



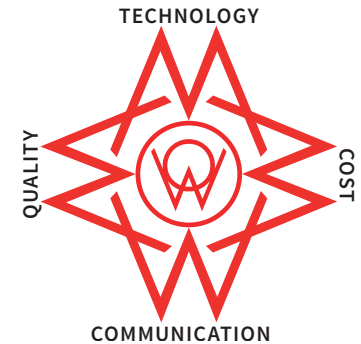
# ACOUSTICS CATALOGUE



OLE WOLFF

# COMPANY PROFILE

Ole Wolff was founded in 1983 in Denmark where it is still headquartered today. We have sales offices in nine locations worldwide, three R&D and application support centres and with ISO9001 and ISO14001 approved manufacturing facilities in Asia.



## OUR FOCUS

### Performance

Obtaining the right acoustic performance is key to our belief which we want to pass on to our customers and their end users.

### Technology

Ole Wolff offers extremely strong acoustic R&D support for both full systems and individual drivers.

Our R&D team includes Danish engineers with more than 20 years of experience in designing world class premium drivers and audio systems.

Utilizing tools such as Klippel™, Soundcheck™ and FEM simulation we are able to meet your exact performance requirements.

The engineers at Ole Wolff will work closely with your team to achieve your exact performance targets. We can tailor everything to your requirements and even customize the drive unit design to generate your own unique drivers.

### Quality

By controlling the entire QA process along with product development and manufacturing Ole Wolff ensures that your product will meet all the required environmental, reliability and life-cycle tests, as well as meet the highest possible manufacturing quality and consistency.

### Communication

Ole Wolff takes a proactive role to manage and track your project from start to finish in order to deliver the product at the right time, cost and quality.

Through local support with your team throughout the entire project, we ensure that we fully understand every aspect of your product requirements.

### Cost

In order to be cost competitive Ole Wolff operates a unique lean model where we have minimized any unnecessary costs.

We focus our resources where it is needed and where it can add the most value.

Combining Danish acoustic technology and product design with Chinese manufacturing results in innovative high performing products at a competitive price.



- Research, design and technology
- Program management
- Sales



- Manufacturing
- Engineering team: Development
- Procurement
- QA management
- Logistics
- Project Management

# COMPONENTS AND APPLICATIONS

---

## OLE WOLFF COMPONENTS

Complete headphones  
Drivers



- Headphones

Speakers  
Receivers  
Microphones



- Consumer electronics
- Smartphones
- Tablets

Microphones  
Speakers  
Receivers  
Full Handsets



- Enterprise VOIP
- DECT Phones

# PRODUCT PORTFOLIO

---

Dynamic drivers in size 4.8 mm — 50 mm for various headset applications.

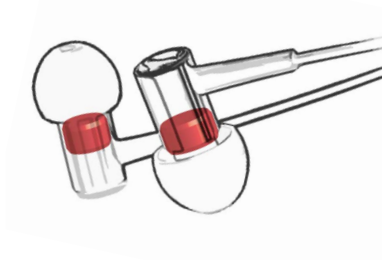
30, 32, 40 & 50 mm drivers



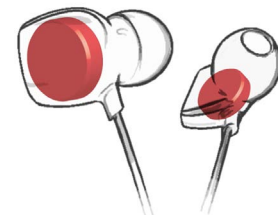
8.6, 10 & 13.2 mm drivers



4.8, 5.8, 6.9, 8.6 & 10mm drivers



13.6 & 14.8 mm drivers



# PRODUCT PORTFOLIO

---



Various speaker box assemblies

3 & 4 mm microphones including SMT ECM

MEMS microphones

Rectangular WB & HAC receivers e.g 6×15×2mm,  
8×15×2.5mm

Rectangular speakers e.g 13×18×3.0mm  
11×15×3.0mm, 8×15×2.5mm,

3 & 4 mm microphones including SMT ECM  
MEMS microphones



# PRODUCT PORTFOLIO

---

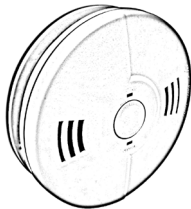


50, 52 & 66 mm hands free speakers  
30 & 36mm mm wideband receivers meeting  
TIA920A & P.311  
Complete handsets  
6 & 9.7 mm microphones

