

**SPECIAL
FEATURES**

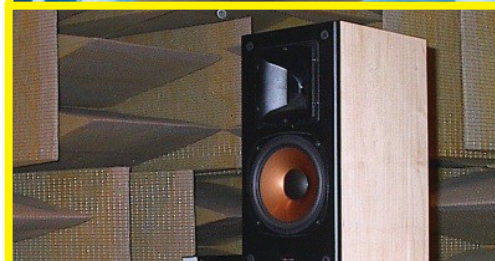
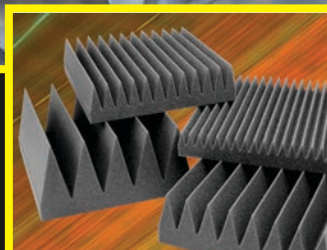
The Past & Future of Rare Earth Materials • Loudspeaker Industry Global Trends
Microspeakers, Earphones, & Headphones • Speaker Cone & Voice Coil Surveys

2012 LIS

LOUDSPEAKER INDUSTRY SOURCEBOOK

\$20.00

- LOUDSPEAKERS
- DRIVERS
- COMPONENTS
- SOFTWARE
- TEST EQUIPMENT
- MEASUREMENT MICROPHONES
- ENCLOSURES & PARTS
- CROSSOVERS
- MICROSPEAKERS
- SPEAKER PARTS
- SPEAKER RESOURCES
- AND MORE...**



An Annual Sourcebook from the Publisher of *Voice Coil* and *audioXpress*

Speaker Test Solutions

Exel handheld instruments

The MR-PRO and XL2 instrument set offers an easy-to-use combination for reference measurements, performance verification and trouble shooting.

A few of the features for speakers:

MR-PRO

- Sine, Noise and swept/stepped signals
- Also measures impedance of connected device
- 70/100V power calculation & opt. protective adapter

XL2

- Both Acoustic and Audio measurements
- 1/1, 1/3 octave RTA (opt. 1/6 & 1/12)
- FFT spectrum analyzer
- THD+N, Level, Frequency
- Delay; Polarity; Scope mode



MR-PRO
Professional analog
audio signal generator



XL2
Hand Held audio
and acoustic analyzer

High performance production line testing



Proven PureSound™ technology

Reliably detects any audible defects with maximum hit rate. Parallel analysis of up to four channels.

Modular Analyzer architecture

Customize your speaker or mic test system by choosing the number of analysis channels, built in impedance & coil resistance measurements, switchers, MEMS mic interfaces, polar plots for mics, environmental sensors, etc.

Cost efficiency

Optimized system configuration limits your investments to the needs of your application only.

Maximum test speed

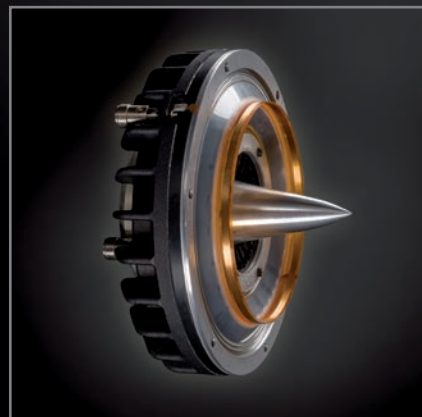
Very fast glide sweep technology measures all quality parameters from a single stimulus within a fraction of a second.

FX-Control software

Powerful and complete system control suite supports flexible GUI designs, built-in limits handling and sequenced measurements.



pure precision.



1,4", 1,5" and 2" Coaxial compression drivers

The patented design employs two concentric annular ring diaphragms providing dramatic improvement in dynamic response, clarity and transparency.

With two subsystems in one, each driver covers a smaller frequency range for increased power handling, high dynamic and extremely low distortion.

Innovative driver solutions

European finest quality drivers for professional and high-end loudspeaker applications

Worldwide largest manufacturer of premium compression drivers

Ultra low distortion cone drivers	Coaxial transducers	Annular diaphragm compression drivers	Planar wave drivers for line arrays	EUROPEAN HIGH QUALITY SPEAKERS	
				BMS Speakers GmbH Hannover – Germany www.bmsspeakers.com	

INDUSTRY REPORTS		
7	Rare Earth Crisis Dissected Securing the Future By John Ebert	
12	Global Trends in the Speaker Industry 2012 By Mike Klasco	
VENDOR SURVEY		
16	Loudspeaker Cone Vendor Survey 2012 By Nora Wong and Maria Markowski	
VENDOR DIRECTORY		
22	State of the Microspeakers, Earphones, and Headphones Industry By Nora Wong	
27	Voice Coil Manufacturers By Mike Klasco	
ACOUSTIC DESIGN		
38		
39	CABLES & CONNECTORS Cables Connectors Wire Channel	
40	CONSULTANTS & DESIGNERS	
42	DIGITAL SIGNAL PROCESSING	
42	EARPHONES & HEADPHONES Earphones Headphones	
43	ENCLOSURES & CABINETS Baffles Finished Cabinets Sub-Assemblies, Panels, Materials Rigging	
45	ENCLOSURE PARTS Enclosure Grilles Enclosure Stuffing Grille Assemblies Hardware	
47	ENGINEERING SOFTWARE Acoustic Analysis Box Design Crossover Optimizer Network Design CAE or CAD	
49	FINISHED SYSTEMS Home Pro Car	
51	MANUFACTURING EQUIPMENT Adhesive Dispensers Conveyors Curing Ovens Lead Out Wire Termination Production Line Equipment Magnetizers/Demagnetizers Ultrasonic Assembly Equipment	
52	MEASUREMENT MICROPHONES Lab Instruments Field Mics Professional Consumer Measuring Mics	
52	MIC CAPSULES Dynamic ECM MEMS	
53	MICROSPEAKERS Cell Phone Laptop Tablet/MID	
54	OEM SPEAKER ASSEMBLY Acoustic Materials Finished Goods	
56	OEM SPEAKERS & DRIVERS Compression Drivers Full Range Horns Midrange Paging Horns Piezo Planar Siren/Voice Warning Tweeters Woofers	
70	PASSIVE COMPONENTS, CROSSEOVERS, & WIRING Passive Components Electronic Crossovers Finished Passive Crossover Networks Wire & Wiring Harnesses	
76	SPEAKER PARTS A-E Adhesives & Glues Cone Additives & Other Treatments Cone & Suspension Components	
81	SPEAKER PARTS F-L Frames & Baskets Lead Out Wire Lead Out Wire Termination/ Crimps	
82	SPEAKER PARTS M-Z Magnetic Assemblies Voice Coil Components	
88	TEST EQUIPMENT Accelerometers Anechoic Chambers Audio Analyzers Gaussmeters LCR Bridges MLS Multimeters Oscilloscopes Resistance Bridges Signal Generators Sine/Square Wave Oscillators Speaker Turntables Spectrum Analyzers Stroboscopes Test Mics Testing Cabinets Turns Counters	
95	DRIVER RECONING/ SERVICE/ ASSOCIATIONS/BOOKS & PERIODICALS/ LICENSING	
DEPARTMENTS		
4	Supporting Companies	
30	Company Compendium	
96	Appendix	
97	Address List	



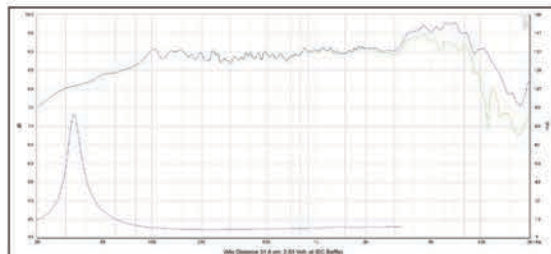
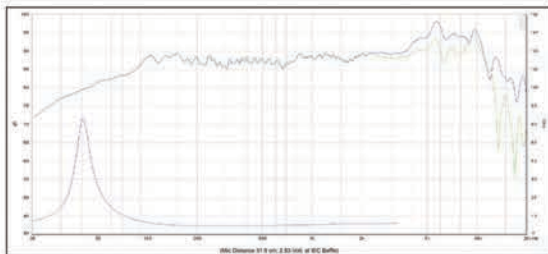
5" SB15MFC30-8

WHAT'S NEW



6" SB17MFC35-8

THE SPECS



Specs :

Nominal Impedance	8 Ω	Free air resonance, F _s	41 Hz
DC resistance, R _e	5.7 Ω	Sensitivity (2.83 V/1m)	87 dB
Voice coil inductance, L _e	0.14 mH	Mechanical Q-factor, Q _{ms}	5.5
Effective piston area, S _d	88 cm ²	Electrical Q-factor, Q _{es}	0.4
Voice coil diameter	30.5 mm	Total Q-factor, Q _{ts}	0.37
Voice coil height	15 mm	Moving mass incl.air, m _{md}	9 g
Air gap height	5 mm	Force factor, Bl	5.7 Tm
Linear coil travel (p-p)	10 mm	Equivalent volume, V _{as}	18.7 liters
Magnetic flux density	1.0 T	Compliance, C _{ms}	1.7 mm/N
Magnet weight	0.54 kg	Mechanical loss, R _m	0.4 kg/s
Net weight	1.47 kg	Rated power handling	50 watt

The parameter are measured on drive units that are broken in

Specs :

Nominal Impedance	8 Ω	Free air resonance, F _s	34 Hz
DC resistance, R _e	5.7 Ω	Sensitivity (2.83 V/1m)	88 dB
Voice coil inductance, L _e	0.15 mH	Mechanical Q-factor, Q _{ms}	5.5
Effective piston area, S _d	118 cm ²	Electrical Q-factor, Q _{es}	0.4
Voice coil diameter	35.5 mm	Total Q-factor, Q _{ts}	0.35
Voice coil height	16 mm	Moving mass incl.air, m _{md}	11.8 g
Air gap height	5 mm	Force factor, Bl	6.2 Tm
Linear coil travel (p-p)	11 mm	Equivalent volume, V _{as}	37.5 liters
Magnetic flux density	1.0 T	Compliance, C _{ms}	1.89 mm/N
Magnet weight	0.54 kg	Mechanical loss, R _m	0.5 kg/s
Net weight	1.56 kg	Rated power handling	60 watt

The parameter are measured on drive units that are broken in



Specs :

Nominal Impedance	6 Ω	Free air resonance, F _s	20 Hz
DC resistance, R _e	4.5 Ω	Sensitivity (2.83 V/1m)	86 dB
Voice coil inductance, L _e	3.0 mH	Mechanical Q-factor, Q _{ms}	4.5
Effective piston area, S _d	312 cm ²	Electrical Q-factor, Q _{es}	0.31
Voice coil diameter	75.6 mm	Total Q-factor, Q _{ts}	0.29
Voice coil height	28.5 mm	Moving mass incl.air, m _{md}	132 g
Air gap height	6 mm	Force factor, Bl	15.4 Tm
Linear coil travel (p-p)	22 mm	Equivalent volume, V _{as}	66 liters
Magnetic flux density	0.63 T	Compliance, C _{ms}	0.48 mm/N
Magnet weight	2.1 kg	Mechanical loss, R _m	3.7 kg/s
Net weight	5.38 kg	Rated power handling	200 watt

The parameter are measured on drive units that are broken in



Specs :

Nominal Impedance	6 Ω	Free air resonance, F _s	19 Hz
DC resistance, R _e	4.5 Ω	Sensitivity (2.83 V/1m)	88 dB
Voice coil inductance, L _e	3.0 mH	Mechanical Q-factor, Q _{ms}	5.0
Effective piston area, S _d	508 cm ²	Electrical Q-factor, Q _{es}	0.34
Voice coil diameter	75.6 mm	Total Q-factor, Q _{ts}	0.32
Voice coil height	28.5 mm	Moving mass incl.air, m _{md}	154 g
Air gap height	6 mm	Force factor, Bl	15.4 Tm
Linear coil travel (p-p)	22 mm	Equivalent volume, V _{as}	164 liters
Magnetic flux density	0.63 T	Compliance, C _{ms}	0.46 mm/N
Magnet weight	2.1 kg	Mechanical loss, R _m	3.7 kg/s
Net weight	5.85 kg	Rated power handling	200 watt

The parameter are measured on drive units that are broken in

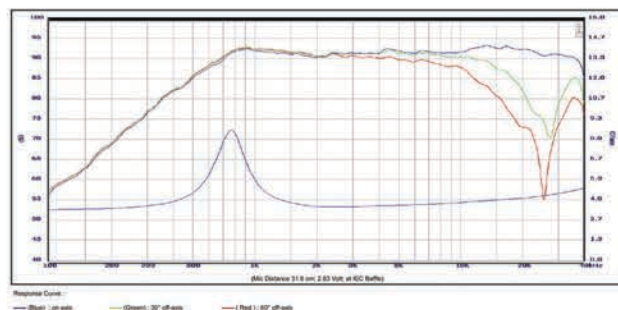
10" SB29SWNRX-S75-6
Drivers

12" SB34SWNRX-S75-6
Drivers

SB26STAC-C000-4 Drivers



- Cast aluminium faceplate
- Copper cap for reduced voice coil inductance and minimum phase shift
- Non-reflective rear chamber with optimized damping for improved dynamics
- Flow optimized vented pole piece for optimum coupling to rear chamber
- Fine weave soft fabric dome for smooth frequency response
- Saturation controlled motor system for low distortion
- CCAW voice coil for low moving mass
- Long life silver lead wires
- Low resonance frequency



For more information or to try Samples of any SB products please contact

david@sbacoustics.com

David A Stephens • Tel. +1 262.784.7852

THE TEAM

PUBLISHER:	Hugo Van haecke	ART DIRECTOR:	KC Prescott
EDITORIAL COORDINATOR:	C. J. Abate	GRAPHICS:	Nordian Davis
ASSOCIATE EDITOR:	Shannon Becker	CUSTOMER SERVICE:	Debbie Lavoie
ASSOCIATE PUBLISHER:	Shannon Barraclough	ADVERTISING COORDINATOR:	Erica Fienman
MARKETING REPRESENTATIVE:	Amanda Anderson	2012 CONTRIBUTORS:	Vance Dickason, Mike Klasco, Maria Markowski, Nora Wong
CONTROLLER:	Jeff Yanco		

THE NETWORKS



OUR INTERNATIONAL TEAMS

	United Kingdom Wisse Hettinga +31 (0)46 4389428 w.hettinga@elektor.com		Spain Eduardo Corral +34 91 101 93 85 e.corral@elektor.es		India Sunil D. Malekar +91 9833168815 ts@elektor.in
	USA Hugo Vanhaecke +1 860-875-2199 h.vanhaecke@elektor.com		Italy Maurizio del Corso +39 2.66504755 m.delcorso@inware.it		Russia Nataliya Melnikova 8 10 7 (965) 395 33 36 nataliya-m-larionova@yandex.ru
	Germany Ferdinand te Walvaart +49 (0)241 88 909-0 f.tewalvaart@elektor.de		Sweden Wisse Hettinga +31 (0)46 4389428 w.hettinga@elektor.com		Turkey Zeynep Köksal +90 532 277 48 26 zkoksal@beti.com.tr
	France Denis Meyer +31 (0)46 4389435 d.meyer@elektor.fr		Brazil João Martins +351214131600 joao.martins@editorialbolina.com		South Africa Johan Dijk +27 78 2330 694 / +31 6 109 31 926 J.Dijk@elektor.com
	Netherlands Harry Baggen +31 (0)46 4389429 h.baggen@elektor.nl		Portugal João Martins +351214131600 joao.martins@editorialbolina.com		China Cees Baay +86 (0)21 6445 2811 CeesBaay@gmail.com

2012

The Loudspeaker Industry Sourcebook is an annual publication by Segment LLC, Hugo Van haecke, publisher, at 4 Park St., Vernon, CT, 06066, U.S.A. Periodical postage paid at Vernon, CT and additional offices.

Head Office:
Segment LLC
4 Park St., Vernon, CT 06066
Phone: (860) 875-2199

Fulfillment:
Loudspeaker Industry Sourcebook
P.O. Box 462256
Escondido, CA 92046
E-mail: audioxpress@pcspublink.com
Phone: (800) 269-6301, Internet: www.audioamateur.com,
Address Changes/Problems: audioxpress@pcspublink.com

US Advertising:
Strategic Media Marketing, Inc.
2 Main St.
Gloucester, MA 01930 USA
Phone: (978) 281-7708
Fax: (978) 281-7706
E-mail: peter@smmarketing.us
Advertising rates and terms available on request.

