

# GRAS 46AE

1/2" CCP 自由场标准传声器装置



频率范围 3.15 Hz - 20 kHz  
动态范围 17 dB(A) - 138 dB  
灵敏度 50 mV/Pa  
IEC 61672 Class 1  
用途：用于一般声学诊断

GRAS 46AE是一个1/2" 恒定电流功率 CCP 自由场传声器装置，用于测量中等频率的中等声压级。它以BNC连接器为终端，与TEDS兼容。对应传统200V LEMO 的型号是 [GRAS 46AF](#)

## 引言

46AE 是一种自由声场传声器装置，因此适用于所有声学应用，在这些应用中，主要声源的位置是已知的，传声器可以直接指向它，确保 0° 入射角。

宽广的频率范围使其成为一般声学诊断的理想之选。46AE 符合 IEC 61094 WS2F 和 IEC 61672 1 级标准。

关于温度范围，请参阅规格。如果需要更高的温度限制，我们推荐 [GRAS 146AE](#) 1/2" CCP 自由声场耐用传声器套件，其最高使用温度可达 125 °C。

46AE-FV 1/2" CCP 自由声场前均压传声器装置提供前均压孔版本。

## 设计

GRAS 46AE 是高性能 1/2" 自由声场标准传声器装置，用于测量中等声压级。在我们的无尘室环境中，这套传声器已组装完毕，并用标签密封。不过，如果您希望单独使用组件，传声器套件也可以拆卸。

### 传声器

传声器盒是高质量的 IEC 61094 WS2F 标准化 [GRAS 40AE](#) 1/2" 预极化自由声场传声器，专为在多种环境中实现长期可靠性而设计。高灵敏度和高可靠性使 40AE 成为带 CCP 选项的声级计/分析仪的首选测量传声器，并因此实现了 IEC 61672 1 级测量。

预极化是在高度受控的条件下，通过施加在传声器背板上的驻极体获得的。然后对驻极体充电，使其符合指定的传声器灵敏度。

### 前置放大器

[GRAS 26CA](#) 1/2" CCP 标准前置放大器，配有 BNC 连接器，采用我们著名的电路板基板。在业内，这些前置放大器以其低自噪、宽频率和出色的转换率性能而闻名。

## 兼容性

GRAS 46AE 传声器套件需要一个能提供 4 mA 和 24 V 无负载 CCP 电压的恒流输入模块，才能达到规定的性能。如果恒流供电较低，驱动长电缆的

Polarization/Connection		0 V / CCP
Frequency range ( $\pm 1$ dB)	Hz	5 to 10 k
Frequency range ( $\pm 2$ dB)	Hz	3.15 to 20 k
Dynamic range lower limit with GRAS preamplifier	dB(A)	17
Dynamic range upper limit with GRAS CCP preamplifier	dB	138
Set sensitivity @ 250 Hz ( $\pm 2$ dB)	mV/Pa	50
Set sensitivity @ 250 Hz ( $\pm 2$ dB)	dB re 1V/Pa	-26
Output impedance	$\Omega$	< 50
Output Voltage Swing, min. @ 24-28 V CCP voltage supply	Vp	8
Power supply min. to max.	mA	2 to 20
DC bias voltage, typ.	V	12
Microphone venting		Rear
IEC 61094-4 Designation		WS2F
Temperature range, operation	$^{\circ}\text{C} / ^{\circ}\text{F}$	-30 to 85 / -22 to 185*
Temperature range, storage	$^{\circ}\text{C} / ^{\circ}\text{F}$	-40 to 85 / -40 to 185
Temperature coefficient @250 Hz	dB/ $^{\circ}\text{C}$ / dB/ $^{\circ}\text{F}$	-0.01 / -0.006
Static pressure coefficient @250 Hz	dB/kPa	-0.007
Humidity range non condensing	% RH	0 to 90
Humidity coefficient @250 Hz	dB/% RH	-0.001
Influence of axial vibration @1 m/s <sup>2</sup>	dB re 20 $\mu\text{Pa}$	66
TEDS UDID (IEEE 1451.4)		I27-0-0-0U
Connector type		BNC
CE/RoHS compliant/WEEE registered		Yes/Yes/Yes
Weight	g / oz	33 / 1.164

