

# DB4075W BANDPASS REJECT DUPLEXER DB4076W 406-512 MHz



# DECIBEL

Two models of this high performance, compact base station duplexers are offered for the 406-420, 450-470, 470-492 and 492-512 MHz bands. They isolate the receiver from the transmitter and reduce transmitter noise.

They use copper quarter-wave helical resonators, interconnected in a band-pass/band reject configuration with double shielded, Teflon dielectric cable. They have excellent frequency stability and handle transmitter powers to 250 watts. A high quality, tunable capacitor is used in each cavity to generate the reject frequency.

### Two Models - All copper

DB4075W is a 3-cavity copper duplexers with two cavities for transmit and one for receive. Separation between receive and transmit can be 5 MHz or more.

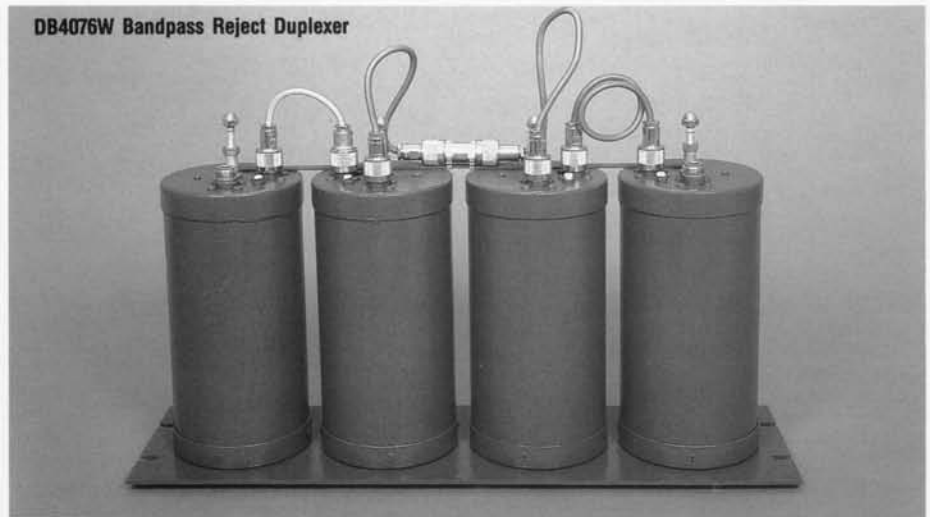
DB4076W is a 4-cavity copper duplexers with two cavities for transmit, two for receive. Separation can be 3 MHz or more.

Both models are suitable for most tube and solid state stations. They can be operated at greater separation. Rejection will remain the same while transmitter and receiver losses will be less.

The duplexers are tuned at the factory and shipped ready to install. They can be retuned with measuring equipment.

They can be mounted vertically or horizontally on any flat surface or in standard 19" (482.6 mm) racks.

DB4076W Bandpass Reject Duplexer



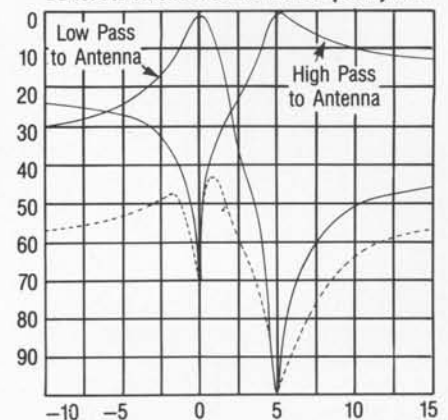
### Ordering Information

Please specify exact transmit and receive frequencies. Order DB4075W for the 3-cavity duplexers, DB4076W for the 4-cavity duplexers.

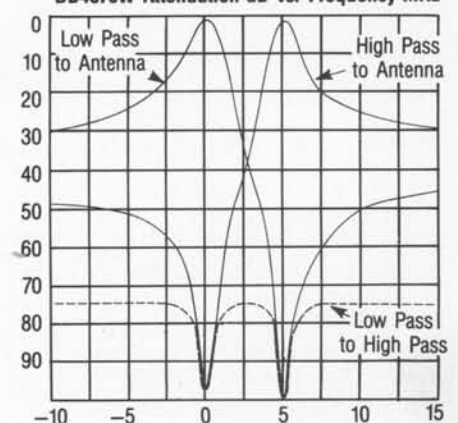
Note: D frequency range is available for 406-430 MHz.