SUPPORTING COMPANIES

	AAC- Applications Acoustiques de Composites www.aac.fr	79		Guangzhou Hi-Vi Electrical Appliances www.hivi.com	68
	ACO Pacific, Inc. www.acopacific.com	91		Huey Tung International Co., Ltd. www.hueytung.com.tw	60
	Acoustics First Corp. www.acousticsfirst.com	46		Jantzen Audio Denmark www.jantzen-audio.com	73
	ALMA International www.almainternational.org	14		Kingstate Electronics Corp. www.kingstate.com.tw/eng	64
	Assistance Audio, Inc. www.assistanceaudio.com	62		Klippel GmbH www.klippel.de	93
	AUDAX www.audax.com	63		Lake Shore Cryotronics, Inc. www.lakeshore.com	93
	Audience www.audience-av.com	75		Listen, Inc. www.listeninc.com	89
	Audiostar Electronics Co., Ltd. www.audiostar.com.cn	83		Loudspeaker Components, LLC www.loudspeakercomponents.com	77
	Audio Technology Engineering (ATE) www.aes.org	41		Loudspeaker University www.loudspeakeruniversity.com	11
	audioXpress www.audioamateur.com	39, 44, 74, 93		Materion Electrofusion www.materion.com	78
	Aurasound Inc. www.aurasound.com	58		MenloEast www.menloscientific.com	21
	Beston Technology Corp. www.ribbonspeaker.com.tw	62		Menlo Scientific, Ltd. www.menloscientific.com	55, 87
	BMS Speakers GmbH www.bmsspeakers.com	1		MISO/Minneapolis Speaker Co. www.miscospeakers.com	49, 61, 85
	CC-Webshop www.cc-webshop.com	26, 53, 94		Morel www.morelhi-fi.com	65
	Celestion www.celestion.com	67		Mundorf EB GMBH www.mundorf.com	59, 71
	Creative Sound Solutions www.creativesound.ca	69		Nordson EFD www.nordson.com	C3
	Crystal Audio www.crystalacoustics.com	69		NTI Americas, Inc. www.ntiam.com	C2
	Danville Signal Processing, Inc. www.danvillesignal.com	40		One Magnet Electronic Co., Ltd. www.one-magnet.com	84
	DYNE Analytics www.dyneanalytics.com	48		Parts Express www.parts-express.com	6
	Eckel Industries, Inc. www.eckel.ca	92		Precision Econowind www.precisioneconowind.com	86
	Eighteen Sound www.eighteensound.com	57		R&D Team Software Development www.randteam.de	48
	Elektor www.elektor.com/shop	80		SB Acoustics www.sbaccoustics.com	3
	Eminence Speaker, LLC www.eminence.com	C4		Solen Electronique, Inc. www.solen.ca	75
	Etani Electronics Co., Ltd. www.etani.co.jp/eng	47		Suzuki Kanshi (Thailand) Co., Ltd. www.skt-bobbin.com	85
	ETI - Eichmann Technologies www.eti-research.com.au	75		Transducer Lab www.transducerlab.com	69
	FaitalPRO www.faitalpro.com	62		Usher Audio www.usheraudio.com	60
	Fluid Metering, Inc. www.fmpump.com	78		Warkwyn Associates, Inc. www.warkwyn.ca	40
	GedLee, LLC www.gedlee.com	69		Wavecor, Ltd. www.wavecor.com	66
	Globe Plastics, Inc. www.globecomposites.com	44		Wizard India Private, Ltd. www.wizardindia.com	76
	G.R.A.S. Sound & Vibration www.gras.dk	90		Yung International, Inc. www.yung.com.tw	83

Not a supporting company yet?

Contact Peter Wostrel (peter@smmarketing.us), Phone (978) 281-7708, Fax (978) 281-7706
to reserve advertising space in the *Loudspeaker Industry Sourcebook* for 2013

Editorial Inquiries

Send editorial correspondence and manuscripts to:
Loudspeaker Industry Sourcebook, Editorial Dept.
4 Park St., Vernon, CT 06066
E-mail: sbecker@audioXpress.com

No responsibility is assumed for unsolicited manuscripts. Include a self-addressed envelope with return postage. The staff will not answer technical queries by telephone.

Legal Notice

The content in this publication is offered to readers for their personal use only. Any commercial use of such ideas or designs without prior written permission is an infringement of the copyright protection of the work of each contributing author.

Some companies did not complete a listing request, but their relevance in the loudspeaker industry should be noted. Segment LLC is publishing these listings as a courtesy to contributors of the loudspeaker industry and is not responsible for any error or omissions to the directory listings/company information.



Loudspeaker Industry Sourcebook
Segment, LLC
4 Park St.
Vernon, CT 06066
(860) 875-2199
Fax (860) 871-0411
www.audioamateur.com

PARTS[®]

EXPRESS

YOUR ELECTRONICS CONNECTION™

Concept to Production

When competitiveness and expertise are needed, large and small OEMs turn to Parts Express for assistance with product development.

Drivers

Subwoofer Amps

Cabinets

Crossover Parts

Cabinet Accessories

Order your FREE catalog with over 15,000 products!

1-866-366-4909

wholesale.parts-express.com

725 Pleasant Valley Drive Springboro, OH 45066 USA



China Controls the World RE Supply

China Will Restrict/Ban RE Products to the U.S.

Over the next decade, China needs to create 200 million new jobs or almost 20 million new jobs annually! Magnet production produces twice as many jobs as mining oxides. Manufacturing magnetic assemblies generates five times as many jobs as mining oxides. Naturally, China must strive to move its RE production downstream away from mining. Exports of finished RE products are the key driver of China's economy, and any restrictions would gravely hinder China's economic development plans.

For the past decade, Nd oxide ranged between \$25 to \$45 per kilogram and Dy oxide ranged between \$150 to \$200 per kilogram. At this price level, mines in Australia, Canada, and the U.S. became uncompetitive and bowed out of the industry almost 20 years ago. Sparked by Chinese REO policies and

Chronology of a Global Debacle

- Early January 2011—The Chinese government announces reduced REO export quotas for 2011. The reduction was 30% higher than 2010 levels.
- Mid-January 2011—The Chinese government launches a major campaign against black market racketeering of REO. Sales records for 2010 indicated that the legal REO sales approximated 90,000 Tonnes while the black market REO sales approximated 120,000 Tonnes. This has been a constant source of embarrassment to the Chinese government's Anti-Smuggling Act.
- February 2011—The Chinese government proposes new REO antipollution policies to be implemented by October 2011.
- March 2011—The Chinese government elevates taxes on Chinese RE mines. Taxes on LRE increase by 10% (\$5 per kilogram). Taxes on HRE increase by 20% (\$50 per kilogram).
- April 2011—The industry responds with attempts to stockpile REO, RE alloy, and RE magnets, thereby triggering non-industry speculation.
- June 2011—Non-industry speculation by Chinese moguls reaches its peak.
- July 2011—Rampant non-industry speculation extends to



private citizens forcing REO prices to historical highs.

- September 2011—The Chinese government reduces the number of mine operators and refiners through government-sanctioned mergers, buyouts, and takeovers.
- October 2011—New REO antipollution policies take effect and the Chinese government announces a reduced list of certified mine operators and refiners.
- November 2011—The Chinese government requires all certified mine operators and refiners to certify all REO sales to legitimate NdFeB manufacturers, thereby curbing speculation. The REM marketplace is in freefall.
- December 2012—Prices on Nd and Dy drop to half their historical highs.
- April 2012—As of the time of publication, the REO prices remain in freefall.

The Effects: An Industry Under Siege

The impact of the REM crisis on world supply and marketplace continues to be felt long after the collapse of the speculative bubble.

Supply Chains Break

Many supply chains are unable to build in or pass on REM costs to their customers, and they cancel orders or drastically reduce their inventory. The hardest-hit industries include: electronics, linear motors, speakers, and hard disk drives. Some companies resort to sourcing unlicensed REM to survive.

Other supply chains embark on applications redesign to reduce or eliminate dependence on high-coercivity NdFeB products. The HVAC industry was the most aggressive in this regard, as ferrite magnets still dominate 90% of this vertical.

NdFeB Industry and Beyond

The NdFeB manufacturing industry experiences severe closures and temporary shutdowns of factories throughout China. An estimated 60% to 70% of factories closed during the height of the crisis. Some voluntarily closed by selling their REM inventories rather than fulfilling orders. Many surviving factories are operating at or below 30% capacity as of April 2012.

Even the Chinese government was caught off guard by the impact of the REM crisis on the supply of REM products and assemblies that enter the downstream factories in China. Motor manufacturers, electronics factories, and assembly houses were severely impacted by the lack of NdFeB components. A domino effect ensued.

REM Suppliers

After October 2011, the Chinese government consolidated the Chinese REM mining industry. In November 2011, the Chinese government instituted a new policy for REM producers to certify all REM sales to legitimate manufacturers (non-speculators). Meanwhile, China continues to seek REM sources outside of China.

There is a proliferation of non-Chinese REM suppliers. REM mining exploration and operations accelerate around

the globe. At the time of publication, there are an estimated 300-plus REM mining projects worldwide, outside of China. Major players (e.g., Molycorp, Lynas, Great Western, etc.) ramp up planned production schedules. However, REM production outside of China is not expected to seriously challenge or impact Chinese production until 2014.

Calculating the Future

WTO Trade Dispute Erupts

At the time of publication, a number of nations, led by the U.S. and Japan, filed a World Trade Organization (WTO) action against China for unfair practices relating to the REM supply. While the Chinese government denies any wrongdoing in the WTO action, they have avoided the usual sabre-rattling associated with defending their sovereign right to control their own resources (much in the way the U.S. protects its oil reserves).

One might read into China's subdued stance that it does not feel it is in a strong position to threaten with its usual staunch patriotic arguments (as it did with Japan during the fishing boat crisis in 2010). China's recent rebuff in several attempted purchases of mining operations outside of China has diminished its ability to dictate to the rest-of-the-world (ROW). The ROW has sent a message—we do not want any Chinese control of RE resources outside of China.

In the west, there is the perception (not reality) that China can and will shut off REM supplies to the world. This will never happen. It is economic suicide for China's downstream industries (e.g., electronics, motors, automation, etc). The past year demonstrated the effects of the government's hands-off approach to the REM crisis and how it hurt downstream industries as well as the REM industry. **Photos 3–6** illustrate typical REM products supplied from China to the west.

In China, there is the perception (not reality) that China's dominance in the RE market is being threatened by the global mining activities outside China. The reality is that China will need more REM for its continued economic growth and renewable energy program in the next two decades. Hence, they should welcome more foreign RE mining efforts.

In short, China does not want further confrontation with those countries involved in the WTO action that will likely be owners of new RE supply chains, which China will need access to, in the future.



Photo 3: Typical Chinese-supplied REM products

Options, Options, Options

In the long term, more RE mines will come online and REM pricing will decline and stabilize to levels well below what is current. We may well see Nd and Dy prices trading at half their current levels as a new norm. However, in the short term, what do you do if you are an applications engineer, purchasing manager, or director of operations? The options are, realistically, limited to the four Rs: redesign, reduce, recycle, reassemble.

Redesign without any Nd or Dy, where possible. However, this forces one back to either large, heavy designs with ferrite or copper-wound electromagnets, or SmCo where, inevitably, one will see a corresponding increase in prices of samarium (Sm) and cobalt (Co) from Chinese suppliers. Cobalt, in particular, is an even more heavily monopolized element than RE elements, as it resides in only a few mines in the world in the Republic of Congo.

Reduce the content of RE, especially Dy in high-temperature applications. Before the RE crisis, engineers designed for maximum performance instead of required performance. Yield rates in China are not particularly impressive because Chinese manufacturers continue to rely heavily on low-cost, wire-cutting machining techniques.

Being more judicious during the design phase can dramatically improve the yield rate. A block design has a far better yield rate than a ring design. A designed reduction in working temperature from 150°C to 120°C, can reduce the Dy content from as much as 6% to 1.5%. At \$700 per kilogram, a savings of 4.5% Dy is equivalent to halving the cost of the entire magnet.

Recycle the RE in used magnets. This principle has worked well in the area of energy conservation. The reality is that one

can only economically recycle alloy and magnets of a known property or grade. Even then, one may still need to recycle “down” to a lower grade than the original, thereby reducing the economic value of the recycled parts.

Most RE waste is produced in the swarf that results from machining. Based on present technology, the cost of recycling swarf and breaking it down into its constituent elements is more than double the cost of producing fresh REM. Moreover, the heavy use of acids in the recycling process creates a whole new environmental cost in the disposal of the by-products. Economically, recycling still has some way to go.

Reassembly is the combining of magnetic components with non-magnetic components to create a value-added assembly. China has been steadily moving downstream in products such as electronics, speakers, motors, and so forth. This trend is no less applicable to magnetic assemblies. The economic synergies of processing the magnet downstream into a subassembly or subcomponent mitigate growing labor costs while consolidating the supply base and improving consistency and continuity of the assembled product.

For many, the optimum and most pragmatic solution may well be striking a balance between the last three options (reduce, recycle, and reassemble). Redesign is an all-or-nothing proposition with the risk of throwing the baby out with the bath water. In the end, it may all come down to a simple game of patience as the REM industry matures. A Chinese proverb: “The ox is slow, but the (rare) earth is patient.” **L/S**

References*

[1] Rare earth oxides, http://en.wikipedia.org/wiki/Rare_earth_element.

[2] REE Periodic table, <http://geology.com/articles/rare-earth-elements>.

[3] C. Zhanheng, “Global Rare Earth Resources and Scenarios of Future Rare Earth Industry,” *Journal of Rare Earths*, 2011.

Resources*

Rare Earth Elements—Critical Resources for High Technology, USGS Fact Sheet 087-02, 2002.

G. Hatch, *Technology Metals Research*, www.techmetalsresearch.com/2012/03/the-wto-rare-earths-trade-dispute-an-initial-analysis.

* Unless otherwise stated in the References and Resources (above), all graphical representations and images are the sole creation and copyright property of Yunsheng.



Photo 4: A six-pole rotor



Photo 5: A rotor with a wire sleeve



Photo 6: A speaker with a voice coil motor (VCM) sintered NdFeB



Photo 7: A speaker's voice coil motor

MENLO
SCIENTIFIC

LOUDSPEAKER UNIVERSITY



SINCE 1994

Menlo Scientific Ltd. has facilitated the Loudspeaker University.

Our intensive seminar programs have been held in Boston, Los Angeles, London, Geneva, Taipei, and Dongguan.

COMING THIS YEAR!

Courses on-demand will be available on-line.

TOPICS INCLUDE:

- In-depth exploration of loudspeakers parts
- Design
- Manufacturing
- Materials
- Test and measurement
- Global sourcing

Individual and corporate membership available.

www.loudspeakeruniversity.com

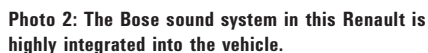
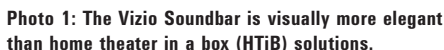
By Mike Klasco (Menlo Scientific)

Products: What's Hot and What's Not

Just about every category of earphones and headphones is booming. Many new distribution channels, from boutiques to drug stores to supermarkets, carry earphones and headphones. The trend from a few years ago—using your earphones with your MP3 or iPod—has shifted to using your earphones with an integrated mic in the cable and an iPhone or smartphone with an integrated stereo music player. Today, many smartphones enable you to switch from listening to music to receiving a phone call. Headphones are worn on the listener's head, and while this revelation is obvious, less so is that earphones and headphones are now fashion accessories like watches or sunglasses. This is translating to customers buying different styles to go with their activities, from sport earphones to big DJ-style headphones worn around the neck, (not necessarily even connected) more like medallions! Most audio speaker brands are filling in—or rushing to fill in—the weak sales of stereo, surround

The automotive aftermarket still exists. That side of the industry has some marketing initiatives, but it seems doomed to be relegated to a hobbyist category. For new cars, the integration of climate control, alarm/security, navigation, and infotainment systems—with shared circuitry both physically on the same circuit board and multitasking functioning microprocessors—is aftermarket unfriendly and challenging for the aftermarket installers. Restrictive car lease agreements have made upgrading your sound system prohibitive because they require leasees to not upgrade or pay additional fees to the dealer to reinstall the original system at the lease's end. Anyone who recently bought a new car and wanted leather seats, wood interior touches, and larger tire rims will need the premium factory sound system with that trim level, like it or not (see **Photo 2**).

What about the OEM autosound business? Global automotive sales crept up from just over 50 million vehicles in 2009, to almost 57 million in 2010, 59 million in 2011, and a projected 62 million in 2012. It sounds like good news for autosound OEM speaker manufacturers in the U.S., but this data includes China's huge growing demand for cars (and oil). In addition, North American auto sales dropped about 40% from 2008 to 2009. While automotive production continues to increase since the disastrous 2008, the predicted 2012 North American production of 16 million vehicles is still below 2008 levels. The North American rebound is attributed to rising replacement demand, improved credit availability, and the drive for increased fuel efficiency. However, this report is not about the numbers but the trends. It is not difficult to imagine the damage slow-paying car



stability, intellectual property protection, and business integrity are other attractive factors here. Flights are inexpensive, plentiful, and less than two hours from Hong Kong and Taiwan (see **Photo 4**).

Infrastructure for speaker manufacturing is well established, with SKC for speaker bobbin materials, ATON for coils, P-Audio for professional speakers, and a few others. Thailand is about a 3-hour flight from Taiwan, Hong Kong, or China. For years, there has been non-stop flights from Los Angeles to Bangkok on Thai Airways, but as of late, this service was eliminated. Travel for both business and pleasure is down in Thailand. There are political issues in Thailand as much as there are in the U.S. because of as many safety concerns as the logistics of manufacturing. Much of the country has been closed by protesters in the past year. On the other side, the recent floods have also created supply chain issues for vendors or their subcontractors.

Let's take a look at the state of our industry from a geographical perspective. The shock of losing China as an inexpensive source of manufacturing is no longer news. Why hasn't the bulk of the speaker business left China? The answer is a combination of factors: no clear alternatives, the existing business relationships, and China's smooth operating supply chain infrastructure is difficult to walk away from. Much of the business that has left China has been the more on the upper end. Let's take a look at the Far East.

For sure there are many opportunities in India, and its domestic market is looking for growth of both existing vendors and new suppliers. Sourcing from India can be challenging especially with the start-up vendors. Long-established speaker vendors are more credible, but that is to be expected. Anyway, while there is no exodus to India from China's factories today, the near and intermediate future may be a different story.

Malaysia has seen a renaissance in quality speaker manufacturing, following some very tough years in which many speaker firms closed down. Prosonic, a Taiwanese transplant, is busy with many projects for European, Japanese, and U.S. brands. Foremost Audio is also doing well and enjoying high-grade projects that have been transferred back from China. Infrastructure is good here, with U-Sonic, Eternal Power, and others supplying excellent cones, and other parts vendors also providing local supply chain options. In stark contrast to Indonesia, westerners find a safe and welcome environment here (see **Photo 3**). Penang and its vicinity have a diverse population in one of the most beautiful places in Asia.

In the Philippines, established and respected vendors Dai-Ichi and AV Leader (a Taiwanese transplant) have benefited from the exchange rate, which is better than that of China. Workers' salaries show no signs of skyrocketing, as in China. Pricing is competitive, and in the next couple of years, there may be some price advantages. Staff



ness in Vietnam is complicated by inflation and government bureaucracy, but buying from established vendors can minimize some of the issues. Flights to Saigon (Ho Chi Min city) are from Taiwan, Hong Kong, and most large Asian airports.

Indonesia has Sinar Baja Electric, a speaker firm with both long history and demanding quality customers. It's about a 3-hour flight from Hong Kong. Traveler safety in Indonesia is a special issue for sourcing from this country. Safety

VOICE  COIL

LISTEN UP

Voice Coil subscribers!

