

**Fostex**

TECHNICAL REPORT

# M51RP

## PRINTED RIBBON MICROPHONE

PRINTED RIBBON OR REGULATED PHASE (RP) DESIGN

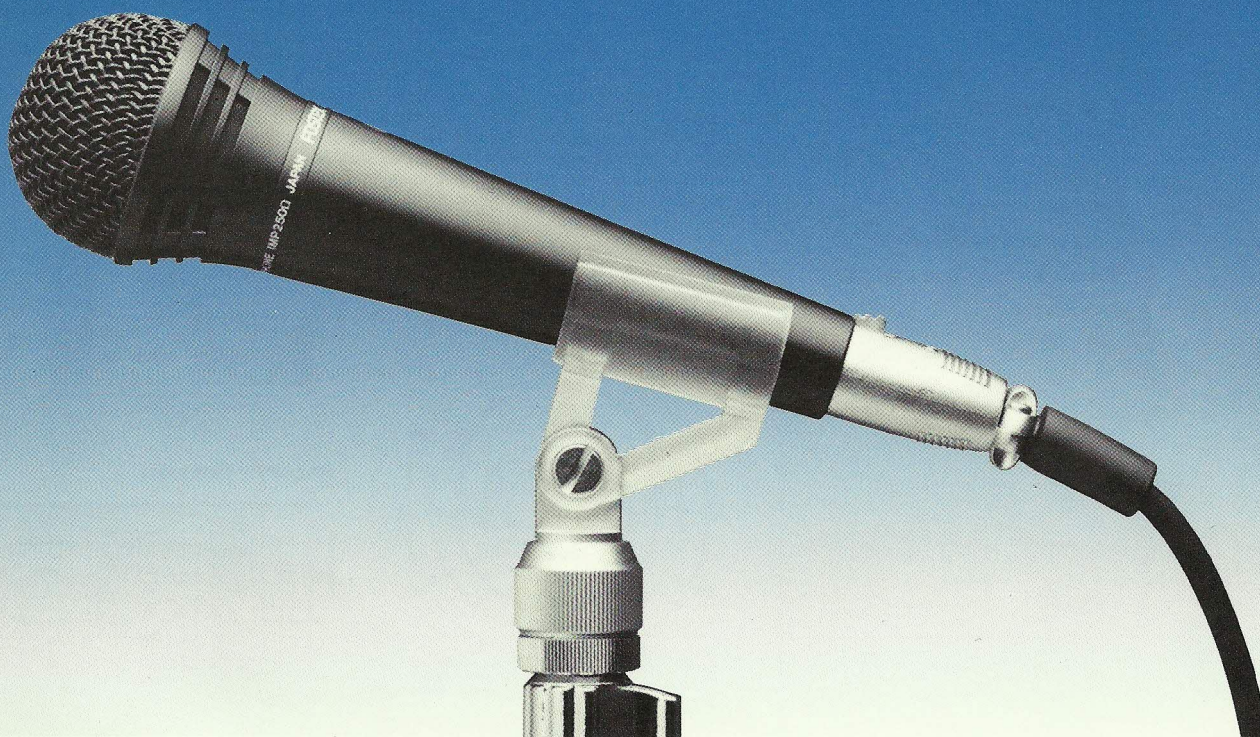
UNI-DIRECTIONAL PATTERN

80~20,000Hz FREQUENCY RANGE

-58dB (0dB = 1V/Pa, 1,000Hz) SENSITIVITY

BALANCED 250 OHM IMPEDANCE

CANNON XLR-3 CONNECTOR



For over four years, Fostex Printed Ribbon microphones have been setting new standards for sonic accuracy in the studio, and durability on the road. RP microphones are still the only products which produce studio sound in a dynamic, road worthy package.

Until now, the cost of RP technology allowed only studios and touring sound companies the luxury of RP sound. However, the M51RP has broken the price barrier of regular dynamics and now offers RP technology and performance to every critical user.

The M51RP is a cost effective alternative to the M55RP, our best vocal RP microphone. At almost half the price, it provides almost all of the performance of the M55RP.

The low-mass planar diaphragm approaches the mass of a condenser and offers the same smooth studio quality sound. Yet, the gentle high frequency roll-off above 15kHz gives the M51RP a characteristic "ribbon" sound. Plus, the diaphragm is energized by a magnetic circuit which makes it as rugged as the best dynamics. In fact, on the

road RP microphones have proven themselves to be better, in terms of reliability, than any dynamic.

Stage vocal microphones have their own unique problems. After many hours of use, moisture build-up on the diaphragm surface can alter the sound of any microphone. The M51RP, however, uses a 2-stage wind and moisture screen to reduce breath noise and stop moisture build-up. The constant physical handling on stage dictates special attention to the reduction of handling noise. The M51RP utilizes a low mass diaphragm and special isolation system to eliminate cable and handling noise.

A great deal of any microphone's sound is dependent upon its proximity effect. This is the change in response that occurs as you move closer to the microphone diaphragm. Too much boost and male vocals sound too full, not enough boost and they sound thin. The M51RP has been designed and tested for just the right amount of proximity, and just the right sound.