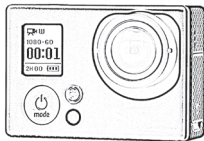
28 & 36 mm hands free speakers  
10, 13 mm circular & rectangular receivers  
4 & 6 mm microphones

# PRODUCT PORTFOLIO

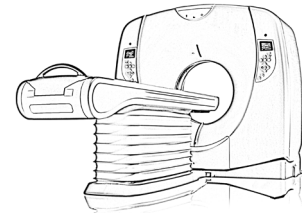
---



SMOKE  
DETECTORS



CONSUMER  
ELECTRONICS



MEDICAL DEVICES



HOME APPLIANCES

Magnetic transducer & buzzer

Size 5x5mm upwards. Available in SMD + pin type

Piezo transducer & buzzer

Size 10x10mm upwards. Available in SMD + pin type

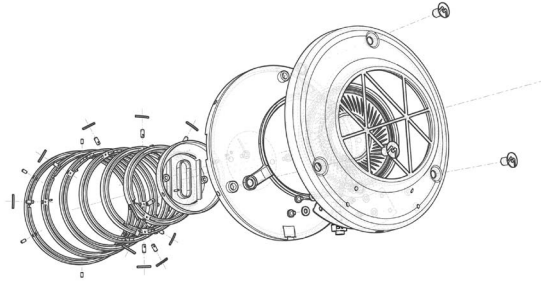
Piezo disc

Size 9mm upwards



# HEADPHONE SOLUTIONS

---



Ole Wolff specializes in offering total headphone solutions. We can help with everything from initial concept to finished product (ODM, OEM and JDM products).

By applying the right mix of skills, technologies and competences we can lift a heavy load for you and virtually become an extension of your own product development team.

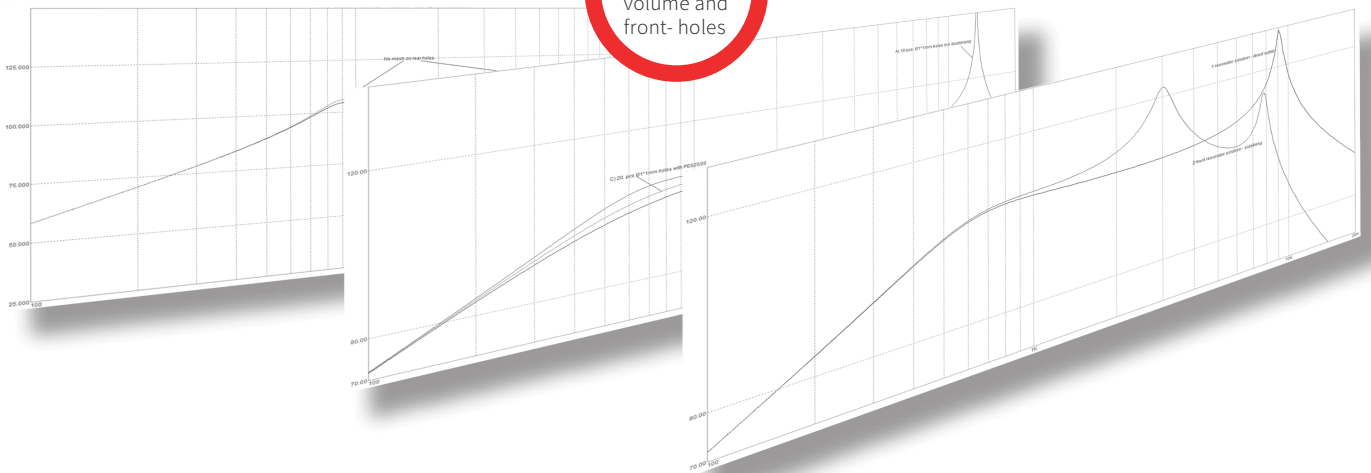




# ACOUSTIC SYSTEM INTEGRATION

Ole Wolff can provide complete acoustic solutions. From idea to manufacturing.

