

# GRAS 40BP-FV

1/4" Ext. Polarized Pressure  
Microphone, Front Vented



Freq range: 4 Hz to 70 kHz  
Dyn range: 34 dB(A) to 169 dB  
Sensitivity: 1.6 mV/Pa

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The 40BP-FV is an IEC 61094 WS3P 1/4" externally polarized pressure microphone with front venting. It is a high-precision condenser microphone made according to IEC 61094-4 requirements. It is a low-sensitivity microphone for sound measurements at high levels and high frequencies. Its low sensitivity makes it ideal for measuring high sound pressure levels of up to 174 dB. Its small size reduces the effects of diffraction and reflections around the microphone resulting in a frequency range extending up to 70 kHz.

## Introduction

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40BP-FV is individually factory-calibrated and delivered with a calibration chart stating its specific open-circuit sensitivity and pressure frequency response.

## Typical applications and use

40BP-FV is typically used for sound pressure, high frequency, and high level pressure measurements. It is suitable for general purpose acoustic measurements in couplers and at boundaries.

The 40BP-FV is a very versatile microphone when connected to the RA0086 Transmitter Adapter for 1/4" Microphones. The 40BP-FV becomes a high-impedance sound source when the RA0086 takes a calibration signal directly from the signal generator and makes the microphone behave like an electrostatic loudspeaker. When used for calibrating an acoustic coupler, this gives a frequency response that is as good as when the 40BP-FV behaves like a microphone.

## Compatibility

The 40BP-FV requires a standardized 1/2" or 1/4" LEMO preamplifier and an input module that supports this technology with a 7-pin LEMO connector.

## System verification

For daily verification and check of your measurement setup, we recommend using a calibrator like GRAS Sound Level Calibrator 42AG

For proper sensitivity calibration, we recommend using a pistonphone like GRAS Intelligent Pistonphone 42AP

## Quality and warranty

All GRAS microphones are made of high-quality materials that will ensure life-long stability and robustness. The microphones are all assembled in verified clean-room environments by skilled and dedicated operators with many years of expertise in this field.

The microphone diaphragm, body, and improved protection grid are made of high-grade stainless steel, which makes the microphone resistant to physical damage, as well as corrosion caused by aggressive air or gasses.

This, combined with the reinforced gold-plated microphone terminal which guarantees a highly reliable connection, enables GRAS to offer 5 years warranty against defective materials and workmanship.

## Service

If you accidentally damage the diaphragm on a GRAS microphone, we can – in most cases – replace it at a very reasonable cost and with a short turn-around time. This not only protects your investment, but also pleases your quality assurance department because you don't have to worry about new serial numbers, etc.

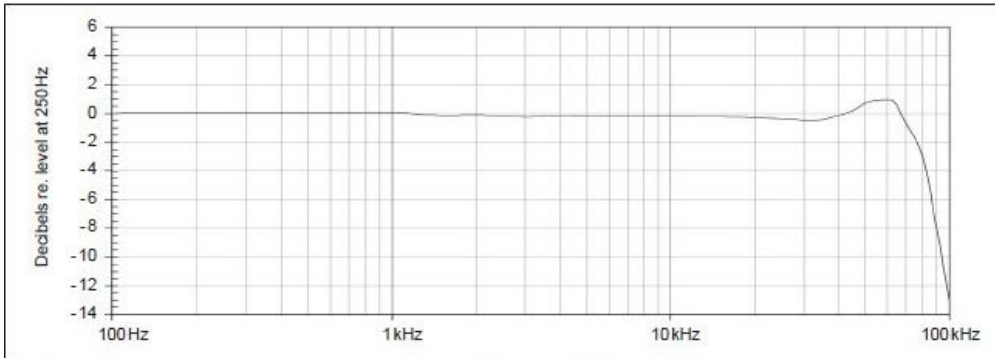
## Calibration

Before leaving the factory, all GRAS microphones are calibrated in a controlled laboratory environment

using traceable calibration equipment.

Depending on the use, measurement environment, and internal quality control programs, we recommend recalibrating the microphone at least once a year.

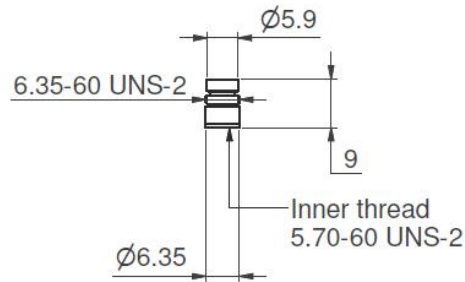
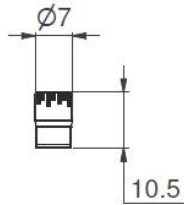
|   |   |                         |
|---|---|-------------------------|
| Frequency range ( $\pm 1$ dB)   | Hz  | 10 to 25 k              |
| Frequency range ( $\pm 2$ dB)   | Hz  | 4 to 70 k               |
| Dynamic range lower limit (microphone thermal noise)                                | dB(A)   | 34                      |
| Dynamic range lower limit with GRAS preamplifier                                    | dB(A)   | 39                      |
| Dynamic range upper limit   | dB  | 169                     |
| Dynamic range upper limit with GRAS preamplifier @ +28 V / $\pm 14$ V power supply  | dB  | 169                     |
| Dynamic range upper limit with GRAS preamplifier @ +120 V / $\pm 60$ V power supply | dB  | 169                     |
| Open-circuit sensitivity @ 250 Hz ( $\pm 2$ dB)                                     | mV/Pa   | 1.6                     |
| Open-circuit sensitivity @ 250 Hz ( $\pm 2$ dB)                                     | dB re 1V/Pa                                     | -56                     |
| Resonance frequency   | kHz   | 50                      |
| Microphone cartridge capacitance, typ.  | pF  | 7                       |
| Microphone venting  |   | Front                   |
| IEC 61094-4 Compliance  |   | WS3P                    |
| Temperature range, operation  | $^{\circ}\text{C}$ / $^{\circ}\text{F}$         | -40 to 150 / -40 to 302 |
| 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  | -0.008                  |
| Humidity range non condensing   | % RH  | 0 to 100                |
| Humidity coefficient @250 Hz  | dB/% RH   | -0.0013                 |
| Influence of axial vibration @1 m/s <sup>2</sup>                                    | dB re 20 $\mu\text{Pa}$                         | 55                      |
| CE/RoHS compliant/WEEE registered   |   | Yes / Yes, Yes          |
| Weight  | g / oz  | 1.5 / 0.053             |



*Typical frequency response (without protection grid).*

GRAS Sound & Vibration reserves the right to change specifications and accessories without notice.

Dimensions in mm



## Optional items

[GRAS RA0086](#)

Transmitter adapter for 1/4" microphones

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# | We Make Microphones

## Tradition

Since the establishment in 1994, GRAS has been 100% dedicated to developing and manufacturing high-quality measurement microphones and related acoustic equipment.

## Innovation

We work with everybody with an interest in sound or noise within the fields of aerospace, automotive, audiology, consumer electronics, noise monitoring, building acoustics and telecommunications.

## Quality

At GRAS we know that in order for you to trust your measurement results; signal quality, stability and robustness are essentials. We design and build them to perform under real life conditions – and beyond.

