

# FILTERS

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## LPZ 960

### Coaxial Low-Pass Filter for the 900 MHz Band

- Passes all signals in or below the 900 MHz band.
- Rejects signals above this range.

## DESCRIPTION

- Absolute stop band from 1640 MHz to 6 GHz  
- no degradation at harmonics (Zolotarev-characteristic).
- Attenuation in stop band better than 60 dB.
- Insertion loss in pass range less than 0.4 dB.
- Provided with brackets for panel mounting.

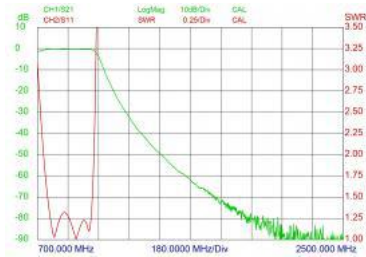
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
LPZ 960	200001291

## SPECIFICATIONS

ELECTRICAL	
MODEL	LPZ 960
FILTER TYPE	Low-pass filter for the 900 MHz band
FREQUENCY	Pass band: 820 - 960 MHz Stop band: 1.64 - 6 GHz
MAX. INPUT POWER	150 W
INSERTION LOSS (PASS BAND)	≤ 0.4 dB
1 dB CUT-OFF FREQUENCY	> 970 MHz
ATTENUATION (STOP BAND)	> 60 dB
MECHANICAL	
TEMP. RANGE	-30° C → +80° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	140 x 40 x 36 mm
WEIGHT	Approx. 125 g

## TYPICAL RESPONSE CURVES



The LPZ 960 is used to prevent RFI (Radio Frequency Interference) caused by excessive harmonic generation from transmitters operating in the 900 MHz band. By rejection, the filter reduces the amplitude of the harmonics and prevents them from being radiated by the antenna.

The filter is normally used in connection with base station transmitters, but as it is mechanically very ruggedly designed, it is perfectly suited for mobile and marine applications as well.



## LPZ 300

Coaxial Low-Pass Filter for the 200 MHz to 300 MHz frequency range

- Passes all signals in or below the 200 MHz to 300 MHz frequency range
- Rejects signals above this range.

### DESCRIPTION

- Absolute stop band from 600 MHz to 6 GHz  
- no degradation at harmonics (Zolotarev-characteristic).
- Attenuation in stop band better than 60 dB.
- Insertion loss in pass range less than 0.4 dB.
- Provided with brackets for panel mounting.

### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
LPZ 300	200001294

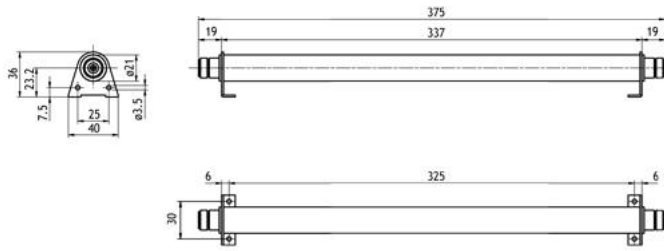
### SPECIFICATIONS

ELECTRICAL	
MODEL	LPZ 300
FILTER TYPE	Low-pass filter for the 200 - 300 MHz band
FREQUENCY	Pass band: 200 - 300 MHz Stop band: 600 MHz - 6 GHz
MAX. INPUT POWER	250 W
INSERTION LOSS (PASS BAND)	< 0.4 dB
1 dB CUT-OFF FREQUENCY	> 320 MHz
ATTENUATION (STOP BAND)	> 60 dB
MECHANICAL	
TEMP. RANGE	-30° C to +80° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	375 x 40 x 36 mm / 14.7 x 1.5 x 1.4 in.
WEIGHT	Approx. 632 g / 1.4 lb.
MOUNTING	4 holes ø3.5 mm

The LPZ 300 is used to prevent RFI (Radio Frequency Interference) caused by excessive harmonic-generation from transmitters operating in the 200 MHz to 300 MHz frequency range. By rejection, the filter reduces the amplitude of the harmonics and prevents them from being radiated by the antenna.

The filter is normally used in connection with base station transmitters, but as it is mechanically very ruggedly designed, it is perfectly suited for mobile and marine applications as well.

## MOUNTING DETAILS





## LPZ 1900

### Coaxial Low-Pass Filter for the 1900 MHz Band

- Passes all signals in or below the 1400 - 1900 MHz band.
- Rejects signals above this range.

## DESCRIPTION

- Absolute stop band from 3.8 GHz to 12.4 GHz.  
– no degradation at harmonics (Zolotarev-characteristic).
- Attenuation in stop band better than 60 dB.
- Insertion loss in pass range less than 0.4 dB.
- Provided with brackets for panel mounting.