\*若在高于70 °C的温度下使用，建议采用高温电缆。

## GRAS HALT Test Parameters†

Humidity 90%	@50°C	48 hours
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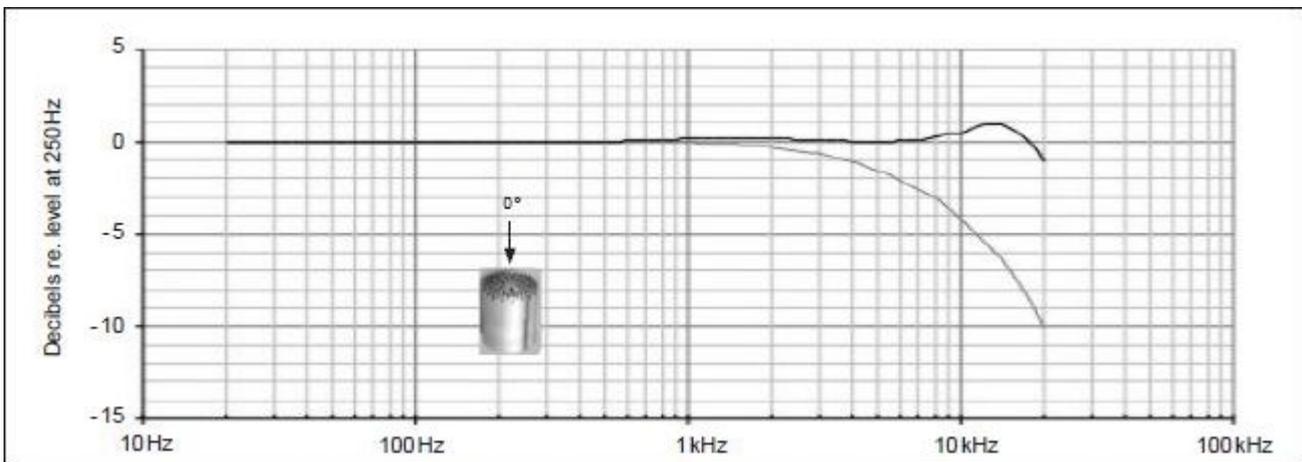
Drop - horizontal orientation of microphone, attached to 2 kg load	m	1
Drop - vertical, grid downwards	m	1
Vibration - horizontal and vertical	@8g	15 hours