— And all of the steps in between.



# TRANSDUCER DESIGN & SIMULATIONS

## SIMULATION SOFTWARE & DEVELOPMENT TOOLS

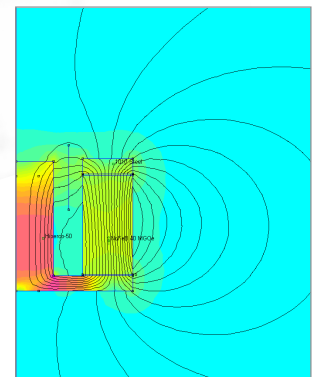
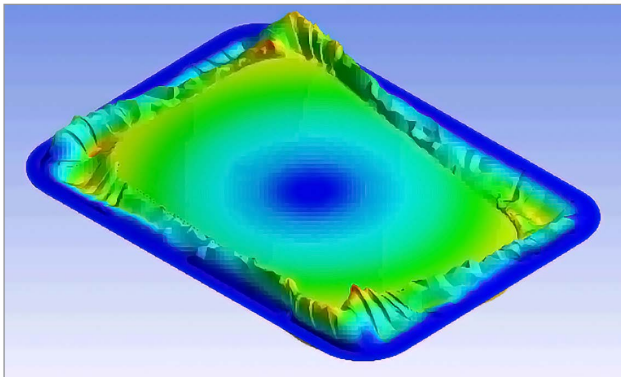
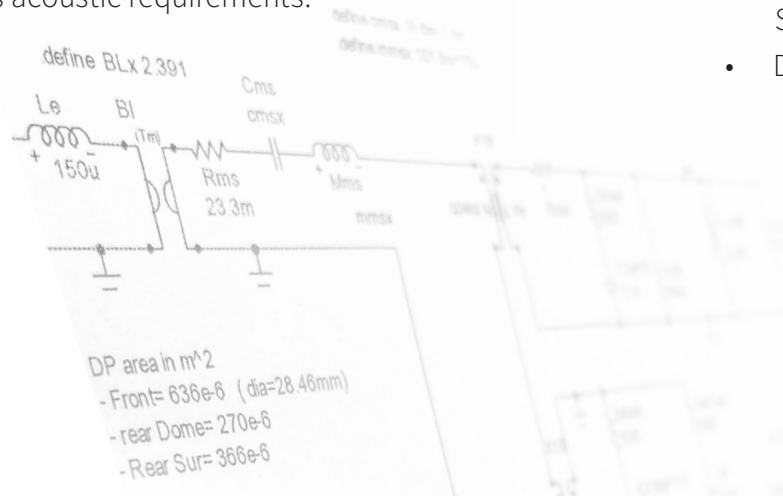
- Equivalent diagram based on self-made acoustic module
- 2D magnetic and diaphragm simulations
- 3D finite element simulation (FEM)
- Simulate system's performance based on Thiele Small parameters.
- Optimize transducer's parameters and structures based on customer's acoustic requirements.

## DESIGN PARAMETERS

- Diaphragm materials
- Magnet type and grade
- Voice coil material/design
- Motor structure
- Magnetic field simulation (HAC)

