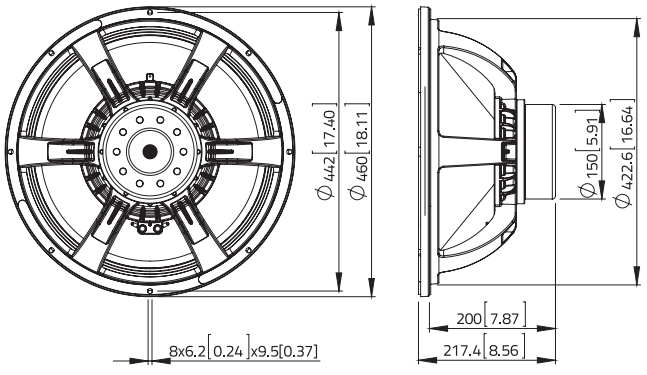
SHIPPING INFORMATION

Net weight	kg (lb.)	9 (19.8)
Multipack size (1) W x D x H	mm (in.)	495 x 495 x 260 (19.5 x 19.5 x 10.2)
Multipack weight	kg (lb.)	11,9 (26.2)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

SAF184.03

18" SUBWOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH COPPER VOICE COIL
- 96 dB/SPL SENSITIVITY
- 3000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- 42,6 mm (1.7 INCH) PEAK TO PEAK EXCURSION
- OPTIMIZED COOLING SYSTEM
- DOUBLE SILICON SPIDER
- ALUMINIUM DEMODULATING RING
- TRIPLE ROLL SURROUND
- ALTERNATIVE IMPEDANCE: 4 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	460 (18)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,2
Program power (1)	W	3000
AES Power rating (2)	W	1500
Sensitivity (3)	dB	96
Frequency range	Hz	30 ÷ 1000
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	220 x 115 x 30 (8.66 x 4.53 x 1.18)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	12,1 (0.48)
Xmech (5)	mm (in.)	21,3 (0.84)
Gap height	mm (in.)	15 (0.59)
Voice coil winding height	mm (in.)	31,7 (1.25)
Driver displacement volume	l (ft³)	8,5 (0.3)
Recommended enclosure	l (ft³)	172,8 (6.8)
Recommended tuning	Hz	35

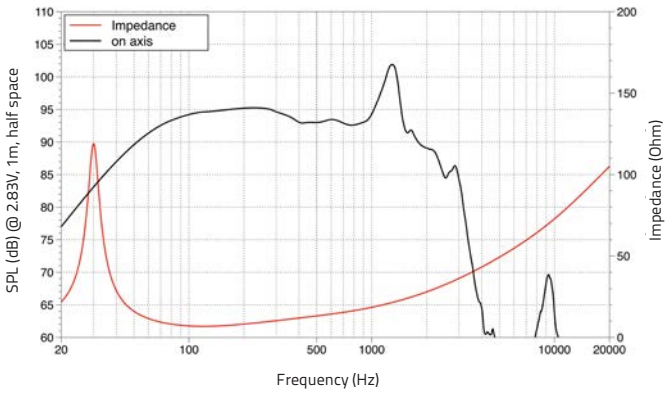
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,7
Resonance frequency	Fs	Hz	30
Moving mass	Mms	g (oz)	265,6 (9.37)
Compliance	Cms	mm/N	0,106
Force factor	BxL	N/A	28,6
Mechanical Q-factor	Qms		6,73
Electrical Q-factor	Qes		0,35
Total Q-factor	Qts		0,33
Equivalent air volume	Vas	l (ft³)	223,28 (7.89)
Voice coil Inductance	Le	mH	1,97
Diaphragm area	Sd	cm² (in.²)	1220 (189,1)
Reference efficiency	Eta 0	%	1,66
Efficiency bandwidth product	EBP	Hz	86

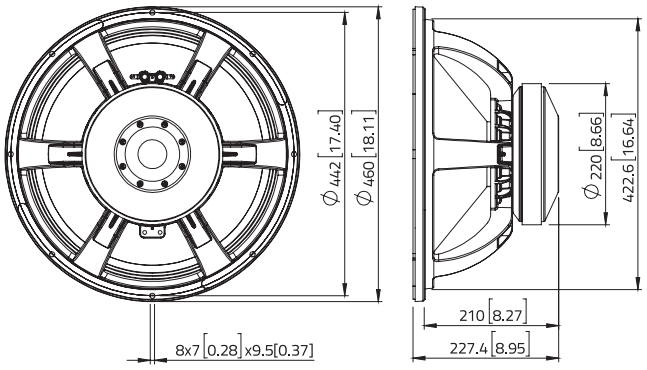
SHIPPING INFORMATION

Net weight	kg (lb.)	16,4 (36)
Multipack size (1) W x D x H	mm (in.)	490 x 490 x 270 (19.3 x 19.3 x 10.6)
Multipack weight	kg (lb.)	18,3 (40.3)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

SAF184.04

18" SUBWOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH COPPER VOICE COIL
- 95 dB/SPL SENSITIVITY
- 3000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- 43,4 mm (1.7 INCH) PEAK TO PEAK EXCURSION
- OPTIMIZED COOLING SYSTEM
- DOUBLE SILICON SPIDER
- ALUMINIUM DEMODULATING RING
- TRIPLE ROLL SURROUND
- ALTERNATIVE IMPEDANCE: 4 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	460 (18)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,8
Program power (1)	W	3000
AES Power rating (2)	W	1500
Sensitivity (3)	dB	95
Frequency range	Hz	35 ÷ 1000
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	220 x 115 x 30 (8.66 x 4.53 x 1.18)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Both Sides Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	12,5 (0.49)
Xmech (5)	mm (in.)	21,7 (0.85)
Gap height	mm (in.)	15 (0.59)
Voice coil winding height	mm (in.)	32,5 (1.28)
Driver displacement volume	l (ft³)	8,5 (0.3)
Recommended enclosure	l (ft³)	194 (6.85)
Recommended tuning	Hz	37

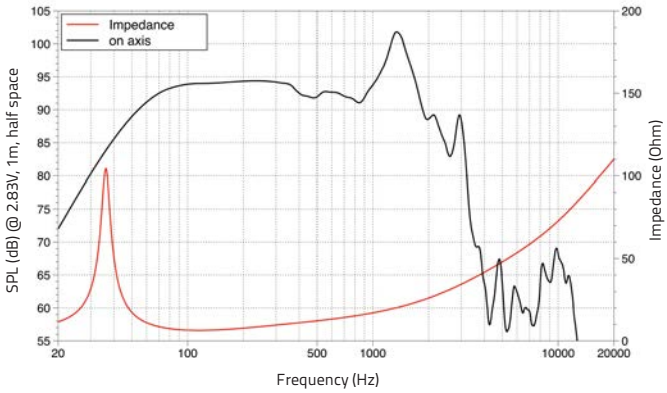
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,7
Resonance frequency	Fs	Hz	38
Moving mass	Mms	g (oz)	275,55 (9.72)
Compliance	Cms	mm/N	0,064
Force factor	BxL	N/A	26,54
Mechanical Q-factor	Qms		7,65
Electrical Q-factor	Qes		0,53
Total Q-factor	Qts		0,50
Equivalent air volume	Vas	l (ft³)	134,81 (4.76)
Voice coil Inductance	Le	mH	1,9
Diaphragm area	Sd	cm² (in.²)	1220 (189.10)
Reference efficiency	Eta 0	%	1,33
Efficiency bandwidth product	EBP	Hz	72

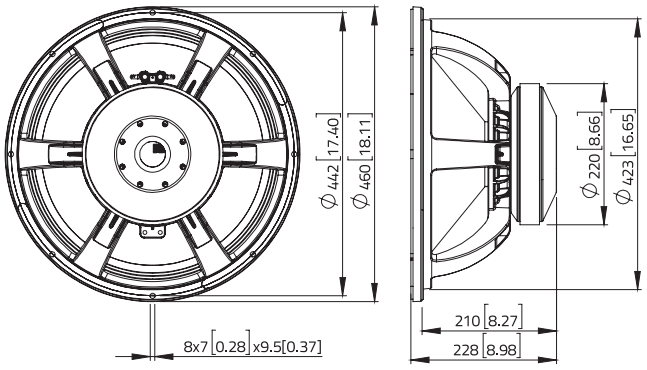
SHIPPING INFORMATION

Net weight	kg (lb.)	16,1 (35.5)
Multipack size (1) W x D x H	mm (in.)	478 x 478 x 270 (18.8 x 18.8 x 10.6)
Multipack weight	kg (lb.)	18 (39.7)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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SAN184.03

18" SUBWOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 4 INCH COPPER VOICE COIL
- 96 dB/SPL SENSITIVITY
- 3000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- 43,4 mm (1.7 INCH) PEAK TO PEAK EXCURSION
- OPTIMIZED COOLING SYSTEM
- DOUBLE SILICON SPIDER
- ALUMINIUM DEMODULATING RING
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	460 (18)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,6
Program power (1)	W	3000
AES Power rating (2)	W	1500
Sensitivity (3)	dB	96
Frequency range	Hz	30 ÷ 1000
Voice coil diameter	mm (in.)	100 (4)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	97 x 20 x 14 (3.82 x 0.79 x 0.55)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Both Sides Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	12,5 (0.49)
Xmech (5)	mm (in.)	21,7 (0.85)
Gap height	mm (in.)	15 (0.59)
Voice coil winding height	mm (in.)	32,5 (1.28)
Driver displacement volume	l (ft³)	7,8 (0.28)
Recommended enclosure	l (ft³)	200 (7.06)
Recommended tuning	Hz	35

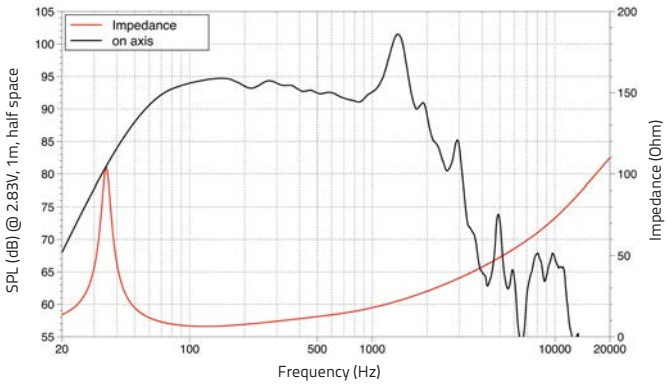
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,7
Resonance frequency	Fs	Hz	36
Moving mass	Mms	g (oz)	259,28 (9.15)
Compliance	Cms	mm/N	0,075
Force factor	BxL	N/A	27,75
Mechanical Q-factor	Qms		5,64
Electrical Q-factor	Qes		0,44
Total Q-factor	Qts		0,41
Equivalent air volume	Vas	l (ft³)	157,98 (5.58)
Voice coil Inductance	Le	mH	2,13
Diaphragm area	Sd	cm² (in.²)	1220 (189,1)
Reference efficiency	Eta 0	%	1,63
Efficiency bandwidth product	EBP	Hz	82

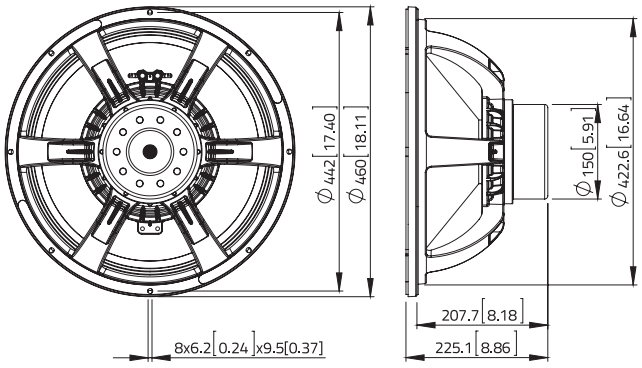
SHIPPING INFORMATION

Net weight	kg (lb.)	11 (24.3)
Multipack size (1) W x D x H	mm (in.)	495 x 495 x 270 (19.5 x 19.5 x 10.6)
Multipack weight	kg (lb.)	12,7 (28)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

SAF184.50

18" SUBWOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 4.5 INCH COPPER VOICE COIL
- 96 dB/SPL SENSITIVITY
- 3600 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- 43,6 mm (1.7 INCH) PEAK TO PEAK MAXIMUM EXCURSION
- OPTIMIZED COOLING SYSTEM
- DOUBLE SILICON SPIDER
- TRIPLE ROLL SURROUND
- ALTERNATIVE IMPEDANCE: 4 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	460 (18)
Nominal impedance	Ω	8
Minimum impedance	Ω	7
Program power (1)	W	3600
AES Power rating (2)	W	1800
Sensitivity (3)	dB	96
Frequency range	Hz	30 ÷ 1000
Voice coil diameter	mm (in.)	115 (4.5)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	253 x 127 x 30 (2.97 x 5 x 1.18)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Both Sides Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	12,5 (0.49)
Xmech (5)	mm (in.)	21,8 (0.86)
Gap height	mm (in.)	15 (0.59)
Voice coil winding height	mm (in.)	32,5 (1.28)
Driver displacement volume	l (ft³)	8,46 (0.299)
Recommended enclosure	l (ft³)	200 (7.1)
Recommended tuning	Hz	38

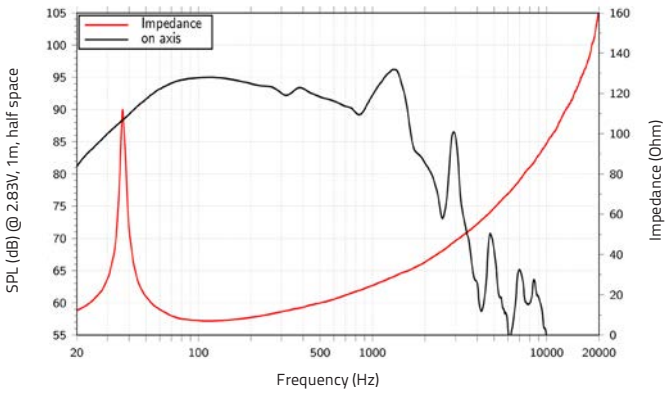
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,4
Resonance frequency	Fs	Hz	36
Moving mass	Mms	g (oz)	300,11 (10.59)
Compliance	Cms	mm/N	0,065
Force factor	BxL	N/A	30,9
Mechanical Q-factor	Qms		5,59
Electrical Q-factor	Qes		0,38
Total Q-factor	Qts		0,36
Equivalent air volume	Vas	l (ft³)	136,92 (4.84)
Voice coil Inductance	Le	mH	2,5
Diaphragm area	Sd	cm² (in.²)	1220 (189.10)
Reference efficiency	Eta 0	%	1,59
Efficiency bandwidth product	EBP	Hz	95

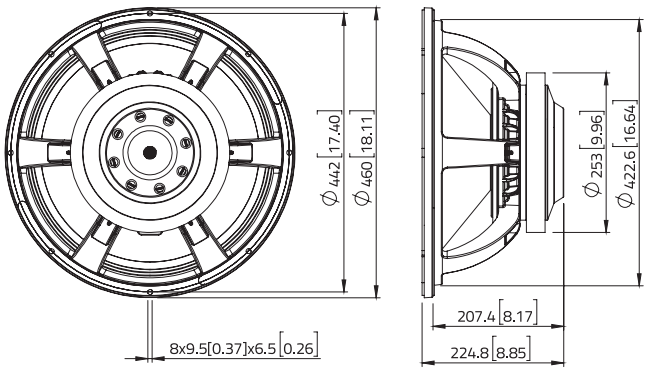
SHIPPING INFORMATION

Net weight	kg (lb.)	16,8 (37)
Multipack size (1) W x D x H	mm (in.)	490 x 490 x 270 (19.3 x 19.3 x 10.6)
Multipack weight	kg (lb.)	18,7 (41.2)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

SAN184.50

18" SUBWOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 4.5 INCH CCAW VOICE COIL
- 97 dB/SPL SENSITIVITY
- 3400 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- 47,8 mm (1.9 INCH) PEAK TO PEAK MAXIMUM EXCURSION
- OPTIMIZED COOLING SYSTEM
- DOUBLE SILICON SPIDER
- ALUMINIUM DEMODULATION RING
- TRIPLE ROLL SURROUND
- ALTERNATIVE IMPEDANCE: 4 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	460 (18)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,1
Program power (1)	W	3400
AES Power rating (2)	W	1700
Sensitivity (3)	dB	97
Frequency range	Hz	30 ÷ 1000
Voice coil diameter	mm (in.)	115 (4.5)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	113 x 40 x 17 (4.45 x 1.57 x 0.67)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Both Sides Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	15,4 (0.61)
Xmech (5)	mm (in.)	23,9 (0.94)
Gap height	mm (in.)	14 (0.55)
Voice coil winding height	mm (in.)	37,9 (1.49)
Driver displacement volume	l (ft³)	7,64 (0.27)
Recommended enclosure	l (ft³)	226,5 (8.0)
Recommended tuning	Hz	35

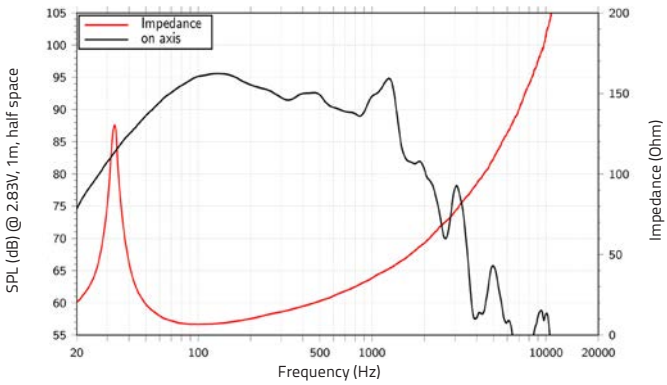
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,4
Resonance frequency	Fs	Hz	36
Moving mass	Mms	g (oz)	325,3 (11.47)
Compliance	Cms	mm/N	0,059
Force factor	BxL	N/A	38,0
Mechanical Q-factor	Qms		7,27
Electrical Q-factor	Qes		0,28
Total Q-factor	Qts		0,27
Equivalent air volume	Vas	l (ft³)	123,74 (4.37)
Voice coil Inductance	Le	mH	4,2
Diaphragm area	Sd	cm² (in.²)	1220 (189.1)
Reference efficiency	Eta 0	%	2,08
Efficiency bandwidth product	EBP	Hz	129

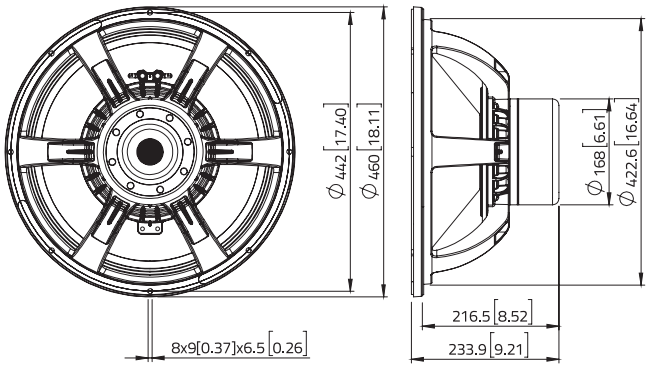
SHIPPING INFORMATION

Net weight	kg (lb.)	13,5 (29.8)
Multipack size (1) W x D x H	mm (in.)	495 x 495 x 270 (19.5 x 19.5 x 10.6)
Multipack weight	kg (lb.)	14,4 (31.7)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

SAN184.51

18" SUBWOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 4.5 INCH CCAW VOICE COIL
- 97,6 dB/SPL SENSITIVITY
- 3400 WATT PROGRAM POWER HANDLING
- ULTRA LOW DISTORTION DESIGN
- REDUCED POWER COMPRESSION THERMAL DESIGN
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- 53 mm (2.1 INCH) PEAK TO PEAK MAXIMUM EXCURSION
- OPTIMIZED COOLING SYSTEM
- ALUMINIUM DEMODULATION RING AND DOUBLE SILICON SPIDER
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	460 (18)
Nominal impedance	Ω	2
Minimum impedance	Ω	1,8
Program power (1)	W	3400
AES Power rating (2)	W	1700
Sensitivity (3)	dB	97,6
Frequency range	Hz	30 ÷ 1000
Voice coil diameter	mm (in.)	115 (4.5)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	113 x 40 x 15 (4.45 x 1.57 x 0.6)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	19,5 (0.77)
Xmech (5)	mm (in.)	26,5 (1.04)
Gap height	mm (in.)	12 (0.47)
Voice coil winding height	mm (in.)	45 (1.77)
Driver displacement volume	l (ft³)	7,95 (0.28)
Recommended enclosure	l (ft³)	169 (5.97)
Recommended tuning	Hz	42

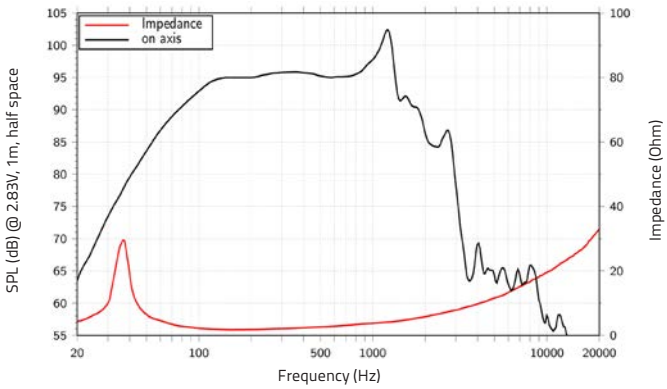
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	1,2
Resonance frequency	Fs	Hz	36
Moving mass	Mms	g (oz)	306,6 (10.81)
Compliance	Cms	mm/N	0,063
Force factor	BxL	N/A	18,79
Mechanical Q-factor	Qms		5,04
Electrical Q-factor	Qes		0,24
Total Q-factor	Qts		0,23
Equivalent air volume	Vas	l (ft³)	132,7 (4.69)
Voice coil Inductance	Le	mH	0,38
Diaphragm area	Sd	cm² (in.²)	1220 (189.1)
Reference efficiency	Eta 0	%	2,56
Efficiency bandwidth product	EBP	Hz	150

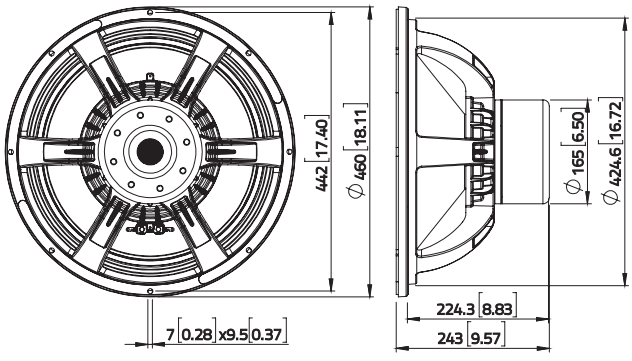
SHIPPING INFORMATION

Net weight	kg (lb.)	14,4 (31.7)
Multipack size (1) W x D x H	mm (in.)	484 x 484 x 279 (19 x 19 x 10.9)
Multipack weight	kg (lb.)	16,5 (36.4)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

SAN184.50iP

18" SUBWOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 2 OHM IMPEDANCE
- 4.5 INCH IN-OUT CCAW VOICE COIL
- 98 dB/SPL SENSITIVITY
- 3400 WATT PROGRAM POWER HANDLING
- POWERSOFT IPALMOD COMPATIBLE
- ULTRA LOW DISTORTION DESIGN
- REDUCED POWER COMPRESSION THERMAL DESIGN
- 54 mm (2.1 INCH) PEAK TO PEAK MAXIMUM EXCURSION
- DOUBLE SILICON SPIDER AND TRIPLE ROLL SURROUND
- ALUMINIUM DEMODULATION RING
- ALTERNATIVE IMPEDANCE: 1 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	460 (18)
Nominal impedance	Ω	2
Minimum impedance	Ω	2,23
Program power (1)	W	3400
AES Power rating (2)	W	1700
Sensitivity (3)	dB	98
Frequency range	Hz	30 ÷ 1000
Voice coil diameter	mm (in.)	115 (4.5)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	113 x 35 x 15 + 104 x 35 x 12 (4.45 x 1.38 x 0.59) + (4.09 x 1.38 x 0.47)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	19,25 (0.76)
Xmech (5)	mm (in.)	27 (1.06)
Gap height	mm (in.)	13 (0.51)
Voice coil winding height	mm (in.)	45 (1.77)
Driver displacement volume	l (ft³)	13,5 (0.477)
Recommended enclosure	l (ft³)	150 (5.29)
Recommended tuning	Hz	35

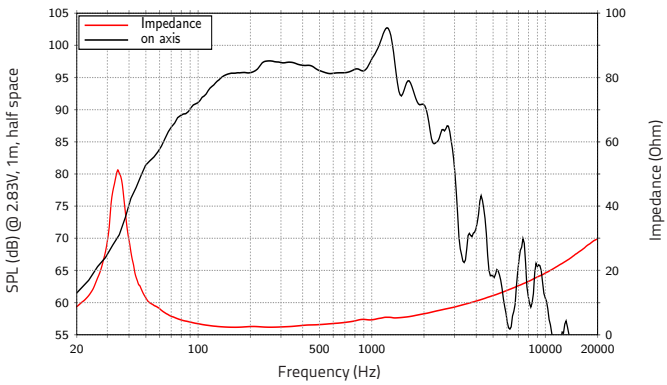
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	1,2
Resonance frequency	Fs	Hz	34
Moving mass	Mms	g (oz)	338,2 (11.9)
Compliance	Cms	mm/N	0,065
Force factor	BxL	N/A	25,01
Mechanical Q-factor	Qms		7,52
Electrical Q-factor	Qes		0,14
Total Q-factor	Qts		0,13
Equivalent air volume	Vas	l (ft³)	136,91 (4.83)
Voice coil Inductance	Le	mH	0,39
Diaphragm area	Sd	cm² (in.²)	1220 (189.1)
Reference efficiency	Eta 0	%	3,75
Efficiency bandwidth product	EBP	Hz	243

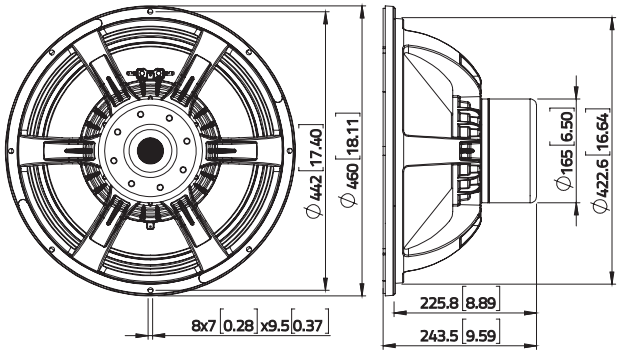
SHIPPING INFORMATION

Net weight	kg (lb.)	15,1 (33.3)
Multipack size (1) W x D x H	mm (in.)	484 x 484 x 279 (19 x 19 x 11)
Multipack weight	kg (lb.)	17,3 (38.1)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

SAF214.50

21" SUBWOOFER

FERRITE MAGNET
ALUMINIUM BASKET DRIVER

- 4.5 INCH COPPER VOICE COIL
- 96 dB/SPL SENSITIVITY
- 4000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSION
- 43.6 mm (1.7 INCH) PEAK TO PEAK MAXIMUM EXCURSION
- OPTIMIZED COOLING SISTEM
- DOUBLE SILICON SPIDER
- TRIPLE ROLL SURROUND

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	530 (21)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,8
Program power (1)	W	4000
AES Power rating (2)	W	2000
Sensitivity (3)	dB	96
Frequency range	Hz	30 ÷ 1000
Voice coil diameter	mm (in.)	115 (4.5)
Chassis material	Aluminium	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	253 x 127 x 30 (9.96 x 5 x 1.18)
Coil material	Copper	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	12,5 (0.49)
Xmech (5)	mm (in.)	21,8 (0.86)
Gap height	mm (in.)	15 (0.59)
Voice coil winding height	mm (in.)	32,5 (1.28)
Driver displacement volume	l (ft³)	11,85 (0.42)
Recommended enclosure	l (ft³)	299 (10.56)
Recommended tuning	Hz	33

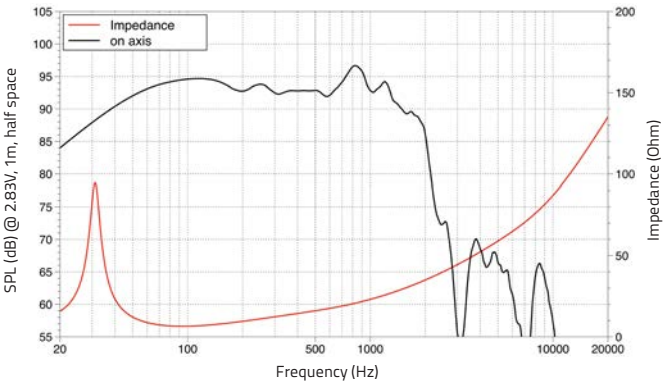
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,5
Resonance frequency	Fs	Hz	32
Moving mass	Mms	g (oz)	397,88 (14.03)
Compliance	Cms	mm/N	0,061
Force factor	BxL	N/A	30,21
Mechanical Q-factor	Qms		5,16
Electrical Q-factor	Qes		0,48
Total Q-factor	Qts		0,44
Equivalent air volume	Vas	l (ft³)	250,6 (8.85)
Voice coil Inductance	Le	mH	2,67
Diaphragm area	Sd	cm² (in.²)	1690 (262)
Reference efficiency	Eta 0	%	1,65
Efficiency bandwidth product	EBP	Hz	67