† 有关HALT的简要介绍，请参阅上文“GRAS HALT”部分

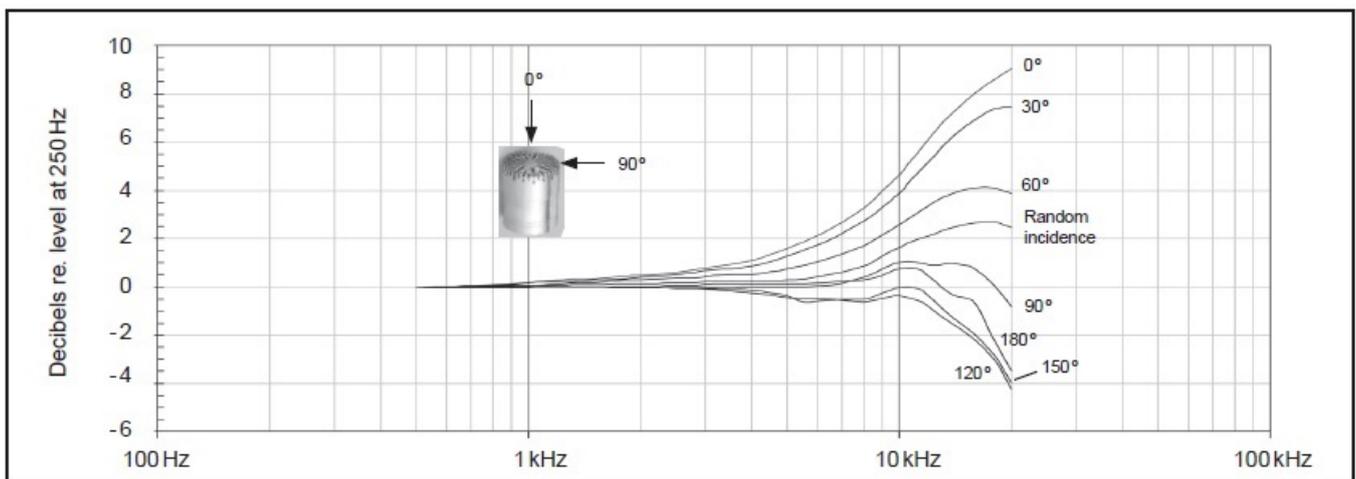
## 测试条件

温度 20 °C

压力 760mm



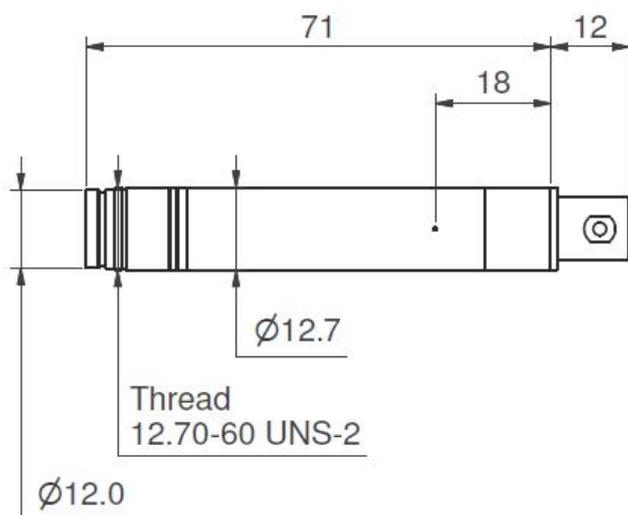
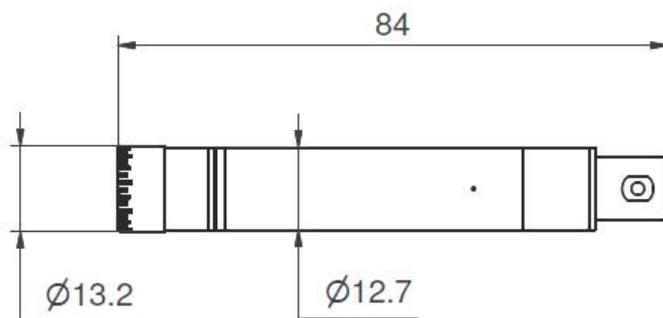
典型频率响应；上曲线为0° 入射角自由场响应，下曲线为压力响应。



## 不同入射角的自由场修正

GRAS Sound & Vibration 保留更改规格和配件的权利，恕不另行通知。

Dimensions in mm



GRAS 46AE	½ CCP Free-field Microphone Set. This is the "standard" rear-vented version.
GRAS 46AE-FV	½ CCP Free-field Microphone Set, Front Vented. Identical to 46AE, but with front venting.

## 可选配件

<a href="#">GRAS RA0122</a>	Random Incidence Corrector
<a href="#">GRAS AA0035</a>	3 m BNC - BNC Cable
<a href="#">GRAS AL0008</a>	1/2" Microphone Holder, POM
<a href="#">GRAS AL0012</a>	1/2" Microphone Holder, Stainless Steel
<a href="#">GRAS AL0005</a>	Swivel head
<a href="#">GRAS AL0006</a>	Tripod
<a href="#">GRAS RA0020</a>	1/2" Nosecone
<a href="#">GRAS AM0069</a>	Windscreen for 1/2" Microphones
<a href="#">GRAS RA0131</a>	1/2" Rain protection cap
<a href="#">GRAS 12AL</a>	1-Channel CCP Power Module with A-weighting filter
<a href="#">GRAS 12AQ</a>	2-Channel Universal Power Module with signal conditioning and PC interface
<a href="#">GRAS 42AG</a>	Multifunction Sound Calibrator, Class 1
<a href="#">GRAS 42AP</a>	Intelligent Pistonphone, Class 0
GRAS CA0029	Traceable Calibration of Microphone Set
GRAS CA2301	Accredited Calibration of Microphone Set

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# GRAS Worldwide

Subsidiaries and distributors in more than 40 countries

## HEAD OFFICE, DENMARK

**GRAS SOUND & VIBRATION**  
Skovlytoften 33  
2840 Holte  
Denmark  
Tel: +45 4566 4046  
[www.GRASacoustics.com](http://www.GRASacoustics.com)  
[gras@grasacoustics.com](mailto:gras@grasacoustics.com)

## USA

**GRAS SOUND & VIBRATION**  
9290 SW Nimbus Avenue  
Beaverton, OR 97008  
Tel: 503-627-0832  
Toll Free: 800-231-7350  
[www.GRASacoustics.com](http://www.GRASacoustics.com)  
[sales-usa@grasacoustics.com](mailto:sales-usa@grasacoustics.com)

## UK

**GRAS SOUND & VIBRATION**  
Unit 115, Gibson House,  
Ermine Business Park, Huntingdon,  
Cambridgeshire, PE29 6XU  
Tel: +44 (0)7762 584 202  
[www.GRASacoustics.com](http://www.GRASacoustics.com)  
[sales-uk@grasacoustics.com](mailto:sales-uk@grasacoustics.com)

## CHINA

**GRAS SOUND & VIBRATION**  
Room 502, Building T1,  
No.1398 Ali Center  
Shenchang Road,  
Minhang District,  
Shanghai, China, 201107  
Tel: +86 21 400-888-9826  
[www.GRASacoustics.cn](http://www.GRASacoustics.cn)  
[cnsales@grasacoustics.com](mailto:cnsales@grasacoustics.com)



## About GRAS Sound & Vibration

GRAS is a worldwide leader in the sound and vibration industry. We develop and manufacture state-of-the-art measurement microphones to industries where acoustic measuring accuracy and repeatability is of utmost importance in R&D, QA and production. This includes applications and solutions for customers within the fields of aerospace, automotive, audiology, and consumer electronics. GRAS microphones are designed to live up to the high quality, durability and accuracy that our customers have come to expect and trust.

GRAS Sound & Vibration is represented through subsidiaries and distributors in more than 40 countries and is part of Axiometrix Solutions, a leading test solutions provider comprised of globally recognized measurement brands. Read more at [www.GRASacoustics.com](http://www.GRASacoustics.com)

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