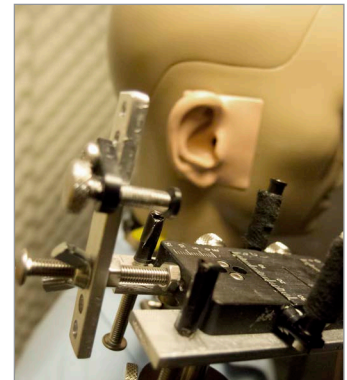
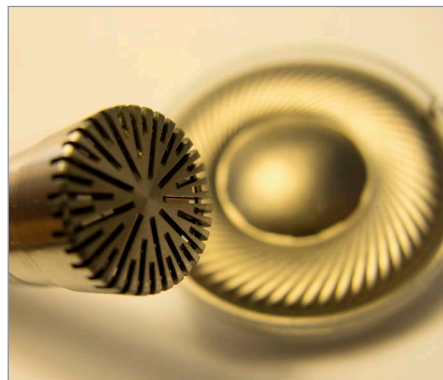
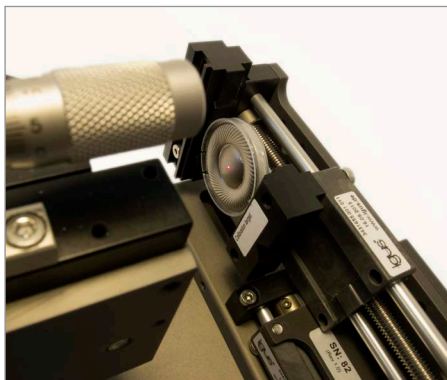
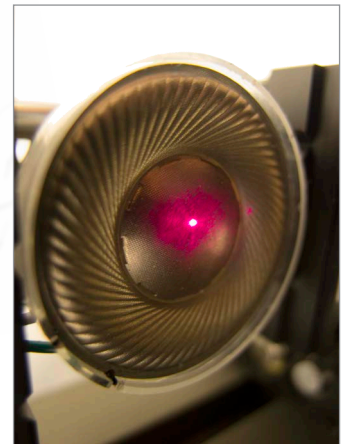
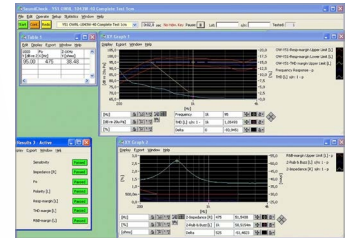
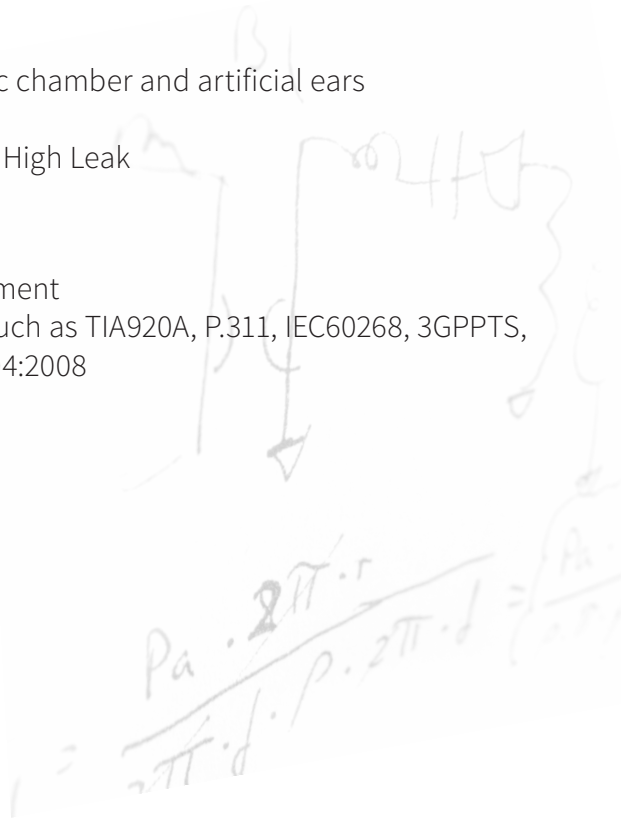
## SPECIAL FEATURES

- Dust/water protection



# TEST CAPABILITIES

- Measurement in anechoic chamber and artificial ears
  - IEC 318
  - IEC 711 Low Leak and High Leak
  - Kemar / HATS
- Klippel
- Laser precision measurement
- Test to meet standards such as TIA920A, P.311, IEC60268, 3GPPTS, AUSTRALIAN AS/ACIF S004:2008



# ACOUSTICS PRODUCT LIST

Selection of Ole Wolff acoustics components. Please consult with your Ole Wolff representative for latest updated list or check [www.owloff.com](http://www.owloff.com)

