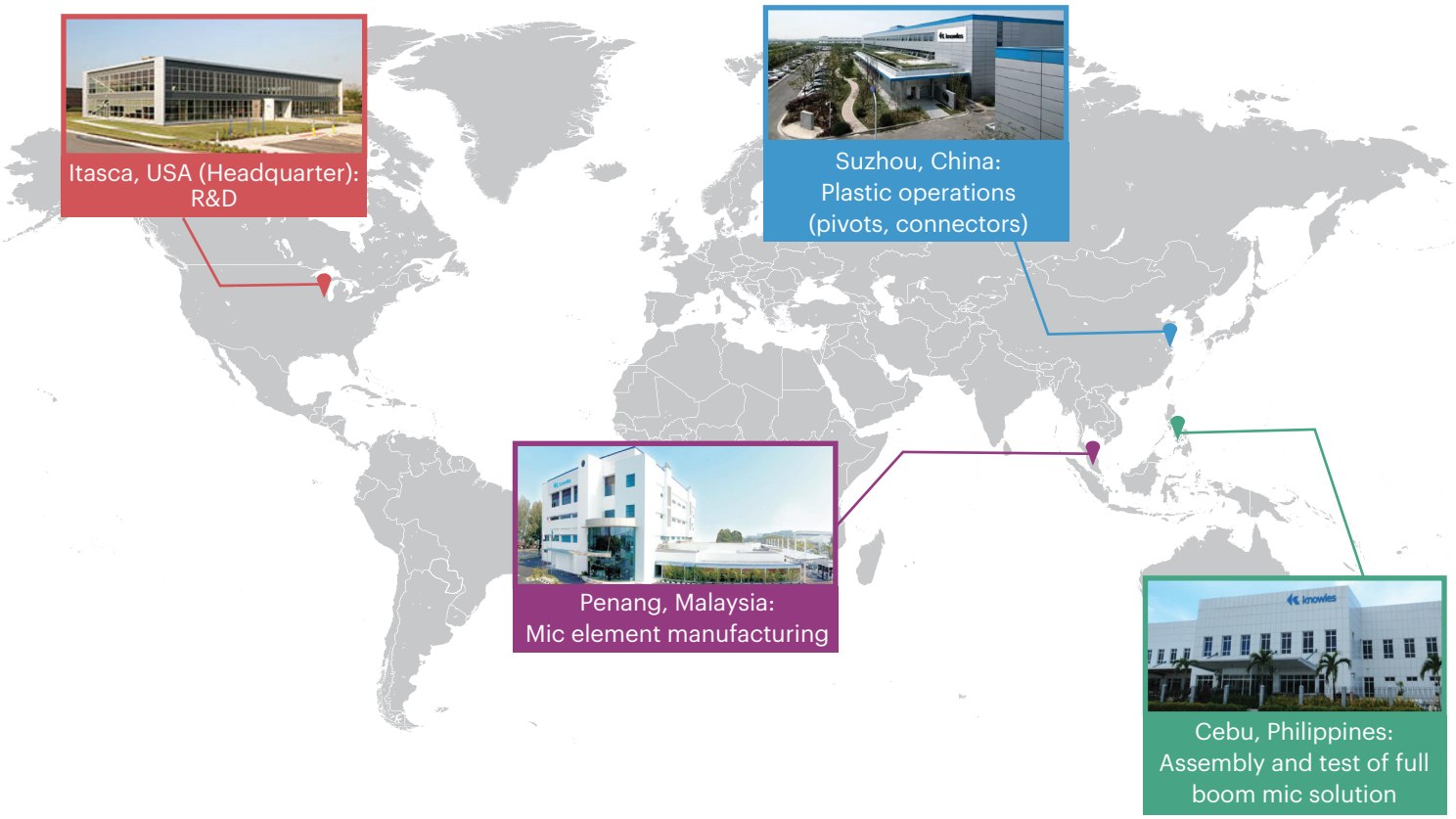
knowles

BOOM MICROPHONES FOR CRITICAL COMMUNICATION AND SPECIALTY PERFORMANCE

INTRODUCTION

Knowles portfolio of specialty boom microphones enable clear communication under the most demanding conditions and requirements. The combination of industry-best microphone elements and close proximity to the mouth provides excellent intelligibility even in extremely noisy conditions. With more than 30-year design and manufacturing experience, we are prepared to deliver the right boom for your customers - whether they are on stage or on a critical mission.

Our capabilities span across the entire spectrum of a boom's design, manufacture, and assembly process.

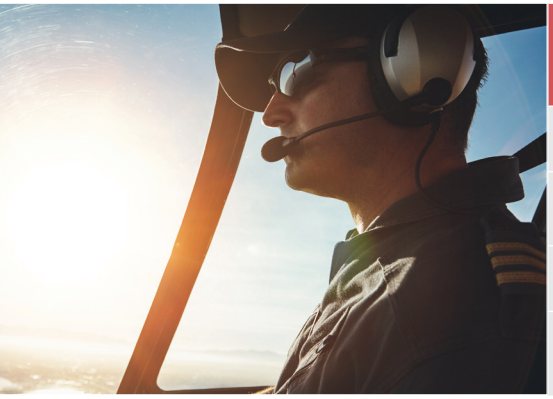


WHAT DOES THE MARKET NEED AND WHAT DOES KNOWLES OFFER?