CAN BE SHIPPED UPS.

DB4075W Attenuation-dB vs. Frequency-MHz



DB4076W Attenuation-dB vs. Frequency-MHz



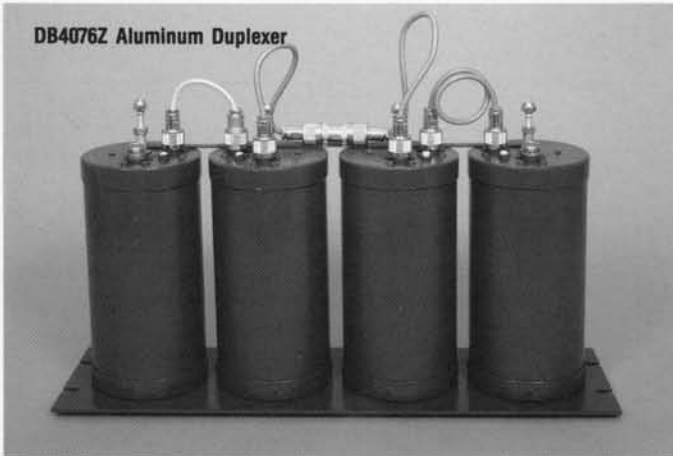
Electrical Data		
	DB4075W	DB4076W
Frequency Ranges — MHz	A = 450-470, B = 470-492, C = 492-512, D = 406-430	A = 450-470, B = 470-492, C = 492-512, D = 406-430
Frequency separation — MHz	5 or more	3 or more
Maximum power input (continuous duty) — watts	250	250
Insertion loss (transmitter to antenna) — dB	1.2	1.2
Insertion loss (receiver to antenna) — dB	0.7	1.2
Transmitter noise suppression at receive frequency — dB	100	100
Receiver isolation at transmit frequency — dB	60	100
Isolation (minimum) transmitter to receiver — dB		
at 5 MHz separation	45	75
at 3 MHz separation	N/A	52
Maximum VSWR (references to 50 ohms)	1.3 to 1	1.3 to 1
Temperature range — C°	-30 to +60	-30 to +60
Number of cavity filters	3	4

Mechanical Data		
	DB4075W	DB4076W
Dimensions (HxWxD) — in. (mm)	5.25 (133.35) x 19 (482.6) x 10.5 (266.7)	5.25 (133.35) x 19 (482.6) x 10.5 (266.7)
Mounting — in. (mm)	19 (482.6) rack	19 (482.6) rack
Connector terminations	N-Female	N-Female
Finish	Decibel Tek Black™	Decibel Tek Black™
Net weight — lbs. (kg)	17 (7.71)	21 (9.53)
Shipping weight — lbs. (kg)	20 (9.07)	24 (10.89)

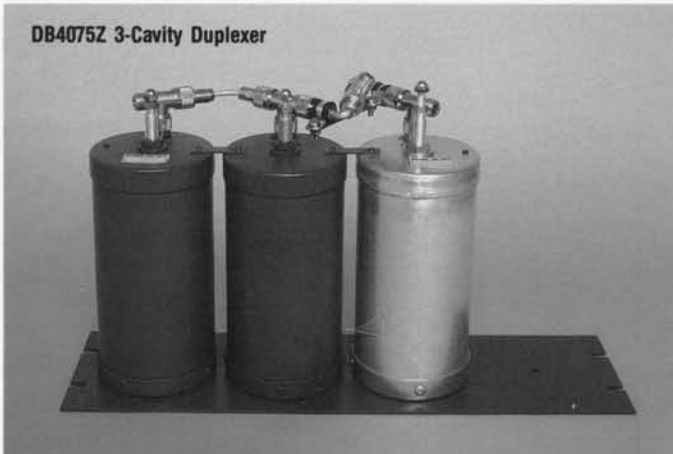
**DB4075Z BANDPASS REJECT DUPLEXER**  
**DB4076Z 450-512 MHz**



**DECIBEL**



DB4076Z Aluminum Duplexer



DB4075Z 3-Cavity Duplexer

Compact aluminum duplexers, the DB4075Z and DB4076Z give excellent receiver protection in the 450-470, 470-488 or 488-512 MHz frequency bands.