## MICROPHONES

Part Number	Size [mm]	Height [mm]	Sensitivity [dB]	SNR (min) [dB]	Directivity	Type
OWMO-3015	∅ 3.0	1.5	-40 ~ -46	55-58	Omni	ECM
OWMO-4012	∅ 4.0	1.2	-38 ~ -46	55-65	Omni	ECM
OWMO-4015	∅ 4.0	1.5	-38 ~ -46	55-65	Omni	ECM
OWMO-6015	∅ 6.0	1.5	-38 ~ -46	55-65	Omni	ECM
OWMO-6018	∅ 6.0	1.8	-38 ~ -46	55-65	Omni	ECM
OWMO-6022	∅ 6.0	2.2	-38 ~ -46	55-65	Omni	ECM
OWMO-6027	∅ 6.0	2.7	-38 ~ -46	55-65	Omni	ECM
OWMO-6050	∅ 6.0	5.0	-38 ~ -46	55-65	Omni	ECM
OWMO-9745	∅ 9.7	4.5	-38 ~ -46	55-60	Omni	ECM
OWMO-9765	∅ 9.7	6.5	-38 ~ -46	55-60	Omni	ECM
OWMOD-4015	∅ 4.0	1.5	-26 ~ -34	55	Omni	Dig. ECM
OWMOD-6020	∅ 6.0	2.0	-20 ~ -34	58	Omni	Dig. ECM

Part Number	Size [mm]	Height [mm]	Sensitivity [dB]	SNR (min) [dB]	Directivity	Type
OWMOD-6022	∅ 6.0	2.2	-20 ~ -34	58	Omni	DIGITAL ECM
OWMOD-6027	∅ 6.0	2.7	-20 ~ -34	58	Omni	DIGITAL ECM
OWMOS-3012	∅ 3.0	1.2	-42 ~ -46	55	Omni	SMD ECM
OWMOS-4012	∅ 4.0	1.2	-40 ~ -46	58	Omni	SMD ECM
OWMOS-4015	∅ 4.0	1.5	-40 ~ -46	58	Omni	SMD ECM
OWMMA-372911	3.7 x 2.9	1.1	-42	58	Omni	ANALOGUE MEMS
OWMMA-372211	3.7 x 2.2	1.1	-42	58	Omni	ANALOGUE MEMS
OWMMOD-241410	2.4 x 1.4	1.0	-42	58	Omni	DIGITAL MEMS
OWMU-4020	∅ 4.0	2.0	-44 ~ -47	50	Uni	ECM
OWMU-6022	∅ 6.0	2.2	-44 ~ -47	55	Uni	ECM
OWMU-6027	∅ 6.0	2.7	-44 ~ -47	55	Uni	ECM

## SPEAKERS

Part Number	Size [mm]	Height [mm]	Termination	Impedance	Power Nom/Max [W]	F0	SPL (@0.1W, 0.1m) [dB]	Application
OWS-081525L-8	8x15	2.5	Terminal	8Ω	0.5W/1.0W	800Hz (in 1cc box)	80 (in 1cc box, average 1-3kHz)	Tablet/Mobile Phone
OWS-111530W-8B	11x15	3.0	Lead wires	8Ω	0.5W/1.0W	900Hz (in 1cc box)	81 (in 1cc box, average 1-3kHz)	Tablet/Mobile Phone
OWS-1337W45-8A	∅ 13	3.7	Lead wires	8Ω	0.5W/0.8W	900Hz	86 (free air, average 0.8-1.5kHz)	General speaker
OWS-142030L-8	14x20	3.0	Leaf Spring	8Ω	0.5W/1.0W	900Hz (in 1.5cc box)	83 (in 1.5cc box, @2kHz)	Tablet/Mobile Phone
OWS-1536L-8A	∅ 15	3.6	Leaf Spring	8Ω	0.8W/1.0W	850Hz	88 (free air, average 0.8-1.5kHz)	General speaker
OWDM-1633W-8C3M	∅ 16	3.3	Lead wires	8Ω	0.6W/1.0W	710Hz	89 (free air, average 0.8-1.5kHz)	General speaker
OWDM-1936CW-8B	∅ 19	3.6	Lead wires	8Ω	0.5W/0.8W	650Hz	93 (free air, average 0.8-1.5kHz)	General speaker
OWS-2570T-4	∅ 25	7.0	Terminal	4.3Ω @2kHz	2.0W/3.0W	550Hz	91 (@1kHz)	General speaker
OWS-2861T-4	∅ 28	6.0	Terminal	4.0Ω @2kHz	2.5W/3.5W	370 Hz	93 (@1kHz)	General speaker
OWS-2860W-8A	∅ 28	6.0	Lead wires	8Ω	0.5W/1.0W	450Hz	88 (free air, @1.0kHz)	General speaker
OWS-323215T-4	32x32	16	Terminal	4Ω	2.0W/3.0W	220Hz	84 (free air, @1.0kHz)	Conference phones
OWS-3648T-8B	∅ 36	4.8	Terminal	8Ω	0.8W/1.0W	390Hz	91 (free air, @1.0kHz)	General speaker
OWS-4075T-8A	∅ 40	7.5	Terminal	8Ω	2.0W/2.5W	400Hz	92 (free air, @1.0kHz)	General speaker
OWS-5223CW70-4-G54	∅ 52	24.5	Lead wires	4Ω	1.0W/2.0W	180Hz	89.5 (free air, @1.0kHz)	VOIP Phone