Visit www.gotomytis.com now to access the digital edition of the **2012 Loudspeaker Industry Sourcebook**.



Enter your *Voice Coil* username and password for instant viewing!

OCT 2011
Vance Dickason
4 Park Street
Vernon CT 06066

Renew your subscription
to *Voice Coil* before it
it expires!

Check your label to find the expiration date.

For more information call **860.875.2199 x206**

Qualified subscriptions to Voice Coil
run for one year.

VOICE COIL

Renew annually online at **www.audioamateur.com**



By Nora Wong and Maria Markowski (Menlo Scientific)

But this report is not an obituary for cone vendors. It's a survey of the existing players. Here comes the usual disclaimer: As always with survey articles, no matter how hard we try someone gets missed. If you have been left out, let us know and we will include you in a follow-up article. **LIS**

www.nuway-speaker.com

- Nada Indah supplies many local and Japanese transplant speaker factories. Recently, it began to offer cones fabricated in the U.S. by its LCC, Fangdig International Co. Ltd., also known as Nada Indah Sdn. Bhd. It is a joint venture company of Taiwan and Hong Kong. It was established in Malaysia in 1990 to provide unique speaker cone/membrane/diaphragm for acoustic systems. Nada Indah established its China plant in Lu Feng, Canton, in 1993. The second China plant was built in Dongguan in 2000.

Plot 4, Kawasan Perusahaan Bakar Arang, 08000 Sungai Petani, Kedah,
Malaysia
Tony Hewitt (Managing Director)
(P) +60 4 423 3877/(F) +60 4 422 7122
inquiry@u-sonics.com
tony.hewitt@u-sonic.com
www.u-sonics.com/html_en/profile.html

- U-Sonics is located in Malaysia in the vicinity of Penang, in the town of Sungai Petani. Using engineering management from Europe, U-Sonics is an upscale cone manufacturer that has found global acceptance as a vendor of high-performance professional cones.

Northern China (Shanghai Vicinity)

Anhui XINGYE T.I.T Group

No. 8 Yanhe Road Qinlan Town, Tianchang City Anhui P.R. China 239341
(P) +0086-550-7812658/ 7814678/ 7815209/ 7812678
(F) +0086-550-7812618
xy@ah-xingye.com / yu@cn-xingye.com
www.cn-xingye.com

Jade Sound Acoustics

No. 43, Gushan Road, Gushan, Jingjiang, Jiangsu Province

(P) +86-0523-4560613, (P) +523-4564876 4560613
(F) +86-0523-4560345, (F) +523-4564876 4560345
jade.jj@public.yz.js.cn

- Jade Sound is a medium-scale operation, offering some export to Europe—mostly autosound OEM. It is located north of the Shanghai area.

Ningbo Xiangyang Telecommunication Component Industrial Co., Ltd.

Sky Chan
(P) +0086-574-88230711/(F) +0086-574-88230603
xiangyang_sky@hotmail.com

- Xiangyang is a huge operation known for cones—from inexpensive products to high-power subwoofer cones, voice coils, and speaker frames, and even tires. Xiangyang also has the world's largest restaurant.

Independent Product Test and
Evaluation for the Audio Community

MENLOEAST LABS



Services and Specialties

- Competitive product benchmarking, including objective and subjective analysis
- Remedial design services
- Convenient northeast (Boston vicinity) location
- Specialists in headphones, active noise cancellation, TIA 920 testing, and wind noise testing
- Microspeaker testing and evaluation of mobile audio devices

Instrumentation and Facilities

- KEMAR HATS with mouth simulator
- Listen SoundCheck measurement system
- Outline turntable
- Keyence laser displacement measuring system
- Eight channel diffuse sound field generator
- Wind generator and calibration anemometer

MENLO
SCIENTIFIC

Maria@menloscientific.com • tel 510.758.9001 | Steve Tatarunis Steve@menloscientific.com • tel 978.682.7550

2012 Loudspeaker Industry Sourcebook

AV Leader Corp.

Taipei Head Office:
24, Lane 90, Kuei-Yang St., Tai-San Hsiang, Taipei Hsien 243, Taiwan, R.O.C.
Rosana (Sales)
avleader@hotmail.com/sales@avleader.com.tw
(P) +886-2-2908-0859/(F) +886-2-2901-7622
www.avleader.com.tw

Antonio Precise Products Manufactory, Ltd. (ATO)

Hong Kong Head Office:
Unit 307-313, 3/F, Photonics Centre, No. 2 Science Park East Ave.,
Hong Kong Science Park, Shatin, Hong Kong
Venus Lam (Marketing Executive)
(P) +852-2952-7688/(F) +852-2952-7588
venus.cy.lam@antonio.com
www.antonio.com

Factory:
Antonio Technology (ShenZhen) Co., Ltd.
17 Wan An Road, MAAn Shan, Shajin, Baoan, Guangdong Province, P.R.C.
(P) +86-755-2150-7942

Brannnew Fantail Electronics Co., Ltd.

6F-1, No. 361, Dha Nan Road, Shih-lin District, Taipei City, Taiwan 111
(P) +886 2 2882 9145/(F) +886 2 2882 2381
fantail@fantail.com.tw / fantail@ms23.hinet.net

Cobalt

Office:
Flat M, 7/F., Yue Cheung Centre, 1-3 Wong Chuk Yeung Street,
Fo Tan, Hong Kong
(P) +852-2693 0360/(F) +852-2601-5865
info@cobalt.com.hk
www.cobalt.com.hk

Factory Address:
WeiYie Rd. #6, Economic & Industrial Zone, Beijiao Town,
Shunde District, Foshan City, Guangdong Province, China

Cotron Corp.

Taipei Head Office:
12th Floor, No. 150, Section 4, Cheng-de Rd. Shilin District,
Taipei City, Taiwan R.O.C. 111
cotron@cotron.com.tw
(P) +886 2 2882 2238/(F) +886 2 2880 6022
www.cotron.com.tw

ESTec America

2200 East Devon Ave., Suite 317,
Des Plaines, IL 60018
Heera Schuch (Sales Director)
(P) 847-699-8568/(F) 847-699-2081
heera@estec.co.kr

Korea Head Office:
85-12, Yusan-dong, Yangsan, Kyungnam, Korea
(P) +847-699-8568/(F) +847-699-2081
www.estec.co.kr

Fujikon Industrial Holdings, Ltd.

Hong Kong Office:
16th Floor, Tower 1, Grand Central Plaza, 138 Shatin Rural Committee Rd.,
Shatin, N.T., Hong Kong
Philip AuYeung (Sales Manager)
(P) +852-2605 5008/(F) +852- 2694-1338
Philip.wt.auyeung@fujikon.com/info@fujikon.com
www.fujikon.com

Taiwan Representative Office
9F-1, No. 150, FuXing North Rd., Taipei, Taiwan, R.O.C.
(P) +886 2-2719 0097/(F) +886 2-2719 0057
taiwan_office@fujikon.com

Gettop Acoustic Co., Ltd.

Head Office:
No. 68 Fengshan Road., Fangzi, Development Zone,
Weifang, Shandong, China 536
(P) +86-536-2283666-977/(F) +86-536-7605903
sales@gettopacoustic.com
www.gettopacoustic.com

GoerTek

Head Office:
No. 268 DongFang Rd., High-Tech Industry Development District,
Weifang, Shandong 261031, China
(P) +86-536-8525688/(F) +86 0536-8525155
marketing@goertek.com/marketing-ecap@goertek.com
www.goertek.com

Hosiden Corp.

Japan Head Office:
4-33, Kitakyuhoji 1-Chrome, Yao-City, Osaka 581-0071, Japan
Shinji Hombo (Director)
(P) +81 72 993 1010
www.hosiden.com.jp

Hosiden America Corp. – America Head Office
120 East State Parkway, Schaumburg, IL 60173
(P) +1 (847) 885-8870/(F) +1 (847) 885-0063

Hosiden Technology (Qingdao) Co., Ltd. – Factory:
Qingdao Export Processing Zone Hetao Chengyang, Qingdao City, Shan-
dong, China
(P) + 86 532 87923588/(F) +86 532 87923582

INNacoustic

Unit 2301-02, 23/F, Millennium City 3, 370 Kwan Tong Rd.,
Kwan Tong, Kowloon, Hong Kong
(P) +852-2342 7315/(F) +852-2343 1066
marketing@innacoustic.com.cn
/www.innacoustic.com

Kingstate Electronics Corp.

Head Office:
10F, No. 69-11, Sec. 2, Chung Cheng E. Rd., Tamshui,
Taipei County, 251 Taiwan, R.O.C.
Charlotte Yeh (Sales Division, Vice President)
(P) +886-2-2809-5651/(F) +886-2-2809-7151
charlotteyeh@kingstate.com.tw
www.kingstate.com.tw

Merry Electronics Co., Ltd.

Head Office:
40850 No. 22, Gongyequ 23rd Rd., Nantun District,
Taichung City 408, Taiwan (R.O.C.)
Charlie Yang (Senior Manager)
(P) +04-23590811/(F) +04-23590826
charlie.yang@merry.com.tw
www.merry.com.tw

OCVACO Electronic, Ltd.

China Head Office:
No.142 South Tanshen Rd., Tanzhou Town,
Zhongshan City, Guangdong, China
Michael So (Sales Manager)
(P) +86-760-86736668, 86736669/(F) +86-760-86650312
michaelso@ocvaco.com.hk
www.ocvaco.com/www.globalsources.com/ocvaco.co

Hong Kong Office:
Unit 14, 5/F., Blk. A, Po Lung Center, No. 11 Wang Chiu Rd.,
Kowloon Bay Hong Kong
(P) 852-34210700/(F) 852-34210702

Factory Office:
Room 2506, Building B, No.111, Shipai West Rd.,
TianHe Area, Guangzhou, China
(P) 86-20-87584015/(F) 86-20-87584075

Palm Garden Enterprises Corp.

Wanstonic Electronics, Ltd.
Head Office:
4F., No. 540-1, Zhongzheng Road, Xindian District,
New Taipei City 231, Taiwan (R.O.C.)
Jenny Tsai (Sales Manager)
(P) +886-2-2218-1169/2218-0912/(F) +886-2-2218-2791
jennytsai@palmgarden.com.tw
sales@palmgarden.com.tw
www.palmgarden.com.tw

Factory:

Wanstonic Electronics (Dong Guan) Co., Ltd.
Tung Fu Rd. West, Shi Jie Town, Dongguan City, Guangdong, China
(P) +86-769-8663-3491/8663-9951/8631-5295/8631-0817
(F) +86-769-8663-1248/8631-0875
sales@palmgarden.com.tw

Shenzhen Horn

Block17, Tongfuyu Industrial Zone, Dalang, Baoan,
Shenzhen, P.R. China P.C.: 518109
Ed Springer (Sales Manager)
(P) +86-755-28030883/(F) +86-755-28030747
ed.springer@horn.com.cn/espringer4@cox.net/inquiry@szhorn.com/
webmaster@szhorn.com

TOONG IN Electronic Corp.

10F-8, No.738, Chung Cheng Road, Chung Ho Dist., Taipei Hsien 235,
Taipei County, New Taipei City, Taiwan
Janah Huang (Sales)
(P) + 886-2-8226-1866/(F) + 886-2-8226-1809
janah@toongin.com
www.toongin.com

Vansonc Enterprise Co., Ltd. (VECO)

Taiwan Head Office:
3F., No.123, Zhongcheng Road, Tucheng District,
New Taipei City, Taiwan 23674
(P) +886-2-2267 2389/(F) +886-2-2267 2588
vecoep@vecoco.com.tw (Overseas Sales)/
vecot@vecoco.com.tw (Domestic Sales)

Foshan Factory:

Vanson Electronics (Nanhai) Co., Ltd.
Luocun Industrial Development Zone, Luocun Zhen,
Nanhai District, Foshan City, Guangdong Province, China 528226
(P) +86-757-8126-6388/(F) +86-757-8853-6826
fsveco@vecoco.com.cn/fs_sales@vecoco.com.cn (Sales)

Weide Electronics

Jimadi Industrial Area, Boluo County, Huizhou,
Guangdong, 516100 P.R. China
Jerry Wei (Business Director)
(P) +86-752-6203611/(F) +86-752-6203628
jerry@weide96.com
www.weide96.com

Yoga Electronics Co., Ltd.

7th Floor, No.8, Lane 298, Xinmin Rd., Neihu,
Taipei City 11470, Taiwan (R.O.C.)
Scott Wang (Sales Manager)
(P) +886-2-2791 8211/(F) +886-2-2792 1443
scott.wang@yoga.com.tw/yoga1985@yoga.com.tw
www.yoga.com.tw

25

26

Voice Coil Manufactures

By Mike Klasco (Menlo Scientific)

The last few years have been challenging for both voice coil winders and their speaker assembler customers. Quite a few have not survived since our last voice coil winder survey in *Voice Coil* (March 2008) due to the rollercoaster prices on copper, the on-and-off rationing of high-performance polyimides (e.g., Kapton, Apical, and Uplex), and the imposition of reduction of hazardous substances (RoHS) requirements. RoHS will continue to increase its restrictions on adhesives, solvents, and soldering. Did I forget to mention the global economic downturn of the last few years?

U.S. Voice Coil Winders

For decades, the U.S. was the key source for high-power voice coils. Vendors such as Krenz and Acousta-Coil provided inexpensive but powerful coils. Precision Coil and a few boutique operations serviced the high-power flat wire coil business. The domestic U.S. automotive OEM business consumed tons of voice coils, often supplied by Meisei in Illinois. Yet in the last few years, the evaporation of U.S. speaker assembly and the devastation of the U.S. automotive speaker OEM supply industry have inevitably taken a toll on parts suppliers.

Meisei—closed

- Now closed, Meisei was a Japanese transplant operation that supplied many automotive OEM speaker vendors in the U.S. Their factory was located in Danville, IL. Meisei was the largest producer of voice coils in North America in the 20 years that its Danville plant was open. Output peaked at 2.5 million voice coils per month a few years ago.

Precision Econowind, Inc.

8940 North Fork Dr., North Fort Myers, FL 33903
(P) 866-856-4783/239-997-3860/(F) 239-997-3243
info@precisioneconowind.com

- Jon Van Rhee of Precision Econowind said all its OEM automotive business is now wound in China, at Po Yun. Most of what it now winds in Florida is high-temperature automotive aftermarket and pro audio coils.
- Many of the automotive aftermarket coils are flat aluminum wire in four-and-eight-layer dual, quad, and parallel dual configurations with diameters ranging from 2" to 8". Precision Econowind makes many high-temp flat and round wire coils and sends them to China to be built into high-performance subwoofers, which then are sent back to the U.S. The pro-sound coils are mostly high-temperature edge-wound coils for companies in the U.S., Canada, and South America.

Asian Voice Coil Winders

The following is a brief overview of a number of Asia's voice coil winders. A few of these vendors are also "converters" that sell coated bobbin materials, coated magnet wire, collar materials, adhesives, and such to other independent coil winders and speaker manufacturers that wind their own coils.

A-TON Industrial Co., Ltd.

98/57-60 Moo 11, Putthamonthon 5, Rd., Raking District,
Amphur Sampran, Nakhonpathom 73210 Thailand
(P) +662-811 - 8862/(F) +662-811-8870 - 1
marketing@aton.co.th

South China Operation:

Taizhou First Sail Electronics Co., Ltd.
Zhouzi Mid. Rd., Technology Park, Gaogang, Taizhou,
Jiangsu, 225300, China
(P) +86 -0523-6116777/(F) +86 -0523-6116779
sales@fsc-coil.com

- A-TON achieved success by establishing itself in Thailand and promoting flat wire coils. When the rest of the Taiwanese speaker industry did not follow to Thailand, A-TON expanded to South China with a joint venture (First Sail). A-TON received notoriety when it started specializing in relatively low-cost, flat-wire voice coils. While the U.S. speaker industry initially had trouble adjusting to the metric sizes, U.S. designers warmed to it, especially for tweeters. A-TON has been strictly a coil winder, not a converter or wire house. Manufacturing is expanding to A-TON's Chinese operations in South China and Shanghai. A-TON's sister operation is P-Audio, a pro-sound speaker manufacturer.

Audio Star Electronics

(HuiZhou AudioStar Electronics Co.)

1-4/F, No.24 Jinlong Rd., Xiaojin, HuiZhou City, Guangdong, China
(P) +86-752-2299018 2293820 5805198/(F) +86-752-2295838
audiostar@audiostar.com.cn
www.audiostar.com.cn

- Audio Star, founded in 1999, is run by a sophisticated engineer-owner. Audio Star is a relatively new entry and a medium-size voice coil winder, offering specialty products such as high-power voice coils (up to 6" diameter) and providing commodity voice coils to service its customers' requirements.
- Audio Star supplies voice coils that are heat-resistant, lightweight, and high-power handling to Peavey, Wharfedale, and others.

- Audio Star introduced automated production and test systems for consistency and control of costs. Audio Star's raw material is imported chiefly from Denmark, U.K., U.S., Japan, and Germany. It is RoHS compliant.

Chen Hong Industrial Co., Ltd. (Taiwan)

No. 3, Alley 33, Lane 22, Kuang Hwa Rd., Luchou, Taipei, Taiwan.
Mr. Kao
(P) 886-2-2282-3859/(F) 886-2-2281-1564
chvoice@ms33.hinet.net

- Chen Hong, which is based in Taiwan, provides high-quality and high-temperature coils. It has supplied RCF (Italy), Focal (France), Selenium (Brazil), and other high-end brands throughout the world with excellent compression driver flat-wire voice coils. Over the last 15 years, it has specialized in flat-wire voice coils for high-grade and professional loudspeakers.

Goto Electronic

Goto California, Inc.
6120 Business Center Ct., Suite F 200, San Diego, CA 92154
(P) 619-691-8722/(F) 619-691-8822
www.goto-california.com/?cmd=about_us

- Established in Japan in the early 1960s, Goto opened its first Chinese branch in Shanghai in 1980. It opened a Mexican operation in the mid-1980s. Goto was established in South China in 2001, bringing the cost of Goto's high-performance flat- and square-wire and high-temperature coils down, making them more accessible to Chinese speaker factories. Goto is perhaps most famous for its flat-wire woofer coils, wound onto Toray Til fiberglass epoxy bobbins.