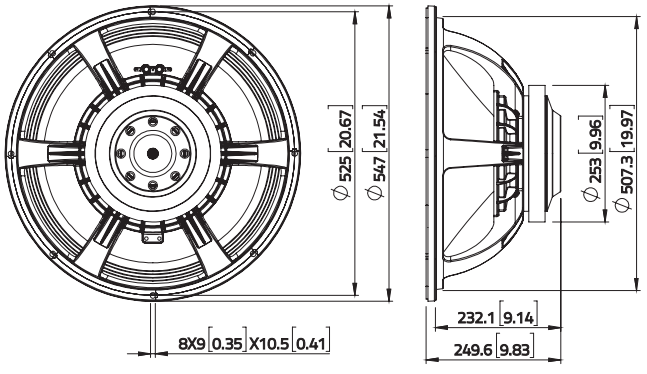
SHIPPING INFORMATION

Net weight	kg (lb.)	18,2 (40.1)
Multipack size (1) W x D x H	mm (in.)	575 x 575 x 292 (22.6 x 22.6 x 11.5)
Multipack weight	kg (lb.)	21,1 (46.5)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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SAN214.50

21" SUBWOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 4,5 INCH CCAW VOICE COIL
- 98 dB/SPL SENSITIVITY
- 3400 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- 47,8 mm (1.9 INCH) PEAK TO PEAK MAXIMUM EXCURSION
- OPTIMIZED COOLING SYSTEM
- DOUBLE SILICON SPIDER
- ALUMINIUM DEMODULATING RING
- TRIPLE ROLL SURROUND
- ALTERNATIVE IMPEDANCE: 4 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	530 (21)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,8
Program power (1)	W	3400
AES Power rating (2)	W	1700
Sensitivity (3)	dB	98
Frequency range	Hz	30 ÷ 1000
Voice coil diameter	mm (in.)	115 (4.5)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	113 x 40 x 17 (4.45 x 1.57 x 0.67)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Both Sides Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	15,4 (0.60)
Xmech (5)	mm (in.)	23,9 (0.94)
Gap height	mm (in.)	14 (0.55)
Voice coil winding height	mm (in.)	37,9 (1.49)
Driver displacement volume	l (ft³)	10,3 (0.36)
Recommended enclosure	l (ft³)	296,1 (10.46)
Recommended tuning	Hz	35

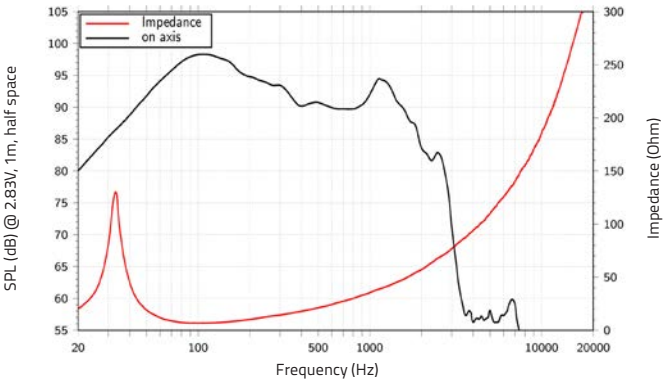
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,2
Resonance frequency	Fs	Hz	33
Moving mass	Mms	g (oz)	426,9 (15.06)
Compliance	Cms	mm/N	0,054
Force factor	BxL	N/A	39,62
Mechanical Q-factor	Qms		6,14
Electrical Q-factor	Qes		0,29
Total Q-factor	Qts		0,28
Equivalent air volume	Vas	l (ft³)	218,27 (7.71)
Voice coil Inductance	Le	mH	4,65
Diaphragm area	Sd	cm² (in.²)	1690 (262)
Reference efficiency	Eta 0	%	2,59
Efficiency bandwidth product	EBP	Hz	114

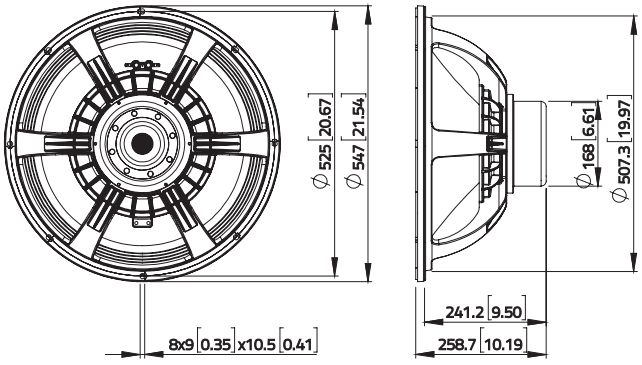
SHIPPING INFORMATION

Net weight	kg (lb.)	15,2 (33.4)
Multipack size (1) W x D x H	mm (in.)	580 x 580 x 300 (22.8 x 22.8 x 11.8)
Multipack weight	kg (lb.)	17,6 (38.8)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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SAN215.30

21" SUBWOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

- 5,3 INCH COPPER VOICE COIL
- 97 dB/SPL SENSITIVITY
- 4000 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- 52.8 mm (2.1 INCH) PEAK TO PEAK MAXIMUM EXCURSION
- OPTIMIZED COOLING SYSTEM
- DOUBLE SILICON SPIDER
- ALUMINIUM DEMODULATING RING
- TRIPLE ROLL SURROUND
- ALTERNATIVE IMPEDANCE: 4 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	530 (21)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,9
Program power (1)	W	4000
AES Power rating (2)	W	2000
Sensitivity (3)	dB	97
Frequency range	Hz	30 ÷ 1000
Voice coil diameter	mm (in.)	134 (5.3)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	130 x 35 x 14 (5.12 x 1.38 x 0.55)
Coil material	Copper	
Former material	Glass fiber	
Cone material	Water Resistant Treated Paper + Water Proof Both Sides Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	14,9 (0.59)
Xmech (5)	mm (in.)	26,4 (1.04)
Gap height	mm (in.)	18 (0.71)
Voice coil winding height	mm (in.)	38,8 (1.53)
Driver displacement volume	l (ft³)	10.55 (0.372)
Recommended enclosure	l (ft³)	299 (10.56)
Recommended tuning	Hz	32

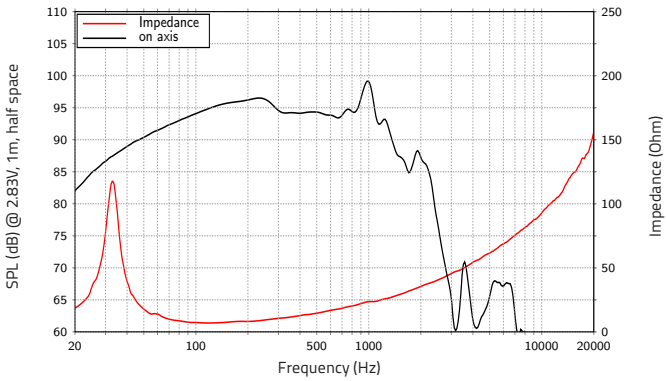
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,4
Resonance frequency	Fs	Hz	33
Moving mass	Mms	g (oz)	464,4 (16,38)
Compliance	Cms	mm/N	0,051
Force factor	BxL	N/A	38,34
Mechanical Q-factor	Qms		5,48
Electrical Q-factor	Qes		0,35
Total Q-factor	Qts		0,33
Equivalent air volume	Vas	l (ft³)	204,15 (7,21)
Voice coil Inductance	Le	mH	2,76
Diaphragm area	Sd	cm² (in.²)	1690 (262)
Reference efficiency	Eta 0	%	1,96
Efficiency bandwidth product	EBP	Hz	94

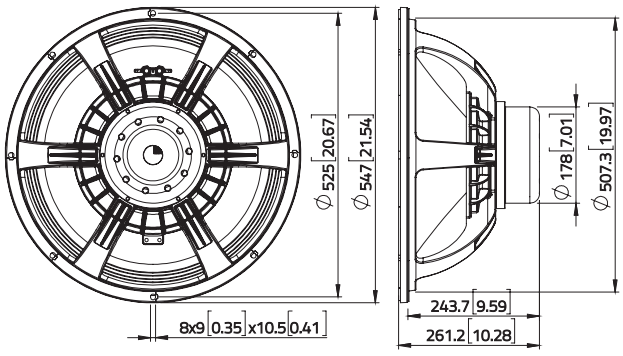
SHIPPING INFORMATION

Net weight	kg (lb.)	17 (37.5)
Multipack size (1) W x D x H	mm (in.)	580 x 580 x 310 (22.8 x 22.8 x 12.2)
Multipack weight	kg (lb.)	20,2 (44.5)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

SAN216.00iP

21" SUBWOOFER

NEODYMIUM MAGNET
ALUMINIUM BASKET DRIVER

PRELIMINARY

- 1 OHM IMPEDANCE
- 6 INCH IN-OUT EDGEWOUND CCA VOICE COIL
- 99 dB/SPL SENSITIVITY
- 5000 WATT PROGRAM POWER HANDLING
- POWERSOFT IPALMOD COMPATIBLE
- ULTRA LOW DISTORTION DESIGN
- REDUCED POWER COMPRESSION THERMAL DESIGN
- 64,6 mm (2.5 INCH) PEAK TO PEAK MAXIMUM EXCURSION
- DOUBLE SILICON SPIDER AND TRIPLE ROLL SURROUND
- ALUMINIUM DEMODULATING RING

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	530 (21)
Nominal impedance	Ω	1
Minimum impedance	Ω	1,05
Program power (1)	W	5000
AES Power rating (2)	W	2500
Sensitivity (3)	dB	99
Frequency range	Hz	35 ÷ 1000
Voice coil diameter	mm (in.)	152 (6)
Chassis material	Aluminium	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	144,8 x 50,8 x 24 (5.7 x 2 x 0.94)
Coil material	Edgewound CCA	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper + Water Proof Front Side Treatment	
Surround material	Polycotton	
Xmax (4)	mm (in.)	20,8 (0.82)
Xmech (5)	mm (in.)	32,3 (1.27)
Gap height	mm (in.)	18 (0.71)
Voice coil winding height	mm (in.)	50,6 (1.99)
Driver displacement volume	l (ft³)	7,95 (0.28)
Recommended enclosure	l (ft³)	200 (7.06)
Recommended tuning	Hz	40

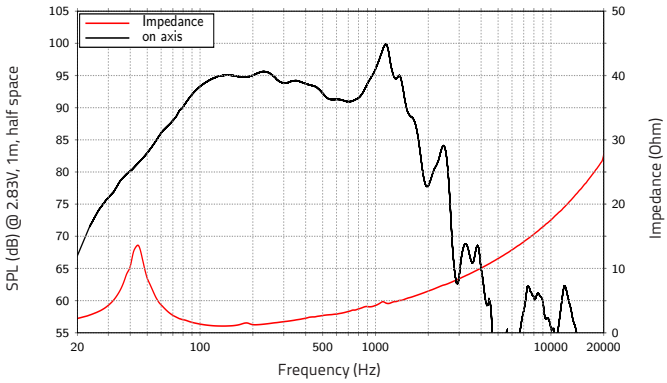
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	0,7
Resonance frequency	Fs	Hz	36
Moving mass	Mms	g (oz)	481,6 (16.99)
Compliance	Cms	mm/N	0,04
Force factor	BxL	N/A	19,92
Mechanical Q-factor	Qms		3,45
Electrical Q-factor	Qes		0,19
Total Q-factor	Qts		0,18
Equivalent air volume	Vas	l (ft³)	161,68 (5.71)
Voice coil Inductance	Le	mH	0,46
Diaphragm area	Sd	cm² (in.²)	1690 (261.95)
Reference efficiency	Eta 0	%	3,83
Efficiency bandwidth product	EBP	Hz	186

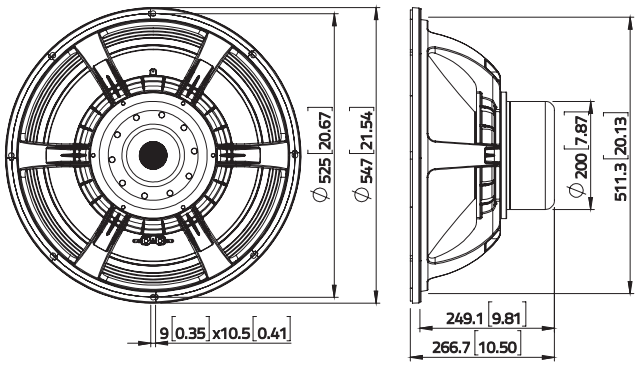
SHIPPING INFORMATION

Net weight	kg (lb.)	20,7 (45.6)
Multipack size (1) W x D x H	mm (in.)	570 x 570 x 305 (22.4 x 22.4 x 12)
Multipack weight	kg (lb.)	26,1 (57.5)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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CONSISTENTLY IMPRESSIVE

NEODYMIUM HIGH FREQUENCY COMPRESSION DRIVERS

Compact and very lightweight with the highest level of accuracy in their design and manufacture, our Neodymium HF Compression Drivers offer low distortion and very linear frequency trends that deliver a consistently impressive performance. With many new designs added to the range, including DN10.143 with an annular diaphragm design, plus a variety of voice coil sizes to choose from (1" to 4"), there is a premium performance solution for every application.

Product name	Throath mm (in.)	Magnet material	Voice coil mm (in.)	Sensitivity dB	AES Power W	Freq. range Hz	Diaphragm material	Rec. Xover Hz	Impedance Ω	Magnet OD mm (in.)	Net weight kg (lb.)	Horn fitting
DN07.10LM	19 (0.75)	Neo	25,4 (1)	109	10	2000 - 18000	Polyester	2500	8 [16]	46 (1.8)	0,15 (0.33)	Bolt-on
DN10.14	25,4 (1)	Neo	36 (1.4)	107	30	1500 - 20000	Polymer	1700	8	70 (2.8)	0,5 (1.1)	Bolt-on
DN10.142	25,4 (1)	Neo	36 (1.4)	107	25	1000 - 18000	Polymer	1200	8 [16]	60 (2.4)	0,3 (0.66)	Bolt-on
DN10.143	25,4 (1)	Neo	38 (1.5)	110	35	1200 - 20000	Polymer	1800	8	71 (2.8)	0,5 (1.2)	Bolt-on
DN10.172M	25,4 (1)	Neo	44,4 (1.7)	109	50	1200 - 20000	Polyester	1500	8	85 (3.3)	0,9 (1.98)	Bolt-on
DN10.17	25,4 (1)	Neo	44,4 (1.7)	110	55	1200 - 18000	Polymer	1600	8 [16]	85 (3.3)	0,9 (1.9)	Bolt-on
DN10.172K	25,4 (1)	Neo	44,4 (1.7)	110	55	1200 - 20000	Polyimide	1500	8	85 (3.3)	0,9 (1.98)	Bolt-on
DN10.172KS	25,4 (1)	Neo	44,4 (1.7)	110	55	1200 - 20000	Polyimide	1500	8	85 (3.3)	0,9 (1.98)	Screw-on
DN14.25T	36 (1.4)	Neo	65 (2.5)	108	80	1000 - 18000	Titanium	1200	8 [16]	110 (4.3)	1,3 (2.8)	Bolt-on
DN14.30T	36 (1.4)	Neo	75 (3)	108	110	500 - 18000	Titanium	1200	8 [16]	115 (4.5)	1,4 (3.1)	Bolt-on
DN14.301T	36 (1.4)	Neo	75 (3)	108	110	500 - 20000	Titanium	1200	8	120 (4.7)	1,9 (4.2)	Bolt-on
DN14.30TK	36 (1.4)	Neo	75 (3)	108	110	500 - 20000	Titanium / Polyimide	1200	8	120 (4,7)	1,9 (4.2)	Bolt-on
DN14.300T	36 (1.4)	Neo	75 (3)	109	110	500 - 20000	Titanium	1200	8 [16]	130 (5.1)	2,1 (4.6)	Bolt-on
DN14.300TK	36 (1.4)	Neo	75 (3)	109	110	500 - 20000	Titanium / Polyimide	1200	8	130 (5.1)	2 (4.4)	Bolt-on
DN20.300T	50 (2.0)	Neo	75 (3)	108,5	110	500 - 20000	Titanium	800	8	130 (5.1)	2,2 (4.9)	Bolt-on
DN14.40T	36 (1.4)	Neo	100 (4)	109	130	500 - 20000	Titanium	800	8	140 (5.5)	2,0 (4.4)	Bolt-on
DN20.40T	50 (2.0)	Neo	100 (4)	108	130	500 - 20000	Titanium	800	8	140 (5.5)	2,4 (5.3)	Bolt-on

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

DN07.10LM

0,75” COMPRESSION DRIVER

NEODYMIUM MAGNET

- 1 INCH CCAW VOICE COIL
- 109 dB/SPL SENSITIVITY
- 20 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 2000 - 18000 Hz FREQUENCY RANGE
- POLYESTER DIAPHRAGM
- NEXT GENERATION HF DESIGN
- ALTERNATIVE IMPEDANCE: 16 OHM

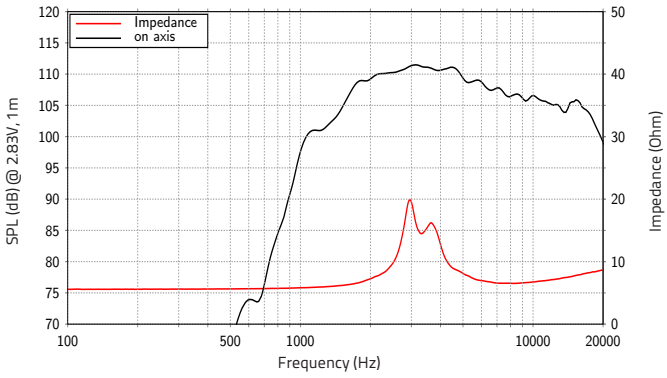
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	19 (0.75)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,8
Program power (1)	W	20
AES Power rating (2)	W	10
Sensitivity (3)	dB	109
Frequency range	Hz	2000 ÷ 18000
Voice coil diameter	mm (in.)	25,4 (1)
Magnet material	Neodymium	
Magnet OD	mm (in.)	46 (1.8)
Coil material	CCAW	
Former material	Kapton	
Diaphragm material	Polyester	
Surround material	Polyester	
Voice coil Inductance	mH	0,04
Flux density	T	1,65
Recommended crossover (4)	Hz	2500
Driver displacement volume	l (ft³)	0,04 (0.001)

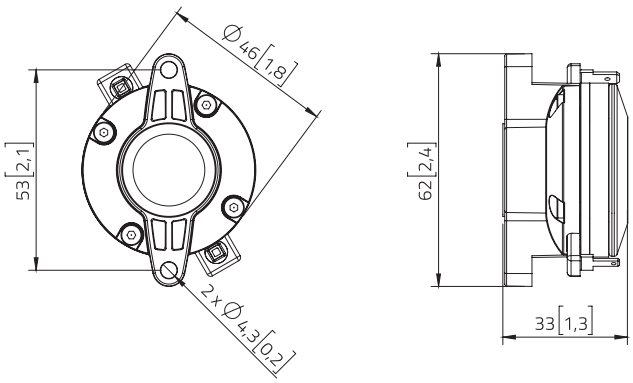
SHIPPING INFORMATION

Net weight	kg (lb.)	0,15 (0.33)
Multipack size (18) W x D x H	mm (in.)	260 x 245 x 130 (10.2 x 9.6 x 5.1)
Multipack weight	kg (lb.)	3,6 (7.9)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (2500-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with 60°x 40° horn, SPL averaged in the frequency range 2000 ÷ 18000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

DN10.14

1" COMPRESSION DRIVER

NEODYMIUM MAGNET

- 1.4 INCH EDGEWOUND CCA VOICE COIL
- 107 dB/SPL SENSITIVITY
- 60 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1500 - 20000 Hz FREQUENCY RANGE
- HIGH TEMPERATURE POLYMERIC DIAPHRAGM

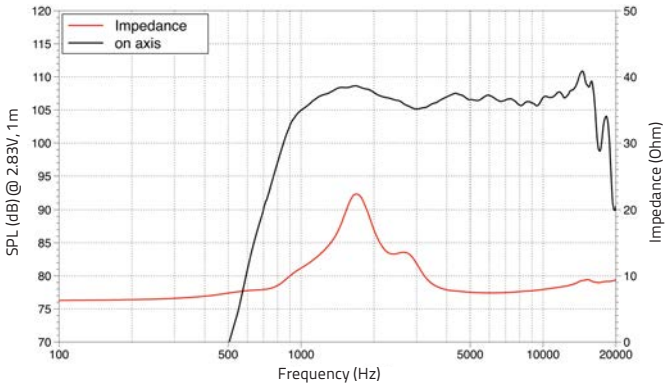
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,4
Program power (1)	W	60
AES Power rating (2)	W	30
Sensitivity (3)	dB	107
Frequency range	Hz	1500 ÷ 20000
Voice coil diameter	mm (in.)	36 (1.4)
Magnet material	Neodymium	
Magnet OD	mm (in.)	70 (2.8)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	High temperature polymer	
Surround material	High temperature polymer, vented	
Voice coil Inductance	mH	0,09
Flux density	T	1,9
Recommended crossover (4)	Hz	1700
Driver displacement volume	l (ft³)	0,1 (0.005)

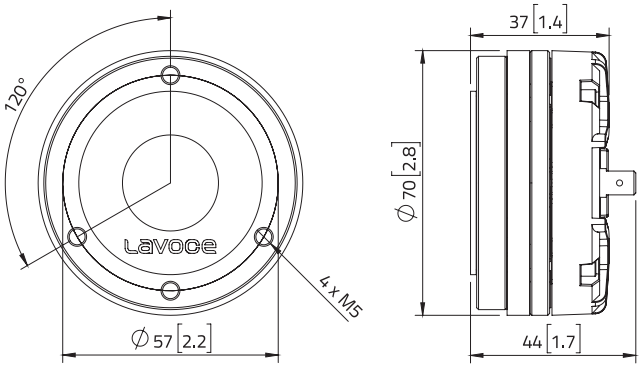
SHIPPING INFORMATION

Net weight	kg (lb.)	0,5 (1.1)
Multipack size (12) W x D x H	mm (in.)	405 x 355 x 100 (15.9 x 14 x 3.9)
Multipack weight	kg (lb.)	7,5 (16.5)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1700-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1500 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

DN10.142

1” COMPRESSION DRIVER

NEODYMIUM MAGNET

- 1.4 INCH EDGEWOUND CCA VOICE COIL
- 107 dB/SPL SENSITIVITY
- 50 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1000 - 18000 Hz FREQUENCY RANGE
- HIGH TEMPERATURE POLYMERIC DIAPHRAGM
- ULTRA COMPACT COMPRESSION DRIVER, WITH EXTENDED LOW FREQUENCY RANGE
- ALTERNATIVE IMPEDANCE: 16 OHM

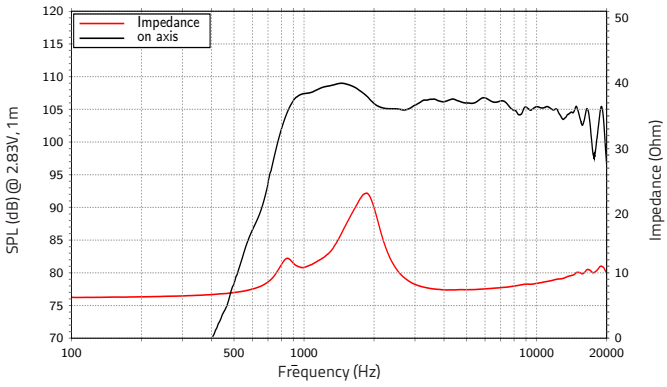
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,5
Program power (1)	W	50
AES Power rating (2)	W	25
Sensitivity (3)	dB	107
Frequency range	Hz	1000 ÷ 18000
Voice coil diameter	mm (in.)	36 (1.4)
Magnet material	Neodymium	
Magnet OD	mm (in.)	60 (2.4)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	High temperature polymer	
Surround material	High temperature polymer	
Voice coil Inductance	mH	0,1
Flux density	T	1,8
Recommended crossover (4)	Hz	1200
Driver displacement volume	l (ft³)	0,08 (0.003)

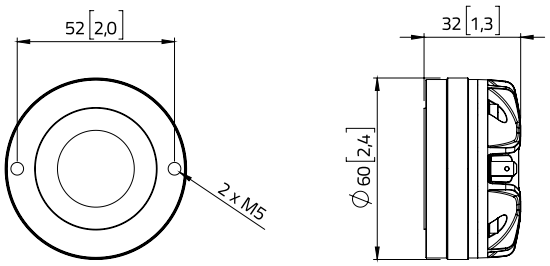
SHIPPING INFORMATION

Net weight	kg (lb.)	0,3 (0.66)
Multipack size (18) W x D x H	mm (in.)	261 x 235 x 135 (10.3 x 9.3 x 5.3)
Multipack weight	kg (lb.)	6,8 (15)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1200-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1000 ÷ 18000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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DN10.143

1” ANNULAR COMPRESSION DRIVER

NEODYMIUM MAGNET

- 1.4 INCH EDGEWOUND CCA VOICE COIL
- 110 dB/SPL SENSITIVITY
- 70 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1200 – 20000 Hz FREQUENCY RANGE
- HIGH TEMPERATURE POLYMER DIAPHRAGM AND SURROUND
- ANNULAR DIAPHRAGM DESIGN
- HIGH SENSITIVITY WITH LOW DISTORTION
- EXTENDED LOW FREQUENCY TO 1800 Hz

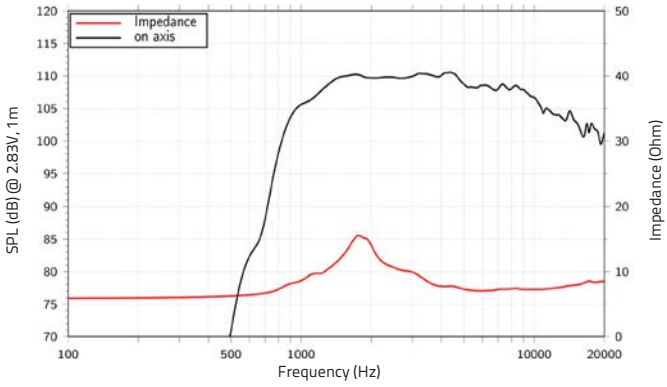
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7
Program power (1)	W	70
AES Power rating (2)	W	35
Sensitivity (3)	dB	110
Frequency range	Hz	1200 ÷ 20000
Voice coil diameter	mm (in.)	38 (1.5)
Magnet material	Neodymium	
Magnet OD	mm (in.)	71 (2.8)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	High Temperature Polymer	
Surround material	High Temperature Polymer	
Voice coil Inductance	mH	0,05
Flux density	T	2
Recommended crossover (4)	Hz	1800
Driver displacement volume	l (ft³)	0,09 (0.003)

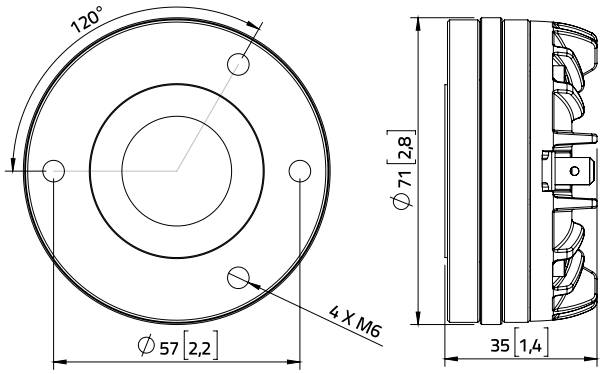
SHIPPING INFORMATION

Net weight	kg (lb.)	0,5 (1.2)
Multipack size (18) W x D x H	mm (in.)	355 x 183 x 174 (14 x 7.2 x 6.9)
Multipack weight	kg (lb.)	11 (24.3)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1800-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1403 horn, SPL averaged in the frequency range 1200 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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DN10.172M

1" COMPRESSION DRIVER

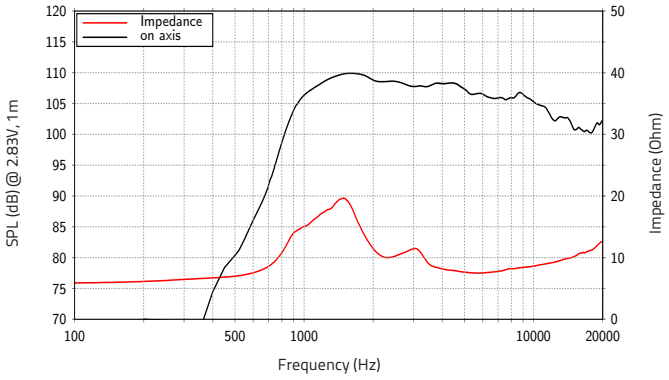
NEODYMIUM MAGNET

- 1.7 INCH EDGEWOUND CCA VOICE COIL
- 109 dB/SPL SENSITIVITY
- 100 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1200 - 20000 Hz FREQUENCY RANGE
- POLYESTER DIAPHRAGM

GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,8
Program power (1)	W	100
AES Power rating (2)	W	50
Sensitivity (3)	dB	109
Frequency range	Hz	1200 ÷ 20000
Voice coil diameter	mm (in.)	44,4 (1.7)
Magnet material	Neodymium	
Magnet OD	mm (in.)	85 (3.3)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Polyester	
Surround material	Polyester, vented	
Voice coil Inductance	mH	0,08
Flux density	T	1,95
Recommended crossover (4)	Hz	1500
Driver displacement volume	l (ft³)	0,2 (0.007)

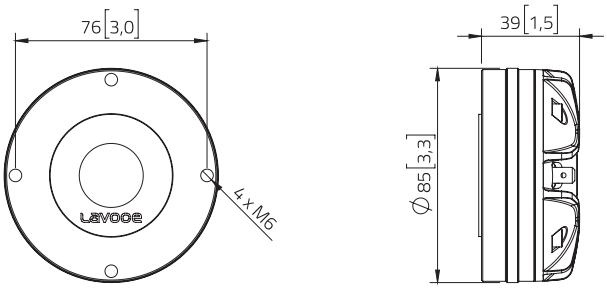
FREQUENCY RESPONSE



SHIPPING INFORMATION

Net weight	kg (lb.)	0,9 (1.9)
Multipack size (9) **W x D x H**	mm (in.)	410 x 390 x 105 (16.1 x 15.4 x 4.1)
Multipack weight	kg (lb.)	9,4 (20.7)

DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1500-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1200 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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DN10.17

1" COMPRESSION DRIVER

NEODYMIUM MAGNET

- 1.7 INCH EDGEWOUND CCA VOICE COIL
- 110 dB/SPL SENSITIVITY
- 110 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1200 - 18000 Hz FREQUENCY RANGE
- HIGH TEMPERATURE POLYMERIC DIAPHRAGM
- ALTERNATIVE IMPEDANCE: 16 OHM

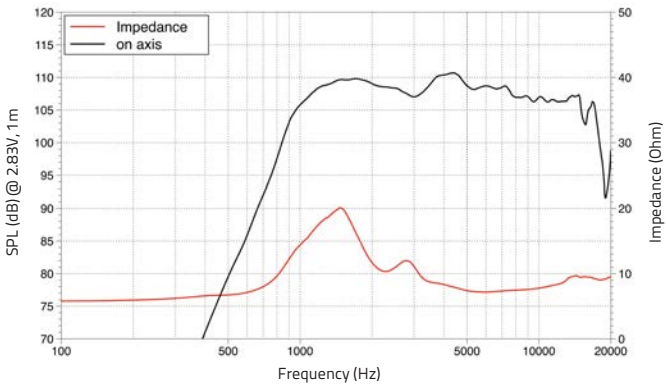
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,3
Program power (1)	W	110
AES Power rating (2)	W	55
Sensitivity (3)	dB	110
Frequency range	Hz	1200 ÷ 18000
Voice coil diameter	mm (in.)	44,4 (1.7)
Magnet material	Neodymium	
Magnet OD	mm (in.)	85 (3.3)
Coil material	Edgewound CCA	
Former material	Fiber glass	
Diaphragm material	High temperature polymer	
Surround material	High temperature polymer, vented	
Voice coil Inductance	mH	0,09
Flux density	T	1,9
Recommended crossover (4)	Hz	1600
Driver displacement volume	l (ft³)	0,2 (0.008)

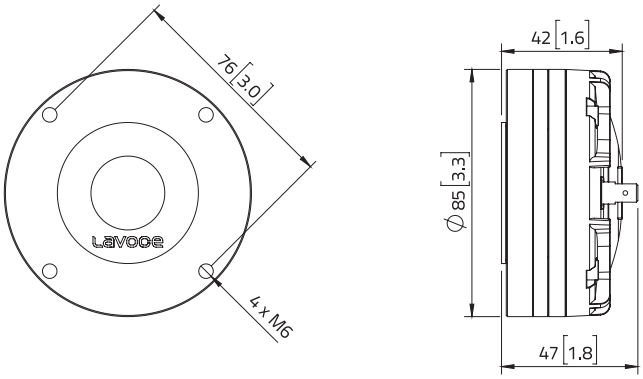
SHIPPING INFORMATION

Net weight	kg (lb.)	0,9 (1.9)
Multipack size (9) W x D x H	mm (in.)	410 x 382 x 100 (16.1 x 15 x 3.9)
Multipack weight	kg (lb.)	9,4 (20.7)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1600-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1200 ÷ 18000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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DN10.172K

1” COMPRESSION DRIVER

NEODYMIUM MAGNET

- 1.7 INCH EDGEWOUND CCA VOICE COIL
- 110 dB/SPL SENSITIVITY
- 110 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1200 - 20000 Hz FREQUENCY RANGE
- POLYIMIDE DIAPHRAGM

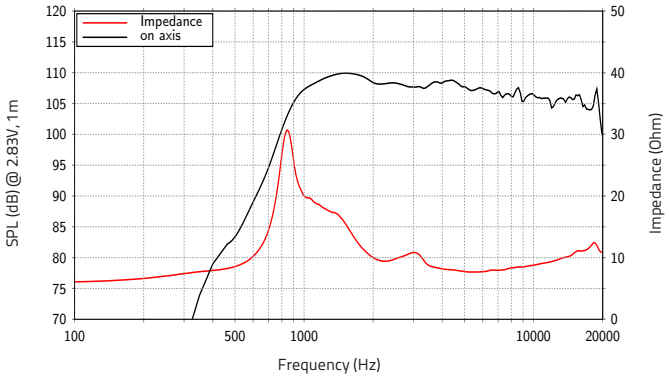
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,8
Program power (1)	W	110
AES Power rating (2)	W	55
Sensitivity (3)	dB	110
Frequency range	Hz	1200 ÷ 20000
Voice coil diameter	mm (in.)	44,4 (1.7)
Magnet material	Neodymium	
Magnet OD	mm (in.)	85 (3.3)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Polyimide	
Surround material	Polyimide, vented	
Voice coil Inductance	mH	0,08
Flux density	T	1,95
Recommended crossover (4)	Hz	1500
Driver displacement volume	l (ft³)	0,2 (0.007)

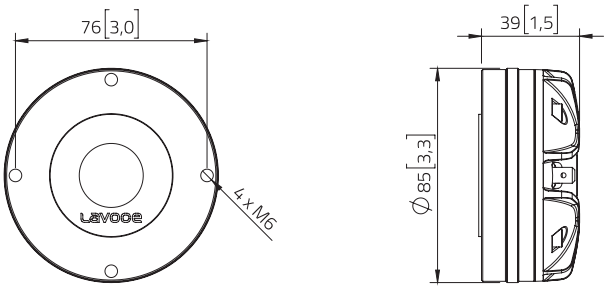
SHIPPING INFORMATION

Net weight	kg (lb.)	0,9 (1.9)
Multipack size (9) **W x D x H**	mm (in.)	410 x 380 x 100 (16.1 x 14.9 x 3.9)
Multipack weight	kg (lb.)	9,41(20.7)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1500-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1200 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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DN10.172KS

1" COMPRESSION DRIVER

NEODYMIUM MAGNET

- 1.7 INCH EDGEWOUND CCA VOICE COIL
- 110 dB/SPL SENSITIVITY
- 110 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1200 - 20000 Hz FREQUENCY RANGE
- POLYIMIDE DIAPHRAGM
- SCREW-ON FITTING FOR 1-3/8 INCH-18 TPI THREADED HORNS

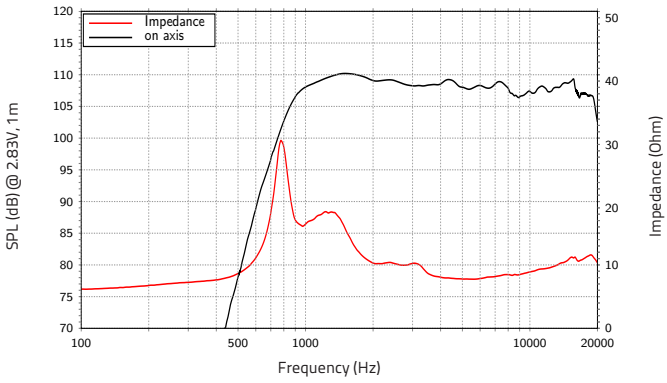
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,8
Program power (1)	W	110
AES Power rating (2)	W	55
Sensitivity (3)	dB	110
Frequency range	Hz	1200 ÷ 20000
Voice coil diameter	mm (in.)	44,4 (1.7)
Magnet material	Neodymium	
Magnet OD	mm (in.)	85 (3.3)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Polyimide	
Surround material	Polyimide, vented	
Voice coil Inductance	mH	0,08
Flux density	T	1,95
Recommended crossover (4)	Hz	1500
Driver displacement volume	l (ft³)	0,2 (0.007)

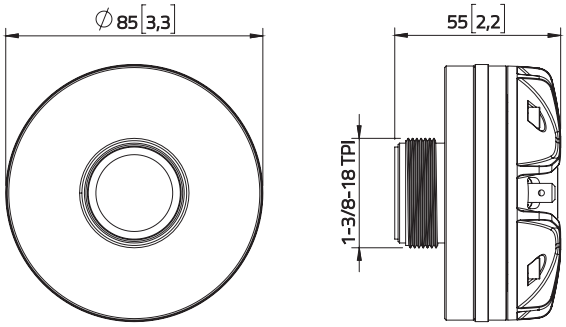
SHIPPING INFORMATION

Net weight	kg (lb.)	0,9 (1.98)
Multipack size (12) W x D x H	mm (in.)	376 x 278 x 167 (14.8 x 10.9 x 6.6)
Multipack weight	kg (lb.)	12,9 (28.4)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1500-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1200 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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DN14.25T

1.4” COMPRESSION DRIVER

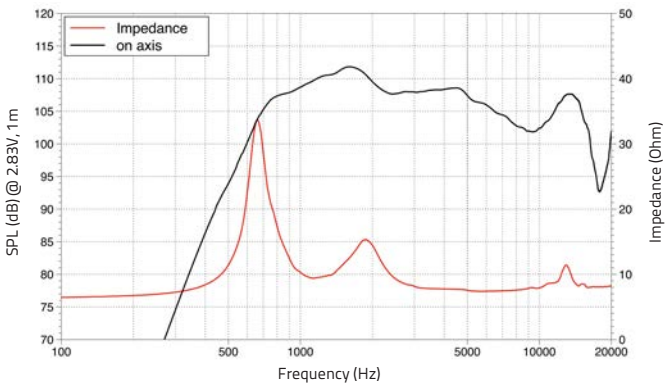
NEODYMIUM MAGNET

- 2.5 INCH EDGEWOUND CCA VOICE COIL
- 108 dB/SPL SENSITIVITY
- 160 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1000 – 18000 Hz FREQUENCY RANGE
- TITANIUM DIAPHRAGM
- PATENTED IIS INTEGRAL INPUT SURFACE PHASEPLUG
- ALTERNATIVE IMPEDANCE: 16 OHM

GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	36 (1.4)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,8
Program power (1)	W	160
AES Power rating (2)	W	80
Sensitivity (3)	dB	108
Frequency range	Hz	1000 ÷ 18000
Voice coil diameter	mm (in.)	65 (2.5)
Magnet material	Neodymium	
Magnet OD	mm (in.)	110 (4.3)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Titanium	
Surround material	Titanium	
Voice coil Inductance	mH	0,11
Flux density	T	1,9
Recommended crossover (4)	Hz	1200
Driver displacement volume	l (ft³)	0,4 (0.015)

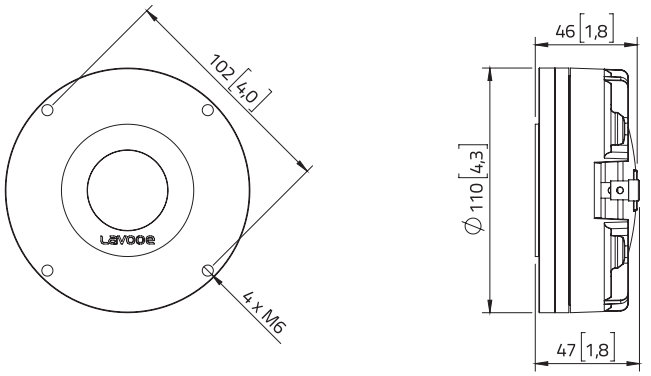
FREQUENCY RESPONSE



SHIPPING INFORMATION

Net weight	kg (lb.)	1,3 (2.8)
Multipack size (9) W x D x H	mm (in.)	455 x 426 x 120 (17.9 x 16.8 x 4.7)
Multipack weight	kg (lb.)	13,3 (29.3)

DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1600-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1403 horn, SPL averaged in the frequency range 1000 ÷ 18000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana

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DN14.30T

1.4" COMPRESSION DRIVER

NEODYMIUM MAGNET

- 3 INCH EDGEWOUND CCA VOICE COIL
- 108 dB/SPL SENSITIVITY
- 220 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 500 - 18000 Hz FREQUENCY RANGE
- TITANIUM DIAPHRAGM
- PATENTED IIS INTEGRAL INPUT SURFACE PHASEPLUG
- ALTERNATIVE IMPEDANCE: 16 OHM

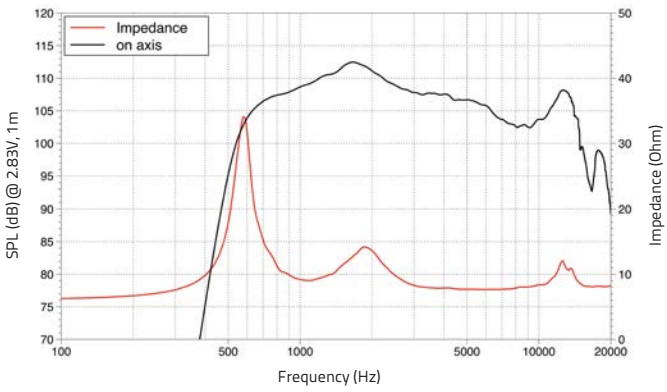
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	36 (1.4)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,6
Program power (1)	W	220
AES Power rating (2)	W	110
Sensitivity (3)	dB	108
Frequency range	Hz	500 ÷ 18000
Voice coil diameter	mm (in.)	75 (3)
Magnet material	Neodymium	
Magnet OD	mm (in.)	115 (4.5)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Titanium	
Surround material	Titanium	
Voice coil Inductance	mH	0,1
Flux density	T	1,9
Recommended crossover (4)	Hz	1200
Driver displacement volume	l (ft³)	0,5 (0.018)

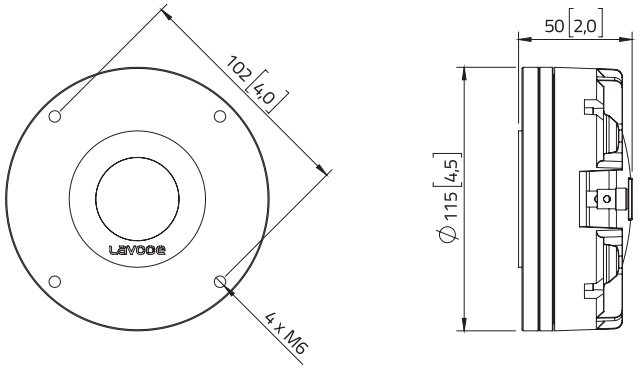
SHIPPING INFORMATION

Net weight	kg (lb.)	1,4 (3.1)
Multipack size (9) W x D x H	mm (in.)	460 x 430 x 100 (18.1 x 16.9 x 3.9)
Multipack weight	kg (lb.)	14,8 (32.6)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1000-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1403 horn, SPL averaged in the frequency range 500 ÷ 18000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

DN14.301T

1.4” COMPRESSION DRIVER

NEODYMIUM MAGNET

- 3 INCH EDGEWOUND CCA VOICE COIL
- 108 dB/SPL SENSITIVITY
- 220 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 500 – 20000 Hz FREQUENCY RANGE
- TITANIUM DIAPHRAGM AND SURROUND
- PATENTED IIS INTEGRAL INPUT SURFACE PHASEPLUG
- COMPACT SIZE 120 mm DIAMETER

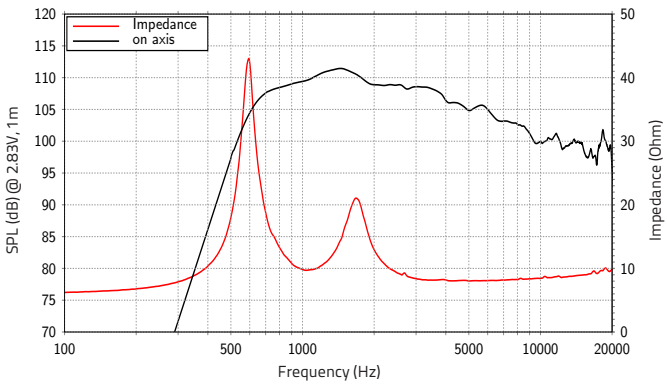
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	36 (1.4)
Nominal impedance	Ω	8
Minimum impedance	Ω	8
Program power (1)	W	220
AES Power rating (2)	W	110
Sensitivity (3)	dB	108
Frequency range	Hz	500 ÷ 20000
Voice coil diameter	mm (in.)	75 (3)
Magnet material	Neodymium	
Magnet OD	mm (in.)	120 (4.7)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Titanium	
Surround material	Titanium	
Voice coil Inductance	mH	0,09
Flux density	T	2
Recommended crossover (4)	Hz	1200
Driver displacement volume	l (ft³)	0,5 (0.018)

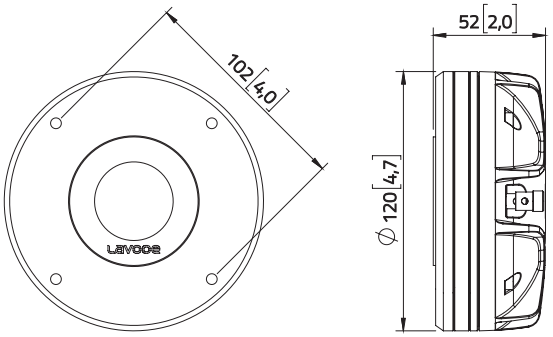
SHIPPING INFORMATION

Net weight	kg (lb.)	1,9 (4.2)
Multipack size (8) W x D x H	mm (in.)	345 x 315 x 162 (13.6 x 12.4 x 6.4)
Multipack weight	kg (lb.)	16,6 (36.6)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1200-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1403 horn, SPL averaged in the frequency range 800 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana

sales@lavocespeakers.com sales.cn@lavocespeakers.com

DN14.30TK

1.4” COMPRESSION DRIVER

NEODYMIUM MAGNET

- 3 INCH EDGEWOUND CCA VOICE COIL
- 108 dB/SPL SENSITIVITY
- 220 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 500 - 20000 Hz FREQUENCY RANGE
- TITANIUM DIAPHRAGM AND POLYIMIDE SURROUND
- PATENTED IIS INTEGRAL INPUT SURFACE PHASEPLUG

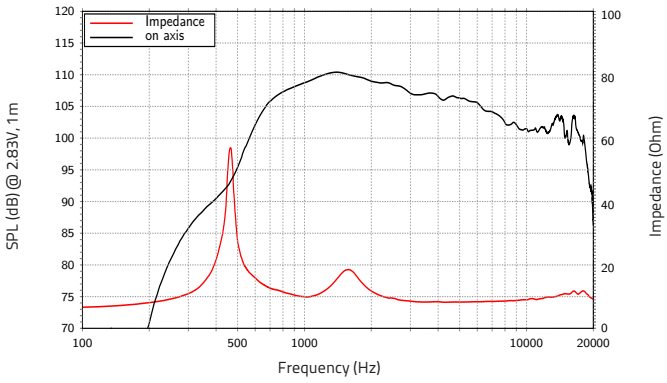
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	36 (1.4)
Nominal impedance	Ω	8
Minimum impedance	Ω	8
Program power (1)	W	220
AES Power rating (2)	W	110
Sensitivity (3)	dB	108
Frequency range	Hz	500 ÷ 20000
Voice coil diameter	mm (in.)	75 (3)
Magnet material	Neodymium	
Magnet OD	mm (in.)	120 (4.7)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Titanium	
Surround material	Polyimide	
Voice coil Inductance	mH	0,09
Flux density	T	2
Recommended crossover (4)	Hz	1200
Driver displacement volume	l (ft³)	0,4 (0.01)

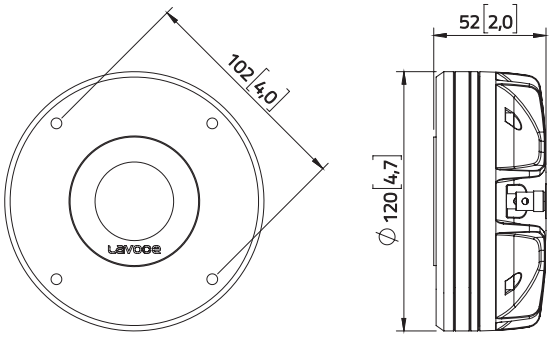
SHIPPING INFORMATION

Net weight	kg (lb.)	1,9 (4.2)
Multipack size (8) W x D x H	mm (in.)	340 x 310 x 152 (13.4 x 12.2 x 6)
Multipack weight	kg (lb.)	16,6 (36.6)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1000-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1403 horn, SPL averaged in the frequency range 500 ÷ 18000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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DN14.300T

1.4” COMPRESSION DRIVER

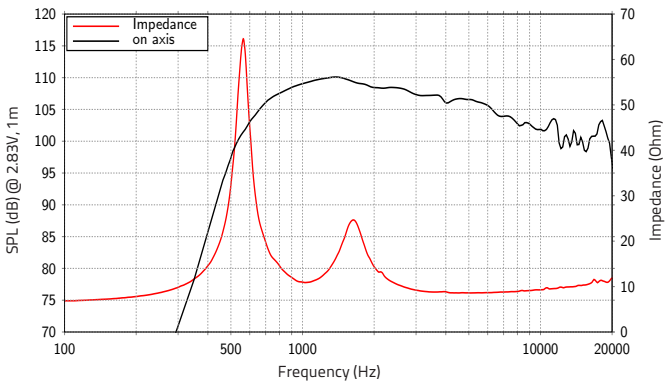
NEODYMIUM MAGNET

- 3 INCH EDGEWOUND CCA VOICE COIL
- 109 dB/SPL SENSITIVITY
- 220 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 500 - 20000 Hz FREQUENCY RANGE
- TITANIUM DIAPHRAGM
- PATENTED IIS INTEGRAL INPUT SURFACE PHASEPLUG
- ALTERNATIVE IMPEDANCE: 16 OHM

GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	36 (1.4)
Nominal impedance	Ω	8
Minimum impedance	Ω	8
Program power (1)	W	220
AES Power rating (2)	W	110
Sensitivity (3)	dB	109
Frequency range	Hz	500 ÷ 20000
Voice coil diameter	mm (in.)	75 (3)
Magnet material	Neodymium	
Magnet OD	mm (in.)	130 (5.1)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Titanium	
Surround material	Titanium	
Voice coil Inductance	mH	0,09
Flux density	T	2,1
Recommended crossover (4)	Hz	1200
Driver displacement volume	l (ft³)	0,5 (0.018)

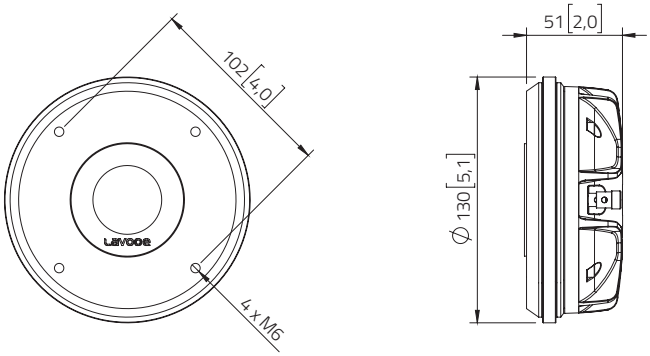
FREQUENCY RESPONSE



SHIPPING INFORMATION

Net weight	kg (lb.)	2,1 (4.6)
Multipack size (9) W x D x H	mm (in.)	510 x 474 x 100 (20.1 x 18.7 x 3.9)
Multipack weight	kg (lb.)	20 (44.1)

DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1200-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1403 horn, SPL averaged in the frequency range 800 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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DN14.300TK

1.4” COMPRESSION DRIVER

NEODYMIUM MAGNET

- 3 INCH EDGEWOUND CCA VOICE COIL
- 109 dB/SPL SENSITIVITY
- 220 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 500 – 20000 Hz FREQUENCY RANGE
- TITANIUM DIAPHRAGM AND POLYIMIDE SURROUND
- PATENTED IIS INTEGRAL INPUT SURFACE PHASEPLUG

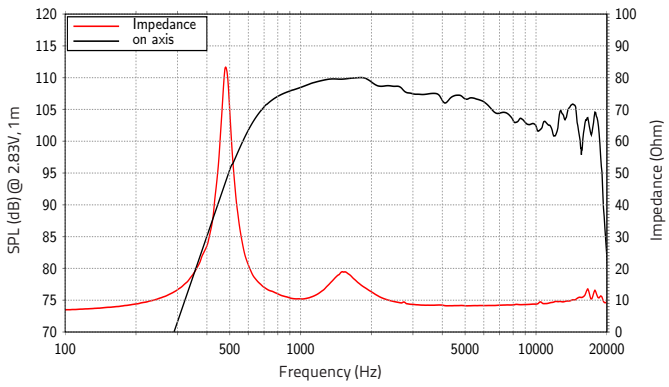
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	36 (1.4)
Nominal impedance	Ω	8
Minimum impedance	Ω	8
Program power (1)	W	220
AES Power rating (2)	W	110
Sensitivity (3)	dB	109
Frequency range	Hz	500 ÷ 20000
Voice coil diameter	mm (in.)	75 (3)
Magnet material	Neodymium	
Magnet OD	mm (in.)	130 (5.1)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Titanium	
Surround material	Polyimide	
Voice coil Inductance	mH	0,09
Flux density	T	2,1
Recommended crossover (4)	Hz	1200
Driver displacement volume	l (ft³)	0,5 (0.018)

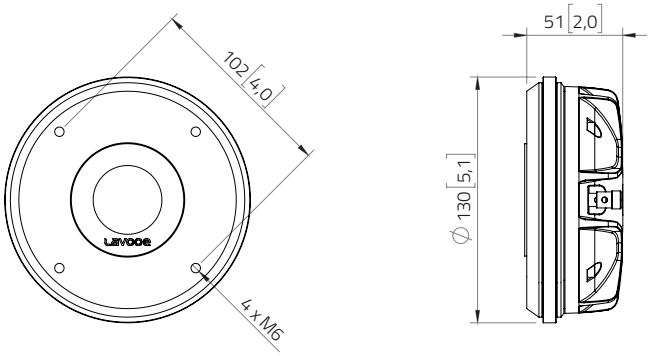
SHIPPING INFORMATION

Net weight	kg (lb.)	2 (4.4)
Multipack size (8) W x D x H	mm (in.)	345 x 315 x 162 (13.6 x 12.4 x 6.4)
Multipack weight	kg (lb.)	17,5 (38.6)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1200-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1403 horn, SPL averaged in the frequency range 800 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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DN20.300T

2” COMPRESSION DRIVER

NEODYMIUM MAGNET

PRELIMINARY

- 3 INCH EDGEWOUND CCA VOICE COIL
- 109 dB/SPL SENSITIVITY
- 220 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 500 - 20000 Hz FREQUENCY RANGE
- TITANIUM DIAPHRAGM
- PATENTED IIS INTEGRAL INPUT SURFACE PHASEPLUG

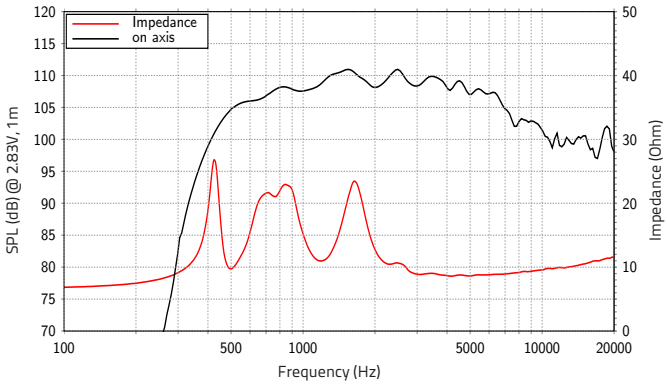
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	50 (2.0)
Nominal impedance	Ω	8
Minimum impedance	Ω	8
Program power (1)	W	220
AES Power rating (2)	W	110
Sensitivity (3)	dB	108,5
Frequency range	Hz	500 ÷ 20000
Voice coil diameter	mm (in.)	75 (3)
Magnet material	Neodymium	
Magnet OD	mm (in.)	130 (5.1)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Titanium	
Surround material	Titanium	
Voice coil Inductance	mH	0,09
Flux density	T	2,1
Recommended crossover (4)	Hz	800
Driver displacement volume	l (ft³)	0,8 (0.028)