Stage Performance & Professional Speaking:

What do users need?	What does Knowles offer?
• Audio performance	• Pristine audio quality
• Visual impact	• Small and lightweight
• Long-term supply	• Self-sufficient, in-house capabilities to sustain long-term partnership

Aviation:



What do users need?	What does Knowles offer?
• Performance requirement	• Meet RTCA-DO214a aviation standard
• Communication in noisy environment	• Amplified electret mic element • Noise-cancelling
• Robust	• Durable and ingress protected
• Long-term supply	• Self-sufficient, in-house capabilities to sustain long-term partnership

Critical Communication, Industrial & Intelligent Hearing Protection:

What do users need?	What does Knowles offer?
• Clear communication in demanding environments	• Noise-cancelling
• Ruggedized	• Water-proof • Extra ingress protection
• Long-term supply	• Self-sufficient, in-house capabilities to sustain long-term partnership

Mic Element Offerings

FG/DFG Series:
FG series is the world's smallest cylindrical shape electret condenser microphone. It is omnidirectional and has a full-range response. Its cylindrical shape and compact size provide for superior fit rates. DFG series, or directional FG, provides the benefits of a directional microphone while also maintaining the small FG form-factor. A directional microphone has two or more sound ports. Directional electret microphones are normally used for booms because of outstanding noise cancelling performance.

High dynamic range (AOP up to 140dB SPL) variant available with FG45/DFG45 series.

NR Series
NR Series electret microphones are bi-directional and are superbly balanced for noise cancellation. Unlike commodity electret elements, they maintain a figure 8 polar pattern through 10kHz. The construction draws on technology found in hearing aid microphones to enable low noise, low voltage operation, and low current operation.

WP Series
WP Series electret microphones are available in both omni-directional and bi-directional versions. While similar to NR, WP is constructed to survive submersion in water. The barometric equalization vent is not in the acoustic sound path, but rather through a millipore pathway through the housing. A protective diaphragm allows sound to pass, while blocking liquid ingress into the rear port of the microphone.

BJ Series:
Balanced armature mics, or BJ Series electro-mechanical microphones, are appropriate for applications where a supply voltage is not available. They may be substituted into applications where a dynamic microphone is used. Because there is no electret charge, a balanced armature microphone is more robust to heat and solvent vapor than an electret microphone. It is, however, more susceptible to mechanical shock and vibration.

FG/DFG	NR	WP	BJ SERIES
▸ Smallest option, cylindrical form factor ▸ Omni (FG) and Directional (DFG) ▸ High dynamic range version available	▸ Superior noise cancelling to 10KHz ▸ Internal FET amplifier ▸ Ideal for noisy environments	▸ Waterproof to 3m ▸ Noise cancelling ▸ Robust to condensation/frost	▸ Balanced armature mic – no biasing needed ▸ Voice-band frequency response for intelligibility ▸ High dynamic range

Boom Mic Selection*

U, W, L - LIGHTWEIGHT SERIES
Designed for flexibility into high-end applications such as professional audio and communication devices.

R – AVIATION SERIES
Meets RTCA-DO214a USA civil aviation spec. Wide voltage range beyond the RCTA spec.

O, M, I – RUGGEDIZED SERIES
Designed for applications that require a robust headset. Emergency services, military and tactical, and industrial applications are some that take advantage of the increased IP ratings and larger, sturdier boom.

U SERIES

W SERIES

L SERIES

R SERIES

O SERIES

M SERIES

I SERIES

BOOM SERIES	BENEFITS & FEATURES	GOOSENECK THICKNESS (MM)				MIC ELEMENT	EXPECTED IP RATING **	PART NUMBER
		2.7	4.2	5.4	5.9			
STAGE PERFORMANCE & PROFESSIONAL SPEAKING								
U	• Very small • Lightweight					DFG	IP55	FB-BU-35715-000
						FG	IP55	FB-BU-35678-000
W	• Small and lightweight • Water resistant					WP	IP58	FB-BW-30335-000
L	• Small and lightweight • Mechanically strong head • Water resistant					NR	IP55	FB-BL-32508-000
						WP	IP58	FB-DL-33590-000
AVIATION								
R	• Meet RTCA-DO214a aviation standards • Wide voltage ranges beyond RTCA spec					NR	IP55	FB-DR-30366-000
CRITICAL COMMUNICATION, INDUSTRIAL & INTELLIGENT HEARING PROTECTION								
O	• Fully EMI shielded • Versions with depth rating to 3m					WP	IP58	FB-FO-34928-000
M	• Excellent balanced acoustic path on both sides of housing • Versions with depth ratings to 20m					NR	IP65	FB-EM-30342-000
						WP	IP68	FB-EM-30343-000
I	• No biasing needed • Versions with depth ratings to 10m					BJ	IP68	FB-EI-31552-000

All models have RFI protection

**Additional models and customizations available*
***Reference model spec for qualified ingress protection*

ADDITIONAL RESOURCES
Datasheets: https://www.knowles.com/subdepartment/dpt-microphones/subdpt-boom
Technical Bulletins: https://www.knowles.com/subdepartment/technical-bulletins/dpt-microphones/subdpt-boom
App Notes: https://www.knowles.com/subdepartment/application-notes/dpt-microphones/subdpt-boom

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CAN'T FIND WHAT YOU ARE LOOKING FOR?
• Knowles offers a full suite of customization options.
• Our acoustic and mechanical experts are ready to assist you throughout your design process.
• Our in-house design, manufacturing, and assembly capabilities will decrease your time to market.
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