Goto Electronic
Dongguan Huangjiang Goto Co., Ltd.
128 Industrial Park, Huangjiang, Huangjiang, Zhenbanhu, Guang Dong,
(P) +86 (769) 8363-7601/(F) +86 (769) 8363-7606

Goto Electronic Works Co., Ltd.
No. 11 Lane, 1175 Tongpu Road, Shanghai, China
(P) +021-52702721/(F) +021-52702764
www.sh-nix.com

Goto Electronic
Shanghai Co., Ltd.
121 Jingang Road, Pudong New-Area, Shanghai, 201206, China
(P) 86 (21) 5032-5121/(F) 86 (21) 5032-5123

Goto Japan
5340, Inabu Ina-Shi, Nagano, 3960011
(P) +0081 265 72 3869/(F) +0081 265 733197/(F) +1 (619) 691-8822

Guangzhou Guangxing Electronic Co., Ltd.

No. 1, Yong Fu Rd., SanDong St.,
HuaDu District of GuangZhou 510800, China

Li Yin Hao/Lua Zheng
(P) +86-20-86887522 86968068 86968282/(F) 86-20-86968933
guangxinglyh@163.com
www.gx-audio.com/contactus_e.htm

Hai Yun Electronics Co., Ltd.

Shuguang Road, Chenjiang Town, Huizhou City, Guangdong Province, China
Daniel Wang
(P) 86-752-3898319 3898329/(F) +86-752-3898330
daniel@haiyun.biz
www.haiyun.biz

- Hai Yun offers a wide range of voice coils from medium price to high-power, high-performance voice coils.

Long Run Voice Coil Manufactory

Shi Bu industry District Liao Bu Town, DongGuang City
(P) 0769 3213575 3213576/(F) 0769 3213675
lr1@ko-lon.com
www.ko-lon.com

Po Yun Enterprise Co., Ltd.

Head Office (Taipei):
6/F, No. 506-4 Yuansan Road, Chung-Ho Taipei Hsien, Taiwan
Chung Yuan Nu
(P) +886-2-2221-4959, 2223-5849/(F) +886-2-2221-4929
tpe@po-yun.dynxnet.com

- Po Yun is one of the top contenders in the Asian voice coil business. Po Yun was established in 1979 in Taiwan. Its initial focus was servicing Japanese speaker brands, especially Panasonic. Po Yun's other key customers have included Harman, Pioneer, and Philips. The company shifted its manufacturing to China, and aside from its south China operations, it has also established a factory in Shanghai.
- I profiled Po Yun for *Voice Coil* almost 10 years ago, and since then, Po Yun has expanded from two factories with 700 workers to 6,000 people with 211 production lines. The annual output of voice coils is 450 million pieces. One factory is in Shanghai to serve that expanding market, another is in South China. The Xiamen, China factory mostly supplies the nearby Panasonic speaker factory.

Po Yun Agent in the U.S.—Precision Econowind, Inc.
8940, North Fork Drive, North Fort Myers, FL 33903
Terry Tingley (President)/Jon Van Rhee (Vice President)
(P) 239-997-3860/(F) 239-997-3243
ttingley@precisioneconowind.com/jonvanrhee@precisioneconowind.com
www.precisioneconowind.com

- Precision Econowind assists the U.S. customer base with communications, quality monitoring, technical support, stocking issues, distribution, quotations, and sample requests.

29

Consultants & Designers, Finished Systems,
Passive Components

Earphones & Headphones, Mic Capsules

Acoustic Design, Enclosures & Cabinets,
Enclosure Parts, Finished Systems, OEM
Speaker Assembly

Acoustic Design, Consultants & Designers,
Digital Signal Processing, Earphones &
Headphones, Finished Systems, OEM
Speakers & Drivers, Passive Components,
Speaker Parts, Test Equipment, Engineering
Software, Service

Consultants & Designers, Digital Signal
Processing, Test Equipment

Acoustic Design, Digital Signal Processing,
Enclosure & Cabinets, Enclosure Parts,
Finished Systems, Microspeakers, OEM
Speakers & Drivers, Passive Components,
Speaker Parts, Service

Acoustic Design, Consultants & Designers,
Finished Systems, OEM Speaker Assembly,
Passive Components

Acoustic Design, Consultants & Designers,
Engineering Software

Associations, Acoustic Design, Consultants
& Designers, Licensing, Manufacturing
Equipment, Test Equipment, Engineering
Software, Service

OEM Speakers & Drivers

OEM Speakers & Drivers

OEM Speakers & Drivers, Speaker Parts

Acoustic Design, Consultants & Designers,
Engineering Software

Finished Systems

Consultants & Designers, Digital Signal Processing, Finished Systems, Passive Components, Speaker Parts, Test Equipment

Speaker Parts

Earphones & Headphones

Cables & Connectors, Enclosure Parts,
Finished Systems, Manufacturing Equip-
ment, Measurement Microphones, Passive
Components, Service, Speaker Parts,

Manufacturing Equipment, Measurement
Microphones, Engineering Software

Finished Systems, Speaker Parts, Service

Acoustic Design, Digital Signal Processing,
Finished Systems, Microspeakers, OEM
Speakers & Drivers

Passive Components

Finished Systems

Acoustic Design, Enclosures & Cabinets,
Finished Systems, OEM Speaker Assembly

OEM Speakers & Drivers

Acoustic Design, Consultants & Designers,
Enclosures & Cabinets, Finished Systems,
OEM Speakers & Drivers, Passive Com-
ponents

Digital Signal Processing, Enclosure Parts,
Finished Systems, OEM Speaker Assembly,
OEM Speakers & Drivers. Service

Enclosure Parts, Finished Systems, Speaker Parts

Acoustic Design, Consultants & Designers

Consultants & Designers, Enclosures
& Cabinets, Enclosure Parts, Finished
Systems, OEM Speaker Assembly, Passive
Components, Service

Cables & Connectors, Consultants & Designers, Earphones & Headphones, Enclosures & Cabinets, Finished Systems, Manufacturing Equipment, Measurement Microphones, Microspeakers, OEM Speaker Assembly, OEM Speakers & Drivers, Speaker Parts, Test Equipment, Engineering Software.

Enclosures & Cabinets, Finished Systems,
OEM Speakers & Drivers.

Earphones & Headphones, Enclosure Parts, Finished Systems, Mic Capsules, OEM Speaker Assembly, OEM Speakers & Drivers, Speaker Parts

Earphones & Headphones

UNITED STATES
Earphones & Headphones, Engineering
Software

Digital Signal Processing, Finished Systems

Acoustic Design, Consultants & Designers,
Enclosures & Cabinets, Finished Systems,
OEM Speaker Assembly, OEM Speakers
& Drivers, Speaker Parts, Engineering
Software

Finished Systems, OEM Speaker Assembly,
OEM Speakers & Drivers

Earphones & Headphones

Finished Systems

Acoustic Design, Consultants & Designers,
Enclosures & Cabinets, Finished Systems,
Passive Components, Engineering Software

OEM Speakers & Drivers, Test Equipment

OEM Speaker Assembly, OEM Speakers
& Drivers

Enclosures & Cabinets, Finished Systems,
Speaker Parts

Cables & Connectors, Finished Systems

Driver Reconing, Speaker Parts

Earphones, Microspeakers

Manufacturing Equipment

Manufacturing Equipment

Earphones & Headphones, Microspeakers

Earphones & Headphones, Finished Systems, OEM Speaker Assembly, OEM Speakers & Drivers

Earphones & Headphones

Cables & Connectors, Consultants & Designers, Digital Signal Processing, Enclosures & Cabinets, Enclosure Parts, Finished Systems, Measurement Microphones, OEM Speaker Assembly, OEM Speakers & Drivers, Passive Components, Speaker Parts, Test Equipment, Engineering Software

Acoustic Design, Measurement Microphones, Test Equipment

Acoustic Design, Books & Periodicals, Consultants & Designers, Engineering Software, Finished Systems

Cables & Connectors, Digital Signal Processing, Enclosures & Cabinets, Enclosure Parts, Finished Systems, Speaker Parts

Earphones, Mic Capsules, Microspeakers

Acoustic Design, Cables & Connectors,
Consultants & Designers, Enclosures &
Cabinets, Finished Systems, Microspeakers,
OEM Speaker Assembly, OEM Speakers
& Drivers, Passive Components, Speaker
Parts, Engineering Software

Acoustic Design, Consultants & Designers,
Digital Signal Processing, Finished Systems,
Passive Components, Speaker Parts,
Service

Associations, Enclosures & Cabinets,
Enclosure Parts, Manufacturing Equipment,
OEM Speaker Assembly, OEM Speakers &
Drivers. Service

Earphones & Headphones, Mic Capsules, Microspeakers

Consultants & Designers, Finished Systems,
Manufacturing Equipment, Mic Capsules,
Test Equipment, Engineering Software

Finished Systems

Digital Signal Processing, Finished Systems,
OEM Speaker Assembly, Speaker Parts

Digital Signal Processing, Enclosures
& Cabinets, Enclosure Parts, Finished
Systems, OEM Speaker Assembly

Finished Systems, Speaker Parts

OEM Speakers & Drivers

Engineering Software

Finished Systems, Passive Components,
Test Equipment

Cables & Connectors, Earphones & Headphones, Measurement Microphones, Passive Components, Speaker Parts

Acoustic Design, Consultants & Designers,
Enclosures & Cabinets, Finished Systems

OEM Speakers & Drivers

Acoustic Design, Enclosures & Cabinets, Finished Systems, Manufacturing Equipment, Measurement Microphones, OEM Speaker Assembly, OEM Speakers & Drivers, Passive Components, Speaker Parts, Test Equipment, Engineering Software, Service

Cables & Connectors, Enclosures & Cabinets, Finished Systems, Manufacturing Equipment, OEM Speaker Assembly, OEM Speakers & Drivers, Test Equipment, Engineering Software

Earphones & Headphones, Finished
Systems, OEM Speakers & Drivers, Speaker
Parts

Manufacturing Equipment, Passive Components, Speaker Parts, Test Equipment

Consultants & Designers, Enclosure Parts,
Finished Systems, OEM Speaker Assembly,
OEM Speakers & Drivers, Speaker Parts

Cables & Connectors, Consultants & Designers, Digital Signal Processing, Earphones, Enclosures & Cabinets, Enclosure Parts, Finished Systems, Licensing, Manufacturing Equipment, Measurement Microphones, Mic Capsules, Microspeakers, OEM Speaker Assembly, OEM Speakers & Drivers, Passive Components, Test Equipment, Engineering Software, Service, Speaker Parts

34

Associations, Acoustic Design, Cables & Connectors, Consultants & Designers, Digital Signal Processing, Driver Reconciling, Earphones & Headphones, Enclosures & Cabinets, Enclosure Parts, Engineering Software, Finished Systems, Manufacturing Equipment, Measurement Microphones, Microspeakers, OEM Speaker Assembly, OEM Speakers & Drivers, Passive Components, Speaker Parts, Test Equipment, Service

Acoustic Design, Digital Signal Processing,
Enclosures & Cabinets, Finished Systems,
OEM Speaker Assembly, Speaker Parts,
Engineering Software

Consultants & Designers, Digital Signal Processing, Finished Systems, Measurement Microphones, OEM Speaker Assembly, OEM Speakers & Drivers, Speaker Parts

Cables & Connectors, Enclosures &
Cabinets, Enclosure Parts, OEM Speakers &
Drivers, Passive Components, Speaker Parts

Acoustic Design, Cables & Connectors,
Driver Reconing, Earphones & Headphones,
Enclosures & Cabinets, Enclosure Parts,
Finished Systems, Licensing, Manufacturing
Equipment, OEM Speaker Assembly, OEM
Speakers & Drivers, Passive Components,
Speaker Parts, Test Equipment, Service

Cables & Connectors, Enclosure Parts,
Finished Systems, Passive Components

Acoustic Design, Systems, Enclosures & Cabinets, Enclosure Parts, Finished Systems, Licensing, Manufacturing Equipment, OEM Speaker Assembly, Speaker Parts, Test Equipment, Engineering Software, Service

Acoustic Design, Cables & Connectors,
Enclosure Parts, Finished Systems, OEM
Speaker Assembly, Speaker Parts

Finished Systems, OEM Speaker Assembly,
OEM Speakers & Drivers

Associations, Enclosures & Cabinets, Enclosure Parts, Finished Systems, OEM Speaker Assembly, OEM Speakers & Drivers, Passive Components, Speaker Parts, Test Equipment, Engineering Software

Earphones & Headphones, Microspeakers

Acoustic Design, Cables & Connectors,
Enclosures & Cabinets, Enclosure Parts,
Finished Systems, OEM Speaker Assembly,
OEM Speakers & Drivers, Passive Compo-
nents, Speaker Parts, Test Equipment

Enclosures & Cabinets, Enclosure Parts,
Finished Systems, Mic Capsules, OEM
Speaker Assembly, Passive Components,
Speaker Parts

Acoustic Design, Consultants & Designers,
Finished Systems, OEM Speaker Assembly,
OEM Speakers & Drivers, Speaker Parts,
Service

Acoustic Design, Finished Systems, Test
Equipment, Engineering Software

Acoustic Design, Consultants & Designers

Acoustic Design, Cables & Connectors, Consultants & Designers, Enclosures & Cabinets, Enclosure Parts, Finished Systems, Manufacturing Equipment, Measurement Microphones, Mic Capsules, OEM Speaker Assembly, OEM Speakers & Drivers, Passive Components, Speaker Parts, Test Equipment, Engineering Software, Service

Acoustic Design, Consultants & Designers
Digital Signal Processing, Earphones, Mi-
crospeakers, OEM Speaker Assembly, OEM
Speakers & Drivers, Passive Components,
Speaker Parts, Engineering Software

Enclosures & Cabinets, Enclosure Parts,
Microspeakers, OEM Speaker Assembly,
Passive Components, Speaker Parts

Passive Components

Finished Systems, OEM Speakers & Drivers,
Passive Components

Earphones, Microspeakers

Acoustic Design, Cables & Connectors,
Consultants & Designers, Driver Reconing,
Enclosures & Cabinets, Enclosure Parts,
Finished Systems, OEM Speaker Assembly,
OEM Speakers & Drivers, Passive Compo-
nents, Speaker Parts, Test Equipment

Earphones & Headphones, Microspeakers,
OEM Speaker Assembly, Speaker Parts

Cables & Connectors, Passive Components, Speaker Parts

Acoustic Design, Consultants & Designers,
Test Equipment, Engineering Software

Acoustic Design, OEM Speakers & Drivers

Earphones & Headphones

Finished Systems, OEM Speaker Assembly,
OEM Speakers & Drivers

Acoustic Design, Cables & Connectors,
Consultants & Designers, Earphones &
Headphones, Enclosures & Cabinets, Fin-
ished Systems, Measurement Microphones,
Service

Cables & Connectors, Finished Systems,
Passive Components, Speaker Parts

Finished Systems, OEM Speakers & Drivers,
Speaker Parts

Enclosures & Cabinets, Enclosure Parts,
Engineering Software, OEM Speaker
Assembly

Earphones & Headphones

Acoustic Design, Cables & Connectors,
Enclosures & Cabinets, Finished Systems,
OEM Speaker Assembly, OEM Speakers
& Drivers, Passive Components, Speaker
Parts, Service

Speaker Parts

	Wire Channel Connectors	Cables
AUSTRALIA		
ETI	•	•
Sonique Audio	•	•
Soundlabs Group Pty., Ltd.	•	•
CANADA		
McBride Loudspeaker Source, Ltd.	•	•
Reference 3A	•	•
Solen, Inc.	•	•
The Canadian Loudspeaker Corp.	•	•
Tortech Sound	•	•
CHINA		
Astrosound Electronics Co., Ltd.	•	•
Hong Kong Zhihao International, Ltd.	•	•
Sanoway Speaker Box & Wooden Prod. (Shenzhen) Co., Ltd.	•	•
Sino Spark Electronic, Ltd	•	•
Trueanalog Strictly OEM/ODM	•	•
DENMARK		
Jantzen Audio Denmark	•	•
GERMANY		
Mundorf EB GMBH	•	•
INDIA		
G M Audiotechnics	•	•
Power Electronics & Technologies	•	•
Vidyut Teletronics, Ltd.	•	•
ITALY		
Audiomatica, S.R.L.	•	•
TAIWAN		
Huey Tung International Co., Ltd.	•	•
Kingstate Electronics Corp.	•	•
Phone in Mag-Electronics Co., Ltd.	•	•
Tang Band Industries Co., Ltd.	•	•
Yung International, Inc.	•	•

	Wire Channel Connectors	Cables
THAILAND		
Clarasonic	•	•
UNITED STATES		
Amphenol Audio	•	•
AMS Audio Enterprises, Inc.	•	•
Apature Products, Inc.	•	•
Apex Jr.	•	•
Brim Electronics, Inc.	•	•
Crutchfield	•	•
Dayton Audio	•	•
Diamond Case Designs, Inc.	•	•
Discovery Cable	•	•
Dynavox Electronics, Inc.	•	•
ESTec America	•	•
Gefen	•	•
GGEC America, Inc.	•	•
HAVE, Inc.	•	•
HiVi Acoustics, Inc.	•	•
Kramer Electronics USA	•	•
LAT International	•	•
Loudspeakers Plus	•	•
Martin Sound Products	•	•
Monster, Inc. (formerly Monster Cable Products, Inc.)	•	•
Parts Express	•	•
Robot Underground	•	•
S. & L. S.	•	•
Shenzhen Horn Audio Co., Ltd.	•	•
Shogyo International Corp.	•	•
TCH	•	•
The Lotus Group	•	•
TIC, Inc.	•	•
Vertek/XTC	•	•
Wired 4 Sound, Inc.	•	•
Wireworld Cable Technology	•	•

As professional speaker designers, you probably have awesome home-audio systems that are the the envy of your peers.