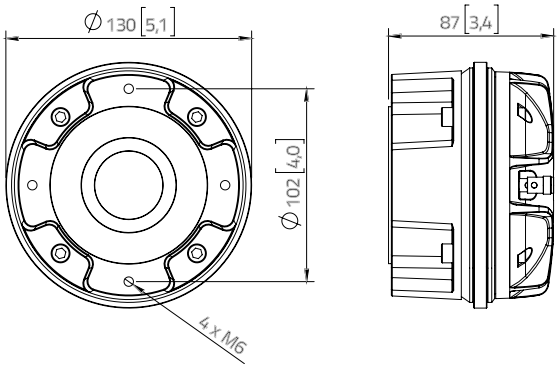
SHIPPING INFORMATION

Net weight	kg (lb.)	2,2 (4.9)
Multipack size (8) W x D x H	mm (in.)	389 x 367 x 248 (15.3 x 14.4 x 9.8)
Multipack weight	kg (lb.)	19,5 (43)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1200-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1403 horn, SPL averaged in the frequency range 800 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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DN14.40T

1.4" COMPRESSION DRIVER

NEODYMIUM MAGNET

- 4 INCH EDGEWOUND CCA VOICE COIL
- 109 dB/SPL SENSITIVITY
- 260 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 500 - 20000 Hz FREQUENCY RANGE
- TITANIUM DIAPHRAGM
- PATENTED IIS INTEGRAL INPUT SURFACE PHASEPLUG

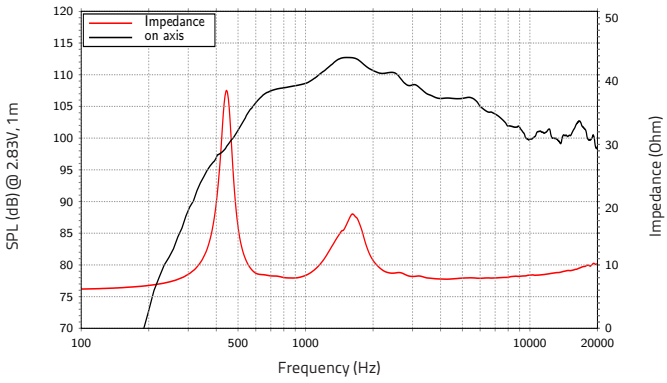
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	36 (1.4)
Nominal impedance	Ω	8
Minimum impedance	Ω	8.0
Program power (1)	W	260
AES Power rating (2)	W	130
Sensitivity (3)	dB	109
Frequency range	Hz	500 ÷ 20000
Voice coil diameter	mm (in.)	100 (4)
Magnet material	Neodymium	
Magnet OD	mm (in.)	140 (5.5)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Titanium	
Surround material	Titanium	
Voice coil Inductance	mH	0,17
Flux density	T	1,9
Recommended crossover (4)	Hz	800
Driver displacement volume	l (ft³)	0,7 (0.025)

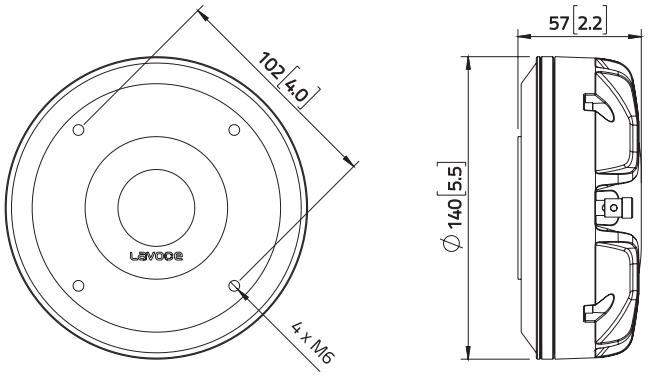
SHIPPING INFORMATION

Net weight	kg (lb.)	2,0 (4.4)
Multipack size (9) W x D x H	mm (in.)	568 x 547 x 108 (22.4 x 21.5 x 4.1)
Multipack weight	kg (lb.)	21,35 (47.1)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (800-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1403 horn, SPL averaged in the frequency range 500 ÷ 18000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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DN20.40T

2" COMPRESSION DRIVER

NEODYMIUM MAGNET

- 4 INCH EDGEWOUND CCA VOICE COIL
- 108 dB/SPL SENSITIVITY
- 260 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 500 - 20000 Hz FREQUENCY RANGE
- TITANIUM DIAPHRAGM
- PATENTED IIS INTEGRAL INPUT SURFACE PHASEPLUG

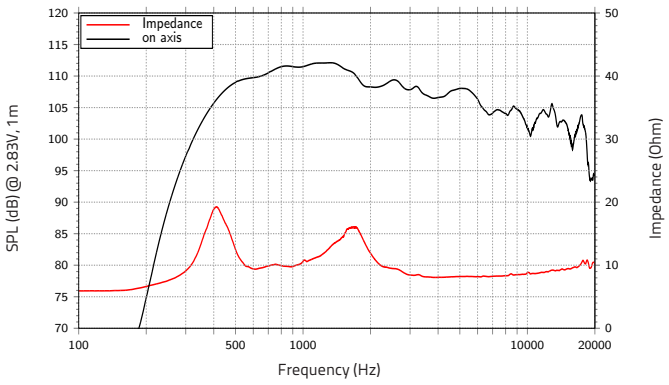
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	50 (2.0)
Nominal impedance	Ω	8
Minimum impedance	Ω	8.0
Program power (1)	W	260
AES Power rating (2)	W	130
Sensitivity (3)	dB	108
Frequency range	Hz	500 ÷ 20000
Voice coil diameter	mm (in.)	100 (4)
Magnet material	Neodymium	
Magnet OD	mm (in.)	140 (5.5)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Titanium	
Surround material	Titanium	
Voice coil Inductance	mH	0.17
Flux density	T	1,9
Recommended crossover (4)	Hz	800
Driver displacement volume	l (ft³)	0,7 (0.025)

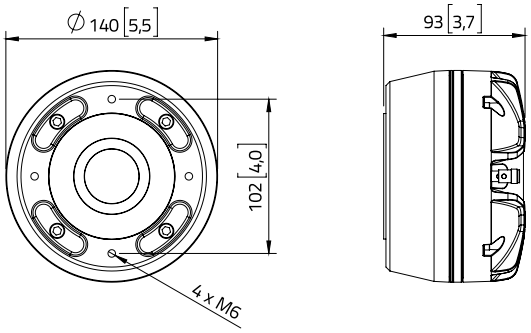
SHIPPING INFORMATION

Net weight	kg (lb.)	2,4 (5.3)
Multipack size (8) W x D x H	mm (in.)	570 x 538 x 103 (2.24 x 21.2 x 4.1)
Multipack weight	kg (lb.)	21 (46.3)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (800-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with Lavoce lab exponential horn, SPL averaged in the frequency range 500 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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EXACTING STANDARDS

FERRITE HIGH FREQUENCY COMPRESSION DRIVERS

Our impressive range of Ferrite HF Compression Drivers have been designed to be robust and versatile to use, and now includes DF10.143 with an annular diaphragm design. All models are designed for a cutting-edge price-performance ratio and have high power handling, low distortion, and linear frequency trends, delivering the precise and exacting qualities to become industry standards.

Product name	Throath mm (in.)	Magnet material	Voice coil mm (in.)	Sensitivity dB	AES Power W	Freq. range Hz	Diaphragm material	Rec. Xover Hz	Impedance Ω	Magnet OD mm (in.)	Net weight kg (lb.)	Horn fitting
BF10.10LA	-	Ferrite	25,4 (1)	106	20	2500 - 18000	Aluminium	5000	8	72 (2.8)	0,6 (1.3)	Bolt-on
DF10.101LE	25,4 (1)	Ferrite	25,4 (1)	106	15	1500 - 20000	Polymer	2000	8	70 (2.8)	0,47 (1.04)	Bolt-on
DF10.101LM	25,4 (1)	Ferrite	25,4 (1)	107	15	1500 - 18000	Polyester	2500	8	85 (3.3)	0,8 (1.7)	Bolt-on
DF10.101L	25,4 (1)	Ferrite	25,4 (1)	107	20	1500 - 18000	Polymer	2500	8	85 (3.3)	0,8 (1.7)	Bolt-on
DF10.101LS	25,4 (1)	Ferrite	25 (1)	107	20	1500 - 18000	Polymer	2500	8	85 (3.3)	0,8 (1.7)	Screw-on
DF10.142LM	25,4 (1)	Ferrite	35 (1.4)	106	30	1500 - 20000	Polyester	2200	8	90 (3.5)	0,9 (2.0)	Bolt-on
DF10.14	25,4 (1)	Ferrite	36 (1.4)	106	30	1500 - 20000	Polymer	1700	8 [16]	90 (3.5)	1 (2.2)	Bolt-on
DF10.142LK	25,4 (1)	Ferrite	35 (1.4)	106	35	1500 - 20000	Polyimide	2200	8	90 (3.5)	0,9 (2.0)	Bolt-on
DF10.142LKS	25,4 (1)	Ferrite	35 (1.4)	106	35	1500 - 20000	Polyimide	2200	8	90 (3.5)	1 (2.2)	Screw-on
DF10.143	25,4 (1)	Ferrite	38 (1.5)	107,5	35	1200 - 20000	Polymer	1800	8	90 (3.5)	1 (2.2)	Bolt-on
DF10.144LK	25,4 (1)	Ferrite	35 (1.4)	106	35	1000 - 20000	Polyimide	1200	8	90 (3.5)	0,9 (2)	Bolt-on
DF10.171M	25,4 (1)	Ferrite	44,4 (1.7)	106,5	45	1200 - 20000	Polyester	2000	8	100 (3.94)	1,4 (3.1)	Bolt-on
DF10.172M	25,4 (1)	Ferrite	44,4 (1.7)	108	50	1000 - 20000	Polyester	2000	8	114 (4.5)	1,7 (3.7)	Bolt-on
DF10.17	25,4 (1)	Ferrite	44,4 (1.7)	108	60	1200 - 18000	Polymer	1600	8	102 (4.0)	1,6 (3.5)	Bolt-on
DF10.171K	25,4 (1)	Ferrite	44,4 (1.7)	106,5	55	1200 - 20000	Polyimide	2000	8	100 (3.93)	1,4 (3.1)	Bolt-on
DF10.172K	25,4 (1)	Ferrite	44,4 (1.7)	108,5	60	1000 - 20000	Polyimide	1600	8	114 (4.5)	1,7 (3.5)	Bolt-on
DF10.172KS	25,4 (1)	Ferrite	44,4 (1.7)	108,5	60	1000 - 20000	Polyimide	1600	8	114 (4.5)	1,7 (3.7)	Screw-on
DF14.30T	36 (1.4)	Ferrite	75 (3)	107,5	110	500 - 18000	Titanium	1000	8	165 (6.5)	4,2 (9.3)	Bolt-on
DF14.300T	36 (1.4)	Ferrite	75 (3)	107,5	110	500 - 20000	Titanium	1200	8	165 (6.5)	4,3 (9.4)	Bolt-on
DF20.30T	50 (2)	Ferrite	75 (3)	107,5	110	500 - 18000	Titanium	1000	8	165 (6.5)	4,1 (9)	Bolt-on

Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

BF10.10LA

1” COMPRESSION TWEETER

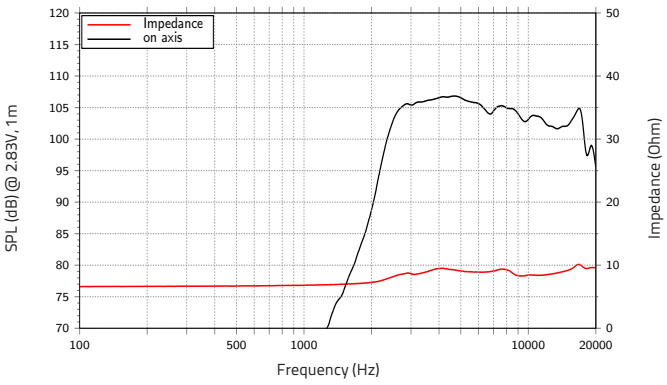
FERRITE MAGNET

- 1 INCH CCAW VOICE COIL
- 106 dB/SPL SENSITIVITY
- 40 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 2500 - 18000 Hz FREQUENCY RANGE
- ALUMINIUM DIAPHRAGM

GENERAL SPECIFICATIONS

Nominal impedance	Ω	8
Minimum impedance	Ω	7,5
Program power (1)	W	40
AES Power rating (2)	W	20
Sensitivity (3)	dB	106
Frequency range	Hz	2500 ÷ 18000
Voice coil diameter	mm (in.)	25,4 (1)
Magnet material	Ferrite	
Magnet OD	mm (in.)	72 (2.8)
Coil material	CCAW	
Former material	Kapton	
Diaphragm material	Aluminium	
Surround material	Aluminium	
Voice coil Inductance	mH	0,03
Flux density	T	1,5
Recommended crossover (4)	Hz	5000
Driver displacement volume	l (ft^3)	0,2 (0.007)

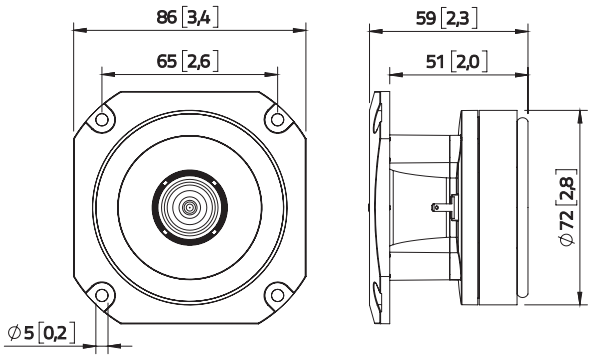
FREQUENCY RESPONSE



SHIPPING INFORMATION

Net weight	kg (lb.)	0,6 (1.3)
Multipack size (12) W x D x H	mm (in.)	375 x 290 x 180 (14.8 x 11.4 x 7.1)
Multipack weight	kg (lb.)	8,4 (18.5)

DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested 2h with continuous, band-limited (5000-20000 Hz, 12dB/oct.) pink noiseas per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, SPL averaged in the frequency range 2500 ÷ 18000 Hz. **(4)** Highpass filter with slope 12dB/oct. or higher.

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DF10.101LE

1” COMPRESSION DRIVER

FERRITE MAGNET

- 1 INCH CCAW VOICE COIL
- 106 dB/SPL SENSITIVITY
- 30 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1500 - 20000 Hz FREQUENCY RANGE
- HIGH TEMPERATURE POLYMER DIAPHRAGM AND SURROUND
- COMPACT SIZE 70 mm DIAMETER

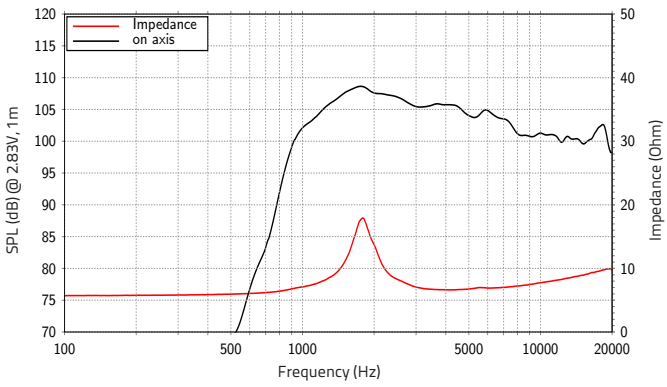
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	6
Program power (1)	W	30
AES Power rating (2)	W	15
Sensitivity (3)	dB	106
Frequency range	Hz	1500 ÷ 20000
Voice coil diameter	mm (in.)	25,4 (1)
Magnet material	Ferrite	
Magnet OD	mm (in.)	70 (2.8)
Coil material	CCAW	
Former material	Kapton	
Diaphragm material	High Temperature Polymer	
Surround material	High Temperature Polymer	
Voice coil Inductance	mH	0,09
Flux density	T	1,35
Recommended crossover (4)	Hz	2000
Driver displacement volume	l (ft³)	0,1 (0.0035)

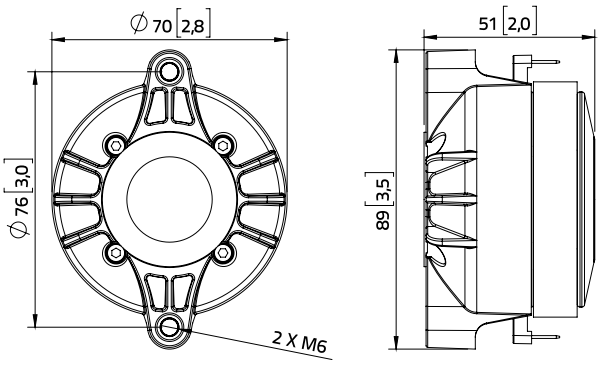
SHIPPING INFORMATION

Net weight	kg (lb.)	0,47 (1.04)
Multipack size (24) W x D x H	mm (in.)	460 x 267 x 158 (18.1 x 10.5 x 6.2)
Multipack weight	kg (lb.)	12,9 (28.4)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (2000-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1500 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF10.101LM

1" COMPRESSION DRIVER

FERRITE MAGNET

- 1 INCH CCAW VOICE COIL
- 107 dB/SPL SENSITIVITY
- 30 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1500 - 18000 Hz FREQUENCY RANGE
- POLYESTER DIAPHRAGM

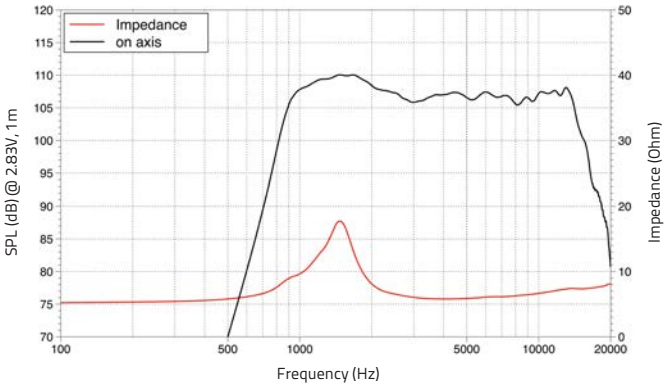
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,0
Program power (1)	W	30
AES Power rating (2)	W	15
Sensitivity (3)	dB	107
Frequency range	Hz	1500 ÷ 18000
Voice coil diameter	mm (in.)	25,4 (1)
Magnet material	Ferrite	
Magnet OD	mm (in.)	85 (3.3)
Coil material	CCAW	
Former material	Kapton	
Diaphragm material	Polyester	
Surround material	Polyester	
Voice coil Inductance	mH	0,03
Flux density	T	1,5
Recommended crossover (4)	Hz	2500
Driver displacement volume	l (ft³)	0,2 (0.007)

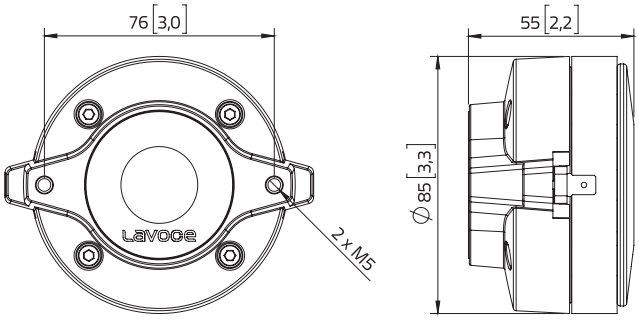
SHIPPING INFORMATION

Net weight	kg (lb.)	0,8 (1.7)
Multipack size (12) W x D x H	mm (in.)	505 x 475 x 100 (19.9 x 18.7 x 3.9)
Multipack weight	kg (lb.)	11,5 (25.2)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited (2500-20000 Hz, 12dB/oct.) pink noise signal as per AES 2-1984 Rev. 2003. **(3)** Driver mounted on HD1003 horn. **(4)** Measured on axis at 2.83V, 1m, SPL averaged in the frequency range 1500 ÷ 18000 Hz. **(5)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF10.101L

1" COMPRESSION DRIVER

FERRITE MAGNET

- 1 INCH CCAW VOICE COIL
- 107 dB/SPL SENSITIVITY
- 40 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1500 - 18000 Hz FREQUENCY RANGE
- HIGH TEMPERATURE POLYMERIC DIAPHRAGM

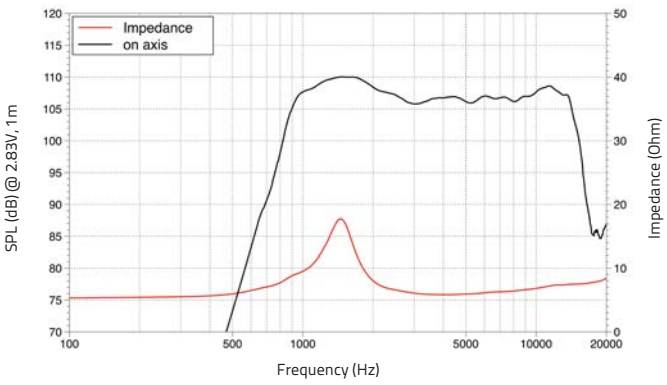
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,0
Program power (1)	W	40
AES Power rating (2)	W	20
Sensitivity (3)	dB	107
Frequency range	Hz	1500 ÷ 18000
Voice coil diameter	mm (in.)	25,4 (1)
Magnet material	Ferrite	
Magnet OD	mm (in.)	85 (3.3)
Coil material	CCAW	
Former material	Kapton	
Diaphragm material	High temperature polymer	
Surround material	High temperature polymer	
Voice coil Inductance	mH	0,03
Flux density	T	1,5
Recommended crossover (4)	Hz	2500
Driver displacement volume	l (ft³)	0,2 (0.007)

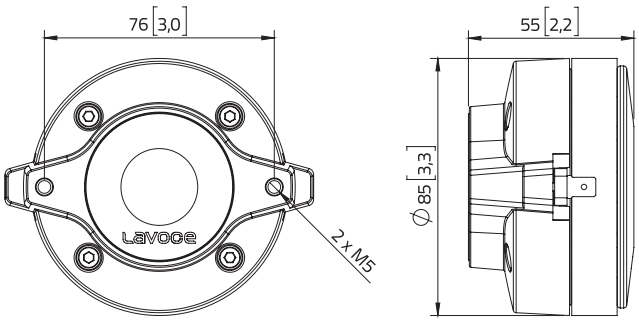
SHIPPING INFORMATION

Net weight	kg (lb.)	0,8 (1.7)
Multipack size (12) W x D x H	mm (in.)	510 x 425 x 100 (20.1 x 16.7 x 3.9)
Multipack weight	kg (lb.)	11,5 (25.2)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited (2500-20000 Hz, 12dB/oct.) pink noise signal as per AES 2-1984 Rev. 2003. **(3)** Driver mounted on HD1003 horn. **(4)** Measured on axis at 2.83V, 1m, SPL averaged in the frequency range 1500 ÷ 18000 Hz. **(5)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF10.101LS

1” COMPRESSION DRIVER

FERRITE MAGNET

- 1 INCH CCAW VOICE COIL
- 107 dB/SPL SENSITIVITY
- 40 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1500 - 18000 Hz FREQUENCY RANGE
- HIGH TEMPERATURE POLYMERIC DIAPHRAGM
- SCREW-ON FITTING FOR 1-3/8 INCH-18 TPI THREADED HORNS

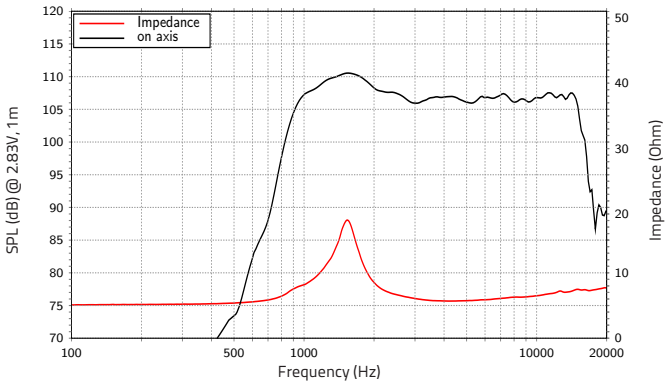
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	6
Program power (1)	W	40
AES Power rating (2)	W	20
Sensitivity (3)	dB	107
Frequency range	Hz	1500 - 18000
Voice coil diameter	mm (in.)	25 (1)
Magnet material	Ferrite	
Magnet OD	mm (in.)	85 (3.3)
Coil material	CCAW	
Former material	Kapton	
Diaphragm material	High temperature polymer	
Surround material	High temperature polymer	
Voice coil Inductance	mH	0,03
Flux density	T	1,5
Recommended crossover (4)	Hz	2500
Driver displacement volume	l (ft³)	0,2 (0.007)

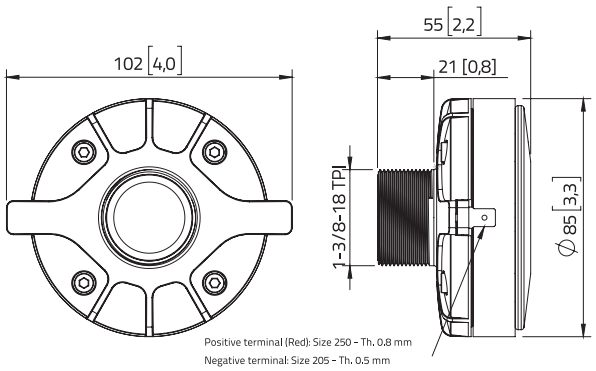
SHIPPING INFORMATION

Net weight	kg (lb.)	0,75 (1.7)
Multipack size (12) W x D x H	mm (in.)	415 x 260 x 160 (16.3 x 10.2 x 6.3)
Multipack weight	kg (lb.)	10,5 (23.1)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited (2500-20000 Hz, 12dB/oct.) pink noise signal as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1500 ÷18000 Hz **(4)** High pass filter with slope 12dB/oct. or higher.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF10.142LM

1” COMPRESSION DRIVER

FERRITE MAGNET

- 1.4 INCH CCAW VOICE COIL
- 106 dB/SPL SENSITIVITY
- 60 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1500 – 20000 Hz FREQUENCY RANGE
- POLYESTER DIAPHRAGM

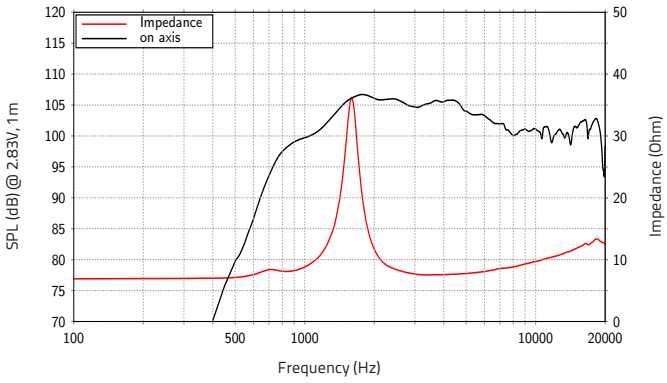
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,4
Program power (1)	W	60
AES Power rating (2)	W	30
Sensitivity (3)	dB	106
Frequency range	Hz	1500 ÷ 20000
Voice coil diameter	mm (in.)	35 (1.4)
Magnet material	Ferrite	
Magnet OD	mm (in.)	90 (3.5)
Coil material	CCAW	
Former material	Kapton	
Diaphragm material	Polyester	
Surround material	Polyester	
Voice coil Inductance	mH	0,09
Flux density	T	1,5
Recommended crossover (4)	Hz	2200
Driver displacement volume	l (ft³)	0,2 (0.007)

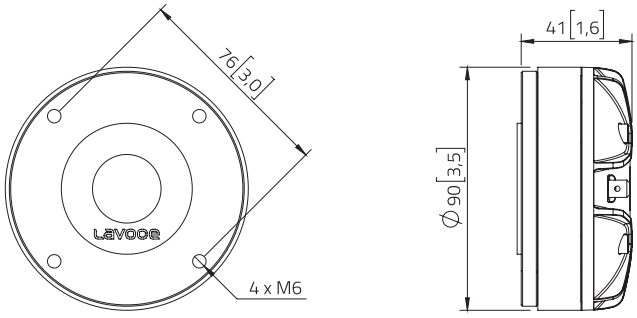
SHIPPING INFORMATION

Net weight	kg (lb.)	0,9 (2.0)
Multipack size (12) W x D x H	mm (in.)	510 x 420 x 90 (20.1 x 16.5 x 3.5)
Multipack weight	kg (lb.)	13,5 (29.7)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (2200-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1500 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF10.14

1” COMPRESSION DRIVER

FERRITE MAGNET

- 1.4 INCH EDGEWOUND CCA VOICE COIL
- 106 dB/SPL SENSITIVITY
- 60 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1500 - 20000 Hz FREQUENCY RANGE
- HIGH TEMPERATURE POLYMERIC DIAPHRAGM
- ALTERNATIVE IMPEDANCE: 16 OHM

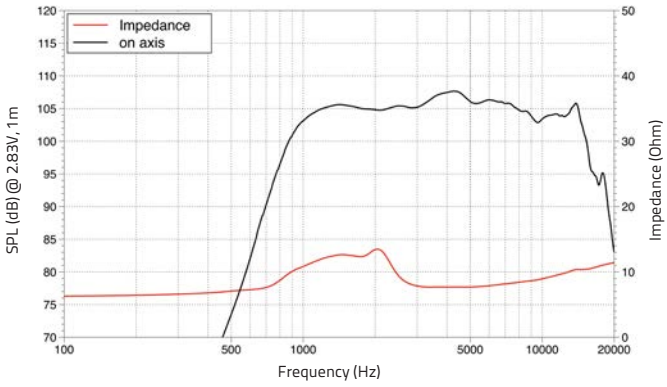
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,4
Program power (1)	W	60
AES Power rating (2)	W	30
Sensitivity (3)	dB	106
Frequency range	Hz	1500 ÷ 20000
Voice coil diameter	mm (in.)	36 (1.4)
Magnet material	Ferrite	
Magnet OD	mm (in.)	90 (3.5)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	High temperature polymer	
Surround material	High temperature polymer, vented	
Voice coil Inductance	mH	0,09
Flux density	T	1,5
Recommended crossover (4)	Hz	1700
Driver displacement volume	l (ft³)	0,3 (0.010)