They are designed especially for the latest solid state and tube base stations with 3 MHz or more or 5 MHz or more separation between the transmit and receive frequencies.

**Design and Construction**

The DB4076Z consists of four aluminum quarter-wave coaxial cavities — two for transmit and two for receive — with the outer connector and top and bottom covers made of aluminum. The top cover is welded to the outer conductor for best current distribution. A high quality tunable capacitor is used within each cavity to generate the reject frequency.

The duplexer protects the receiver from its associated transmitter by greater than 85 dB, and the bandpass configuration provides some receiver protection from other transmitters in the area. Transmitter noise coupled to the receiver is reduced at the receive and other frequencies by at least 65 dB.

The duplexer can be used to couple two simplex stations or two transmitters with up to 250 watts input to a common antenna, or to couple two receivers to a common antenna.

A 3-cavity model, DB4075Z, is also available for special applications, with two cavities in the transmit section and one in the receive. It is suitable for some solid state and tube base stations that operate with 5 MHz or more separation between the receive and transmit frequencies. (Call Decibel Systems Engineering.)

Frequency stability is assured by the use of an Invar rod — with almost zero expansion — in each cavity.

The duplexers are tuned at the factory, but can be retuned in the field with appropriate measuring equipment.

**Ordering Information**

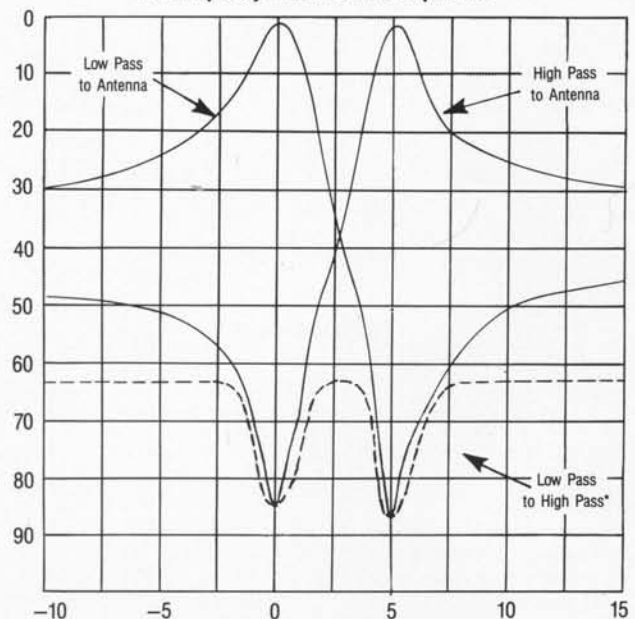
Please specify exact transmit and receive frequencies. Order DB4076Z for systems with 3 MHz or more separation, DB4075Z for 5 MHz or more.

Electrical Data	
	DB4076Z
Frequency Ranges — MHz	A = 450-470, B = 470-488, C = 488-512, E = 406-420, D = 420-450
Frequency separation — MHz	3.0 or more
Maximum power input (continuous duty) — watts	250
Insertion loss (transmitter to antenna) — dB	1.2
Insertion loss (receiver to antenna) — dB	1.2
Transmitter noise suppression at receive frequency — dB	85
Receive isolation at transmit frequency — dB	85
Isolation (minimum) transmitter to receiver — dB	
At 5 MHz separation	65*
At 3 MHz separation	40*
Maximum VSWR (referenced to 50 ohms)	1.3 to 1
Temperature range — C°	-30 to +60
Number of cavity filters	4

\*Isolation between system transmitter and its associated receiver when antenna port is terminated in 50 ohms.

Mechanical Data	
Dimensions (HxWxD) — in. (mm)	5.25 (133.35)x19 (482.6)x10.5 (266.7)
Mounting — in. (mm)	19 (482.6) rack
Connector terminations	N-Female
Finish	Decibel Tek Black™
Net weight — lbs. (kg)	21 (9.53)
Shipping weight — lbs. (kg)	24 (10.89)

**DB4076Z Attenuation-dB vs. Frequency-MHz at 5 MHz Separation**



\*Isolation between system transmitter and its associated receiver when antenna port is terminated in 50 ohms.