Share your designs with the staff at *audioXpress* and your dream system could be featured in an upcoming issue!

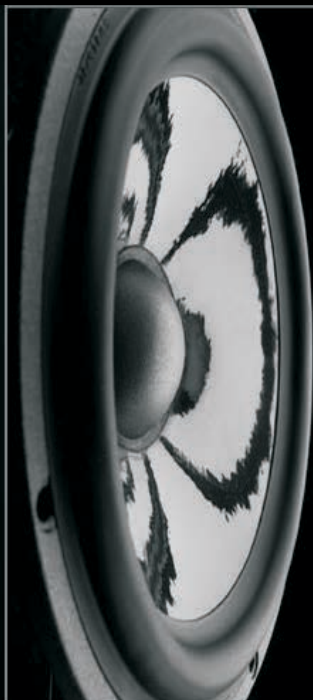


Share Your Talent

Submit your photos and descriptions
to sbecker@audioxpress.com.
Please include "DREAM SYSTEM" in the subject line.



all you need is technology from



FDS A flat drive speaker

Fullrange OD 60 mm x H 17 mm
1W / 1m / 86 dB / 250 - 25.000 Hz



FDS C with passiv Radiator

Fullrange OD 100 mm x H 17 mm
1W / 1m / 86 dB / 150 - 25.000 Hz



ESL the sidewinder

hybrid electrostatic speaker
1 W / 1m / 85 dB 250 - 22.000 Hz



FBS flat bass speaker

Subwoofer OD 210 mm x H 45 mm
10 mm +/- straight linear field



ATE DSP class-D AMP

up to 6 x 80 watts per channel
IR contr., S/PDIF & analog input



and much more is comming soon

Australia

DEQX Pty., Ltd.
Soundlabs Group Pty., Ltd.

Canada

Solen, Inc.
Tannoy

China

Astrosound Electronics Co., Ltd.
Hong Kong Zhihao International, Ltd.
Prod. (Shenzhen) Co., Ltd.
Sino Spark Electronic, Ltd.

France

Cabasse SA

Germany

Audio Technology Engineering (ATE)
Axel Joost Elektronik
Proraum Vertriebs GmbH

Greece

Crystal Audio

India

G M Audiotechnics

Italy

Axiomedia, S.R.L.

Sudan

Prostar Audio

Taiwan

Tang Band Industries Co., Ltd.

United States

Amplikat
Axelrod Associates – Optical
Engineering
Booker Electronics
Crutchfield
Crystal Acoustics
Danville Signal Processing, Inc.
EKSC Eagle
ESTec America
Gefen
Globe Audio Design, Inc.
Griffin Audio USA

Grund Audio

iSEMcon, LLC
Kramer Electronics USA
MISCO
Parts Express
PowerPhysics, Inc.
Robot Underground
S. & L. S.
Shenzhen Horn Audio Co., Ltd.
Solidex LLC
TC Sounds
Tymphany

EARPHONES & HEADPHONES

	Headphones Earphones	
AUSTRALIA		
Soundlabs Group Pty, Ltd.		•
CANADA		
The Canadian Loudspeaker Corp.		•
CHINA		
Astrosound Electronics Co., Ltd.	•	•
Antonio Precise Products Manufactory, Ltd. (ATO)	•	•
Cobalt Industrial Co.	•	•
Fujikon Industrial Holdings, Ltd.	•	•
Gettop Acoustic Co., Ltd.	•	•
GoerTek	•	•
Hong Kong Zhihao International, Ltd.	•	
Sino Spark Electronic, Ltd.	•	•
Weide Electronics	•	•
DENMARK		
iCapture ApS	•	•
GERMANY		
Axel Joost Elektronik	•	
GREECE		
Crystal Audio	•	•
PHILIPPINES		
Dai-ichi Electronics Manufacturing Corp.	•	•
SUDAN		
Prostar Audio		•
TAIWAN		
AV Leader	•	•
Brannew Fantail Electronics Co., Ltd.		•
Cotron Corp.	•	•
Fortune Grand Enterprise Co., Ltd. (FG Forgrand)	•	•

	Headphones Earphones	
Foxconn Technology Group	•	•
Huey Tung International Co., Ltd.	•	•
Kingstate Electronics Corp.	•	•
Merry Electronics Co., Ltd.	•	•
Palm Garden Enterprises Corp.	•	•
Phone in Mag-Electronics Co., Ltd.	•	•
Tang Band Industries Co., Ltd.	•	•
Toong in Electronic Corp.		•
Vansonic Enterprise Co., Ltd. (VECO)	•	
Yoga Electronics Co., Ltd.	•	•
THAILAND		
Clarasonic		•
UNITED KINGDOM		
HiWave Technologies PLC	•	•
UNITED STATES		
Clear Sound Corp.		•
Crutchfield	•	•
Diamond Case Designs, Inc.	•	•
ESTec America	•	•
FPS USA, Inc.	•	•
Monster, Inc. (formerly Monster Cable Products, Inc.)	•	•
Parts Express	•	•
S. & L. S.	•	
Shenzhen Horn Audio Co., Ltd.	•	•
Shogyo International Corp.	•	•
Solidex, LLC		•
Tymphany		•
Victrex Polymer Solutions		•
Wired 4 Sound, Inc.		•

[illegible]



Strong - Dense - Inert

Composite Solutions

Horns

Cabinets

Baffles

*You should hear
what you're missing*

Phasing Plugs

GLOBE COMPOSITES, INC. - Chino, CA
800.806.6019 www.GlobeComposites.com

44

2012 Loudspeaker Industry Sourcebook

46

	Acoustic Analysis	Crossover Design	Network Optimizer	CAE or CAD	
GERMANY					
Audio Technology Engineering (ATE)	●	●			
Axel Joost Elektronik	●				
R&D Team	●	●	●	●	●
GREECE					
Crystal Audio	●	●	●		●
INDIA					
GM Audiotechnics	●	●	●	●	
ISRAEL					
RH Sound Technology, Ltd.	●	●	●		
ITALY					
Audiomatica, S.R.L.	●				
JAPAN					
Etani Electronics Co., Ltd.	●				●
SUDAN					
Prostar Audio	●	●	●		
SWEDEN					
IJData	●	●	●	●	

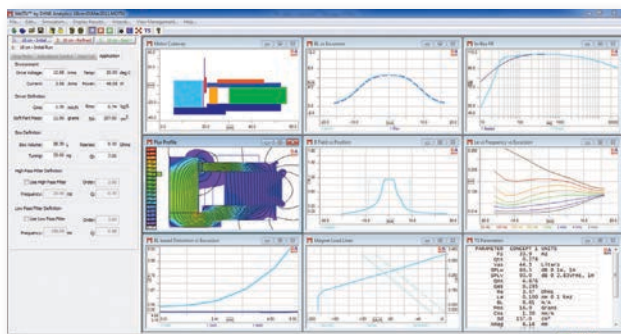
	Acoustic Analysis	Crossover Optimizer	Network Design	CAE or CAD
TAIWAN				
HI-TECH Sound System Co., Ltd.	•	•		•
Phone in Mag-Electronics Co., Ltd.	•	•	•	•
Tang Band Industries Co., Ltd.	•	•	•	•
THAILAND				
Clarasonic	•			
UNITED KINGDOM				
PACSYS, Ltd.	•	•		
UNITED STATES				
ACO Pacific, Inc.	•			
Acoustic Fields	•			
Advanced Transduction	•		•	•
Bang-Campbell Associates	•	•	•	
Beach Dynamics, Inc.	•			•
Bob Young and Associates	•			
Brüel & Kjær North America, Inc.	•			
Cobham Technical Services – Vector Fields Software	•	•		•
CommonSense Audio	•	•		
Crystal Acoustics	•			
Danville Signal Processing, Inc.			•	
Dayton Audio	•	•	•	•

	Acoustic Analysis	Crossover Optimizer	Network Design	CAE or CAD
DYNE Analytics				•
ESTec America	•	•	•	•
Excelsior Audio Design & Services	•	•	•	•
GedLee, LLC	•	•	•	•
GGEAC America, Inc.	•	•	•	•
Gold Line/TEF	•			
Harris Technologies, Inc.		•		
HiVi Acoustics, Inc.	•	•		
iSEMcon, LLC	•			
Liberty Instruments, Inc.	•			
OAP Audio	•	•	•	•
One on One Technical Products, Inc.		•	•	•
Parts Express	•	•	•	•
Redrock Acoustics	•	•	•	•
Robot Underground		•	•	•
S. & L. S.				•
Shenzhen Horn Audio Co., Ltd.	•	•	•	•
Smith and Larson Audio	•	•	•	•
Sound Lab, Inc.	•		•	•
Speaker Clinic	•	•	•	•
True Audio	•	•		•
Tymphony	•		•	•
WW Speaker Cabinets				•

**EASY TO LEARN. EASY TO USE.
ACCURATE. COST EFFECTIVE.**

MöTIV

Loudspeaker Motor Magnetics Modeling Tool



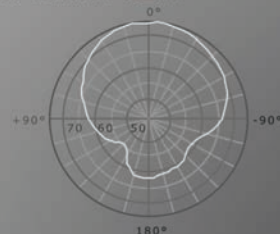
CONTACT:
Mark Beach, CEO
mark@dyneanalytics.com
1-513-321-1420

DYNE ANALYTICS
WWW.DYNEANALYTICS.COM

VACS

THIS NEW R&D-SOFTWARE IS GREAT.
WORK EFFICIENTLY WITH DATA FROM
MEASUREMENTS,
SIMULATIONS AND
CALCULATIONS.

WWW.RANDTEAM.DE



VOICE COIL

RENEW your subscription
to **VOICE COIL**
before it expires!

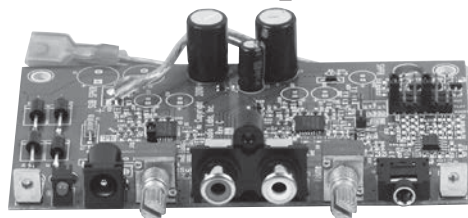
Check your label to find the expiration date.
Renew annually online at
www.audioamateur.com



	Home	Pro	Car
AUSTRALIA			
Decibel Hi Fi	●		
DEQX, Pty., Ltd.	●	●	
ETI	●		
Sonique Audio	●		
Soundlabs Group Pty., Ltd.	●	●	●
BELGIUM			
Hawk Audio	●		
BRAZIL			
JBL Selenium		●	●
CANADA			
Angstrom Loudspeakers	●		
Coincident Speaker Technology	●		
Dimensions Acoustiques	●		
Kravchenko-Audio	●		
McBride Loudspeaker Source, Ltd.	●	●	
Reference 3A	●		
Solen, Inc.	●	●	●
Sum R Design	●	●	
Tannoy	●	●	
The Canadian Loudspeaker Corp.	●	●	●
The Speaker House			●
Tortech Sound		●	
Tortech Electronics, Inc.		●	
CHINA			
Akip lab	●	●	●
American Ally Company	●	●	●
Astrosound Electronics Co., Ltd.	●	●	●
Audiostar Electronics Co., Ltd.		●	●
Chienyuan Electronic Co., Ltd.		●	●
Haiyun Electronics Co., Ltd.	●	●	●
Hong Kong Zhihao International, Ltd.	●	●	●
Ningbo Impala Electronics Co., Ltd.		●	
Qpro Audio		●	
Sanoway Speaker Box & Wooden Prod. (Shenzhen) Co., Ltd.	●	●	
Sino Spark Electronic, Ltd.	●		
Sonicstar (Guangzhou) Electronics Co., Ltd.	●		
Tonwel Audio Co., Ltd.	●	●	●
Trueanalog Strictly OEM/ODM	●	●	
DENMARK			
Audiotechnology ApS	●	●	●
iCapture ApS	●	●	●
FRANCE			
Cabasse SA	●	●	
Phy-HP	●	●	
GERMANY			
Audio Technology Engineering (ATE)	●	●	●
Axel Joost Elektronik		●	
Proraum Vertriebs GmbH	●	●	●
Reckhorn, Ltd.	●		
GREECE			
Crystal Audio	●		
INDIA			
GM Audiotechnics		●	

	Home	Pro	Car
Power Electronics & Technologies Wizard India Private, Ltd.	•	•	
IRELAND			
CK Speakers	•	•	
ISRAEL			
Morel	•		•
R H Sound Technology, Ltd.	•	•	•
ITALY			
Axionmatica S.R.L.	•		•
Eighteen Sound		•	
Eventus Audio	•		
Quattroitalia S.R.L.		•	
NORWAY			
Soundcare AS	•	•	
PHILIPPINES			
Dai-ichi Electronics Manufacturing Corp.	•	•	•
SPAIN			
Acustica Beyma S.L.		•	
SUDAN			
Prostar Audio		•	
TAIWAN			
Cheng Juan Technology Co., Ltd.	•	•	•
HI-TECH Sound System Co., Ltd.	•	•	•

We make more than loudspeakers



Amplifier — MISCO model: PCB-21 Amp
is a high efficiency 2.1 channel Class-D amp, accepts
12-24 VDC, 3 amp input to deliver 70 watts.
Includes bass boost and system volume controls.

**We can also design and manufacture
your amplifier to your unique specifications — OR
supply your complete loudspeaker system:**

Amplifier, Speaker and Enclosure

MISCO.
For The Sound You Want

Call: 612-825-1010 • 800-276-9955

More Info: info@miscospeakers.com • loudspeakeraccessories.com

	Home	Pro	Car
ESS Labs, LLC		•	•
ESTec America		•	•
Excelsior Audio Design & Services		•	
FBT USA, Inc.		•	
FPS USA, Inc.		•	•
GedLee, LLC		•	•
Gefen		•	
GGEC America, Inc.		•	
Globe Audio Design, Inc.		•	
Gold Line/TEF		•	
Golden Sound		•	
Griffin Audio USA		•	
Grund Audio		•	
Harrison Laboratories, Inc.		•	•
HiVi Acoustics, Inc.	•	•	•
Holtz Industries	•	•	•
iSEMcon, LLC		•	
JBL Selenium by Harman			•
Jensen Speakers		•	
Kinetic Audio International, Ltd.	•		•
Kramer Electronics USA	•	•	
LAT International	•	•	
Loudspeakers Plus		•	
Lowell Manufacturing Co.	•	•	
Madison Fielding, Inc.	•		
Martin Sound Products	•	•	
MISCO	•	•	•
Monster, Inc. (formerly Monster Cable Products, Inc.)	•	•	•
OAP Audio		•	
Parts Express	•	•	•
PowerPhysics, Inc.	•	•	
PR Audio	•	•	
Precision Transducer Engineering	•	•	
Psychotechnology, Inc.	•		
R&R Cases & Cabinets		•	
R. Guy Audio Engineering		•	
Renaissance Audio Group	•		•
Robot Underground	•	•	•
RSL Speaker Systems	•		
S. & L. S.		•	
Sandvik Palm Coast	•	•	•
SB Acoustics	•	•	•
SG Custom Sound	•	•	
SoCal Sound	•	•	•
Solidex, LLC	•	•	
Solus Loudspeakers	•		
Sound Lab, Inc.	•	•	
Speaker Art	•		
TC Sounds	•	•	•
The Lotus Group	•		
TIC, Inc.	•	•	
Tone Tubby, Inc.	•	•	•
Transducer Lab	•		
True Audio	•	•	•
Vertek/XTC	•	•	•
Westlake Audio, Inc.	•	•	
Wired 4 Sound, Inc.	•	•	
Wireworld Cable Technology	•	•	

	Adhesive Dispensers	Curing Ovens	Lead Out Wire Termination	Magnetizers/Demagnetizers	Production Line Equipment	Ultrasonic Assembly Equipment
CANADA						
Reference 3A						•
The Canadian Loudspeaker Corp.						•
The Speaker House	•	•		•		
CHINA						
Astrosound Electronics Co., Ltd.						•
Hong Kong Zhihao International, Ltd.						•
Ningbo Impala Electronics Co., Ltd.	•					
Sanoway Speaker Box & Wooden Prod. (Shenzhen) Co., Ltd.	•			•	•	•
Sea Galleon International, Ltd.	•					
Trueanalog Strictly OEM/ODM	•	•	•	•	•	
GERMANY						
MAGSYS Magnet Systeme GmbH						•
GREECE						
Crystal Audio	•	•	•	•	•	•
JAPAN						
Etani Electronics Co., Ltd.				•		
PHILIPPINES						
Dai-ichi Electronics Manufacturing Corp.			•			
TAIWAN						
HI-TECH Sound System Co., Ltd.	•	•	•	•	•	•
Kingstate Electronics Corp.	•	•	•	•	•	•
Phone in Mag-Electronics Co., Ltd.	•	•	•	•	•	•
Tang Band Industries Co., Ltd.	•	•	•	•	•	•
THAILAND						
Clarasonic		•		•		
UNITED STATES						
ACO Pacific, Inc.				•		
Acoustic Design, Inc.						•
Beach Dynamics, Inc.				•		
Brim Electronics, Inc.			•			
Bruel & Kjaer North America, Inc.				•		
Dynavox Electronics, Inc.						•
ESTec America	•	•	•	•	•	•
Fisnar, Inc.	•			•		
Fluid Metering, Inc.	•			•		
Globe Plastics	•	•		•		
Gold Line/TEF				•		
HiVi Acoustics, Inc.				•	•	
HMC Electronics	•		•	•	•	•
Nordson EFD	•			•		
OAP Audio	•					
Oersted Technology					•	
S. & L. S.				•		
Shenzhen Horn Audio Co., Ltd.	•	•	•	•	•	•
SoCal Sound					•	
Sound Lab, Inc.	•					



MEASUREMENT MICROPHONES

	Lab Instruments	Professional Field Mics	Measuring Mics Consumer	
AUSTRALIA				
Sonique Audio				•
CANADA				
Solen, Inc.				•
CHINA				
Hong Kong Zhihao International, Ltd.			•	•
Sanoway Speaker Box & Wooden Prod. (Shenzhen) Co., Ltd.			•	•
Trueanalog Strictly OEM/ODM	•	•	•	•
DENMARK				
LoudSoft				•
FRANCE				
Phy-HP			•	•
INDIA				
G M Audiotechnics			•	
Power Electronics & Technologies				•
JAPAN				
Etani Electronics Co., Ltd.				•
TAIWAN				
HI-TECH Sound System Co., Ltd.	•			•
Kingstate Electronics Corp.	•	•		•
Phone in Mag-Electronics Co., Ltd.	•	•	•	•
Tang Band Industries Co., Ltd.	•	•	•	•
THAILAND				
Clarasonic			•	•