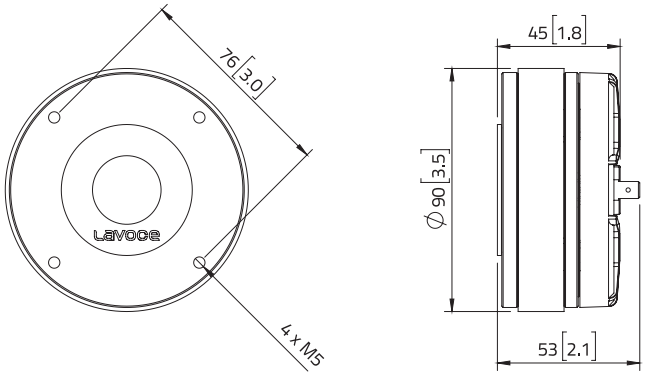
SHIPPING INFORMATION

Net weight	kg (lb.)	1 (2.2)
Multipack size (12) W x D x H	mm (in.)	500 x 420 x 115 (19.7 x 16.5 x 4.5)
Multipack weight	kg (lb.)	14,2 (31.3)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1700-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1500 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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DF10.142LK

1” COMPRESSION DRIVER

FERRITE MAGNET

- 1.4 INCH CCAW VOICE COIL
- 106 dB/SPL SENSITIVITY
- 70 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1500 - 20000 Hz FREQUENCY RANGE
- POLYIMIDE DIAPHRAGM

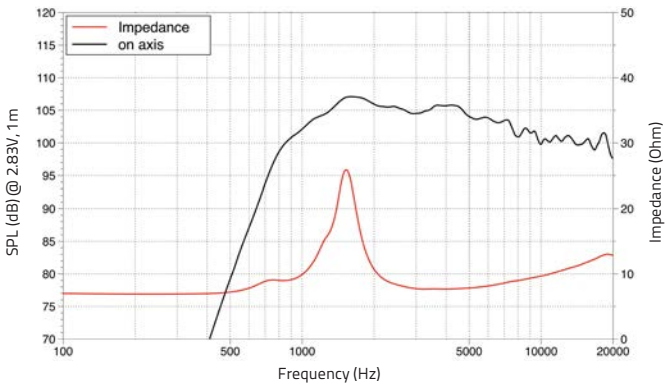
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,4
Program power (1)	W	70
AES Power rating (2)	W	35
Sensitivity (3)	dB	106
Frequency range	Hz	1500 ÷ 20000
Voice coil diameter	mm (in.)	35 (1.4)
Magnet material	Ferrite	
Magnet OD	mm (in.)	90 (3.5)
Coil material	CCAW	
Former material	Kapton	
Diaphragm material	Polyimide	
Surround material	Polyimide	
Voice coil Inductance	mH	0,09
Flux density	T	1,5
Recommended crossover (4)	Hz	2200
Driver displacement volume	l (ft³)	0,2 (0.007)

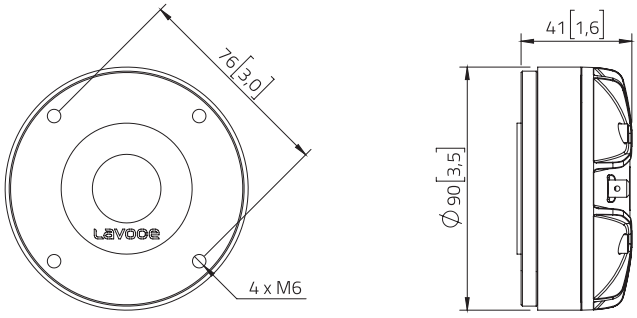
SHIPPING INFORMATION

Net weight	kg (lb.)	0,9 (2.0)
Multipack size (12) W x D x H	mm (in.)	500 x 425 x 90 (19.7 x 16.7 x 3.5)
Multipack weight	kg (lb.)	13,5 (29.7)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (2200-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1500 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF10.142LKS

1" COMPRESSION DRIVER

FERRITE MAGNET

- 1.4 INCH CCAW VOICE COIL
- 106 dB/SPL SENSITIVITY
- 70 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1500 - 20000 Hz FREQUENCY RANGE
- POLYIMIDE DIAPHRAGM
- SCREW-ON FITTING FOR 1-3/8 INCH-18 TPI THREADED HORNS

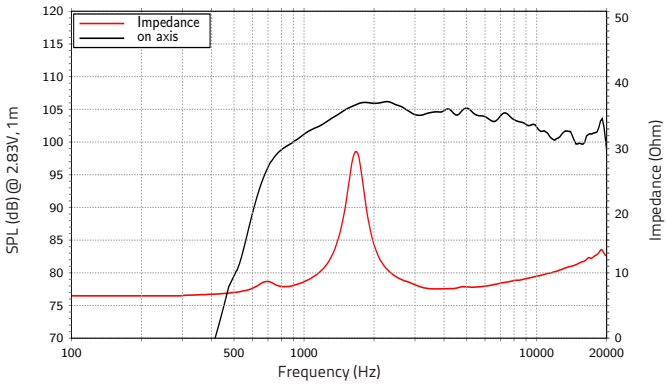
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,4
Program power (1)	W	70
AES Power rating (2)	W	35
Sensitivity (3)	dB	106
Frequency range	Hz	1500 ÷ 20000
Voice coil diameter	mm (in.)	35 (1.4)
Magnet material	Ferrite	
Magnet OD	mm (in.)	90 (3.5)
Coil material	CCAW	
Former material	Kapton	
Diaphragm material	Polyimide	
Surround material	Polyimide	
Voice coil Inductance	mH	0,09
Flux density	T	1,5
Recommended crossover (4)	Hz	2200
Driver displacement volume	l (ft³)	0,2 (0.007)

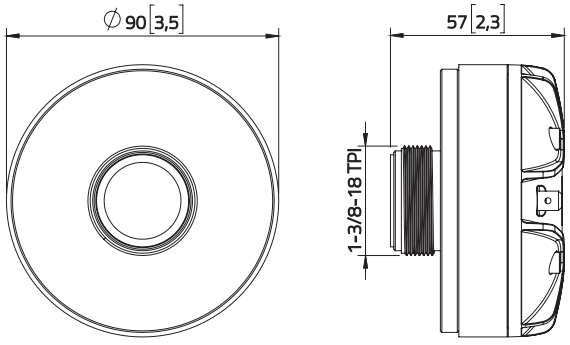
SHIPPING INFORMATION

Net weight	kg (lb.)	1 (2.2)
Multipack size (12) W x D x H	mm (in.)	376 x 278 x 167 (14.8 x 10.9 x 6.6)
Multipack weight	kg (lb.)	13,8 (30.4)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (2200-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1500 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF10.143

1” ANNULAR COMPRESSION DRIVER

FERRITE MAGNET

- 1.4 INCH EDGEWOUND CCA VOICE COIL
- 107,5 dB/SPL SENSITIVITY
- 70 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1200 - 20000 Hz FREQUENCY RANGE
- HIGH TEMPERATURE POLYMER DIAPHRAGM AND SURROUND
- ANNULAR DIAPHRAGM DESIGN
- HIGH SENSITIVITY WITH LOW DISTORTION
- EXTENDED LOW FREQUENCY TO 1800 Hz

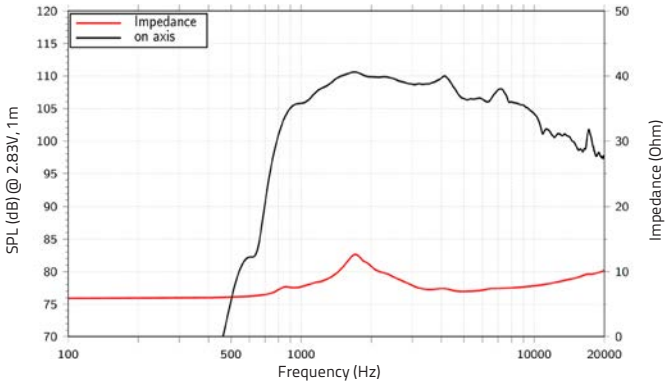
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7
Program power (1)	W	70
AES Power rating (2)	W	35
Sensitivity (3)	dB	107,5
Frequency range	Hz	1200 ÷ 20000
Voice coil diameter	mm (in.)	38 (1.5)
Magnet material	Ferrite	
Magnet OD	mm (in.)	90 (3.5)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	High Temperature Polymer	
Surround material	High Temperature Polymer	
Voice coil Inductance	mH	0,05
Flux density	T	1,6
Recommended crossover (4)	Hz	1800
Driver displacement volume	l (ft³)	0,2 (0.007)

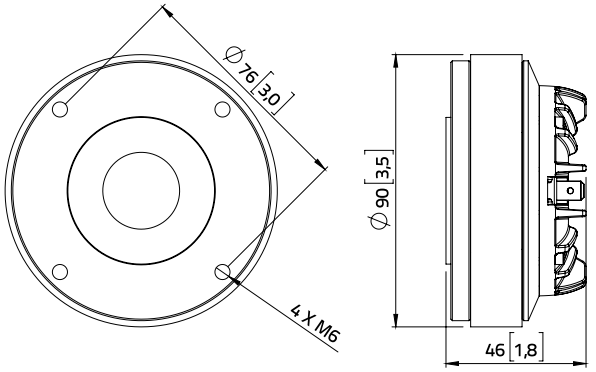
SHIPPING INFORMATION

Net weight	kg (lb.)	1,01 (2.2)
Multipack size (12) W x D x H	mm (in.)	330 x 275 x 145 (13 x 10.8 x 5.7)
Multipack weight	kg (lb.)	14 (30.9)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1800-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1200 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana

sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF10.144LK

1” COMPRESSION DRIVER

FERRITE MAGNET

- 1.4 INCH CCAW VOICE COIL
- 106 dB/SPL SENSITIVITY
- 70 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1000 – 20000 Hz FREQUENCY RANGE
- POLYIMIDE DIAPHRAGM AND SURROUND
- EXTENDED LOW FREQUENCY TO 1200 Hz

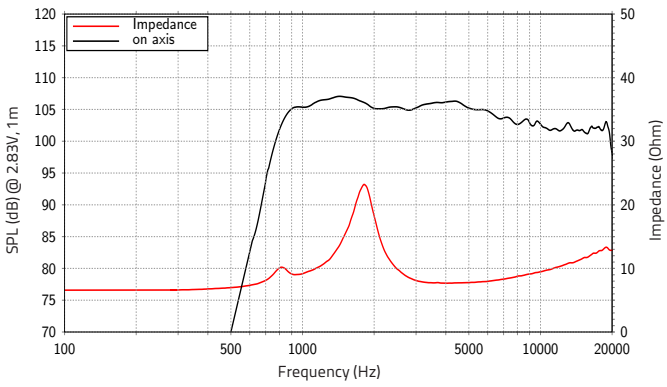
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,4
Program power (1)	W	70
AES Power rating (2)	W	35
Sensitivity (3)	dB	106
Frequency range	Hz	1000 ÷ 20000
Voice coil diameter	mm (in.)	35 (1.4)
Magnet material	Ferrite	
Magnet OD	mm (in.)	90 (3.5)
Coil material	CCAW	
Former material	Kapton	
Diaphragm material	Polyimide	
Surround material	Polyimide	
Voice coil Inductance	mH	0,09
Flux density	T	1,55
Recommended crossover (4)	Hz	1200
Driver displacement volume	l (ft³)	0,2 (0.007)

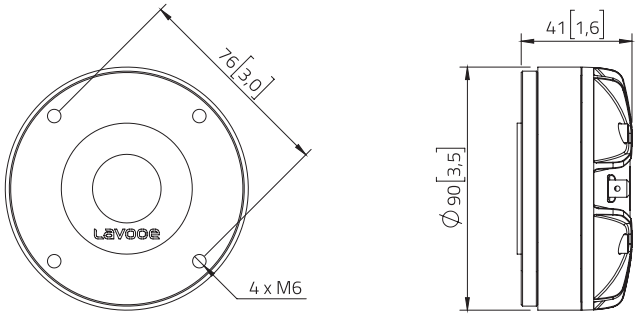
SHIPPING INFORMATION

Net weight	kg (lb.)	0,9 (2)
Multipack size (12) W x D x H	mm (in.)	498 x 412 x 85 (19.6 x 16.2 x 3.3)
Multipack weight	kg (lb.)	13,2 (29.1)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1200-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1000 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana

sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF10.171M

1” COMPRESSION DRIVER

FERRITE MAGNET

- 1.7 INCH EDGEWOUND CCA VOICE COIL
- 106,5 dB/SPL SENSITIVITY
- 90 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1200 – 20000 Hz FREQUENCY RANGE
- POLYESTER DIAPHRAGM

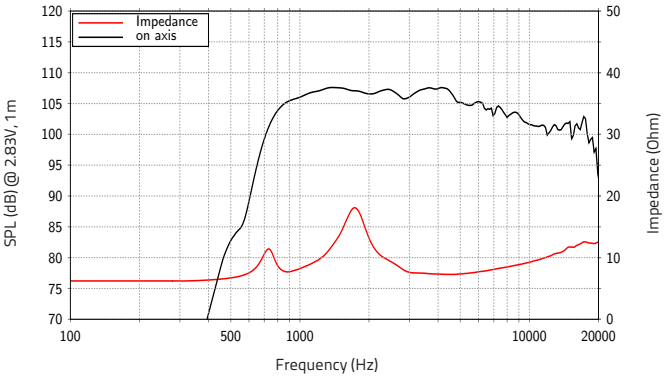
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,6
Program power (1)	W	90
AES Power rating (2)	W	45
Sensitivity (3)	dB	106,5
Frequency range	Hz	1200 ÷ 20000
Voice coil diameter	mm (in.)	44,4 (1.7)
Magnet material	Ferrite	
Magnet OD	mm (in.)	100 (3.94)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Polyester	
Surround material	Polyester	
Voice coil Inductance	mH	0,08
Flux density	T	1,55
Recommended crossover (4)	Hz	2000
Driver displacement volume	l (ft³)	0,3 (0.01)

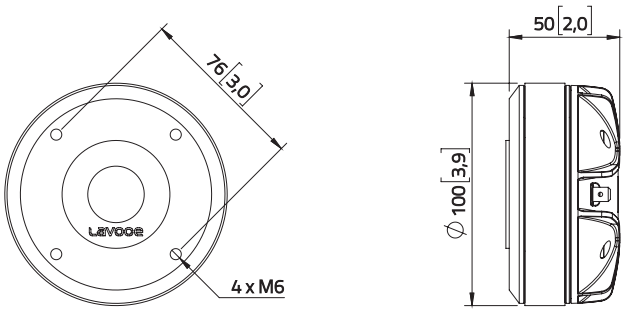
SHIPPING INFORMATION

Net weight	kg (lb.)	1,4 (3.1)
Multipack size (9) W x D x H	mm (in.)	455 x 425 x 106 (17.9 x 16.7 x 4.2)
Multipack weight	kg (lb.)	14,5 (32)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (2000-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1000 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF10.172M

1" COMPRESSION DRIVER

FERRITE MAGNET

- 1.7 INCH EDGEWOUND CCA VOICE COIL
- 108 dB/SPL SENSITIVITY
- 100 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1000 - 20000 Hz FREQUENCY RANGE
- POLYESTER DIAPHRAGM

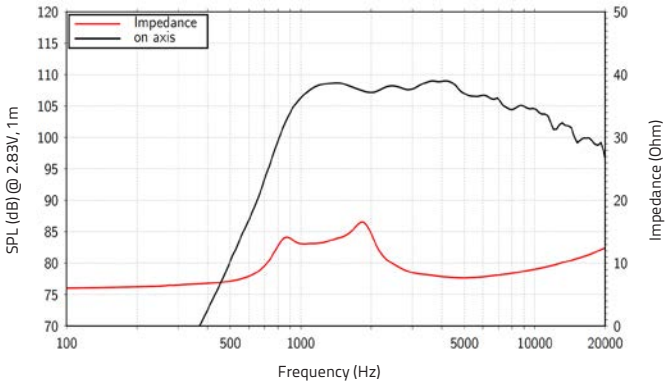
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,3
Program power (1)	W	100
AES Power rating (2)	W	50
Sensitivity (3)	dB	108
Frequency range	Hz	1000 ÷ 20000
Voice coil diameter	mm (in.)	44,4 (1.7)
Magnet material	Ferrite	
Magnet OD	mm (in.)	114 (4.5)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Polyester	
Surround material	Polyester, vented	
Voice coil Inductance	mH	0,08
Flux density	T	1,75
Recommended crossover (4)	Hz	2000
Driver displacement volume	l (ft³)	0,4 (0.01)

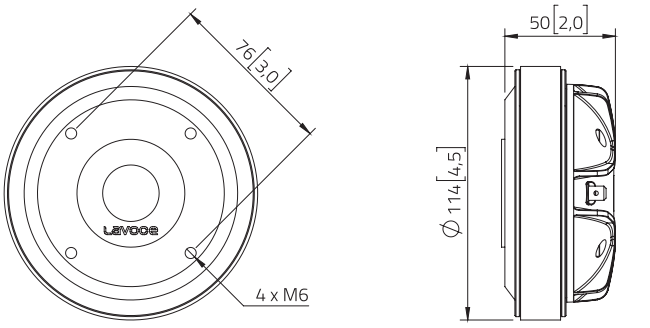
SHIPPING INFORMATION

Net weight	kg (lb.)	1,7 (3.7)
Multipack size (9) **W x D x H**	mm (in.)	483 x 460 x 100 (19 x 18.1 x 3.9)
Multipack weight	kg (lb.)	17,2 (37.9)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (2000-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1000 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana

sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF10.17

1" COMPRESSION DRIVER

FERRITE MAGNET

- 1.7 INCH EDGEWOUND CCA VOICE COIL
- 108 dB/SPL SENSITIVITY
- 120 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1200 - 18000 Hz FREQUENCY RANGE
- HIGH TEMPERATURE POLYMERIC DIAPHRAGM
- VOICE COIL COPPER DEMODULATION RING

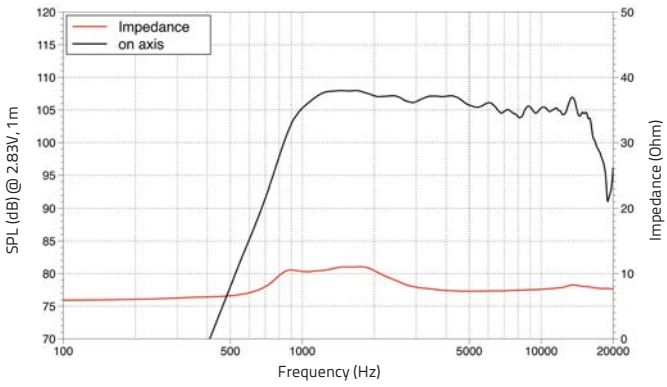
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,3
Program power (1)	W	120
AES Power rating (2)	W	60
Sensitivity (3)	dB	108
Frequency range	Hz	1200 ÷ 18000
Voice coil diameter	mm (in.)	44,4 (1.7)
Magnet material	Ferrite	
Magnet OD	mm (in.)	102 (4.0)
Coil material	Edgewound CCA	
Former material	Fiber Glass	
Diaphragm material	High temperature polymer	
Surround material	High temperature polymer, vented	
Voice coil Inductance	mH	0,08
Flux density	T	1,4
Recommended crossover (4)	Hz	1600
Driver displacement volume	l (ft³)	0,45 (0.016)

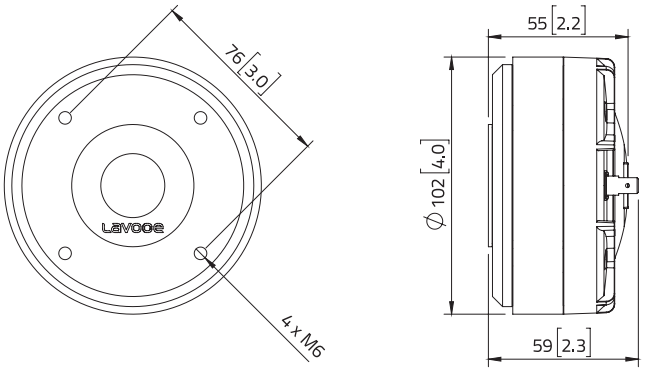
SHIPPING INFORMATION

Net weight	kg (lb.)	1,6 (3.5)
Multipack size (9) W x D x H	mm (in.)	460 x 435 x 115 (18.1 x 17.1 x 4.5)
Multipack weight	kg (lb.)	16,1 (35.5)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1600-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1200 ÷ 18000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana

sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF10.171K

1” COMPRESSION DRIVER

FERRITE MAGNET

- 1.7 INCH EDGEWOUND CCA VOICE COIL
- 106,5 dB/SPL SENSITIVITY
- 110 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1200 - 20000 Hz FREQUENCY RANGE
- POLYIMIDE DIAPHRAGM

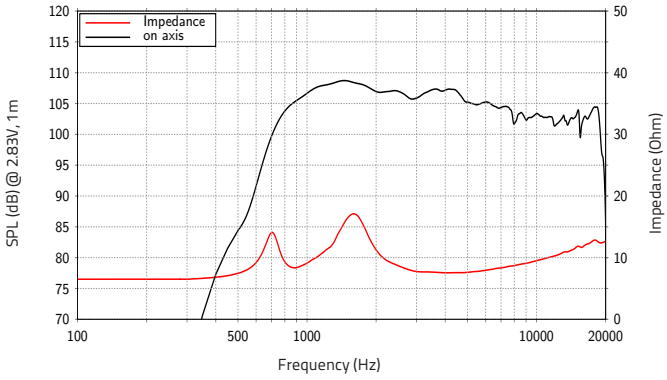
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,3
Program power (1)	W	110
AES Power rating (2)	W	55
Sensitivity (3)	dB	106,5
Frequency range	Hz	1200 ÷ 20000
Voice coil diameter	mm (in.)	44,4 (1.7)
Magnet material	Ferrite	
Magnet OD	mm (in.)	100 (3.93)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Polyimide	
Surround material	Polyimide	
Voice coil Inductance	mH	0,08
Flux density	T	1,5
Recommended crossover (4)	Hz	2000
Driver displacement volume	l (ft³)	0,3 (0.01)

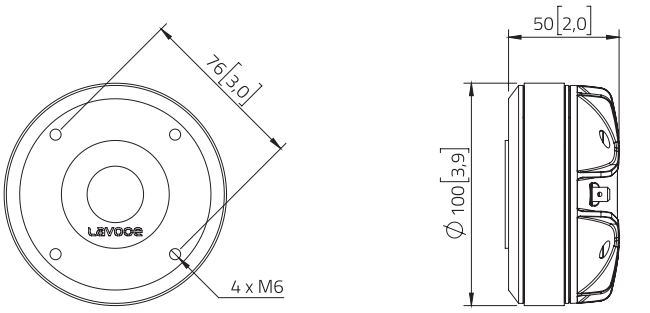
SHIPPING INFORMATION

Net weight	kg (lb.)	1,4 (3.1)
Multipack size (9) W x D x H	mm (in.)	460 x 425 x 100 (18.1 x 16.7 x 3.9)
Multipack weight	kg (lb.)	14,5 (32)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (2000-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1000 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana

sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF10.172K

1" COMPRESSION DRIVER

FERRITE MAGNET

- 1.7 INCH EDGEWOUND CCA VOICE COIL
- 108,5 dB/SPL SENSITIVITY
- 120 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1000 - 20000 Hz FREQUENCY RANGE
- POLYIMIDE DIAPHRAGM

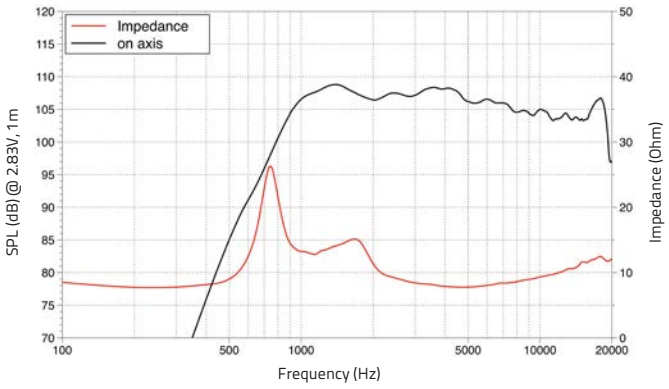
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,3
Program power (1)	W	120
AES Power rating (2)	W	60
Sensitivity (3)	dB	108,5
Frequency range	Hz	1000 ÷ 20000
Voice coil diameter	mm (in.)	44,4 (1.7)
Magnet material	Ferrite	
Magnet OD	mm (in.)	114 (4.5)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Polyimide	
Surround material	Polyimide, vented	
Voice coil Inductance	mH	0,08
Flux density	T	1,75
Recommended crossover (4)	Hz	1600
Driver displacement volume	l (ft³)	0,4 (0.01)

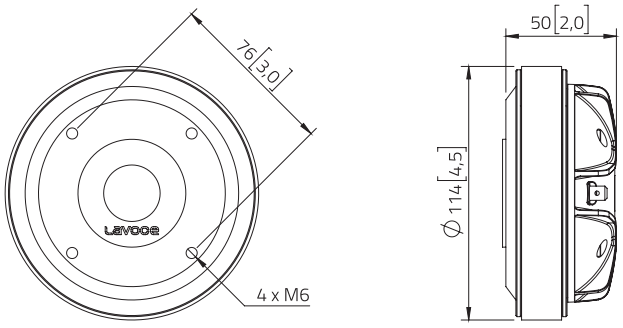
SHIPPING INFORMATION

Net weight	kg (lb.)	1,7 (3.7)
Multipack size (9) **W x D x H**	mm (in.)	489 x 457 x 100 (19.3 x 18 x 3.9)
Multipack weight	kg (lb.)	17,2 (37.9)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1600-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1000 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana

sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF10.172KS

1” COMPRESSION DRIVER

FERRITE MAGNET

- 1.7 INCH EDGEWOUND CCA VOICE COIL
- 108,5 dB/SPL SENSITIVITY
- 120 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 1000 - 20000 Hz FREQUENCY RANGE
- POLYIMIDE DIAPHRAGM
- SCREW-ON FITTING FOR 1-3/8 INCH-18 TPI THREADED HORNS

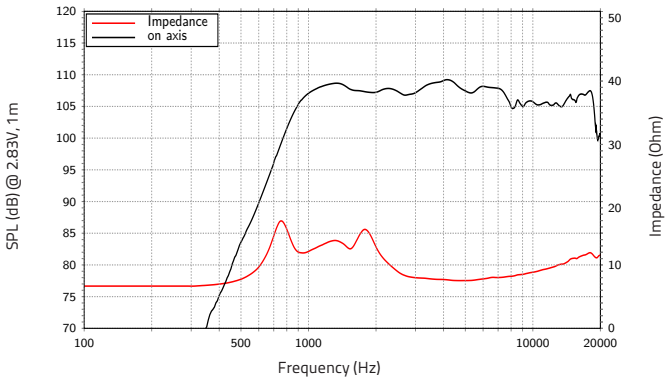
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25,4 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,3
Program power (1)	W	120
AES Power rating (2)	W	60
Sensitivity (3)	dB	108,5
Frequency range	Hz	1000 ÷ 20000
Voice coil diameter	mm (in.)	44,4 (1.7)
Magnet material	Ferrite	
Magnet OD	mm (in.)	114 (4.5)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Polyimide	
Surround material	Polyimide, vented	
Voice coil Inductance	mH	0,08
Flux density	T	1,75
Recommended crossover (4)	Hz	1600
Driver displacement volume	l (ft³)	0,4 (0.01)

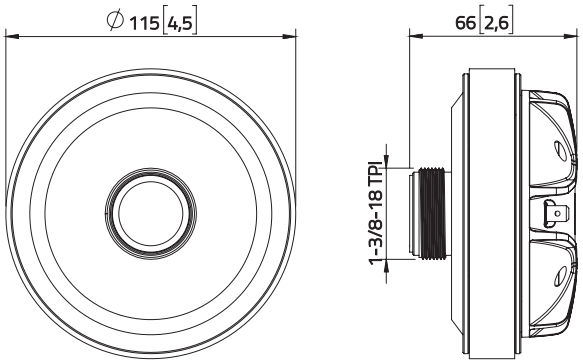
SHIPPING INFORMATION

Net weight	kg (lb.)	1,7 (3.7)
Multipack size (8) W x D x H	mm (in.)	327 x 300 x 175 (12.9 x 11.8 x 6.9)
Multipack weight	kg (lb.)	15,6 (34.4)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1600-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 1000 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF14.30T

1.4" COMPRESSION DRIVER

FERRITE MAGNET

- 3 INCH EDGEWOUND CCA VOICE COIL
- 107.5 dB/SPL SENSITIVITY
- 220 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 500 - 18000 Hz FREQUENCY RANGE
- TITANIUM DIAPHRAGM
- PATENTED IIS INTEGRAL INPUT SURFACE PHASEPLUG

