SERIES FNP
NARROW BANDPASS FILTERS

FEATURES:
- Low insertion loss
- High selectivity
- Custom designed to meet specific requirements

APPLICATIONS:
- Pre-selector filter
- Spurious mode suppression
- Instrumentation

DESCRIPTION
Millitech series FNP narrow bandpass filters are available with passbands in the range of 2% to 4% and operating at a center frequency ranging from 18 to 110 GHz. These filters offer low insertion loss in the passband, a high degree of skirt selectivity and are tailored to suit specific filtering requirements. They are constructed using rugged waveguide channel housings and etched or machined circuit filter elements. Because no tuning elements are necessary, these filters are amenable to highly reliable reproduction. FNP filters are ideal for transmitter, receiver, communication, radar, upconverter, and low-cost, large production applications.

Stopband rejection and skirt selectivity requirements determine the total number of sections needed for any particular bandpass filter which, in turn, sets filter insertion loss. Specific sideband rejection, harmonic reduction, and elimination of undesired frequency regions can typically be accomplished with minimal insertion loss.

For applications which require less than a 2% or greater than a 4% passband with low loss and extremely sharp rejection skirts or for multiplexed filtering solutions, Millitech offers the series FIB iris bandpass filter. Also offered are series FWP wide bandpass filters, series FLP low pass filters, and series FHP high pass filters.
### Electrical Specifications

<table>
<thead>
<tr>
<th>Model Number</th>
<th>FNP-42</th>
<th>FNP-28</th>
<th>FNP-22</th>
<th>FNP-19</th>
<th>FNP-15</th>
<th>FNP-12</th>
<th>FNP-10</th>
<th>FNP-08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss (dB) (max)(^{1})</td>
<td>2%</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>2.0</td>
<td>2.0</td>
<td>2.2</td>
</tr>
<tr>
<td>Low side rejection level (dB) at F(_{RL}) (min)(^{2})</td>
<td>4%</td>
<td>1.6</td>
<td>1.6</td>
<td>1.6</td>
<td>1.6</td>
<td>1.6</td>
<td>1.8</td>
<td>2.0</td>
</tr>
<tr>
<td>High side rejection level (dB) at F(_{RH}) (min)(^{2})</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>*3</td>
</tr>
<tr>
<td>Passband VSWR (typ)</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>*3</td>
</tr>
</tbody>
</table>

*1 – Data is based upon a 5-section filter. Upper limit is ~6% bandwidth and 8 sections.
*2 – Standard rejection frequencies (F\(_{RL}\) and F\(_{RH}\)) are calculated at center frequency ± (1.5 x bandwidth in GHz).
*3 – Please consult Millitech for further information.

**NOTE:** Other bandwidth percentages are available upon request. See series FIB for other bandwidth requirements and options, or contact Millitech for more information.
**Mechanical Specifications**

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<tbody>
<tr>
<td>A (in/mm)</td>
<td>0.88/22.4</td>
<td>0.75/19.1</td>
<td>1.13/28.7</td>
<td>1.13/28.7</td>
<td>0.75/19.1</td>
<td>0.75/19.1</td>
<td>0.75/19.1</td>
<td>0.75/19.1</td>
</tr>
<tr>
<td>B (in/mm)</td>
<td>*1</td>
<td>*1</td>
<td>*1</td>
<td>*1</td>
<td>*1</td>
<td>*1</td>
<td>*1</td>
<td>*1</td>
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<tr>
<td>Flange</td>
<td>MIL-F-3922 /54-001</td>
<td>*2-002</td>
<td>/67B-006</td>
<td>/67B-007</td>
<td>/67B-008</td>
<td>/67B-009</td>
<td>/67B-010</td>
<td>/67B-M08</td>
</tr>
</tbody>
</table>

*1 - Dimensions vary depending upon filter requirements. Please contact Millitech for more information.

*2 – With #4-40 threaded holes.

**How To Order**

Specify Model Number*1

FNP-XX-AABØC

XX = Waveguide Band
WR – number
AA = Bandwidth**
Example:
03 - 3% bandwidth

B = Flange Type
R – round (WR-28 through WR-08 only)
S – square (WR-42 through WR-22 only)

C = Other Options
N – nonstandard (specify requirements)
Ø – standard rejection levels

*1 – Please specify center frequency when ordering.

*2 – Bandwidth expressed as a percentage of center frequency - 12% maximum.