	Lab Instruments	Professional Field Mics	Measuring Mics Consumer	
UNITED STATES				
ACO Pacific, Inc.		•	•	•
Acoustic Fields		•		
Advanced Transduction				
Audix Corp.			•	•
Brim Electronics, Inc.		•		
Brüel & Kjær North America, Inc.		•	•	
Dayton Audio		•	•	•
Diamond Case Designs, Inc.				•
ESTec America		•	•	•
G.R.A.S. Sound & Vibration				•
GGEC America, Inc.			•	•
Gold Line/TEF				•
HAVE, Inc.			•	•
iSEMcon, LLC			•	•
Josephson Engineering, Inc.		•	•	•
LAT International			•	•
Liberty Instruments, Inc.				•
Listen, Inc.				•
Loudspeakers Plus			•	
Martin Sound Products			•	
NTi-Audio/NTI Americas, Inc.		•	•	•
Parts Express		•	•	•
Robot Underground				•
S. & L. S.				•
Shenzhen Horn Audio Co., Ltd.				•
Shogyo International Corp.		•	•	•
Smith and Larson Audio				•
TC Sounds			•	•
Wired 4 Sound, Inc.		•	•	•



MIC CAPSULES

	Dynamic	ECM	MEMs
CANADA			
Tortech Electronics, Inc.	•		
CHINA			
Gettop Acoustic Co., Ltd.			•
GoerTek			•
Hong Kong Zhihao International, Ltd.	•		
Sino Spark Electronic, Ltd.	•	•	•
Trueanalog Strictly OEM/ODM	•	•	
GREECE			
Crystal Audio	•		
TAIWAN			
AV Leader	•	•	
Kingstate Electronics Corp.			•

	Dynamic	ECM	MEMs
Merry Electronics Co., Ltd.			•
Phone in Mag-Electronics Co., Ltd.			•
UNITED STATES			
ACO Pacific, Inc.			•
Audix Corp.			•
Clear Sound Corp.			•
ESTec America			•
Gold Line/TEF			•
iSEMcon, LLC			•
Liberty Instruments, Inc.			•
Parts Express			•
S. & L. S.			•
Shenzhen Horn Audio Co., Ltd.			•
Shogyo International Corp.			•

Cell Phone	Laptop	Tablet/MID
------------	--------	------------

CC-WEBSHOP

ARCHIVE • STORE

SPEAKER BUILDING 201

Speaker Building 201

*A Comprehensive Course
in Speaker Design*

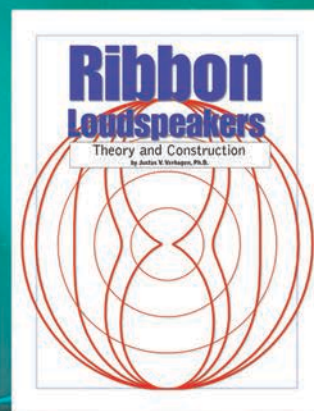
by Ray Alden

With 11 completely designed speaker systems including a 5.1 home theater system

- Your guide to understanding the mysteries of speakers
- A perfect mix of theory and practical application

With Two New
FIRST-RATE
Builders

For Beginners and Serious Enthusiasts



This book presents the theory and history of ribbons and includes construction details for building your own ribbon loudspeakers. Often preferred for high- and mid-frequencies, they are inexpensive and can be easily constructed with minimal tools. **\$24.95**

www.cc-webshop.com

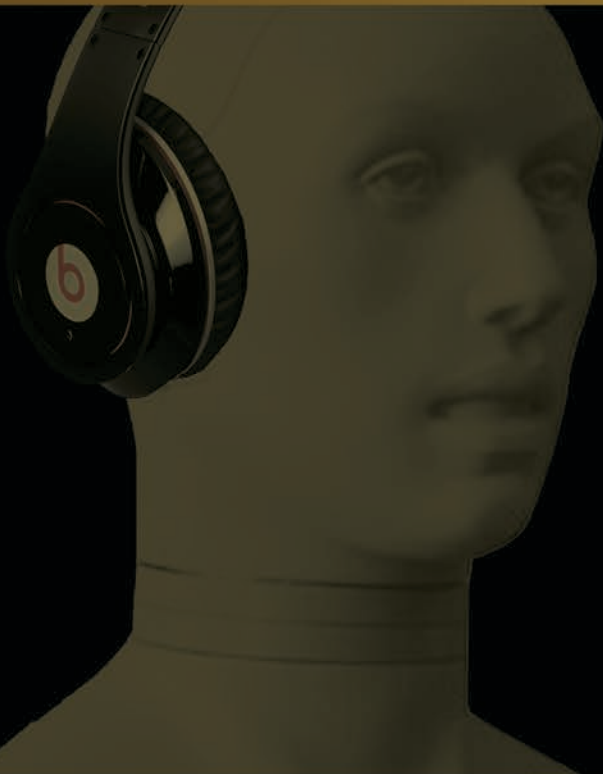
or call 860.875.2199 x205

	Finished Goods	Acoustic Materials
TAIWAN		
Cheng Juan Technology Co., Ltd.		●
HI-TECH Sound System Co., Ltd.	●	●
Huey Tung International Co., Ltd.	●	●
Kingstate Electronics Corp.	●	●
Phone in Mag-Electronics Co., Ltd.	●	●
Tang Band Industries Co., Ltd.	●	●
Yung International, Inc.		●
THAILAND		
Clarasonic	●	●
UNITED KINGDOM		
Fane International		●
Mango Electronics		●
UNITED STATES		
AcousTex Fabrics	●	●
Acoustic Design, Inc.		●
Acoustic Fields	●	
Acoustical Solutions, Inc.	●	
Acoustics First	●	
Alumapro, Inc.		●
Amplikat		●
AMS Audio Enterprises, Inc.	●	●
Analysis Audio USA		●
Apature Products, Inc.		●
Aurasound, Inc.		●
AVL Systems, Inc.	●	
Bamberg Engineering		●
Cascade Audio Engineering	●	
Clear Sound Corp.		●
CommonSense Audio		●
Community Professional Loudspeakers		●
Crutchfield		●
Crystal Acoustics	●	●
David Kennedy Associates		●
Dayton Audio	●	●
DECO Systems, LLC	●	
Diamond Case Designs, Inc.	●	●
Dynavox Electronics, Inc.		●
EKSC Eagle		●
Eminence Speaker, LLC		●
Episode Audio		●
ESS Labs, LLC		●
ESTec America	●	●
FPS USA, Inc.	●	●
GGEC America, Inc.	●	●
Globe Plastics		●
Griffin Audio USA	●	●
Grund Audio		●
HiVi Acoustics, Inc.		●
Holtz Industries		●
Lowell Manufacturing Co.		●
Martin Sound Products		●

54

Engineering Consulting for the Audio Community

MENLO SCIENTIFIC



- Liaison Between Materials, Suppliers, & Audio Manufacturers
- Technical Support for Headset, Mic, Speaker & Manufacturers
- Product Development
- Test & Measurement Instrumentation
- Sourcing Guidance

sponsors of "The Loudspeaker University" seminars

MENLO
SCIENTIFIC

USA • tel 510.758.9014 • Michael Klasco • info@menloscientific.com • www.menloscientific.com

56




18
EIGHTEEN
SOUND

18 LW2400 - 12Kg@2400W

Minimum weight
Maximum power

www.eighteensound.com

Proudly made in Italy 

AURA
SOUND



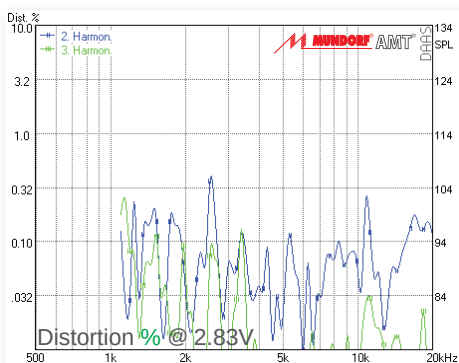
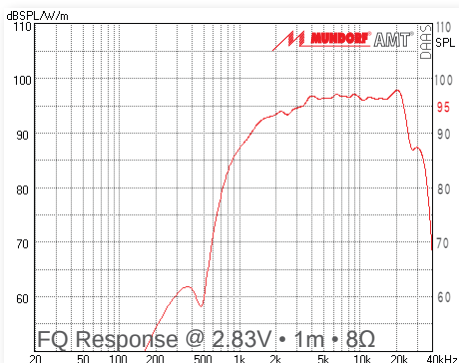
2012 Loudspeaker Industry Sourcebook

USA, here we come!

Premium AMTs for Premium Performance

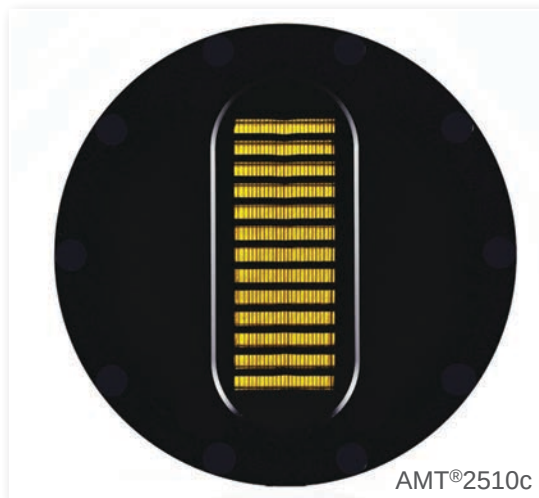
“There are many dome tweeters out there...But none of them sound as dynamic as the AMT”

*Dick Olsher in **The Absolute Sound** 11/2008 on our AMT 2310. Being already an outstanding tweeter back then, we kept on researching the AMT's principle in order to improve its music performance, ever since.



2012, MUNDORF introduces an all-new line of highly stressable but extremely distortionless AMT® tweeter devices. 8 home audio models including 4 true dipoles which can also be used as add-on 'super-tweeter' up to 32kHz.

In addition, a complete line of ProAudio



tweeters is now available, too. Based on our home audio AMTs which combine various patented and patent pending innovations, these proAMT not only match the sensitivity of HQ compression drivers but they yet exceed their power-handling ability - at a distortion ratio as low as never achieved before with any other tweeter device around.

For more information on our AMT® lines please visit www.mundorf.com/amtnews



MUNDORF EB GMBH

Liebigstrasse 110

50823 Cologne

Germany

+49 221 9777050

info@mundorf.com

www.mundorf.com

For Premium Crossovers



**Professional Manufacturer
and Exporter**

OEM and ODM Orders are welcome



Main Products:

Hi-Fi Speakers, Car Speakers,
PA Speakers, Ceiling &
In-Wall Speakers, Marine /
Caravan Speakers, Mini &
TV Speakers, and Components



Contact us for more information and detailed catalogs today!



HUEY TUNG INTERNATIONAL CO., LTD.

No. 69, Lane 762, Dingzhong Rd., Sanmin
District., Kaohsiung City, Taiwan 807

Tel: 886-7-310-5786 (Rep.)

Fax: 886-7-310-0783

E-mail: carawang@hueytung.com.tw

<http://www.hueytung.com.tw>

<http://www.cara-audio.com>

USHER

USHER 9980-20BEA



Ultra Low Distortion
Premium Tweeter

USHER 8945A



Ultra Low Distortion
Premium Woofer

We provide true turnkey solutions for your high end
driver and speaker needs, at truly modest prices.

Realize your innovative ideas and projects that used
to be too expensive to carry out—contact USHER
today; We're on the same wavelength!

(Drivers size from 1" up to 18" as you need! OEM/ODM welcome.)

USHER 15" for PA&HM
Loudspeaker Driver



Ultra Low Distortion
Premium Woofer



HEAD OFFICE

67 KAI-FONG ST. SECTION 1,
TAIPEI 10041 TAIWAN

Tel: 886 2 23816299 ; Fax: 886 2 2371 1053

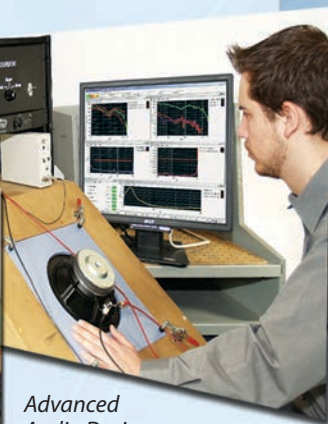
www.usheraudio.com Email: usher@ms11.hinet.net



Precision
Manufacturing



High Energy
Magnetizing



Advanced
Audio Design
and Testing



High Power
Development and
Testing

For The Sound You Want

MISCO has been designing and manufacturing loudspeakers in the US for more than 60 years. They provide speaker solutions for diverse industries; from aerospace and medical, to theme parks and commercial spaces. Now, **MISCO is expanding their pro-sound loudspeaker line.** MISCO offers decades of proven ability to engineer and build speakers to your specifications while delivering the sound you want for your application.

The people at MISCO are very excited as the new pro-sound capabilities and expansions develop. The MISCO design center and manufacturing facilities have been upgraded with substantial investments in new technology and equipment. Some great sounding products are already in the pipeline. And, of course, it's all supported by outstanding customer service and a central U.S. headquarters with easy access to anywhere in the continental U.S.

The 3.0", 5.25" and 6.50" speakers are ideal for line-arrays.



**Coming Soon! A new line of high performance,
high-power, pro-sound loudspeakers**



21" Pro-Sound Subwoofer **Model: WC21W-4A**

- 4.0 Edge Wound Coil
- 800 Watts, Ferrite Magnet
- Dual 8" Spider Suspension
- Treated Paper Cone
- Low Distortion Design
- Faraday Ring with T-Pole



12.0" Pro-Sound Subwoofer **Model: QC12W-8A**

- 8 Ohms, 350 Watts
- 2.5 Edge Wound Voice Coil
- 30 - 1kHz, 96dB SPL
- (2.83 V, at 1 Meter)



6.50" Mid-Range with High Energy Neo Magnet **Model: NR62C-6A**

- 6 Ohms, 150 Watts (AES)
- 250- 6kHz, 97 dB SPL
- (2.83 V, at 1 Meter)



5.25" Mid-Range with High Energy Neo Magnet **Model: NR54C-8A**

- 6 Ohms, 100 Watts (AES)
- 250-8kHz, 96 dB SPL
- (2.83 V, at 1 Meter)



3.0" High Performance **Model: EC3SQW-8A**

- 8 Ohms, 20 Watts (AES)
- 80-15kHz, 83 dB SPL
- (2.83 V, at 1 Meter)

For Professional Audio, your sound begins with Misco.

MISCO
For The Sound You Want

Great professional sound starts here.

As a leader in the loudspeaker industry, MISCO has the capability to design and manufacture the right customer solutions, every time, in diverse industries. See for yourself: www.miscospeakers.com

Toll Free: 1-800-276-9955 • E-mail: info@miscospeakers.com

FAITALPRO ON

63

2012 Loudspeaker Industry Sourcebook

OEM SPEAKERS & DRIVERS • OEM SPEAKERS & DRIVERS • OEM SPEAKERS & DRIVERS • OEM SPEAKERS & DRIVERS • OEM SPEAKERS & DRIVERS

OEM SPEAKERS & DRIVERS • OEM SPEAKERS & DRIVERS • OEM SPEAKERS & DRIVERS • OEM SPEAKERS & DRIVERS • OEM SPEAKERS & DRIVERS

Driving your loudspeaker to a higher end.



Introducing the new titanium former driver series

Extensive R&D was devoted into our wide range of high-performance drive units, offering innovative technology, hand-made craftsmanship and outstanding acoustic performance. Made in Israel, all of our products are manufactured in the most stringent conditions to ensure consistency and high product quality.

We understand the importance of having a stable supply of high quality drive units, R&D support, affordable prices and superb customer service.

We invite you to discover morel's extensive line of raw drivers.



The Wavecor logo features a stylized blue wave icon above the word "wavecor" in a bold, italicized, blue sans-serif font.

We're thinking **small**



CELESTION

Seems like all of a sudden, compact arrays are big business. So talk to Celestion about our range of high performance, small-format drivers.

It's another
innovation in sound
from Celestion.