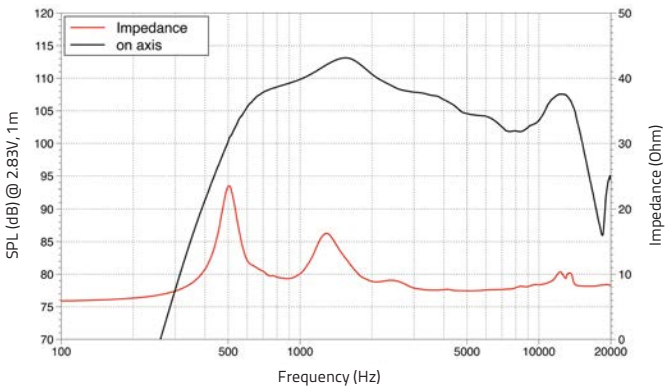
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	36 (1.4)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,6
Program power (1)	W	220
AES Power rating (2)	W	110
Sensitivity (3)	dB	107,5
Frequency range	Hz	500 ÷ 18000
Voice coil diameter	mm (in.)	75 (3)
Magnet material	Ferrite	
Magnet OD	mm (in.)	165 (6.5)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Titanium	
Surround material	Titanium	
Voice coil Inductance	mH	0,1
Flux density	T	1,75
Recommended crossover (4)	Hz	1000
Driver displacement volume	l (ft³)	0,75 (0.026)

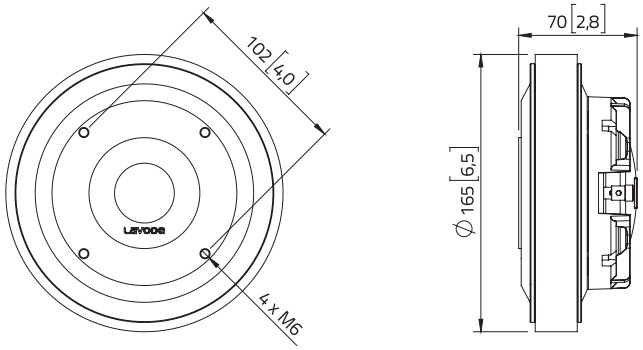
SHIPPING INFORMATION

Net weight	kg (lb.)	4,2 (9.3)
Multipack size (4) W x D x H	mm (in.)	454 x 435 x 150 (17.9 x 17.1 x 5.9)
Multipack weight	kg (lb.)	18,9 (41.7)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1000-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with 80°x 60° horn, SPL averaged in the frequency range 500 ÷ 18000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana

sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF14.300T

1.4” COMPRESSION DRIVER

FERRITE MAGNET

- 3 INCH EDGEWOUND CCA VOICE COIL
- 107,5 dB/SPL SENSITIVITY
- 220 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 500 - 20000 Hz FREQUENCY RANGE
- TITANIUM DIAPHRAGM AND SURROUND
- NEXT GENERATION HF DESIGN
- PATENTED IIS INTEGRAL INPUT SURFACE PHASEPLUG

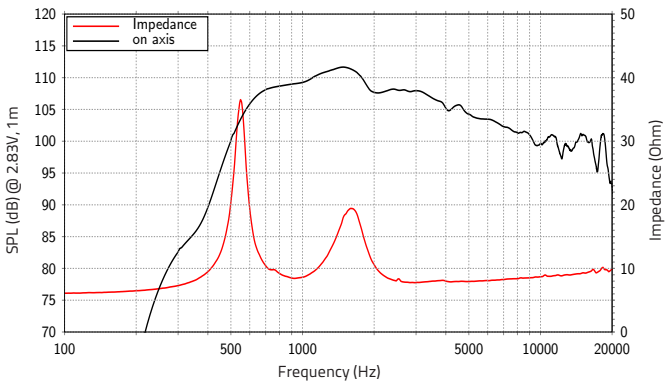
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	36 (1.4)
Nominal impedance	Ω	8
Minimum impedance	Ω	8
Program power (1)	W	220
AES Power rating (2)	W	110
Sensitivity (3)	dB	107,5
Frequency range	Hz	500 ÷ 20000
Voice coil diameter	mm (in.)	75 (3)
Magnet material	Ferrite	
Magnet OD	mm (in.)	165 (6.5)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Titanium	
Surround material	Titanium	
Voice coil Inductance	mH	0,09
Flux density	T	1,75
Recommended crossover (4)	Hz	1200
Driver displacement volume	l (ft³)	0,75 (0.026)

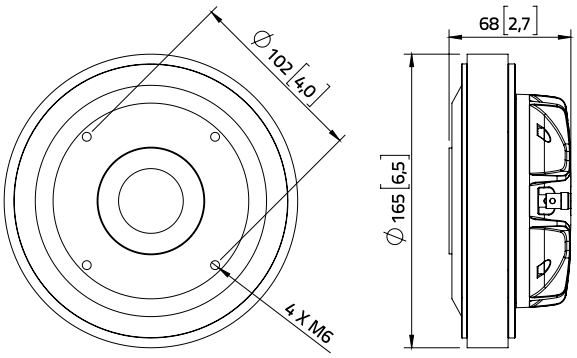
SHIPPING INFORMATION

Net weight	kg (lb.)	4,3 (9.4)
Multipack size (4) **W x D x H**	mm (in.)	450 x 423 x 147 (17.7 x 16.7 x 5.8)
Multipack weight	kg (lb.)	19 (42)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1200-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with HD1003 horn, SPL averaged in the frequency range 600 ÷ 20000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana

sales@lavocespeakers.com sales.cn@lavocespeakers.com

DF20.30T

2" COMPRESSION DRIVER

FERRITE MAGNET

- 3 INCH EDGEWOUND CCA VOICE COIL
- 107.5 dB/SPL SENSITIVITY
- 220 W PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR, PHASEPLUG AND DIAPHRAGM
- 500 - 18000 Hz FREQUENCY RANGE
- TITANIUM DIAPHRAGM
- PATENTED IIS INTEGRAL INPUT SURFACE PHASEPLUG

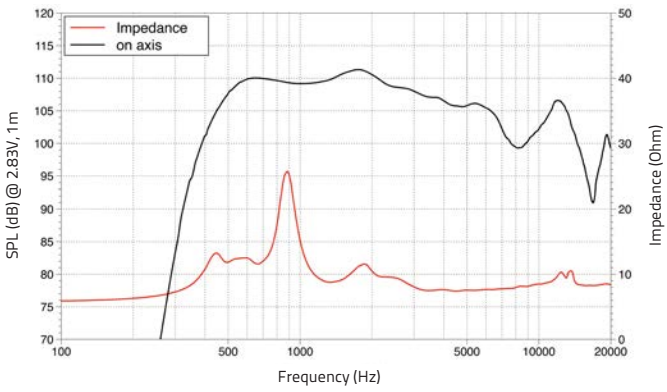
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	50 (2)
Nominal impedance	Ω	8
Minimum impedance	Ω	7,6
Program power (1)	W	220
AES Power rating (2)	W	110
Sensitivity (3)	dB	107,5
Frequency range	Hz	500 ÷ 18000
Voice coil diameter	mm (in.)	75 (3)
Magnet material	Ferrite	
Magnet OD	mm (in.)	165 (6.5)
Coil material	Edgewound CCA	
Former material	Kapton	
Diaphragm material	Titanium	
Surround material	Titanium	
Voice coil Inductance	mH	0,1
Flux density	T	1,75
Recommended crossover (4)	Hz	1000
Driver displacement volume	l (ft³)	0,75 (0.026)

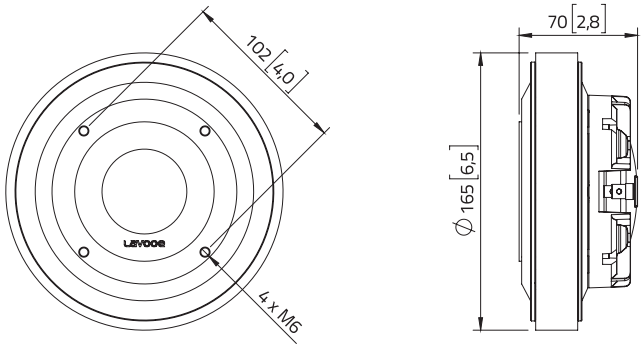
SHIPPING INFORMATION

Net weight	kg (lb.)	4,1 (9)
Multipack size (4) W x D x H	mm (in.)	455 x 420 x 150 (17.9 x 16.5 x 5.9)
Multipack weight	kg (lb.)	18,6 (41)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Horn loaded test for 2h with continuous, band-limited (1000-20000 Hz, 12dB/oct.) pink noise as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, driver loaded with 90°x 40° horn, SPL averaged in the frequency range 500 ÷ 18000 Hz. **(4)** High pass filter with slope 12dB/oct. or higher.

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Lavoce Italiana

sales@lavocespeakers.com sales.cn@lavocespeakers.com

AMPLIFY EXCELLENCE

COMPRESSION DRIVER HORNS AND HORN DESIGN

Aluminium in construction, our exponential 1" horns and constant directivity 1.4" horns have been carefully optimized using Finite Element Analysis (FEA) to deliver consistent dispersion and coverage and perfectly amplify any of our revered compression drivers.

HORN DESIGN SERVICE

Using Multiphysics Modeling Software and our proprietary FEM applications, our R&D team can also be available to develop customized horn designs for OEM manufacturers. Please contact our Sales team to find out more about this service.

Product name	Throat entry mm (in.)	Construction	Horn type	Horn fitting	Horizontal nominal cove-rage	Vertical nominal cove-rage	Cutoff f requency (Hz)	Net weight kg (lb.)
HD1003	25.4 (1)	Aluminium	Exponential	Bolt-on	90°	40°	1000	0.5 (1.1)
HD1004	25.4 (1)	Aluminium	Exponential	Bolt-on	90°	60°	1200	0.5 (1.1)
HD1402	36 (1.4)	Aluminium	Constant Directivity	Bolt-on	60°	40°	800	1,5 (3.3)
HD1403	36 (1.4)	Aluminium	Constant Directivity	Bolt-on	80°	60°	900	1.5 (3.3)

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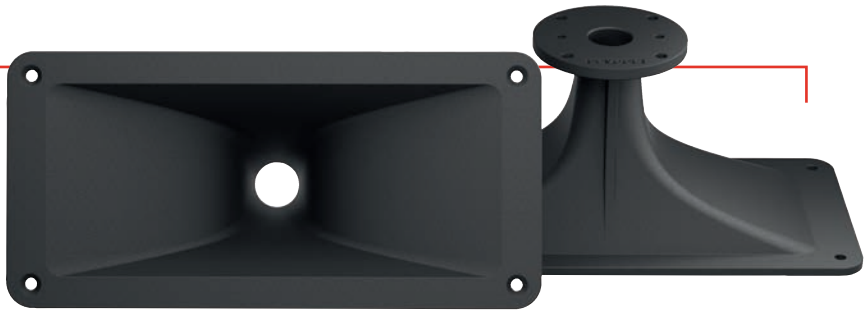
sales@lavocespeakers.com sales.cn@lavocespeakers.com

HD1003

1” THROAT ENTRY HORN

OEM only

- 90° x 40° NOMINAL COVERAGE
- CUT-OFF FREQUENCY 1000 Hz
- ALUMINIUM CONSTRUCTION TO ENSURE HIGH MECHANICAL STRENGTH AND HEAT DISSIPATION
- FEM OPTIMIZED EXPONENTIAL FLARE



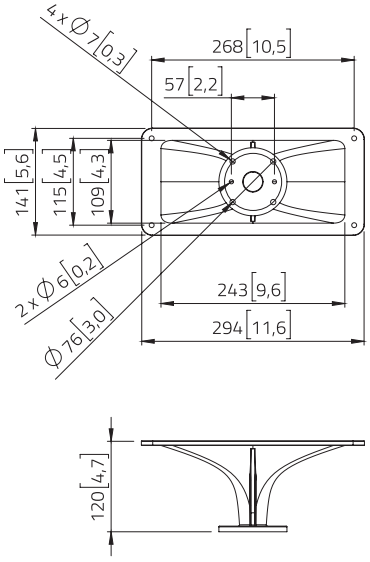
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25 (1)
Horizontal nominal coverage	°	90
Vertical nominal coverage	°	40
Cutoff Frequency	Hz	1000
Material	Aluminium	

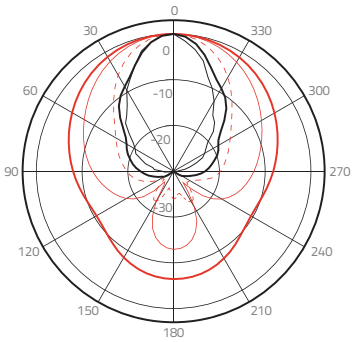
SHIPPING INFORMATION

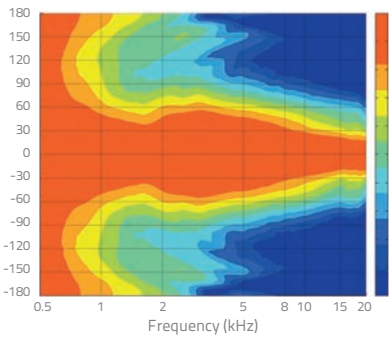
Net weight	kg (lb.)	0,5 (1.1)
Multipack size (18) W x D x H	mm (in.)	614 x 502 x 238 (24.2 x 19.8 x 9.4)
Multipack weight	kg (lb.)	12,5 (27.5)

DIMENSIONS mm (in.)

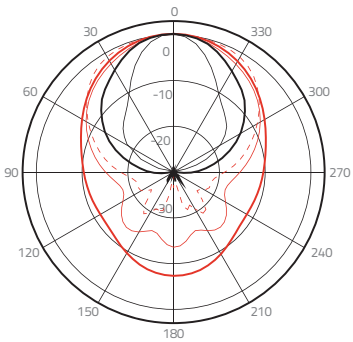


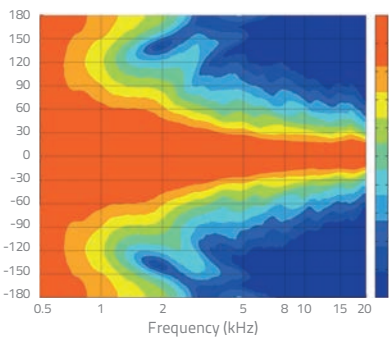
HORIZONTAL ANGLE*





VERTICAL ANGLE*





1 kHZ 2 kHZ 4 kHZ 8 kHZ 16 kHZ

* Horn measured using LAVOCE DN10.17T compression driver

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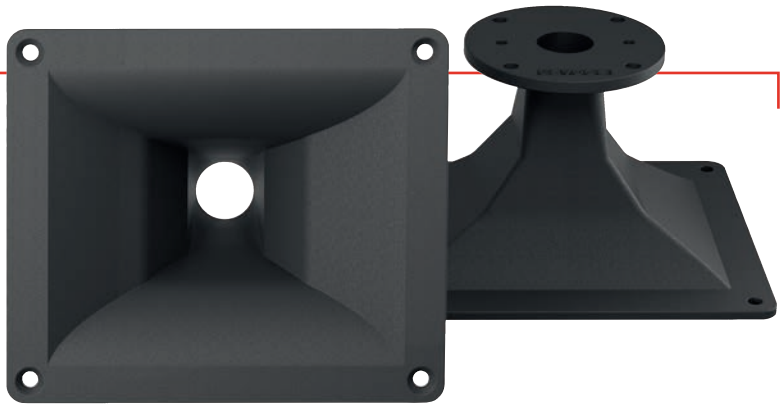
sales@lavocespeakers.com sales.cn@lavocespeakers.com

HD1004

1” THROAT ENTRY HORN

- 90° x 60° NOMINAL COVERAGE
- CUT-OFF FREQUENCY 1200 Hz
- ALUMINIUM CONSTRUCTION TO ENSURE HIGH MECHANICAL STRENGTH AND HEAT DISSIPATION
- FEM OPTIMIZED EXPONENTIAL FLARE



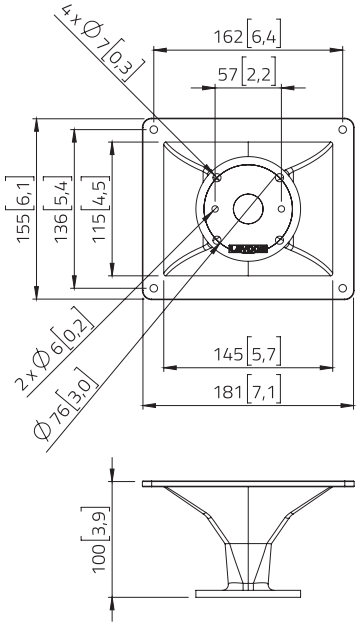
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	25 (1)
Horizontal nominal coverage	°	90
Vertical nominal coverage	°	60
Cutoff Frequency	Hz	1200
Material	Aluminium	

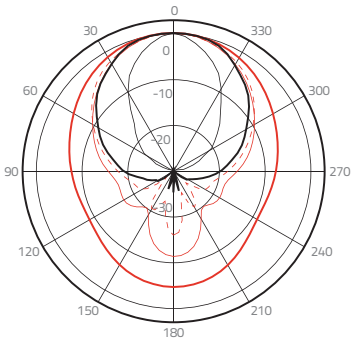
SHIPPING INFORMATION

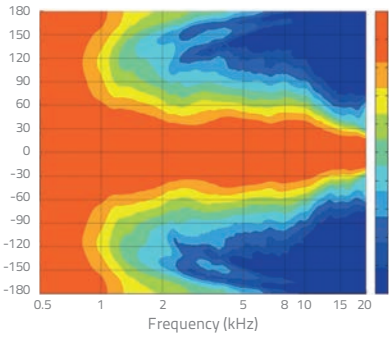
Net weight	kg (lb.)	0,5 (1.1)
Multipack size (18) W x D x H	mm (in.)	614 x 502 x 238 (24.2 x 19.8 x 9.4)
Multipack weight	kg (lb.)	12,5 (27.5)

DIMENSIONS mm (in.)

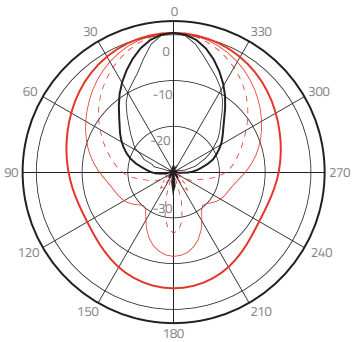


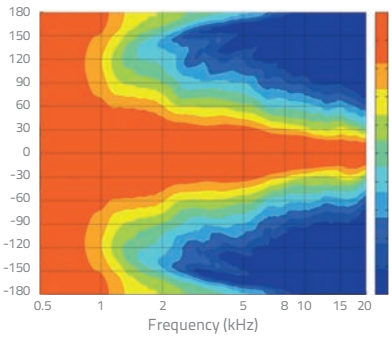
HORIZONTAL ANGLE*





VERTICAL ANGLE*





1 kHZ 2 kHZ 4 kHZ 8 kHZ 16 kHZ

* Horn measured using LAVOCE DN10.17T compression driver

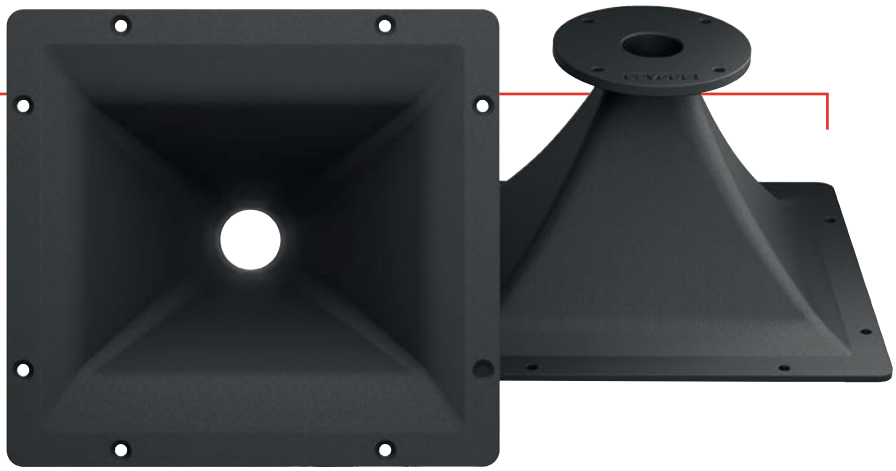
All specifications subject to change without notice_E.a

HD1402

1,4” THROAT ENTRY HORN

OEM only

- 60° x 40° NOMINAL COVERAGE
- CUT-OFF FREQUENCY 800 Hz
- ALUMINIUM CONSTRUCTION TO ENSURE HIGH MECHANICAL STRENGTH AND HEAT DISSIPATION
- FEM OPTIMIZED FOR CONSTANT DIRECTIVITY



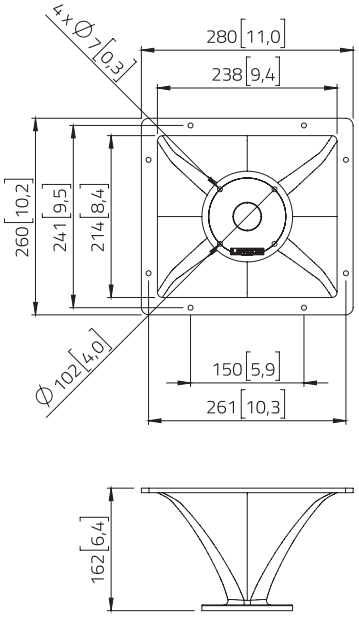
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	36 (1,4)
Horizontal nominal coverage	°	60
Vertical nominal coverage	°	40
Cutoff Frequency	Hz	800
Material	Aluminium	

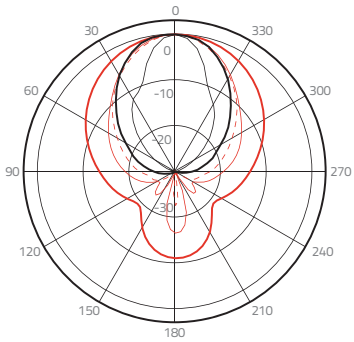
SHIPPING INFORMATION

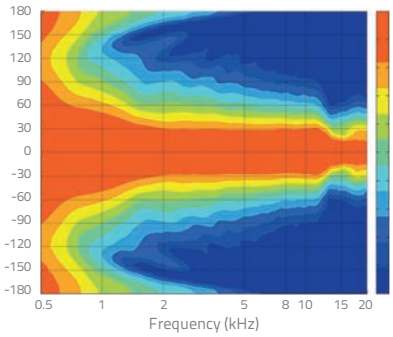
Net weight	kg (lb.)	1,5 (3.3)
Multipack size (1) W x D x H	mm (in.)	290 x 280 x 131 (11.4 x 11 x 5.2)
Multipack weight	kg (lb.)	1,8 (3.9)

DIMENSIONS mm (in.)

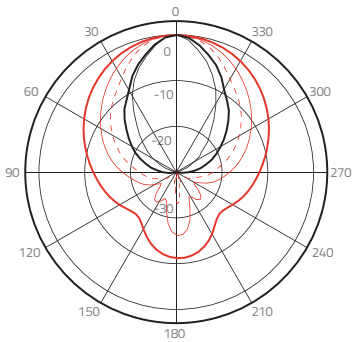


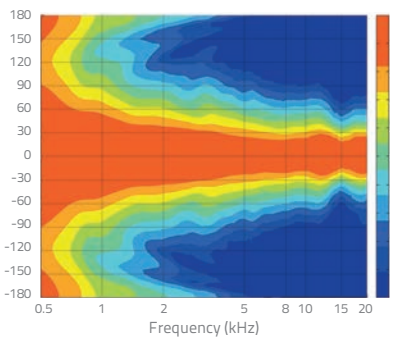
HORIZONTAL ANGLE*





VERTICAL ANGLE*





1 kHZ 2 kHZ 4 kHZ 8 kHZ 16 kHZ

* Horn measured using LAVOCE DN14.30T compression driver

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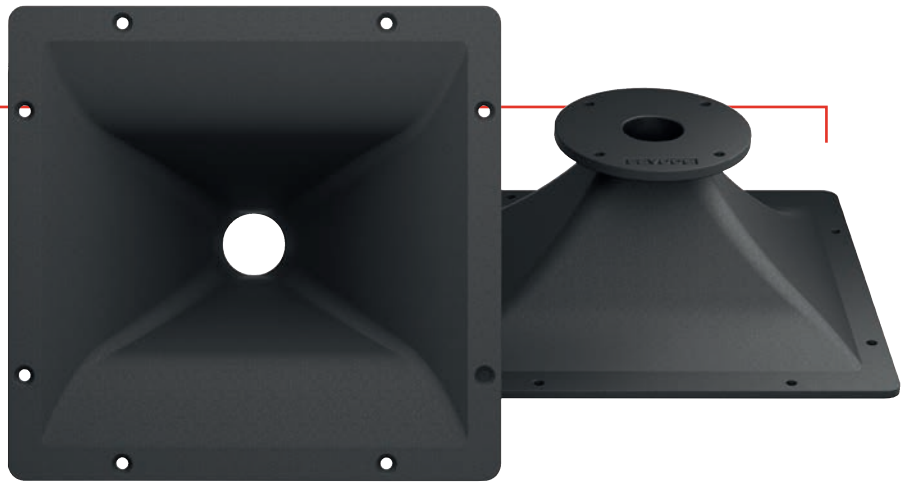
HD1403

1,4” THROAT ENTRY HORN



- 80° x 60° NOMINAL COVERAGE
- CUT-OFF FREQUENCY 900HZ
- ALUMINIUM CONSTRUCTION TO ENSURE HIGH MECHANICAL STRENGTH AND HEAT DISSIPATION
- FEM OPTIMIZED FOR CONSTANT DIRECTIVITY

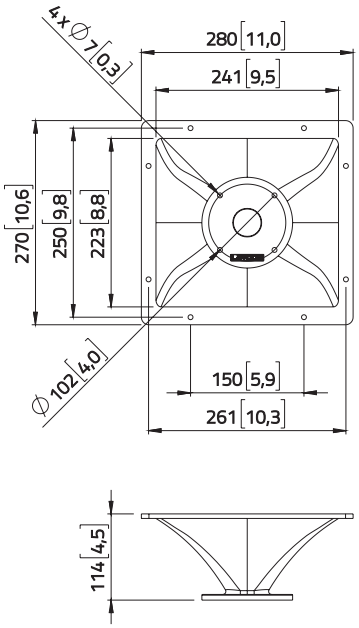
GENERAL SPECIFICATIONS

Throat diameter	mm (in.)	36 (1,4)
Horizontal nominal coverage	°	80
Vertical nominal coverage	°	60
Cutoff Frequency	Hz	900
Material	Aluminium	

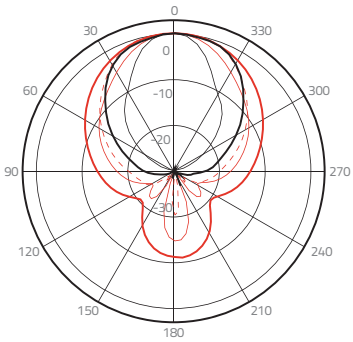
SHIPPING INFORMATION

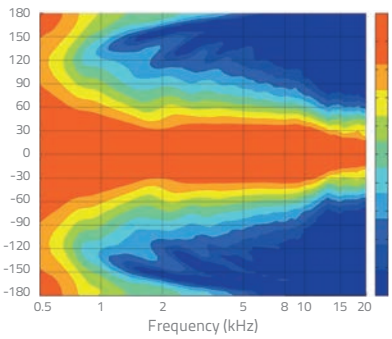
Net weight	kg (lb.)	1,5 (3.3)
Multipack size (1) W x D x H	mm (in.)	290 x 280 x 131 (11.4 x 11 x 5.2)
Multipack weight	kg (lb.)	1,8 (3.9)

DIMENSIONS mm (in.)

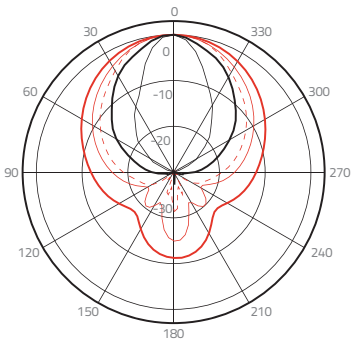


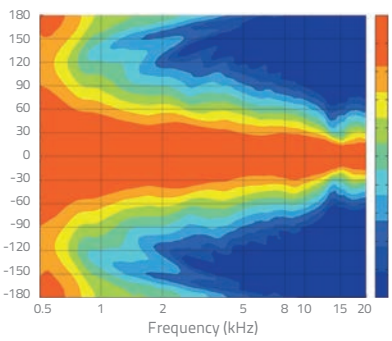
HORIZONTAL ANGLE*





VERTICAL ANGLE*





1 kHZ 2 kHZ 4 kHZ 8 kHZ 16 kHZ

* Horn measured using LAVOCE DN14.30T compression driver

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Lavoce Italiana

sales@lavocespeakers.com sales.cn@lavocespeakers.com

SYSTEM SOLUTIONS

COMPACT FULLRANGES

Already widely used by many of the worlds' leading professional audio brands, our Compact Fullranges are proven solutions for innovative sound system designs. Each lightweight neodymium or ferrite motor option offers high power handling and an optimised extended frequency response with increased output for enhanced HF energy in multiple driver applications.