# M51RP

## PRINTED RIBBON MICROPHONE

### Specifications

|                                    |  |
|------------------------------------|--|
| Type                               | Printed Ribbon   |
| Polar Pattern                      | Uni-directional  |
| Frequency Range                    | 80~20,000Hz  |
| Output Impedance                   | 250 ohms   |
| Sensitivity                        |  |
| Open Circuit Voltage (0dB = 1V/Pa) | -58dB  |
| Output Level (0dBm = 1mW/Pa)       | -58dBm   |
| EIA Microphone Rating GM           | -149dB   |
| Hum Pick Up Level                  | 2dB SPL Under (dB/10 <sup>-7</sup> T)                                    |
| Wind Noise                         | 47dB SPL Under   |
| Output Connector                   | XLR/A3F  |
| Phase                              | 2-⊕ 3-⊖  |
| Finish                             | Die-cast zinc alloy,<br>Black finish (non reflective)                    |
| Dimensions                         | ∅50mm X 171mm (dia x length)<br>(2in X 6 <sup>3</sup> / <sub>4</sub> in) |
| Net Weight                         | 290g (10.2oz)  |

### THE TECHNOLOGY

Printed Ribbon or RP, is a surface driving system which actuates the whole surface of the diaphragm with the same phase, in true piston motion.

The Fostex RP system is so advanced, it is protected by twenty patents. The system combines the merits of both condenser and dynamic type transducers to provide extremely low distortion, excellent transient response and wide dynamic range, while remaining durable and rugged.

Utilizing integrated circuit manufacturing techniques, a very fine aluminium voice coil is etched directly onto the surface of an extremely thin polyester film diaphragm. This diaphragm is suspended in a very powerful magnetic field, formed of pairs of ring magnets. These methods result in dependability and stability never before found in a dynamic type microphone. Rare-earth, samarium-cobalt magnets are used to provide a magnetic strength ten times more powerful than that of ferrite. This, combined with the fact that the diaphragm/coil assembly is 80% lighter than a typical moving coil element, provides excellent sensitivity and accurate transient response.

The unique suspension system and planar diaphragm design exhibit an extremely low distortion characteristic (up to 10dB less than the best condensers), even at high sound pressure levels.

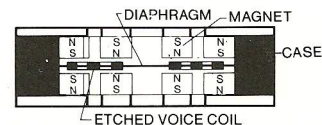
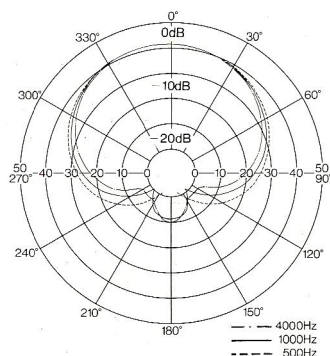
Simplicity of design and impeccable construction techniques produce a microphone which is practically indestructible, and requires no maintenance or external power supply.

### ARCHITECTURAL SPECIFICATIONS

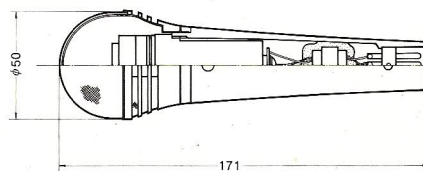
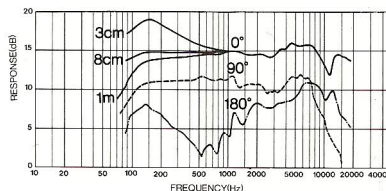
The microphone shall have a nominal diameter of 50mm (2in), an overall length not greater than 171mm (6<sup>3</sup>/<sub>4</sub>in), and a weight of at least 290g (10.2oz). The microphone shall be a planar diaphragm, Printed Ribbon type with Uni Directional polar response pattern. The microphone shall incorporate an integral shock mount to minimize external vibration noise response. An internal wind and moisture repellent screen shall be provided. The body of the microphone shall be constructed of Die-cast zinc and shall be finished in a non reflective black exterior. The terminating connector shall be an XLR/A3F type. Output termination phase shall be as follows, a positive sound pressure wave on the diaphragm will produce a positive voltage at pin 2 and a negative voltage at pin 3 of the XLR connector. The output shall pass through a matching transformer to reduce radio frequency interference.

The microphone shall meet the following performance criteria. Frequency response measured on axis shall be 80Hz-20kHz +5dB. Sensitivity shall be -58dB (0dB = 1V/Pa, 1000Hz). The wind noise specification, measured with a constant parallel air stream of 2m/sec, shall be no greater than 47dB equivalent SPL. The induction noise (hum) specification, measured with the microphone in a parallel magnetic field of 1mG, 50Hz, shall be no greater than 2dB equivalent SPL. Front-to-back average discrimination at 1000Hz shall be at least 22dB. Nominal impedance shall be 250 ohms, balanced to ground. The microphone shall be the Fostex model M51RP.

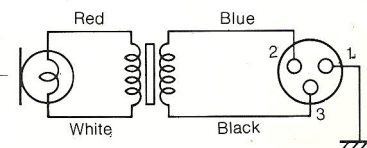
Polar Response Pattern



Frequency Response



Dimension in mm



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Specifications subject to change without notice.

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