Find us on Facebook

AN2075 50mm/2"



AN2775 70mm/2.75"



AN3510 88mm/3.5"



CELESTION

www.celestion.com



HiVi



HiVi - hear the difference

HiVi Inc. California. 11630 Goldring Road, Arcadia, CA 91006 Tel: 1-626-930-0606 Fax: 1-626-930-0609
HiVi RESEARCH (China) Jiangjun Industrial Zone, Nantou Town, Zhongshan City, Guangdong, China
Tel: +86-760-23112898 Fax: +86-760-23380899 E-mail: sales.zs@hivi.com, global@hivi.com www.hivi.com
HiVi and the Swans logo are registered trademark of HiVi, inc. Or its subsidiaries in the United State and other countries. All rights reserved

REVOLUTIONARY DRIVER

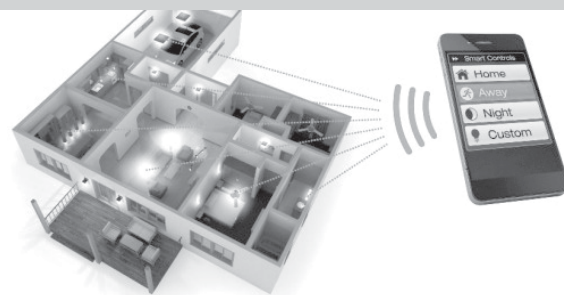
- thermoformed strand-oriented polypropylene cone
- cast aluminium basket
- copper sleeve with shorting ring
- copper plated dust cap
- aluminium former
- XBL™ leading multigap motor
- RevSurround™ allows greater, more linear stroke

For OEM inquiries please contact:
www.creativesound.ca



VWR126X

Streaming Modules for wireless speakers



Wirelessly stream audio

- to any **powered** or **passive** speaker
- in **one** or **multiple** rooms, through your WLAN
- with your **Smartphone**, **PC**, or **Tablet**, using WiFi

Use our **free** Android™ or Apple® device applications, to control multi-room music streaming

*Android™ and Apple® devices, easily connect to our Streaming Modules through any home WiFi network

Android is a trademark of Google Inc | Apple is a trademark of Apple Inc

CRYSTAL
ACOUSTICS

The Future of Audio, Today!

www.crystallacoustics.com
OEM@crystallaudio.com

Transducer Lab

Precision Loudspeaker Engineering - USA



■ N26C - Pure 26mm Al2O3 Ceramic dome
Low distortion, flat freq response 950hz-25khz, 1mm linear excursion
matched to +/-0.75db



■ N28BE - Pure 28mm Beryllium dome
Low distortion, flat freq response 950hz-40khz, 1.2mm linear excursion
matched to +/-0.75db



■ N26K - High grade 26mm Kevlar fiber dome
Low distortion, flat freq response 1khz- 20khz, 1mm linear excursion
matched to +/-0.75db



■ N26CF - High grade 26mm Carbon fiber dome
Low distortion, flat freq response 1khz-24khz, 1mm linear excursion
matched to +/-0.75db

"All our products are made possible by the grace of God (Jesus)"

Transducerlab.com

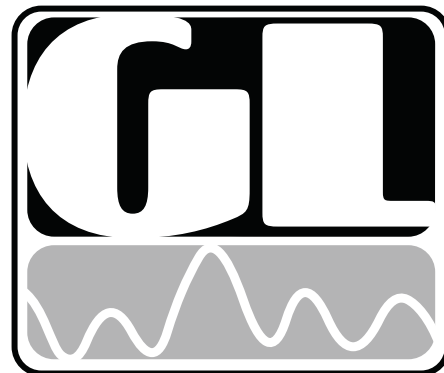
Renew your subscription
to *Voice Coil* before your
subscription expires!

Check your label to find the expiration date.
For more information call **800.269.6301**

Qualified subscriptions to Voice Coil
run for one year.

VOICE COIL

Renew annually online at www.audioamateur.com



ACOUSTIC SCIENCE

"Dr. Geddes is a world renowned authority on transducers having designed everything from subminiature microphones and receivers to full sized line arrays for large venues - and everything in between."

Contact:
gedlee.com
geddes@gedlee.com 248-795-0335

**"He wrote the book
on transducer design."**



PASSIVE COMPONENTS, CROSSOVERS, & WIRING

	Passive Components										Wire & Wiring		
	Capacitors		Driver Protection Devices		Inductors		Plugs & Jack Dishes		Resistors	Solder	Terminal plates	Transformers	Electronic Crossovers
	Attenuators	Ceramic	Electrolytic	Non-Polar	Film	Air Core	Iron Core						
AUSTRALIA													
DEOX Pty, Ltd.													•
ETI												•	
Sonique Audio	•		•	•			•		•	•	•	•	•
Soundlabs Group Pty., Ltd.	•		•	•	•	•	•	•	•	•	•	•	•
CANADA													
Aksys Labs													•
Creative Sound Solutions					•		•			•			
McBride Loudspeaker Source, Ltd.	•		•	•			•	•	•	•	•	•	•
Solen, Inc.	•		•	•	•				•	•	•	•	•
Sum R Design												•	
The Canadian Loudspeaker Corp.	•		•	•	•	•	•	•	•		•	•	•
Tortech Sound	•								•			•	
Tortech Electronics, Inc.			•		•		•	•	•	•	•	•	
CHINA													
Astrosound Electronics Co., Ltd.	•	•	•	•	•	•	•	•	•		•	•	•
E-pinpo Industrial Co., Ltd.											•		
Hong Kong Zhihao International, Ltd.					•								
Sanoway Speaker Box & Wooden Prod. (Shenzhen) Co., Ltd.		•	•	•	•	•	•	•	•	•	•	•	•
Sino Spark Electronic, Ltd.												•	
Tonwel Audio Company, Ltd.	•				•			•	•	•	•	•	
Trueanalog Strictly OEM/ODM		•	•	•	•	•	•		•	•	•		•
DENMARK													
Audiotechnology ApS							•	•					
Jantzen Audio Denmark			•	•			•	•		•	•	•	•
FRANCE													
Phy-HP													•
GERMANY													
Audio Technology Engineering (ATE)												•	
Axel Joost Elektronik					•						•	•	
Mundorf EB GmbH				•	•	•	•		•	•	•	•	•
Proraum Vertriebs GmbH			•	•		•	•		•		•	•	•
INDIA													
G M Audiotechnics	•												
Power Electronics & Technologies												•	•
Vidyut Teletronics, Ltd.													•
IRELAND (REPUBLIC)													
CK Speakers	•		•	•			•	•	•		•		•
ISRAEL													
R H Sound Technology, Ltd.	•	•	•	•	•	•	•	•	•	•	•	•	
ITALY													
Axiomedia, S.R.L.	•		•	•	•	•	•	•	•	•	•		•
PHILIPPINES													
Dai-ichi Electronics Manufacturing Corp.												•	
SUDAN													
Prostar Audio	•	•	•		•				•		•	•	•

God lives in the details!

Premium Parts for Premium Products



NEW 2012



MCap® EVO Silver/Gold/Oil



NEW 2012

MCap® EVO



NEW 2012

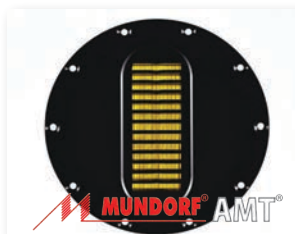
MCap® EVO Oil



 **MUNDORF®**



Made in Germany



Now also available in the US

MUNDORF EB GMBH

Liebigstrasse 110

50823 Cologne

Germany

+49 221 9777050

info@mundorf.com

www.mundorf.com

PASSIVE COMPONENTS, CROSSOVERS, & WIRING

	Passive Components								Wire & Wiring Harnesses						
	Attenuators	Capacitors		Driver Protection Devices		Inductors	Plugs & Jack Dishes		Resistors	Solder	Terminal Plates	Transformers	Electronic Crossover	Finished Passive X-over Nets	Harnesses
		Ceramic	Electrolytic Non-Polar	Film	Air Core		Iron Core								
TAIWAN															
HI-TECH Sound System Co., Ltd.							•	•						•	
Huey Tung International Co., Ltd.														•	•
Tang Band Industries Co., Ltd.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Yung International, Inc.	•	•	•	•		•	•	•	•	•	•	•		•	•
UNITED KINGDOM															
Mango Electronics	•							•	•		•	•			
UNITED STATES															
A Brown Soun															•
Acoustic Design, Inc.												•		•	•
Advanced Transduction	•					•	•							•	
Amplikat		•				•	•	•	•			•			•
AMS Audio Enterprises, Inc.	•	•	•	•	•	•	•	•	•		•	•	•	•	•
Analysis Audio USA															•
Apature Products, Inc.															•
Apex Jr.		•	•	•				•	•		•	•			•
Assistance Audio														•	
Audience				•											•
Auratron Systems													•		
Bamberg Engineering														•	
Booker Electronics		•	•			•	•		•		•	•	•	•	
Brim Electronics, Inc.															•
Caddock Electronics, Inc.									•						
CGN Audio Labs					•								•	•	
Crutchfield					•								•		•
Danville Signal Processing, Inc.													•		
Dayton Audio			•					•	•	•	•				
DB Systlems								•					•		
Discovery Cable															•
Dynastar Electronics					•										
Dynavox Electronics, Inc.	•		•	•		•	•	•	•		•	•	•	•	
Eminence Speaker, LLC					•								•		
ERSE Audio	•		•	•	•	•	•	•	•	•	•	•	•	•	•
ESS Labs, LLC	•													•	
ESTec America	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Excelsior Audio Design & Services														•	
GGEC America, Inc.													•		
Globe Audio Design, Inc.													•		
Harrison Laboratories, Inc.	•												•		
HAVE, Inc.										•					•
HMC Electronics										•					
Illinois Capacitor, Inc.		•	•	•											
Kinetic Audio International, Ltd.				•		•									•
LAT International															•
Lowell Manufacturing Co.					•										
Marchand Electronics													•	•	
Martin Sound Products	•		•	•	•			•	•		•	•		•	•
MISCO												•	•		•
OAP Audio	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Parts Express	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PowerPhysics, Inc.													•		
Precision Econowind						•	•								

JANTZEN AUDIO DENMARK

realize your audio dreams

Inductors Capacitors Cables



C-Coil

stays cool - do not get overheated
500 - 1500 - 2000 - 3500 Watt



Wire coil

AWG 29,26,24,22,21,20,18,16,15,14,13



Wire Coil + non-ferrite core

AWG 29,26,24,22,21,20,18,16,15,14,13



Cross Coil copper foil

8 - 12 - 14 - 16 AWG



Wax Coil

8 - 12 - 14 - 16 AWG



Royal Silver foil coil

16 AWG



Superior Z-Cap

Even the finest nuances can be heard. The sound never gets over-edged, really superb naturalness with a somewhat bright top end
1200 VDC - 800 VDC



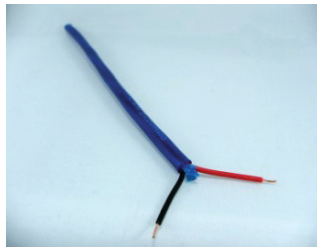
Silver Gold Z-Cap

More resolution, more sound stage. Lots of dynamics. Fast reaction, life feeling and natural sound.
1200 VDC - 800 VDC - 250 VDC



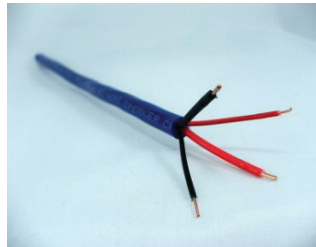
Silver Z-Cap

Super smooth cap without any harsh additions to the sound. Absolutely neutral tonal balance. A truly outstanding audio part
1200 VDC - 800 VDC



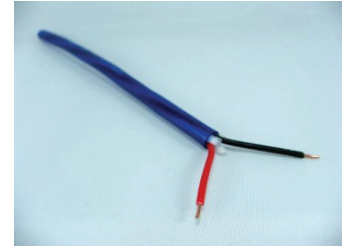
Jantzen Solid Core 6N OFC

6N 2x20AWG (2x0.5 mm2)



Jantzen Solid Core 6N OFC

6N 4cores (2x1.0+ 2x0.5 mm2)



Jantzen Solid Core 6N OFC

6N 2x17AWG (2x1.0 mm2)

www.jantzen-audio.com
contact@jantzen-audio.com

PASSIVE COMPONENTS, CROSSOVERS, & WIRING

	Passive Components										Wire & Wiring Harnesses			
	Attenuators	Capacitors			Driver Protection Devices	Inductors	Plugs & Jack Dishes		Resistors	Solder	Electronic Crossover		Terminal Plates	Transformers
		Ceramic	Electrolytic	Non-Polar			Air Core	Iron Core						
R. Guy Audio Engineering														
Robot Underground		•	•		•	•	•	•	•	•	•	•	•	•
S. & L. S.		•	•			•	•			•	•	•	•	•
Sanming Sound												•		•
SG Custom Sound													•	•
Shenzhen Horn Audio Co., Ltd.			•		•	•	•	•	•	•	•	•	•	•
Shogyo International Corp.							•	•	•		•	•		•
Simply Speakers													•	
SoCal Sound													•	•
Solidex, LLC													•	•
Sound Lab, Inc.		•			•	•			•	•		•		
TCH		•	•		•	•			•	•	•	•	•	
The Lotus Group												•		•
Tymphony													•	•
United Gasket Corp.						•								
UpTone Audio, LLC						•								
Vertek/XTC		•			•	•	•	•	•	•	•	•	•	•
Wireworld Cable Technology														•

If you're an audio enthusiast who enjoys **speaker building** and **amp design**, or if you're interested in learning about **tubes**, **driver testing**, and **vintage audio**, **audioXpress** is the magazine for you!

Subscribe today at **www.audioamateur.com**.
Choose from print, digital or combo delivery.



audience



NEW IMPROVED HIGH RESOLUTION CAPACITOR

- reduced parasitic losses
- extended effective bandwidth
- improved retrieval of low level information

Building on the performance of its renowned Auricap capacitors Audience now offers a new metallized polypropylene capacitor. The Auricap XO includes such features as OCC leads, cryogenic treatment, and ultimate precision winding. The result is noticeably greater high frequency extension with improved clarity and coherence throughout the full spectrum.

info@audience-av.com 760-471-0202 audience-av.com

High End Audio components for the BEST quality sound since 1999



"At Black Rhodium we have used the Eichmann bullet plugs for many years. We are very keen to design our products to reproduce music as naturally as possible and the bullet plugs that we use does this far more effectively than the metal plugs which we use, either for cosmetic purposes or for low cost applications."

Graham Nalty - Black Rhodium

ETI

www.eti-research.com.au TrevorH@eti-research.com.au ph: +61 7 3881 5588

Solen Fast Capacitors™ & Solen Perfect Layer Inductors, often imitated, sometimes copied - even counterfeited - yet never equaled.



SOLEN CAPACITORS

Metallized Polypropylene Film Fast Capacitors™

- First to use the "Fast Capacitor™" winding technique
- First to use bi-axially oriented metallized polypropylene film
- Lowest dissipation factor, lowest dielectric absorption
- Widest range of values, from 0.01 μF to 330 μF
- Wide range of voltages, from 250 Vdc to 630 Vdc.

Metallized Teflon™ Film - .22 μF - 10 μF , 1000Vdc

Teflon™ Film & Tin Foil - .033 μF - .82 μF , 450 Vdc - 1000 Vdc

Polypropylene Film & Tin Foil - .01 μF - 4.7 μF , 100 Vdc - 630 Vdc

Metallized Polyester Film - 1.0 μF - 47 μF , 160 Vdc

Non-Polar Electrolytic .5 % DF - 10 μF - 330 μF , 100 Vdc

SOLEN INDUCTORS

Perfect Layer Hexagonal Winding Air Core

- First to use Perfect Layer Hexagonal winding technique
- First to use Hepta-Litz seven strand insulated wire
- Zero distortion air core, lowest dc resistance
- Widest range of values, from 0.1 mH - 30 mH
- Wide range of wire diameters, from 0.8 mm - 2.6 mm

**Contact us for the FREE
Solen CDROM Catalog,
packed with speaker
drivers, hardware, and
crossover components
including Solen brand.**

4470 Avenue Thibault
St-Hubert, QC
J3Y 7T9 Canada

Tel: 450.656.2759

Fax: 450.443.4949

Email: solen@solen.ca

Web: www.solen.ca

76



LOUDSPEAKER COMPONENTS, LLC



NuWay
Precision Components For Quality Sound

Loudspeaker Components is proud to announce the recent acquisition of NuWay Speaker Products. Loudspeaker Components will continue to offer it's innovative, quality products. Well-known NuWay products including cones, spiders, dust caps, gaskets and seamed cones will be produced in Lancaster Wisconsin USA and Nogales, Mexico.

Corporate Address:

Loudspeaker Components, LLC
7596 US Highway 61 South
Lancaster, WI 53813

Call: 608-723-2127

www.LoudspeakerComponents.com

SET IT AND FORGET IT...

Precision, Valveless Ferrofluid Dispensing

"Pays for itself in Fluid Saved!!"



PDS-100 Programmable
Dual Channel Dispenser

Featuring ...

- Ceramic Internals
- One Moving Part
- No Valves
- 1% Accuracy for
Millions of Dispenses

Ideal for Dispensing ...

- Ferrofluids
- Adhesives
- Solvents
- Electrolytes
- Lubricants
- Slurries

Call 516-922-6050 ♦ www.fmipump.com



FLUID

METERING, INC.

78

SPEAKER PARTS A-E • SPEAKER PARTS A-E • SPEAKER PARTS A-E • SPEAKER PARTS A-E • SPEAKER PARTS A-E



2012 Loudspeaker Industry Sourcebook

Fundamental Amplifier Techniques with Electron Tubes



2012 Loudspeaker Industry Sourcebook

2012 Loudspeaker Industry Sourcebook

Providing what you want most.....
Unique and professional products
far beyond your imagination

Bobbin materials:

Next generation highest-performance bobbin materials suitable for high-temperature applications

Voice Coil Wire:

Many kinds of round, flat, square and composite wire - with high-temperature, high-integrity insulation, high purity and high conductivity

Top Quality Adhesives:

The newest type of glue for high-temperature wire insulation and adhesion.

Custom Winding techniques:

Modern and unique production techniques, capable of handling any kind of winding.

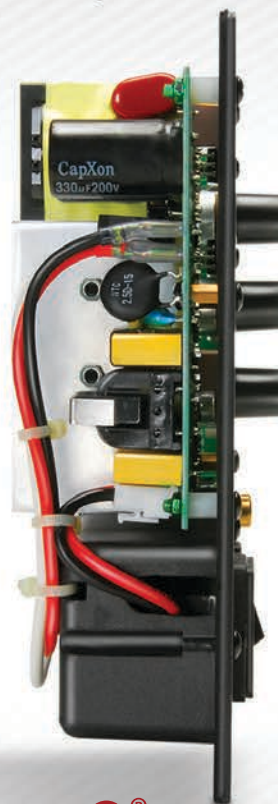
High-Precision Voice Coils:

Our special voice coils are used in a wide variety of industries and applications which require high precision.

Extra wording if you need it: Our goal is to consistently provide the highest possible quality in custom coils at a reasonable price with on-time delivery to loudspeaker OEM

HIGH POWER

low profile



Yung International Inc.

100 Watt



200 Watt



300 Watt



500 Watt



Now Available and in Stock!

Yung International Inc. is now shipping their superbly engineered subwoofer plate amplifier line. Capable of operating at 100% power output for an 8-hour period, these new low profile designs deliver audiophile performance—even when subjected to the strenuous demands found in commercial environments.