Product name	Size mm (in.)	Basket material	Magnet material	Voice coil mm (in.)	Sensitivity dB	AES Power W	Freq. range Hz	Xmax mm (in.)	Nominal Impedance [Options] Ω	Demod. Ring	Depth mm (in.)	Net weight kg (lb.)
FSN020.71F	50 (2)	Steel	Neo	20 (0.75)	86,5	15	200 - 20000	2,4 (0.09)	8	•	35,1 (1.38)	0,15 (0.34)
FSN020.72	50 (2)	Steel	Neo	20 (0.75)	84,5	15	200 - 20000	2,3 (0.09)	8 [4]	•	35,5 (1.40)	0,14 (0.31)
FSN021.02	50 (2)	Steel	Neo	25 (1)	85	25	140 - 20000	2,3 (0.09)	8	•	36,7 (1.45)	0,15 (0.33)
FSF030.70	70 (3)	Steel	Ferrite	20 (0.75)	86,5	30	120 - 21000	2,1 (0.08)	8 [4 ; 16]	•	51,5 (2.03)	0,5 (1.1)
FSN030.71	70 (3)	Steel	Neo	20 (0.75)	88,5	30	120 - 21000	2,1 (0.08)	8 [4]	•	45 (1.77)	0,19 (0.43)
FSN030.72	70 (3)	Steel	Neo	20 (0.75)	90,5	30	120 - 20000	2,1 (0.08)	8 [16]	-	46,5 (1.83)	0,19 (0.43)
FSF041.00	100 (4)	Steel	Ferrite	25 (1)	89	40	110 - 18000	2,2 (0.09)	8 [16]	•	54 (2.13)	0,72 (1.58)
FSN041.00	100 (4)	Steel	Neo	25 (1)	91,5	40	110 - 18000	2,2 (0.09)	8 [4 ; 16]	•	51 (2.01)	0,4 (0.88)

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

FSN020.71F

2" FULLRANGE

NEODYMIUM MAGNET
STEEL BASKET DRIVER

- 0.75 INCH CCAW VOICE COIL
- 86,5 dB/SPL SENSITIVITY
- 30 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- COPPER RING FOR EXTENDED FREQUENCY RESPONSE
- RESONANCE FREE AND HEAVY DUTY STEEL BASKET DESIGN
- FLAT BASKET FLANGE FOR EASY MOUNTING

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	50 (2)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,9
Program power (1)	W	30
AES Power rating (2)	W	15
Sensitivity (3)	dB	86,5
Frequency range	Hz	200 ÷ 20000
Voice coil diameter	mm (in.)	20 (0.75)
Chassis material	Steel	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	19 x 5 + 19 x 3 (0.75 x 0.2 + 0.75 x 0.1)
Coil material	CCAW	
Former material	Polyimide	
Cone material	Water Resistant Treated Paper	
Surround material	Polycotton	
Xmax (4)	mm (in.)	2,4 (0.09)
Xmech (5)	mm (in.)	2,6 (0.1)
Gap height	mm (in.)	3 (0.12)
Voice coil winding height	mm (in.)	6,2 (0.24)
Driver displacement volume	l (ft³)	0,028 (0.001)
Recommended enclosure	l (ft³)	1,0 (0.035)
Recommended tuning	Hz	Sealed

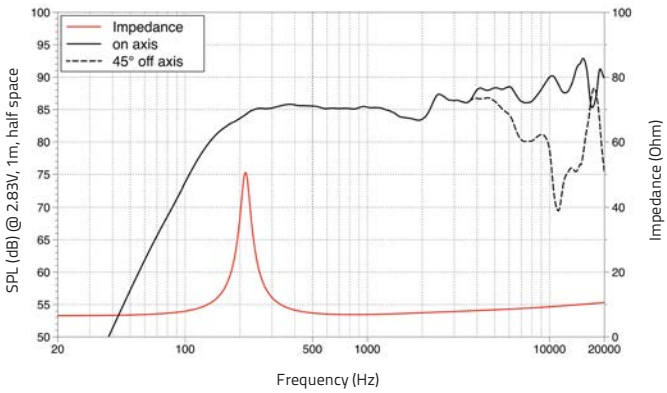
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	6,4
Resonance frequency	Fs	Hz	212
Moving mass	Mms	g (oz)	1,17 (0.04)
Compliance	Cms	mm/N	0,482
Force factor	BxL	N/A	3,24
Mechanical Q-factor	Qms		6,36
Electrical Q-factor	Qes		0,95
Total Q-factor	Qts		0,82
Equivalent air volume	Vas	l (ft³)	0,22 (0.01)
Voice coil Inductance	Le	mH	0,062
Diaphragm area	Sd	cm² (in.²)	18 (2.8)
Reference efficiency	Eta 0	%	0,21
Efficiency bandwidth product	EBP	Hz	223

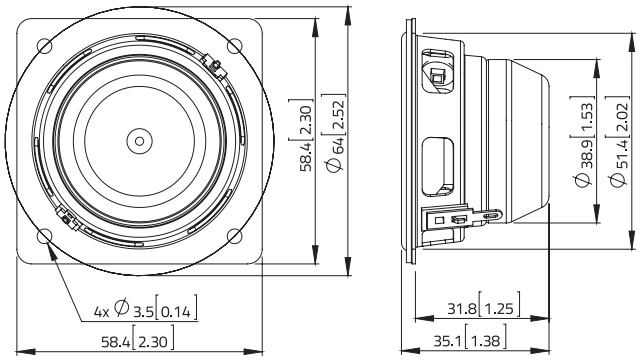
SHIPPING INFORMATION

Net weight	kg (lb.)	0,15 (0.34)
Multipack size (60) W x D x H	mm (in.)	445 x 402 x 192 (17.5 x 15.8 x 7.5)
Multipack weight	kg (lb.)	12,9 (28.5)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

FSN020.72

2" FULLRANGE

NEODYMIUM MAGNET
STEEL BASKET DRIVER

- 0.75 INCH CCAW VOICE COIL
- 84,5 dB/SPL SENSITIVITY
- 30 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- COPPER RING FOR EXTENDED FREQUENCY RESPONSE
- RESONANCE FREE AND HEAVY DUTY STEEL BASKET DESIGN
- RUBBER SURROUND MATERIAL
- ALTERNATIVE IMPEDANCE: 4 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	50 (2)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,6
Program power (1)	W	30
AES Power rating (2)	W	15
Sensitivity (3)	dB	84,5
Frequency range	Hz	200 ÷ 20000
Voice coil diameter	mm (in.)	20 (0.75)
Chassis material	Steel	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	19 x 5 + 19 x 3 (0.75 x 0.2 + 0.75 x 0.1)
Coil material	CCAW	
Former material	Polyimide	
Cone material	Water Resistant Treated Paper	
Surround material	Rubber	
Xmax (4)	mm (in.)	2,3 (0.09)
Xmech (5)	mm (in.)	2,6 (0.1)
Gap height	mm (in.)	3 (0.12)
Voice coil winding height	mm (in.)	6,2 (0.24)
Driver displacement volume	l (ft³)	0,03 (0.001)
Recommended enclosure	l (ft³)	0,78 (0.027)
Recommended tuning	Hz	Sealed

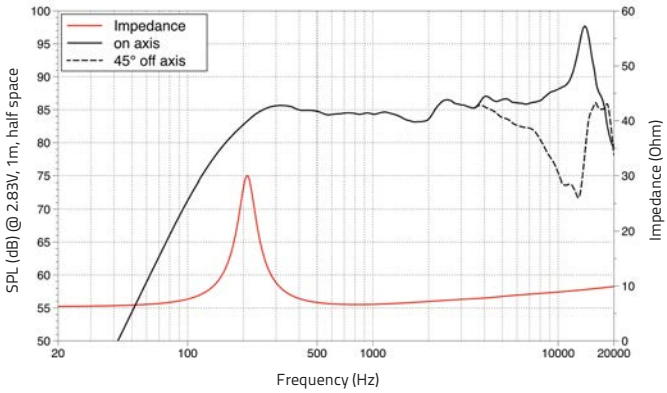
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	6,2
Resonance frequency	Fs	Hz	210
Moving mass	Mms	g (oz)	1,44 (0.05)
Compliance	Cms	mm/N	0,399
Force factor	BxL	N/A	3,19
Mechanical Q-factor	Qms		4,42
Electrical Q-factor	Qes		1,16
Total Q-factor	Qts		0,92
Equivalent air volume	Vas	l (ft³)	0,18
Voice coil Inductance	Le	mH	0,063
Diaphragm area	Sd	cm² (in.²)	18
Reference efficiency	Eta 0	%	0,14
Efficiency bandwidth product	EBP	Hz	181

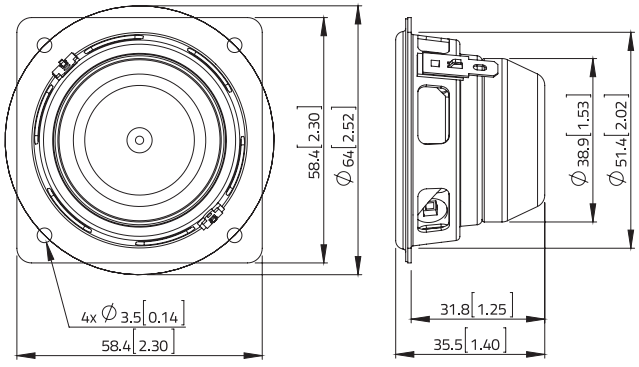
SHIPPING INFORMATION

Net weight	kg (lb.)	0,14 (0.31)
Multipack size (60) W x D x H	mm (in.)	445 x 405 x 185 (17.5 x 15.9 x 7.3)
Multipack weight	kg (lb.)	12,2 (26.9)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

FSN021.02

2" FULLRANGE

NEODYMIUM MAGNET
STEEL BASKET DRIVER

- 1 INCH CCAW VOICE COIL
- 85 dB/SPL SENSITIVITY
- 50 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- VERY LIGHT MEMBRANE, FOR EXTENDED FREQUENCY RESPONSE
- COPPER RING FOR EXTENDED FREQUENCY RESPONSE
- RUBBER SURROUND MATERIAL

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	50 (2)
Nominal impedance	Ω	8
Minimum impedance	Ω	6
Program power (1)	W	50
AES Power rating (2)	W	25
Sensitivity (3)	dB	85
Frequency range	Hz	140 ÷ 20000
Voice coil diameter	mm (in.)	25 (1)
Chassis material	Steel	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	24,9 x 5 (0.98 x 0.2)
Coil material	CCAW	
Former material	Polyimide	
Cone material	Aluminium	
Surround material	Rubber	
Xmax (4)	mm (in.)	2,3 (0.09)
Xmech (5)	mm (in.)	3,3 (0.13)
Gap height	mm (in.)	4 (0.16)
Voice coil winding height	mm (in.)	6,6 (0.26)
Driver displacement volume	l (ft³)	0,026 (0.001)
Recommended enclosure	l (ft³)	0,63 (0.022)
Recommended tuning	Hz	Sealed

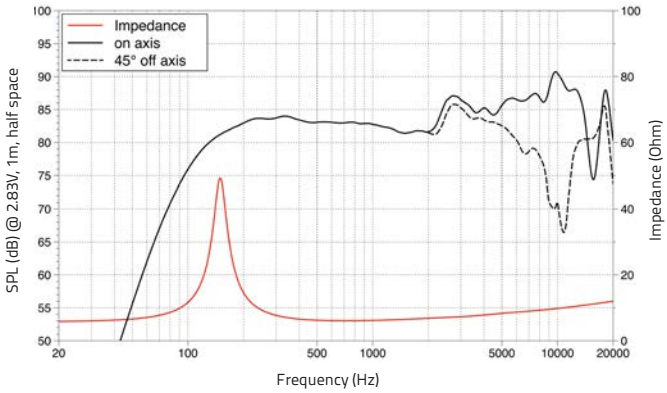
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,7
Resonance frequency	Fs	Hz	151
Moving mass	Mms	g (oz)	1,7 (0.06)
Compliance	Cms	mm/N	0,65
Force factor	BxL	N/A	3,44
Mechanical Q-factor	Qms		5,5
Electrical Q-factor	Qes		0,77
Total Q-factor	Qts		0,68
Equivalent air volume	Vas	l (ft³)	0,3 (0.01)
Voice coil Inductance	Le	mH	0,1
Diaphragm area	Sd	cm² (in.²)	18 (2.8)
Reference efficiency	Eta 0	%	0,13
Efficiency bandwidth product	EBP	Hz	196

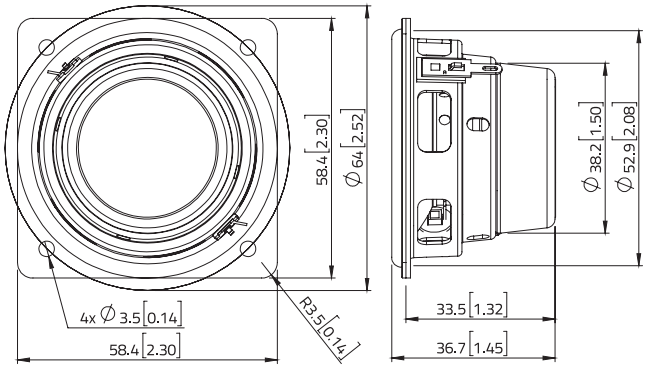
SHIPPING INFORMATION

Net weight	kg (lb.)	0,15 (0.33)
Multipack size (60) W x D x H	mm (in.)	360 x 335 x 180 (14.2 x 13.2 x 7.1)
Multipack weight	kg (lb.)	11,3 (24.9)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

FSF030.70

3" FULLRANGE

FERRITE MAGNET
STEEL BASKET DRIVER

- 0.75 INCH CCAW VOICE COIL
- 86,5 dB/SPL SENSITIVITY
- 60 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- COPPER RING FOR EXTENDED FREQUENCY RESPONSE
- RESONANCE FREE AND HEAVY DUTY STEEL BASKET DESIGN
- RUBBER SURROUND MATERIAL
- ALTERNATIVE IMPEDANCE: 4 OHM AND 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	70 (3)
Nominal impedance	Ω	8
Minimum impedance	Ω	7
Program power (1)	W	60
AES Power rating (2)	W	30
Sensitivity (3)	dB	86,5
Frequency range	Hz	120 ÷ 21000
Voice coil diameter	mm (in.)	20 (0.75)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	70 x 32 x 15 (2.76 x 1.26 x 0.59)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Rubber	
Xmax (4)	mm (in.)	2,1 (0.08)
Xmech (5)	mm (in.)	3,1 (0.12)
Gap height	mm (in.)	4 (0.16)
Voice coil winding height	mm (in.)	6,2 (0.24)
Driver displacement volume	l (ft³)	0,13 (0.005)
Recommended enclosure	l (ft³)	1,96 (0.067)
Recommended tuning	Hz	Sealed

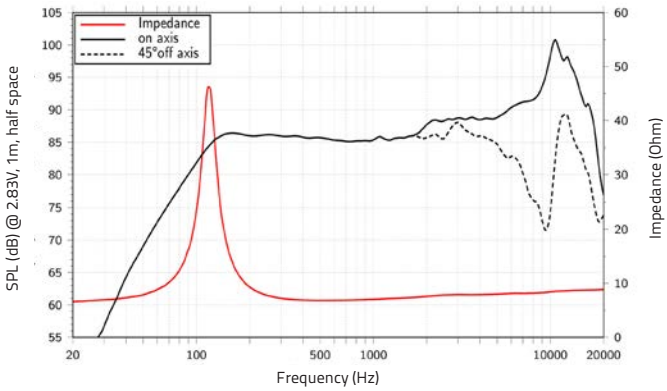
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	6,3
Resonance frequency	Fs	Hz	123
Moving mass	Mms	g (oz)	2,2 (0.08)
Compliance	Cms	mm/N	0,76
Force factor	BxL	N/A	3,47
Mechanical Q-factor	Qms		5,87
Electrical Q-factor	Qes		0,89
Total Q-factor	Qts		0,77
Equivalent air volume	Vas	l (ft³)	1,17 (0.04)
Voice coil Inductance	Le	mH	0,06
Diaphragm area	Sd	cm² (in.²)	33 (5.1)
Reference efficiency	Eta 0	%	0,23
Efficiency bandwidth product	EBP	Hz	138

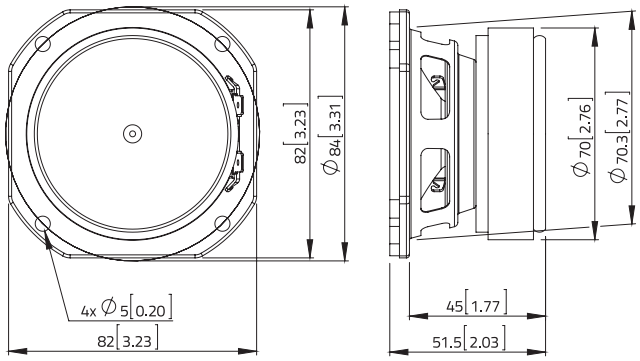
SHIPPING INFORMATION

Net weight	kg (lb.)	0,5 (1.1)
Multipack size (20) W x D x H	mm (in.)	592 x 243 x 183 (23.3 x 9.6 x 7.2)
Multipack weight	kg (lb.)	11,2 (24.7)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

FSN030.71

3” FULLRANGE

NEODYMIUM MAGNET
STEEL BASKET DRIVER

- 0.75 INCH CCAW VOICE COIL
- 88,5 dB/SPL SENSITIVITY
- 60 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- COPPER RING FOR EXTENDED FREQUENCY RESPONSE
- RESONANCE FREE AND HEAVY DUTY STEEL BASKET DESIGN
- RUBBER SURROUND MATERIAL
- ALTERNATIVE IMPEDANCE: 4 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	70 (3)
Nominal impedance	Ω	8
Minimum impedance	Ω	7
Program power (1)	W	60
AES Power rating (2)	W	30
Sensitivity (3)	dB	88,5
Frequency range	Hz	120 ÷ 21000
Voice coil diameter	mm (in.)	20 (0.75)
Chassis material	Steel	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	45 x 25 x 3,5 (1.77 x 0.98 x 0.14)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Rubber	
Xmax (4)	mm (in.)	2,1 (0.08)
Xmech (5)	mm (in.)	3,1 (0.12)
Gap height	mm (in.)	4 (0.16)
Voice coil winding height	mm (in.)	6,2 (0.24)
Driver displacement volume	l (ft³)	0,05 (0.002)
Recommended enclosure	l (ft³)	2,0 (0.071)
Recommended tuning	Hz	Sealed

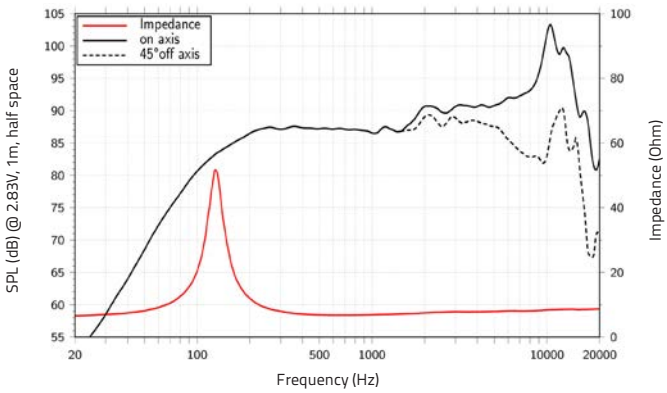
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	6,2
Resonance frequency	Fs	Hz	134
Moving mass	Mms	g (oz)	2,08 (0.07)
Compliance	Cms	mm/N	0,673
Force factor	BxL	N/A	3,82
Mechanical Q-factor	Qms		6,2
Electrical Q-factor	Qes		0,74
Total Q-factor	Qts		0,67
Equivalent air volume	Vas	l (ft³)	1,04 (0.04)
Voice coil Inductance	Le	mH	0,07
Diaphragm area	Sd	cm² (in.²)	33 (5.1)
Reference efficiency	Eta 0	%	0,32
Efficiency bandwidth product	EBP	Hz	181

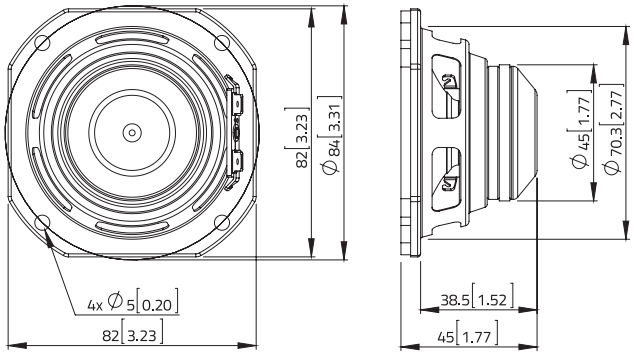
SHIPPING INFORMATION

Net weight	kg (lb.)	0,19 (0.42)
Multipack size (45) W x D x H	mm (in.)	460 x 320 x 198 (18.1 x 12.6 x 7.8)
Multipack weight	kg (lb.)	11 (24.2)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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sales@lavocespeakers.com sales.cn@lavocespeakers.com

FSN030.72

3” FULLRANGE

NEODYMIUM MAGNET
STEEL BASKET DRIVER

- 0.75 INCH CCAW VOICE COIL
- 90,5 dB/SPL SENSITIVITY
- 60 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- RESONANCE FREE AND HEAVY DUTY STEEL BASKET DESIGN
- RUBBER SURROUND MATERIAL
- EXTENDED FREQUENCY RESPONSE
- ALTERNATIVE IMPEDANCE: 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	70 (3)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,9
Program power (1)	W	60
AES Power rating (2)	W	30
Sensitivity (3)	dB	90,5
Frequency range	Hz	120 ÷ 20000
Voice coil diameter	mm (in.)	20 (0.75)
Chassis material	Steel	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	50 x 25 x 5 (1.97 x 0.98 x 0.2)
Coil material	CCAW	
Former material	Glass Fiber	
Cone material	Water Resistant Treated Paper	
Surround material	Rubber	
Xmax (4)	mm (in.)	2,1 (0.08)
Xmech (5)	mm (in.)	3,1 (0.12)
Gap height	mm (in.)	4 (0.16)
Voice coil winding height	mm (in.)	6,2 (0.24)
Driver displacement volume	l (ft³)	0,05 (0.002)
Recommended enclosure	l (ft³)	1,93 (0.068)
Recommended tuning	Hz	125

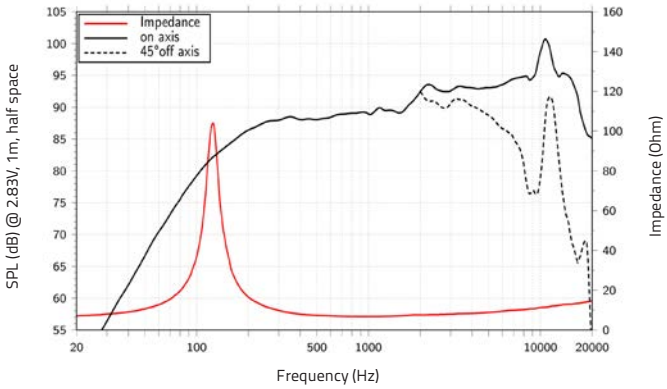
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	6,2
Resonance frequency	Fs	Hz	127
Moving mass	Mms	g (oz)	2,16 (0.08)
Compliance	Cms	mm/N	0,726
Force factor	BxL	N/A	4,99
Mechanical Q-factor	Qms		7,53
Electrical Q-factor	Qes		0,43
Total Q-factor	Qts		0,41
Equivalent air volume	Vas	l (ft³)	1,12 (0.04)
Voice coil Inductance	Le	mH	0,2
Diaphragm area	Sd	cm² (in.²)	33 (5.1)
Reference efficiency	Eta 0	%	0,51
Efficiency bandwidth product	EBP	Hz	295

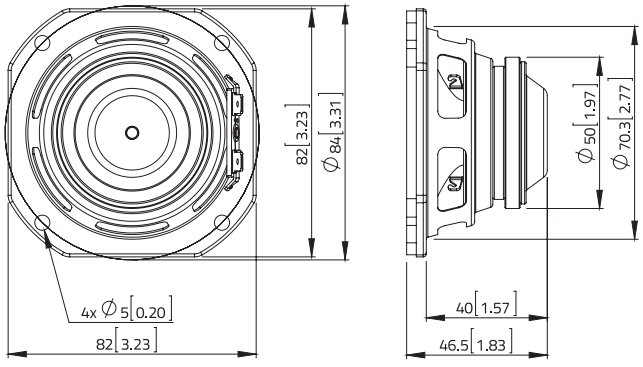
SHIPPING INFORMATION

Net weight	kg (lb.)	0,19 (0.43)
Multipack size (45) W x D x H	mm (in.)	452 x 313 x 192 (17.8 x 12.3 x 7.5)
Multipack weight	kg (lb.)	12,2 (26.9)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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FSF041.00

4” FULLRANGE

FERRITE MAGNET
STEEL BASKET DRIVER

- 1 INCH CCAW VOICE COIL
- 89 dB/SPL SENSITIVITY
- 80 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- COPPER RING FOR EXTENDED FREQUENCY RESPONSE
- RESONANCE FREE AND HEAVY DUTY STEEL BASKET DESIGN
- RUBBER SURROUND MATERIAL
- ALTERNATIVE IMPEDANCE: 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	100 (4)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,2
Program power (1)	W	80
AES Power rating (2)	W	40
Sensitivity (3)	dB	89
Frequency range	Hz	110 ÷ 18000
Voice coil diameter	mm (in.)	25 (1)
Chassis material	Steel	
Magnet material	Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	80 x 32 x 15 (3.15 x 1.26 x 0.59)
Coil material	CCAW	
Former material	Polyimide	
Cone material	Water Resistant Treated Paper	
Surround material	Rubber	
Xmax (4)	mm (in.)	2,2 (0.09)
Xmech (5)	mm (in.)	3,2 (0.13)
Gap height	mm (in.)	4 (0.16)
Voice coil winding height	mm (in.)	6,4 (0.25)
Driver displacement volume	l (ft³)	0,18 (0.01)
Recommended enclosure	l (ft³)	2,81 (0.099)
Recommended tuning	Hz	Sealed

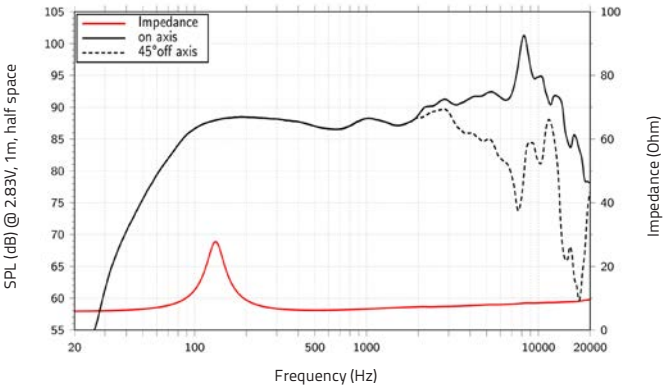
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,8
Resonance frequency	Fs	Hz	132
Moving mass	Mms	g (oz)	4,1 (0.14)
Compliance	Cms	mm/N	0,355
Force factor	BxL	N/A	4,27
Mechanical Q-factor	Qms		4,09
Electrical Q-factor	Qes		1,07
Total Q-factor	Qts		0,85
Equivalent air volume	Vas	l (ft³)	1,57 (0.06)
Voice coil Inductance	Le	mH	0,05
Diaphragm area	Sd	cm² (in.²)	56 (8.7)
Reference efficiency	Eta 0	%	0,33
Efficiency bandwidth product	EBP	Hz	123

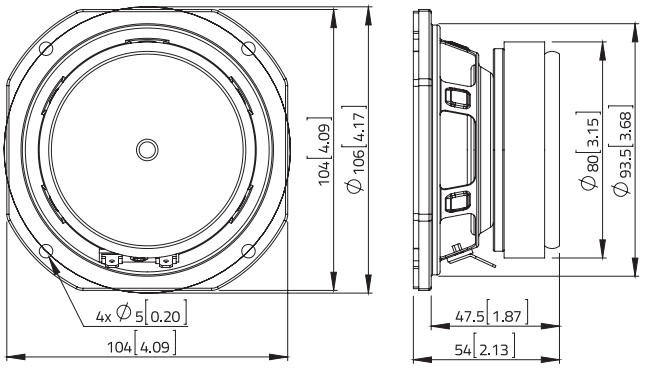
SHIPPING INFORMATION

Net weight	kg (lb.)	0,72 (1.58)
Multipack size (18) W x D x H	mm (in.)	362 x 355 x 180 (14.2 x 14 x 7.1)
Multipack weight	kg (lb.)	15,6 (34.4)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

FSN041.00

4" FULLRANGE

NEODYMIUM MAGNET
STEEL BASKET DRIVER

- 1 INCH COPPER VOICE COIL
- 91,5 dB/SPL SENSITIVITY
- 80 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- COPPER RING FOR EXTENDED FREQUENCY RESPONSE
- RESONANCE FREE AND HEAVY DUTY STEEL BASKET DESIGN
- RUBBER SURROUND MATERIAL
- ALTERNATIVE IMPEDANCE: 4 OHM AND 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	100 (4)
Nominal impedance	Ω	8
Minimum impedance	Ω	7
Program power (1)	W	80
AES Power rating (2)	W	40
Sensitivity (3)	dB	91,5
Frequency range	Hz	110 ÷ 18000
Voice coil diameter	mm (in.)	25 (1)
Chassis material	Steel	
Magnet material	Neodymium	
Magnet dimensions OD x ID x h	mm (in.)	65 x 32 x 4 (2.56 x 1.26 x 0.16)
Coil material	Copper	
Former material	Polyimide	
Cone material	Water Resistant Treated Paper	
Surround material	Rubber	
Xmax (4)	mm (in.)	2,2 (0.09)
Xmech (5)	mm (in.)	3,2 (0.13)
Gap height	mm (in.)	4 (0.16)
Voice coil winding height	mm (in.)	6,4 (0.25)
Driver displacement volume	l (ft³)	0,09 (0.003)
Recommended enclosure	l (ft³)	3,37 (0.119)
Recommended tuning	Hz	110

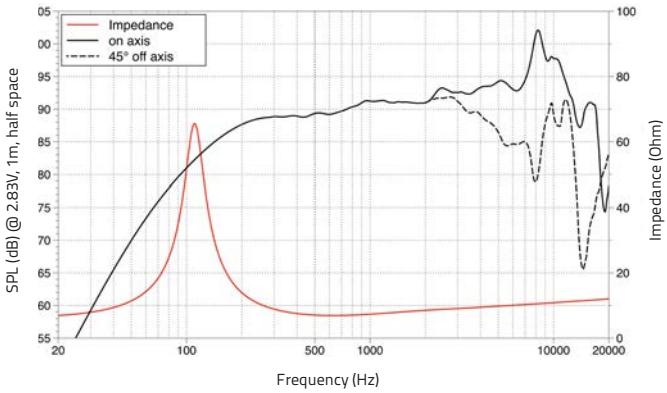
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	6
Resonance frequency	Fs	Hz	114
Moving mass	Mms	g (oz)	4,71 (0.17)
Compliance	Cms	mm/N	0,415
Force factor	BxL	N/A	6,87
Mechanical Q-factor	Qms		3,64
Electrical Q-factor	Qes		0,43
Total Q-factor	Qts		0,38
Equivalent air volume	Vas	l (ft³)	1,84 (0.06)
Voice coil Inductance	Le	mH	0,06
Diaphragm area	Sd	cm² (in.²)	56 (8.7)
Reference efficiency	Eta 0	%	0,62
Efficiency bandwidth product	EBP	Hz	265

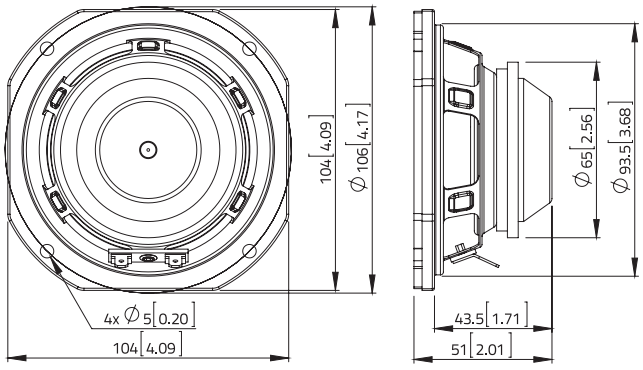
SHIPPING INFORMATION

Net weight	kg (lb.)	0,4 (0.88)
Multipack size (18) W x D x H	mm (in.)	410 x 380 x 165 (16.1 x 15 x 6.5)
Multipack weight	kg (lb.)	9,6 (21.2)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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Lavoce Italiana
sales@lavocespeakers.com sales.cn@lavocespeakers.com

HIGH FIDELITY DETAIL

SOFT DOME TWEETERS

Incorporating neodymium magnet motor structures in compact designs, our Soft Dome Tweeters combine high efficiency and power handling, together with smooth frequency responses to 30kHz and a controlled dispersion characteristic, making them ideal for a portable, studio, install or compact array projects requiring a detailed Hi-Fi quality high frequency performance.

