

## **TWPC-0412-1, TWNC-0412-1 BANDPASS CAVITY, NOTCH CAVITY**

The Telewave TWPC-0412-1 is a 12" diameter, ¼-wavelength high "Q" bandpass cavity filter with superior selectivity. Band-pass cavities reject all frequencies outside a narrow pass band. These cavities reduce transmitter sideband noise, and also protect receivers against desensitization.

The TWNC-0412-1 is a 12" diameter, ¼-wavelength notch cavity with an adjustable coupling loop. These cavities reject a narrow band of frequencies, and are often used in conjunction with pass cavities in complex filtering designs. Notch cavities have very low loss outside the notch band, and Telewave can also "tilt" the notch response to move a notch very close to a pass frequency without adversely affecting the pass response.

The TWPC and TWNC-0412-1 cover 40-50 MHz. The tuning range of these cavities is approximately  $\pm 2.5$  MHz from center frequency as built. All cavities are tuned to specified frequencies prior to shipping. No further adjustments should be required. The positive locking mechanism allows for quick field re-tuning if frequency changes become necessary.

These cavities feature calibrated adjustable coupling, so that pass cavity insertion loss can be easily set from 0.5 dB to 2 dB or more with corresponding increases in selectivity. This allows cavity response to be optimized for any operating environment. At densely populated sites, the 0412-2 dual pass cavity filter provides greater selectivity.

Multiple cavities can also provide a wider passband or notch when required. Mounting rails are provided for all multiple-cavity filters.

Excellent frequency stability is achieved by the use of a specially machined compensator and Invar rod. The pass frequency is temperature stable from  $-30^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ . Telewave Ground Loop technology places the center conductor of each coupling loop at DC ground potential for lightning protection and noise reduction.

Heavy duty materials are used throughout each cavity to insure high performance and long life. Cavity top plates are machined from ¼-inch aluminum, and are heliarc welded to the cavity body at the high current point for improved conductivity and strength. This allows Telewave cavities to handle up to 350 watts, depending on insertion loss.

Rigid foam inserts support the tuner assembly allowing vertical or horizontal mounting. Similar metals and alodined aluminum help prevent galvanic corrosion. Silver plated tuners and beryllium copper finger stock provide non-corrosive low loss contact, and ensure reliable, long-term performance.



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## TYPICAL RESPONSE

Figure 1 - TWPC-0412-1

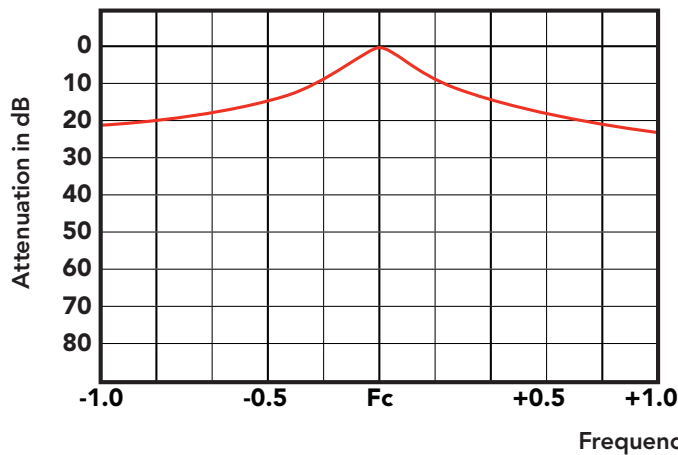
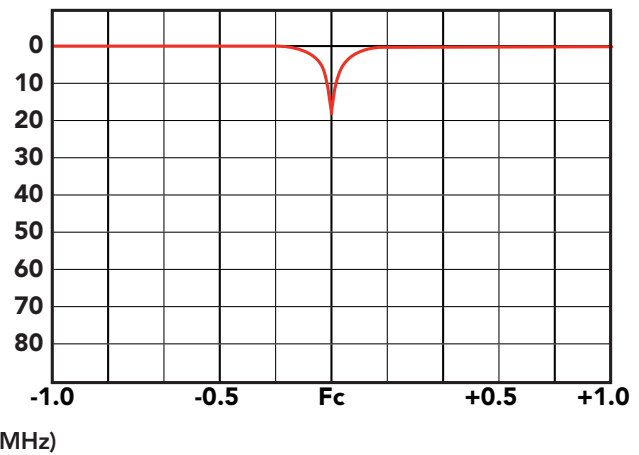


Figure 2 - TWNC-0412-1



| SPECIFICATIONS                                   | TWPC / TWNC-0412-1                                     |
|--|--|
| Frequency coverage                               | 40-50 MHz  |
| Tuning range from center frequency               | $\pm 2.5$ MHz  |
| Insertion loss (adjustable on pass cavity)       | 0.5 to 2.0 dB (Notch cavity 0.2 dB max)                |
| Attenuation at 1 dB insertion loss               | See Figure 1, 2  |
| Nominal impedance                                | 50 ohms  |
| VSWR at resonance (max)                          | 1.5:1  |
| Input power (max) vs. insertion loss             | 0.5 dB - 350 watts, 1 dB - 250 watts, 2 dB - 150 watts |
| Temperature range                                | -30°C to +70°C   |
| Cavity electrical length                         | 1/4 wavelength   |
| Outer conductor, end plates                      | 6061-T6 aluminum                                       |
| Inner conductor, coupling loops                  | Silver plated copper                                   |
| Tuning rod                                       | Invar  |
| Contactors, fingerstock                          | Beryllium copper                                       |
| Cavity dimensions (Diam. x H) in. (cm)           | 12 x 72 (30 x 183)                                     |
| Maximum dimensions with tuners extended in. (cm) | 12 x 81 (30 x 206)                                     |
| Connectors                                       | N or UHF female (opt.)                                 |
| Finish   | Gray acrylic enamel                                    |
| Net weight lb. (kg)                              | 27 (68.6)  |
| Shipping weight lb. (kg)                         | 38 (96.5)  |

**NOTE:** When ordering be sure to specify exact frequency and model number.  
Contact the factory if additional information or assistance is required.