## RECEIVERS

Part Number	Size [mm]	Height	Termination	Impedance	Power Nom/Max	F0	Application	Remarks
OWR-0480T	∅ 4.8	4.8	Terminal	16Ω	5mW / 10mW	3000Hz	In-ear earphone	
OWR-0580T	∅ 5.8	4.7	Terminal	13Ω	5 mW / 10mW	3100Hz	In-ear earphone	
OWRL-061520L-32A	6×15	2.0	Leaf Spring	32Ω	10mW / 30mW	300Hz	Smartphone	Wideband, HAC
OWR-0680T	∅ 6.9	4.4	Terminal	16Ω	5mW / 10mW	3100Hz	In-ear earphone	
OWR-0860T	∅ 8.6	4.5	Terminal	16Ω	5mW / 10mW	3100Hz	In-ear earphone	
OWR-0843T	∅ 8.6	4.3	Terminal	32Ω	10mW / 20mW	450Hz	Bluetooth headset	
OWR-081515L-32	8x15	2.5	Leaf Spring	32Ω	10mW / 30mW	300Hz	Smartphone	Wideband, HAC
OWRL-1045W-32	∅ 10	4.5	Lead wires	32Ω	20mW / 30mW	390Hz	Bluetooth headset	
OWRL-1338W50-32WB	∅ 13.3	3.8	Lead wires	32Ω	10mW / 20mW	300Hz	Bluetooth headset	Wideband, HAC
OWR-1366T-16A	∅ 13.6	6.0	Terminal	16Ω	2mW / 5mW	280Hz	Earbud	
OWR-2362T-32A	∅ 23	6.2	Terminal	32Ω	10mW / 30mW	200Hz	Headset	Wideband
OWR-3083T-150WB	∅ 30	8.5	Terminal	150Ω	10mW / 30mW	160 Hz	VoiP phone	Wideband, HAC
OWR-3052T	∅ 30	5.2	Terminal	32Ω	10mW / 30mW	150Hz	Headset	
OWR-3255T	∅ 32	5.5	Terminal	32Ω	10mW / 30mW	150Hz	Headset	
OWR-4089T-32	∅ 40	8.9	Terminal	32Ω	10mW / 15mW	95Hz	Headphone	
OWR-4011T-32i	∅ 40	11	Terminal	32Ω	40mW / 80mW	130Hz	Headphone	
OWRL-5088T-32	∅ 50	8.8	Terminal	32Ω	40mW / 85mW	80Hz	Headphone	