Yung International Inc. has supplied components for over twenty five years and is the preferred choice of leading loudspeaker brands worldwide.

- Commercial-grade continuous duty cycle
- Pristine, highly accurate audio performance
- Small footprint, low profile design
- Four power levels to choose from
- Standard models available with and without bass boost
- Custom bass boost configurations available

North American Distributor:

PARTS
EXPRESS
YOUR ELECTRONICS CONNECTION

parts-express.com/yung

European Distributor:

MONACOR
INTERNATIONAL

monacor.de

84

SPECIALIZING IN high-temperature edge-wound
and multiple layer flat-wound coils for the
pro audio, home theater, and automotive aftermarket

-
- The image shows four toroidal inductors of varying sizes and designs. Each consists of a toroidal core with a winding. The smallest one on the left has two thin wires. The medium one in the center has two thicker wires. The large one on the right has two very thick wires. The largest one in the foreground is a wide, flat toroid with many holes along its circumference and two thick wires.



MENLO SCIENTIFIC

Menlo Scientific Ltd. began business as an audio engineering consultancy in 1983. For almost 30 years many global relationships have been cultivated.

Most audio people know us for our engineering and sourcing experience. Outside of audio engineering, specifically for clients in the investment, mergers and acquisitions community our most valued skills are introductions and due diligence in evaluation of potential acquisitions.

Our clients that are start-ups appreciate introductions to distribution partners and other business related support

We also license technologies and sell Intellectual Property.

What can Menlo Scientific Ltd. do for your company?

88



Power Flexibility Speed

Raising the Bar

When it comes to powerful measurement and analysis, Soundcheck raises the bar. With a 17 year history of firsts in audio measurement, from the concept of soundcard based measurement systems, through many specialized algorithms to the latest in perceptual distortion measurement, SoundCheck sets the standard in audio testing.

Perfect 10

SoundCheck scores a perfect 10 for flexibility. Its intuitive graphical interface makes it simple to set up any test you want – whether it's a sophisticated R&D test or a quick production line check. And with the ability to add hardware, modules, channels and pre-written test sequences, SoundCheck flexes with your changing test requirements.

Record Pace

Production needs to run fast – and so does your test system. SoundCheck sets a record pace, running a full loudspeaker test in less than 1 second. It also offers high reliability and excellent noise immunity, integrates with large test environments and databases, and can be operated automatically.

SoundCheck®: A winner in the R&D lab and on the Production Line - try it!

Visit <http://www.listeninc.com/LIS2012> to download a free demo version



LISTENINC



有中文版



www.listeninc.com
+1 617 556 4104
sales@listeninc.com

PS9200KIT

Measurement Mic System

Phantom
Measurement
Mic System
7052PH
IEC61094
Compliant
<4Hz to >25kHz
<18 dBA

"Extremely Random"™
Noise Generator

ACO Pacific, Inc., 2604 Read Ave., Belmont, CA 94002

Tel: (650) 595-8588 FAX: (650) 591-2891 E-Mail: sales@acopacific.com

web site : www.acopacific.com

ACO Begins with ACO

(tm)

SMALL and LOUD speakers

Increase Output – Shrink Size – Improve Performance!

KLIPPEL provides know-how and tools for developing and manufacturing of drive units and complete systems: Electrical, acoustical and mechanical measurements, distortion measurement, cone vibration and radiation analysis, nonlinear and thermal motor diagnostics, power testing, auralization, fast 100% end-of-line testing.

www.klippel.de

FAST, PRECISE MAGNETIC MEASUREMENTS



Trusted by the world's
leading scientists

Handheld and benchtop
gaussmeters and fluxmeters

Gaussmeter field ranges
35 mG to 350 kG

DC to 50 kHz frequency range

Integrated field control algorithm

3-axis measurements

Magnet testing and sorting

Over 100 standard Hall probes,
sensors and coils



LakeShore

Phone: (614) 891-2244 Fax: (614) 818-1600
info@lakeshore.com www.lakeshore.com

NDING
2011
SS
ESTING
METER
ER: SIEGFRIED LINKWITZ
July 2011
PRESS
WILD THE A100
POWER AMP
SPECIAL FOCUS ON
audio

EDITOR
ax

@audioXP_editor

#acoustics#amps#analog#audio#audioxpress
#bass#decibels#digital#disc#drivers#glassaudio
#headphones#hometheater#loudspeakers
#potentiometer#preamps#sound#treble#tubes
#turntable#voicecoil

- **Interact** with the *audioXpress* editorial department
- Keep **updated** on new audio products
- Stay **informed** on audio industry news
- Learn about **upcoming** events, conferences, and more

We

twitter

Follow us on Twitter



The "Must Have" reference for
loudspeaker engineering professionals.

Home, Car, or Home Theater!

Back and better than ever, this 7th edition provides everything you need to become a better speaker designer. If you still have a 3rd, 4th, 5th or even the 6th edition of the *Loudspeaker Design Cookbook*, you are missing out on a tremendous amount of new and important information!

Now including: Klippel analysis of drivers, a chapter on loudspeaker voicing, advice on testing and crossover changes, and so much more! Ships complete with bonus CD containing over 100 additional figures and a full set of loudspeaker design tools.

A \$99 value!

Yours today for just \$39.95.

Shop for this book, and many other Audio Amateur products, at **www.cc-webshop.com**.



CANADA

The Canadian Loudspeaker Corp.

CHINA

Akip Lab

Astrosound Electronics Co., Ltd.

Ningbo Impala Electronics Co., Ltd.

Sanoway Speaker Box & Wooden

Prod. (Shenzhen) Co., Ltd.

GERMANY

Proraum Vertriebs GmbH

ISRAEL

R H Sound Technology, Ltd.

ITALY

OEB, S.R.L.

TAIWAN

Huey Tung International Co., Ltd.

Kingstate Electronics Corp.

Phone in Mag-Electronics Co., Ltd.

Tang Band Industries Co., Ltd.

UNITED STATES

Anacapa Audio Lab

Audiolight, Inc.

Dynavox Electronics, Inc.

ESS Labs, LLC

ESTec America

Kinetic Audio International, Ltd.

Loudspeakers Plus

Parts Express

PR Audio

Robot Underground

SG Custom Sound

Simply Speakers

SoCal Sound

Vertek/XTC

SERVICE

AUSTRALIA

DEQX Pty., Ltd.

Soundlabs Group Pty., Ltd.

CANADA

Aksys Labs

Creative Sound Solutions

McBride Loudspeaker Source, Ltd.

Solen, Inc.

The Canadian Loudspeaker Corp.

The Speaker House

CHINA

Akip Lab

Hong Kong Zhihao International, Ltd.

Ningbo Impala Electronics Co., Ltd.

One Magnet Electronic Co., Ltd.

Sino Spark Electronic, Ltd.

Trueanalog Strictly OEM/ODM

GERMANY

Axel Joost Elektronik

Klippel GmbH

Proraum Vertriebs GmbH

R&D Team

INDIA

Power Electronics & Technologies

IRELAND

CK Speakers

ISRAEL

RH Sound Technology, Ltd.

ITALY

Axiomedia, S.R.L.

SPAIN

Acustica Beyma S.L.

TAIWAN

Cheng Juan Technology Co., Ltd.

HI-TECH Sound System Co., Ltd.

Kingstate Electronics Corp.

Phone in Mag-Electronics Co., Ltd.

Tang Band Industries Co., Ltd.

Yung International, Inc.

UNITED STATES

Advanced Transduction

AMS Audio Enterprises, Inc.

Anacapa Audio Lab

Audiolight, Inc.

Beach Dynamics, Inc.

Brim Electronics, Inc.

C.J. Enterprises

Crutchfield

Discovery Cable

Dynastar Electronics

DYNE Analytics

EKSC Eagle

Electro-Acoustic Testing Co., Inc.

ERSE Audio

ESS Labs, LLC

Globe Audio Design, Inc.

Globe Plastics

Martin Sound Products

NCA Laboratories

Parts Express

PR Audio

Robot Underground

SG Custom Sound

Shenzhen Horn Audio Co., Ltd.

Sherwood Industries, Inc.

Simply Speakers

SoCal Sound

Sound Remedy Loudspeaker Repair Service

SoundKinetics

Speaker Clinic

Transducer Lab

Wired 4 Sound, Inc.

ASSOCIATIONS

BOOKS & PERIODICALS

LICENSING

CHINA

Akip Lab

Ningbo Impala Electronics Co., Ltd.

Tonwel Audio Company, Ltd.

TAIWAN

Tang Band Industries Co., Ltd.

UNITED STATES

Beach Dynamics, Inc.

Dynastar Electronics

Globe Plastics

J. A. McKinney & Assoc., LLC

Parts Express

Solus Loudspeakers

CHINA

Ningbo Impala Electronics Co., Ltd.

UNITED STATES

Diamond Case Designs, Inc.

GedLee, LLC

ManualMan

Parts Express

AUSTRALIA

DEQX Pty., Ltd.

CANADA

The Canadian Loudspeaker Corp.

The Speaker House

CHINA

Hong Kong Zhihao International, Ltd.

Ningbo Impala Electronics Co., Ltd.

GERMANY

Audio Technology Engineering (ATE)

R&D Team

Reckhorn, Ltd.

UNITED STATES

Beach Dynamics, Inc.

David Kennedy Associates

DYNE Analytics

Episode Audio

J. A. McKinney & Assoc., LLC

Parts Express

Planot, LLC

Redrock Acoustics

Solus Loudspeakers

2012 Loudspeaker Industry Sourcebook

22 Jabotinsky St.
Ramat - Gan 52495
Rafi Hausmann
(P) + 972-3-67-33334
rhausman@netvision.net.il
www.rhausmann.co.il/
www.loudspeakers.co.il

99

17271 North Umpqua Highway
Roseburg, OR 97470
Caddock Direct Sales
(P) 541-496-0700
sales@caddock.com
www.caddock.com

504 Malcolm Ave. SE, Suite 400
Minneapolis, MN 55414
Paul Madsen (President)
(P) 612-706-9250
pm@cantonusa.com
www.cantonusa.com

64894 Old Bend Redmond Highway
Bend, OR 97701
Doug Moir (President of Engineering)
(P) 541-389-6821/877-315-5024
sales@cascadeaudio.com

10 Timber Lane
Marlboro, NJ 07746
John Sanchez (Inside Sales)
(P) 732-683-2356
sales@celestion.com
www.celestion.com

27 N. Wacker Drive, Suite 257
Chicago, IL 60606
Tom Gallagher (President)
(P) 773-251-1853
tgallagher@prodigy.net
www.cgnaudiolabs.com

57 States St.
San Francisco, CA 94114
Christopher J. Struck (CEO & Chief Scientist)
(P) 415-923-9535
cjs@cjs-labs.com
www.cjs-labs.com

5115 Red Fox Drive
Brighton, MI 48114
(P) 810-229-5191
wmcc@cac.net
www.classicaudioloudspeakers.com

1791 Kirkham Way
Salt Lake City, UT 84129
Dan James (CEO)
(P) 801-966-7148
dan@clearsound.us

1700 North Farnsworth Ave., Suite 10
Aurora, IL 60505-1186
Lois A. Lee (Director of Business
Administration)
(P) 630-851-1734
lois.lee@cobham.com
www.cobham.com/technicalservices

34 Wild Horse Way
Chesterfield, MO 63005
David Dicks (Owner)
(P) 636-536-0028
speakers@charter.net
www.commonsenseaudio.com

333 East Fifth St.
Chester, PA 19013
Julia Lee (Director of Sales & Marketing)
(P) 610-876-3400/800-523-4934
info@communitypro.com
www.communitypro.com

P.O. Box 90842
Springfield, MA 01139
Herb Singleton
(P) 413-747-2290
info@cross-spectrum.com
www.cross-spectrum.com

1 Crutchfield Park
Charlottesville, VA 22911
(P) 434-817-1000/800-388-2911
support@crutchfield.com
advisors@crutchfield.com
www.crutchfield.com

Laurel Lakes Executive Park
8341 Cherry Lane
Laurel, MD 20707
Catherine Spanou (Product Manager)
(P) +30-210-613-7100
info@crystalacoustics.com
www.crystalacoustics.com

38570 100th Ave.
Cannon Falls, MN 55009
Al Clark
(P) 507-263-5854
dsp@danvillesignal.com
www.danvillesignal.com

310 S. Twin Oaks Valley Rd.
Unit 107-136 (Receiving Only)
San Marcos, CA 92078
David Kennedy (Sound Designer)
(P) 760-814-2100
david@hdsound.us
www.D-K-A.com

705 Pleasant Valley Dr.
Springboro, OH 45066
Richard Taylor (Director of Marketing)
(P) 937-743-8248
richt@daytonaudio.com
www.daytonaudio.com/index.php/

214 Main St., P.O. Box 460
Rindge, NH 03461
David Hadaway
(P) 603-899-5121
dbsdys2@att.biz
dbsystemsaudio.com

3101 Wellington Dr.
Palmdale, CA 93551
David Chaffey (Engineer)
(P) 661-618-0221
dcgold@dcgold.com
www.dcgold.com

92 Old Rochester Rd.
Dover, NH 03820
JP Cogswell (President)
(P) 603-740-0010
DECOSystems@comcast.net

75 S. Riverview Drive
East Peoria, IL 61611
Steve Deckert
(P) 616-119644/309-822-5255
zen@decware.com
www.decware.com

655 N. Shepard St.
Anaheim, CA 92806
David Hartfelder (President)
(P) 714-630-8100/800-616-5354
dave@diamondcase.com
www.diamondcase.com

P.O. Box 7
Stuart, FL 34995
Joseph De Phillips
(P) 772-485-7771
discoverycable@comcast.net
www.discoverycable.com

1531 E. Starnpass Drive
Fresno, CA 93730
(P) 559-433-9700
dynastarelectronic@sbcglobal.net
www.dynastar-electronics.com

240 N. Puente Ave.
City of Industry, CA 91746
Daniel Wu (General Manager)
(P) 626-336-0516
dan.wu@dynavox.com
www.dynavox.com

P.O. Box 9440
Cincinnati, OH 45209
Mark Beach (CEO)
(P) 513-321-1420
mark@dyneanalytics.com
www.dyneanalytics.com

155 Fawcett St.
Cambridge, MA 02138
Alan Eckel (President)
(P) 617-491-3221
eckellis@eckelusa.com
www.eckelusa.com

404 Olivia Drive
Lexington, NC 27295
Richard A. Honeycutt, Ph.D. (Principal
Consultant)
(P) 336-249-7910
postmaster@edcsound.com
www.edcsound.com

25740 College Blvd.
Olathe, KS 66061
Russell
(P) 913-780-4495
info@eagle-audio.com
www.eagle-audio.com

8780 Rufing Rd.
Greenville, IN 47124
Brenda Brown
(P) 812-923-0174/800-796-2831
bbrown@etcinc.us
www.etcinc.us

838 Mulberry Pike
Eminence, KY 40019
Chris Rose (President)
(P) 502-845-5622
info@eminence.com
www.eminence.com

88 Long Hill Cross Rd.
Shelton, CT 06484
Robert E. Evans
(P) 203-922-1810
info@eftfibers.com
www.eftfibers.com

18700 Yorba Linda Blvd., #56
Yorba Linda, CA 92886
Ira Pazandeh
(P) 714-404-8340
episodeaudio@roadrunner.com
www.episodeaudio.com

6781 Hopkins Rd.
Mentor, OH 44060
Chris Powers (Manager)
(P) 440-205-9658
sales@erseaudio.com
www.erseaudio.com

9855 Joe Vargas Way
South El Monte, CA 91733
Ricky "Rico" Caudillo (CEO)
(P) 626-443-8324/888-377-8720
ricky@essspeakersusa.com
www.essspeakersusa.com

2200 E. Devon Ave., Suite 317
Des Plaines, IL 60018
Bryan Oh (Senior Manager)
(P) 847-527-7003
shoh@estec.co.kr

2130 Shadwell Court
Gastonia, NC 28056
Charlie Hughes
(P) 704-675-5435
info@excelsior-audio.com
www.excelsior-audio.com

2 Pine Cone St.
P.O. Box 353516
Palm Coast, FL 32135
Carol Concorde
(P) 386-437-7877/800-333-9383
fbtusa@sbcglobal.net
www.fbt.it

33 Constitution Drive
Bedford, NH 03110
Vanessa Rene (Product Specialist, Ferrofluids)
(P) 603-472-6800
info@ferrotec.com
www.ferrotec.com

15 Corporate Drive, Suite E
Wayne, NJ 07470
Stephen Kohnle
(P) 973-646-5044/866-634-7627
info@fisnar.com
www.fisnar.com

5 Aerial Way, Suite 500
Syosset, NY 11791
Customer Service
(P) 516-922-6050/800-223-3388
pumps@fmipump.com
www.fmipump.com

123 Astronaut East South Onizuka St.
Suite 207
Los Angeles, CA 90012
Shin Sugimoto (Vice President)
(P) 213-617-9006
shin@usfps.com
usfps.com

2285 East Enterprise Parkway
Twinsburg, OH 44087
Barbara Schustrich (Sales/Business Manager)
(P) 330-425-1201/800-579-4727
sales@gras.us
www.gras.dk

43516 Scenic Lane
Northville, MI 48167
(P) 248-305-9328
egeddes@gedlee.com
www.gedlee.com

3380 La Sierra Ave., Suite 104-121
Riverside, CA 92503-5225
Trevor Ryan
(P) 951-266-0030
info@motusaudio.com
www.motusaudio.com

103

[illegible]

104

New solutions for UV coating and bonding



Nordson EFD 752HF Dispense Valve System

Controlled, bubble-free dispensing with high output capability for thicker UV cure coatings used in Blu-ray Disc™ production.

Unrestricted material flow reduces turbulence and the formation of micro bubbles.

For more information go to www.nordsonefd.com/ads/lis-2012
Tel. 401.431.7000 800.556.3484

Nordson
EFD

[THE TONE IS IN THE DETAILS.]



HIGH-QUALITY MATERIALS.
CRAFTED TO PERFORM AND ENDURE.


EMINENCE®

The Art and Science of Sound

WWW.EMINENCE.COM