Product name	Size mm (in.)	Magnet material	Voice coil mm (in.)	Sensitivity dB	AES Power W	Freq. range Hz	Diaphragm material	Nominal Impedance [Options] Ω	Unit OD mm (in.)	Net weight kg (lb.)	Terminals	No heatsink option
TN100.70	25 (1)	Neo	20 (0.75)	89	10	1500-30000	Textile	8	38,2 (1.51)	0,05 (0.1)	Wires	•
TN101.00	26 (1)	Neo	25 (1)	91,5	15	1500-20000	Textile	8	39 (1.54)	0,05 (0.1)	Pins	•
TN131.00	32 (1.3)	Neo	25 (1)	92	15	1250-30000	Textile	8 [16]	48 (1.89)	0,08 (0.18)	Wires	•

TN100.70

1" SOFT DOME TWEETER

NEODYMIUM MAGNET

- 0.75 INCH CCAW VOICE COIL
- 89 dB/SPL SENSITIVITY
- 20 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- TEXTILE DIAPHRAGM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	25 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,3
Program power (1)	W	20
AES power above 2.5 kHz (12dB/oct) (2)	W	10
Sensitivity (3)	dB	89
Frequency range	Hz	1500 ÷ 30000
Voice coil diameter	mm (in.)	20 (0.75)
Magnet material	Neodymium	
Coil material	CCAW	
Former material	Polyimide	
Diaphragm and Surround material	Textile	
Ferrofluid	YES	

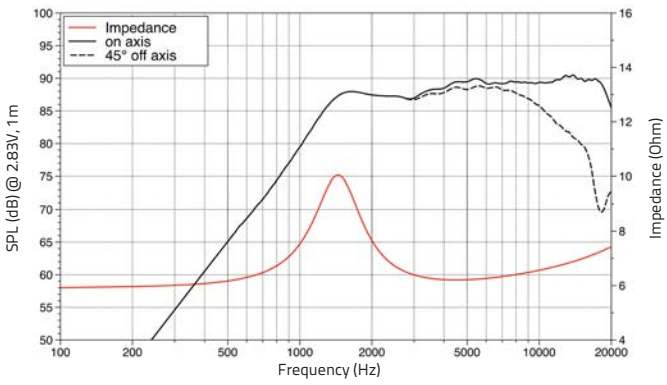
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,9
Resonance frequency	Fs	Hz	1500
Moving mass	Mms	g (oz)	0,16 (0.01)
Compliance	Cms	mm/N	0,07
Force factor	BxL	N/A	1,75
Mechanical Q-factor	Qms		2
Electrical Q-factor	Qes		2,9
Total Q-factor	Qts		1,2
Voice coil inductance	Le	mH	0,030
Diaphragm area	Sd	cm² (in.²)	5,6 (0.87)

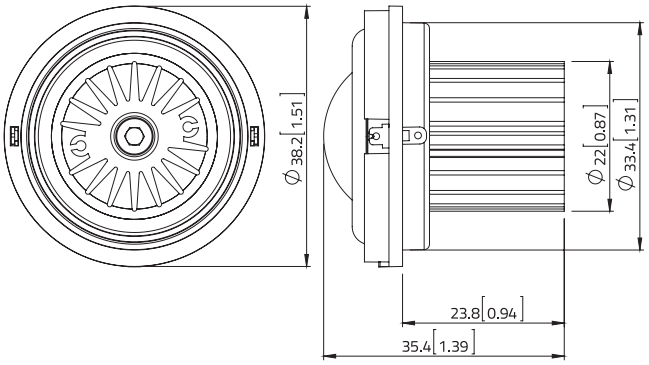
SHIPPING INFORMATION

Net weight	kg (lb.)	0,05 (0.1)
Multipack size (100) W x D x H	mm (in.)	310 x 310 x 210 (12.2 x 12.2 x 8.3)
Multipack weight	kg (lb.)	6,2 (13.7)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested with heat sink for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. **(3)** Measured on axis at 2.83V, 1m, halfspace, average SPL in the frequency range

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TN101.00

1" SOFT DOME TWEETER

NEODYMIUM MAGNET

- 1 INCH CCAW VOICE COIL
- 91,5 dB/SPL SENSITIVITY
- 30 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- TEXTILE DIAPHRAGM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	26 (1)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,2
Program power (1)	W	30
AES power above 2.5 kHz (12dB/oct) (2)	W	15
Sensitivity (3)	dB	91,5
Frequency range	Hz	1500 ÷ 20000
Voice coil diameter	mm (in.)	25 (1)
Magnet material	Neodymium	
Coil material	CCAW	
Former material	Polyimide	
Diaphragm and Surround material	Textile	
Ferrofluid	YES	

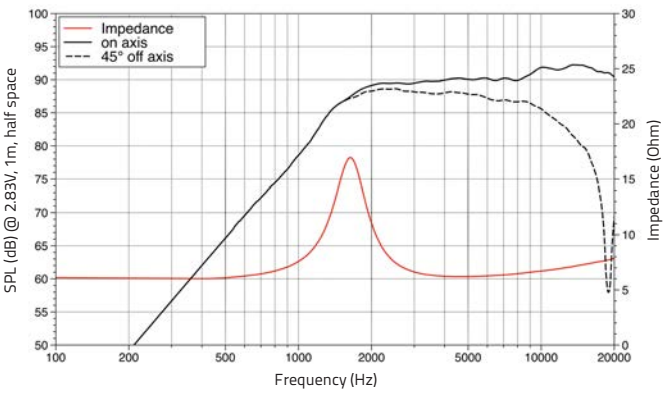
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,6
Resonance frequency	Fs	Hz	1600
Moving mass	Mms	g (oz)	0,21 (0.01)
Compliance	Cms	mm/N	0,046
Force factor	BxL	N/A	2,5
Mechanical Q-factor	Qms		4,03
Electrical Q-factor	Qes		1,92
Total Q-factor	Qts		1,3
Voice coil inductance	Le	mH	0,03
Diaphragm area	Sd	cm² (in.²)	6,6 (1.02)

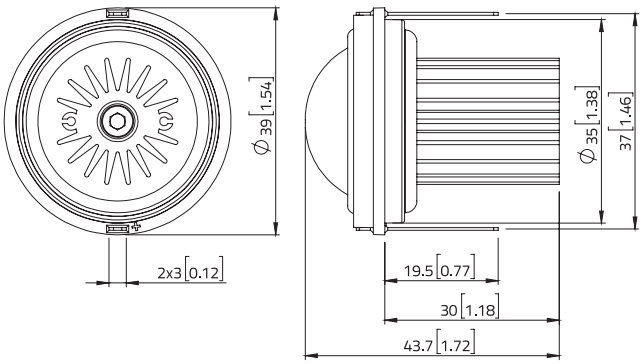
SHIPPING INFORMATION

Net weight	kg (lb.)	0,05 (0.11)
Multipack size (100) W x D x H	mm (in.)	310 x 310 x 240 (12.2 x 12.2 x 9.4)
Multipack weight	kg (lb.)	9,6 (21.2)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested with heat sink for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003.
(3) Measured on axis at 2.83V, 1m, halfspace, average SPL in the frequency range

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TN131.00

1.3” SOFT DOME TWEETER

NEODYMIUM MAGNET

- 1 INCH CCAW VOICE COIL
- 92 dB/SPL SENSITIVITY
- 30 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- TEXTILE DIAPHRAGM
- ALTERNATIVE IMPEDANCE: 16 OHM

GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	32 (1.3)
Nominal impedance	Ω	8
Minimum impedance	Ω	6,3
Program power (1)	W	30
AES power above 2.5 kHz (12dB/oct) (2)	W	15
Sensitivity (3)	dB	92
Frequency range	Hz	1250 ÷ 30000
Voice coil diameter	mm (in.)	25 (1)
Magnet material	Neodymium	
Coil material	CCAW	
Former material	Polyimide	
Diaphragm and Surround material	Textile	
Ferrofluid	YES	

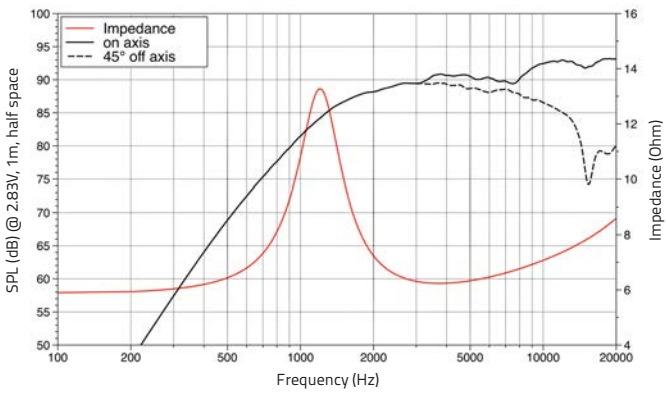
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	5,8
Resonance frequency	Fs	Hz	1250
Moving mass	Mms	g (oz)	0,34 (0.01)
Compliance	Cms	mm/N	0,05
Force factor	BxL	N/A	2,9
Mechanical Q-factor	Qms		2,3
Electrical Q-factor	Qes		1,84
Total Q-factor	Qts		1,00
Voice coil inductance	Le	mH	0,04
Diaphragm area	Sd	cm² (in.²)	8,8 (1.36)

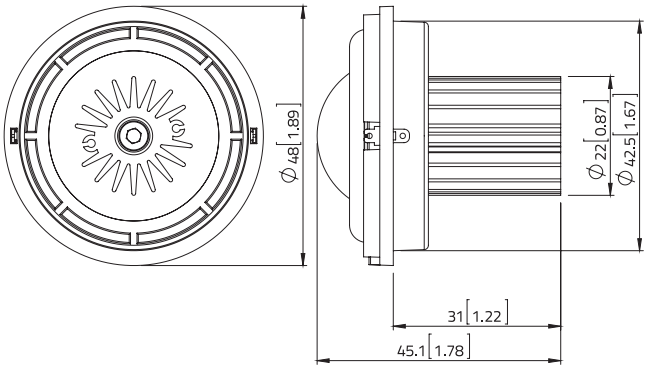
SHIPPING INFORMATION

Net weight	kg (lb.)	0,08 (0.18)
Multipack size (100) W x D x H	mm (in.)	358 x 295 x 300 (14.1 x 11.6 x 11.8)
Multipack weight	kg (lb.)	10 (22)

FREQUENCY RESPONSE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested with heat sink for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003.
(3) Measured on axis at 2.83V, 1m, halfspace, average SPL in the frequency range

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PROTECTED ACOUSTICS

WEATHER-RESISTANT COAXIALS

Intended for OEM customers only, our Weather-Resistant Coaxials offer protection from the elements for challenging audio applications subject to high levels of water, salt-water, UV, or fog. Using ABS baskets and innovative protection features, this category includes a weatherized 8" common HF/LF magnet coaxial component for outdoor system designs, and a waterproof 6.5" in-ceiling coaxial solution with built-in marine grade crossover which is IP65 rated and intended for discreet in-wall or in-ceiling installation.

Product name	Size mm (in.)	Basket material	Magnet material	IP rating	Line Transformer		Voice coil mm (in.)	Sens. dB	AES Power W	Freq. range Hz	Xmax mm	LF Cone material	HF Diaphragm material	X-over	Nom. imp. Ω	Depth mm (in.)	Net weight kg (lb.)
ICF061.00	165 (6.5)	ABS	Ferrite/Neo	IP65	-	LF	25 (1)	86	50	70 - 22000	3,4 (0.13)	Polypropylene with UV inhibitors	Textile	Included	6	93 (3.66)	1,35 (2,98)
						HF	20 (0.8)										
CPF082.00K	200 (8)	ABS	Ferrite	-	-	LF	51 (2)	95,5	200	90 - 5000	3,3 (0.13)	WP Treated Paper + WP Front Side	Polymide	2200	4	110 (4.33)	2,9 (6.4)
						HF	35 (1.4)	103,5	35	1500 - 20000							

ICF061.00

6,5" WATERPROOF IN-CEILING COAXIAL

FERRITE WOOFER - NEODYMIUM TWEETER MAGNET
ABS BASKET DRIVER

OEM only

- IP65 PROTECTION GRADE
- 1 INCH WOOFER AND 0.8 INCH TWEETER COPPER VOICE COIL
- 86 dB/SPL SENSITIVITY
- 100 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED MOTOR AND SUSPENSIONS
- EXTENDED FREQUENCY RESPONSE AND CONSTANT DIRECTIVITY
- OPTIMIZED BUILT-IN SEALED CROSSOVER WITH MARINE GRADE COATED PCB TO PREVENT CORROSION
- EDGELESS MESH GRILL WITH MAGNETIC LOCKING SYSTEM FOR NEAR STEALTH IN-WALL/IN-CEILING INSTALLATION
- FAST AND EASY INSTALLATION, WITHOUT NEED TO ACCESS ABOVE THE CEILING, THANKS TO THE ROBUST HOOKING SYSTEM
- SAFETY STAINLESS STEEL CORD AND FASTON TERMINATED INPUT WIRE INCLUDED
- AVAILABLE WITH 70/100 V LINE TRANSFORMER FOR OEM ENQUIRIES

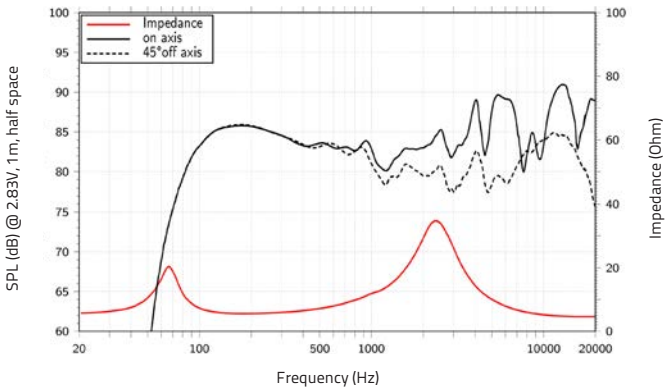
GENERAL SPECIFICATIONS

Nominal diameter	mm (in.)	165 (6.5)
Nominal impedance	Ω	6 (bypass mode)
Minimum impedance	Ω	5,1 (bypass mode)
Program power (1)	W	100
AES Power rating (2)	W	50
Sensitivity (3)	dB	86
Frequency range	Hz	70 ÷ 22k
Voice coil diameter	mm (in.)	25 (1)
Chassis material	ABS	
Magnet material	Ferrite (LF) - Neodymium (HF)	
Magnet dimensions OD x ID x h	mm (in.)	75 x 32 x 15 (2.95 x 1.26 x 0.59)
Coil material	Copper	
Former material	Polymide	
Cone material	Polypropilene with UV Inhibitors (LF) - Textile (HF)	
Surround material	NBR Rubber	
Xmax (4)	mm (in.)	3,4 (0.13)
Xmech (5)	mm (in.)	4,8 (0.19)
Gap height	mm (in.)	4,5 (0.18)
Voice coil winding height	mm (in.)	9 (0.35)
Net weight	l (ft³)	1,35 (2.98)

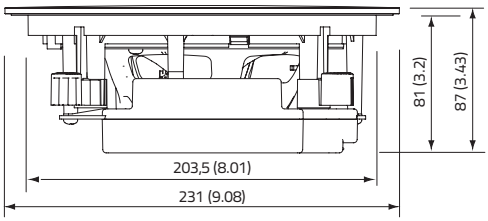
SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	4,9
Resonance frequency	Fs	Hz	60
Moving mass	Mms	g (oz)	13,9 (4.9)
Compliance	Cms	mm/N	0,5
Force factor	BxL	N/A	5,3
Mechanical Q-factor	Qms		4,3
Electrical Q-factor	Qes		0,9
Total Q-factor	Qts		0,75
Equivalent air volume	Vas	l (ft³)	10,7
Voice coil Inductance	Le	mH	0,32
Diaphragm area	Sd	cm² (in.²)	122,7 (190.18)
Reference efficiency	Eta 0	%	0,245

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power. **(2)** Tested for two hours using a continuous, band-limited pink noise signal as per AES 2-1984 Rev. 2003. Loudspeaker tested in free air. **(3)** From T/S parameters, measured with Klippel DA LPM module. **(4)** The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height. **(5)** The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height. **(6)** Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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CPF082.00K

8” COAXIAL

FERRITE COMMON HF\LF MAGNET
ABS BASKET DRIVER

PRELIMINARY

- 2 INCH LF EDGEWOUND CCA VOICE COIL
- 1.4 INCH HF CCAW VOICE COIL
- 95,5 dB/SPL SENSITIVITY
- 400 WATT PROGRAM POWER HANDLING
- FEM OPTIMIZED COMMON MOTOR, PHASEPLUG AND DIAPHRAGM
- 90 - 20000 Hz FREQUENCY RANGE
- 100° NOMINAL COVERAGE
- POLYIMIDE HF DIAPHRAGM
- DOUBLE ALUMINIUM DEMODULATING RINGS
- COMPACT AND LIGHTWEIGHT DESIGN
- WATERPROOF ACOUSTICALLY TRANSPARENT DUST CAP
- SUITABLE FOR OUTDOOR LOUDSPEAKER APPLICATIONS

GENERAL SPECIFICATIONS		LF	HF
LF Nominal diameter / HF Exit	mm (in.)	200 (8)	25,4 (1)
Nominal impedance	Ω	4	8
Minimum impedance	Ω	3,7	7,5
Program power (1)	W	400	70
AES Power rating (2)	W	200	35
Sensitivity (3)	dB	95,5	103,5
Frequency range	Hz	90 ÷ 5000	1500 ÷ 20000
Voice coil diameter	mm (in.)	51 (2)	35 (1.4)
Chassis material		ABS	
Magnet material		Ferrite	
Magnet dimensions OD x ID x h	mm (in.)	140 x 62 x 22 (5.51 x 2.44 x 0.87)	
Coil material		Edgewound CCA	CCAW
Former material		Glass Fiber	Kapton
LF Cone / HF Dome material		WP Treated Paper + WP Front Side	Polyimide
Surround material		Polycotton	Polyimide
Flux density	T	0,9	1,5
Recommended crossover (4)	Hz	-	2200
Xmax (5)	mm (in.)	3,3 (0.13)	-
Xmech (6)	mm (in.)	7,3 (0.29)	-
Gap height	mm (in.)	8 (0.31)	-
Voice coil winding height	mm (in.)	10,7 (0.42)	-
Driver displacement volume	l (ft³)	1,1 (0.04)	-
Recommended enclosure	l (ft³)	10,55 (0.37)	
Recommended tuning	Hz	100	

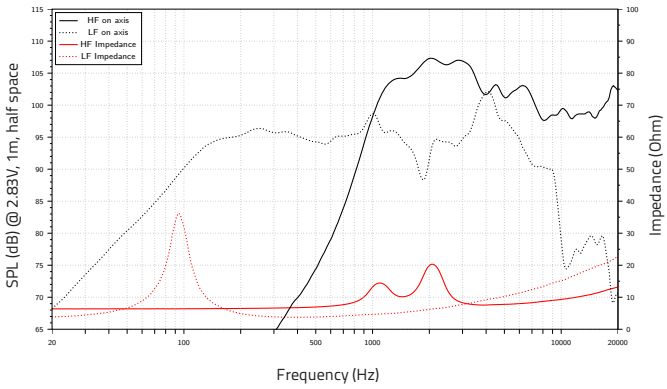
LF SMALL SIGNAL PARAMETERS

DC resistance	Re	Ohm	3,2
Resonance frequency	Fs	Hz	93
Moving mass	Mms	g (oz)	18,8 (0.66)
Compliance	Cms	mm/N	0,156
Force factor	BxL	N/A	8,48
Mechanical Q-factor	Qms		5,72
Electrical Q-factor	Qes		0,49
Total Q-factor	Qts		0,45
Equivalent air volume	Vas	l (ft³)	10,66 (0.38)
Voice coil Inductance	Le	mH	0,25
Diaphragm area	Sd	cm² (in.²)	220 (34.1)
Reference efficiency	Eta 0	%	1,67
Efficiency bandwidth product	EBP	Hz	190

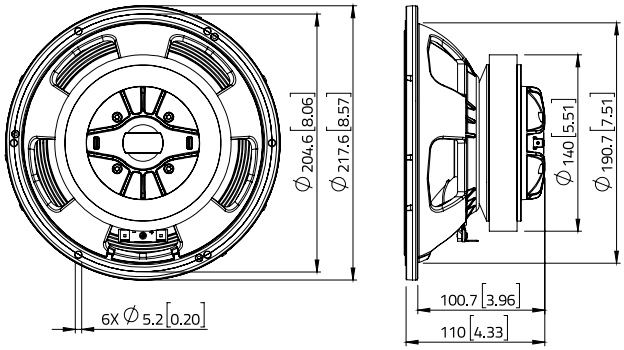
SHIPPING INFORMATION

Net weight	kg (lb.)	2,9 (6.4)
Multipack size (1) W x D x H	mm (in.)	244 x 244 x 170 (9.6 x 9.6 x 6.7)
Multipack weight	kg (lb.)	3,3 (7.3)

FREQUENCY RESPONSE AND IMPEDANCE



DIMENSIONS mm (in.)



(1) Program power is defined as 3 dB greater than AES Power.
(2) Tested in free air for two hours using a continuous:
LF: band-limited pink noise signal as per AES 2-1984 Rev. 2003.
HF: band-limited (2200-20000 Hz, 12dB/oct.) pink noise signal as per AES 2-1984 Rev. 2003.
(3) LF: From T/S parameters, measured with Klippel DA LPM module.
HF: Measured on axis at 2.83V, 1m, SPL averaged in the frequency range 1500 ÷ 20000 Hz.
(4) High pass filter with slope 12dB/oct. or higher.
(5) The Xmax is calculated as: (Hvc - Hg)/2+ Hg/4. Hvc is the voice coil height and Hg the gap height.
(6) The Xmech is calculated as: (Hvc - Hg)/2 +(Hg-2). Hvc is the voice coil height and Hg the gap height.
(7) Thiele-Small parameters are measured after preconditioning: a) at 20°C- 22°C, 50% humidity for 2 hours; b) by Klippel LSI measurement.

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TECHNICAL SUPPORT

At LAVOCE we want to make it easy for our customers to select, test and use our products. From making available simplified 3D drawings to aid initial concepts or suggested cabinet designs for those that like to build, supporting your experience of our proposition is of paramount important to us, so if you cannot find the answer you are looking for in this catalogue or from our website, please send your enquiry to support@lavocespeakers.com.

SUGGESTED CABINET DESIGNS

Download the following detailed suggested cabinet designs from www.lavocespeakers.com/support/.
These are comprehensive and optimised designs which are free to use and include detailed drawings, frequency response graphs and passive crossover network drawings for the full range systems.

SUBWOOFER CABINET DESIGNS

Subwoofer Cabinet	Design style	Subwoofer
Bassline 118H	1 x 18" Horn loaded (1200W)	SAF184.02 (Ferrite) or SAN184.02 (Neo)
Bassline 118R	1 x 18" Bass reflex (1200W or 1500W)	SAF184.04 (Ferrite) or SAN184.03 (Neo) SAF184.02 (Ferrite) or SAN184.02 (Neo)
Bassline 218R	2 x 18" Bass reflex (2400W)	SAF184.02 (Ferrite) or SAN184.02 (Neo)
Bassline 121RN	1 x 21" Bass reflex (1700W)	SAN214.50 (Neo)

12" FULL RANGE SYSTEM DESIGNS

Fulll Range System	12" Woofer	Compression driver	Horn
Sistema F123.10N	WAF123.00 (Ferrite, 500W)	DN10.17T (Neo 1" Exit, 60W)	HD1004
Sistema N123.10N	WAN123.00 (Neo, 500W)	DN10.17T (Neo 1" Exit, 60W)	HD1004
Sistema F123.14N	WAF123.00 (Ferrite, 500W)	DN14.25T (Neo 1.4" Exit, 80W)	HD1403
Sistema N123.14N	WAN123.00 (Neo, 500W)	DN14.25T (Neo 1.4" Exit, 80W)	HD1403

15" FULL RANGE SYSTEM DESIGNS

Fulll Range System	15" Woofer	Compression driver	Horn
Sistema F153.10N	WAF153.00 (Ferrite, 500W)	DN10.17T (Neo 1" Exit, 60W)	HD1004
Sistema N153.10N	WAN153.00 (Neo, 500W)	DN10.17T (Neo 1" Exit, 60W)	HD1004
Sistema F153.14N	WAF153.00 (Ferrite, 500W)	DN14.25T (Neo 1.4" Exit, 80W)	HD1403
Sistema N153.14N	WAN153.00 (Neo, 500W)	DN14.25T (Neo 1.4" Exit, 80W)	HD1403

LIMITED PRODUCT WARRANTY

Our limited product warranty period is 3 years from date of purchase from an authorised dealer or distributor. For any warranty or repair enquiries for LAVOCE products supplied in an OEM manufacturer's finished system product, please kindly contact the OEM manufacturer directly.
For full terms and conditions, please visit https://www.lavocespeakers.com/support/.

SIMPLIFIED 3D DRAWINGS

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SERVICING

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We reserve the right to change products specifications
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INNOVATORS BY TRADITION

Lavoce ITALIANA

International sales dept - Italy - T +39 0733 870 840 - M +39 349 4760452 - F +39 0733 870 880 - sales@lavocespeakers.com
Sales office - USA - T +1 615 541 7154 - M +1 615 541 9153 - sales.usa@lavocespeakers.com
Sales office - China - T +86 573 8910 5856 - M +86 186 2181 7905 - F +86 573 8910 5859 - sales.cn@lavocespeakers.com
info@lavocespeakers.com