## AUDIO BUZZERS

Part Number	Dimension [mm]	SPL [dB, @10cm]	F0 (Hz)	Rated Voltage	Terminal	Type
OWMB-505020S-40-12	5.0*5.0*2.0	>=78	4000	3 Vo-p	SMD	Magnetic
OWMB-505030S-40-12	5.0*5.0*3.0	>=78	4000	3 Vo-p	SMD	Magnetic
OWMB-757525S-27-15	7.5*7.5*2.5	>=85	2700	3,6 Vo-p	SMD	Magnetic
OWMB-858530S-27-25	8.5*8.5*3.0	>=85	2731	3 Vo-p	SMD	Magnetic
OWMB-858540S-27-16	8.5*8.5*4.0	>=90	2731	3,6 Vo-p	SMD	Magnetic
OWMB-909045S-32-16	9.0*9.0*4.5	>=90	3200	3,3 Vo-p	SMD	Magnetic
OWMB-131310S-23	12.8*12.8*10	>=85	2300	3 Vo-p	SMD	Magnetic (VDC voltage)
OWMB-1285-31-16	12*8.5	>=90	3100	3,3 Vo-p	Pin	Magnetic
OWMB-7614P-20-50	16*14	>=85	2048	6 Vo-p	Pin	Magnetic
OWPB-121230S-40-05	12*12*3.0	>=75	4000	3.0 (25 max) Vp-p	SMD	Piezo
OWPB-141440S-40-05	14.1*14.9*4.5	>=80	4000	5.0 (20 max) Vp-p	SMD	Piezo
OWPB-3020-35-12	30.2*19.2	>=104.5	3500	12.0 (20 max) Vp-p	Pin	Piezo (VDC voltage)
OWPB-5029-25-12	50*29	>=116	2500	12.0 (13 max) Vp-p	Pin	Piezo (VDC voltage)
OWPB-1260-60W13-05	12*0.14	-	6000	<=30 Vp-p	Lead wire	Piezo disk with wire

The listed product information and data are given in good faith but without warranty.

# GLOBAL PRESENCE

OLE WOLFF ELECTRONICS INC.  
Jefferson Forest Drive  
Richmond Hill, ON L4E 4K6  
**Canada**  
T: +1 416-953-5015

OLE WOLFF ELECTRONICS INC.  
4340 Cross Street  
Downers Grove, IL 60515  
**USA**  
T: +1 847 962 4169  
F: +1 630 852 2520

OLE WOLFF ELECTRONICS INC.  
1525 McCarthy Blvd,  
Suite 1093  
Milpitas, Ca 95035  
**USA**  
T: +1 408 888 8413



OLE WOLFF ELECTRONICS LTD  
3 Bedford Street, Woburn  
Bedfordshire MK17 9QB  
**United Kingdom**  
T: +44 (0) 1525 290755  
F: +44 (0) 1525 290855

OLE WOLFF ELECTRONIK GmbH  
Schulstrasse 15A  
DE-25451 Quickborn  
**Germany**  
T: +49 (0) 4106 765900  
F: +49 (0) 4106 627297





OLE WOLFF ELEKTRONIK A/S

Roedendgvej 25

DK-4180 Soroe

**Denmark**

T: +45 5783 3830

F: +45 5782 0019



OLE WOLFF ELEKTRONIK

Yliopistonkatu 26 (P.O.BOX 257)

FI-40101 Jyväskylä

**Finland**

T: +358 14 338 3050

F: +358 14 338 3059



OLE WOLFF ELECTRONICS LTD

Unit 7A08, Block 2, Elite Building  
Nanshan Avenue, Nanshan District  
Shenzhen, **China**

T: +86 755 2640 6156 / 8261 2542

F: +86 755 2518 3358



OLE WOLFF LTD

1179, Sec. 4 Xinglong Road  
Wenshan District Taipei City 116

**Taiwan** (R.O.C.)

T: +886 928 548 068



OLE WOLFF LTD

Unit B 19/F, Bold Win Indust.Bldg.  
16-18 Wah Sing Street, Kwai Chung  
Kowloon, **Hong Kong**

T: +852 24 24 32 74

F: +852 24 24 22 19





[www.owolff.com](http://www.owolff.com)  
[sales@owolff.com](mailto:sales@owolff.com)