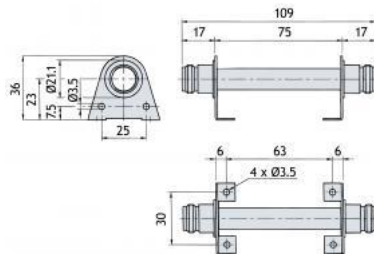
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
LPZ 1900	200001293

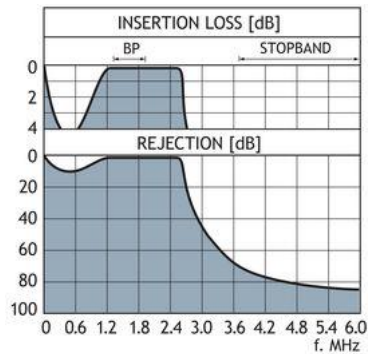
## SPECIFICATIONS

ELECTRICAL	
MODEL	LPZ 1900
APPLICATION	Low-pass filter for the 1900 MHz band
FREQUENCY	Pass band: 1400 - 1900 MHz Stop band: 3.8 - 12.4 GHz
MAX. INPUT POWER	150 W
INSERTION LOSS (PASS BAND)	≤ 0.4 dB
1 dB CUT-OFF FREQUENCY	> 1950 MHz
ATTENUATION (STOP BAND)	> 60 dB
MECHANICAL	
TEMP. RANGE	-30° C → +80° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	95 x 40 x 36 mm
WEIGHT	Approx. 80 g



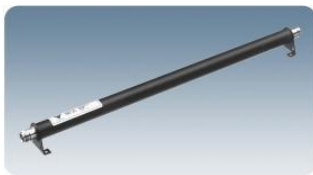


## TYPICAL RESPONSE CURVES



The LPZ 1900 is used to prevent RFI (Radio Frequency Interference) caused by excessive harmonic generation from transmitters operating in the 1900 MHz band. By rejection, the filter reduces the amplitude of the harmonics and prevents them from being radiated by the antenna.

The filter is normally used in connection with base station transmitters, but as it is mechanically very ruggedly designed, it is perfectly suited for mobile and marine applications as well.



## LPZ 175

### Coaxial Low-Pass Filter for the 160 MHz Band

- Passes all signals in or below the 160 MHz-band.
- Rejects signals above this range.

## DESCRIPTION

- Absolute stop band from 320 MHz to 6 GHz  
– no degradation at harmonics (Zolotarev-characteristic).
- Attenuation in stop band better than 60 dB.
- Insertion loss in pass range less than 0.4 dB.
- Provided with brackets for panel mounting.

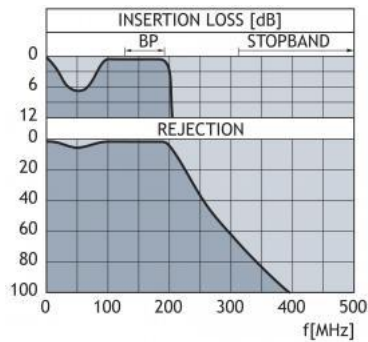
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
LPZ 175	210001324

## SPECIFICATIONS

ELECTRICAL	
MODEL	LPZ 175
APPLICATION	Low-pass filter for the 160 MHz band
FREQUENCY	Pass band: 135 – 175 MHz Stop band: 320 MHz - 6 GHz
MAX. INPUT POWER	150 W
INSERTION LOSS (PASS BAND)	≤ 0.4 dB
1 dB CUT-OFF FREQUENCY	> 180 MHz
ATTENUATION (STOP BAND)	> 60 dB
MECHANICAL	
TEMP. RANGE	-30° C → +80° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	435 x 40 x 36 mm
WEIGHT	Approx. 530 g

## TYPICAL RESPONSE CURVES



## PLEASE NOTE

The LPZ 175 is used to prevent RFI (Radio Frequency Interference) caused by excessive harmonic-generation from transmitters operating in the 160 MHz band. By rejection, the filter reduces the amplitude of the harmonics and prevents them from being radiated by the antenna.

The filter is normally used in connection with base station transmitters, but as it is mechanically very ruggedly designed, it is perfectly suited for mobile and marine applications as well.



## LPZ 1300

### Coaxial Low-Pass Filter for the 1300 MHz Band

- Passes all signals in or below the 1100 - 1300 MHz band.
- Rejects signals above this range.

## DESCRIPTION

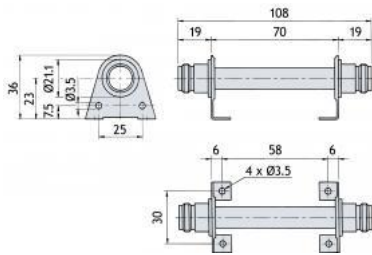
- Absolute stop band from 2.5 GHz to 12.4 GHz  
- no degradation at harmonics (Zolotarev-characteristic).
- Attenuation in stop band better than 60 dB.
- Insertion loss in pass range less than 0.4 dB.
- Provided with brackets for panel mounting.

## ORDERING DESIGNATIONS

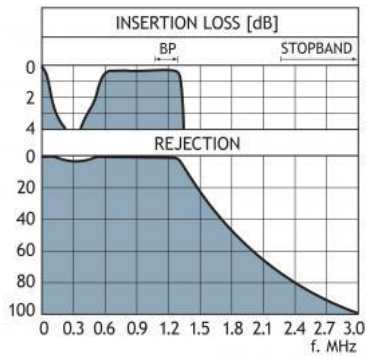
TYPE	PRODUCT NO.
LPZ 1300	200001292

## SPECIFICATIONS

ELECTRICAL	
MODEL	LPZ 1300
APPLICATION	Low-pass filter for the 1300 MHz band
FREQUENCY	Pass band: 1100 - 1300 MHz Stop band: 2.5 - 12.4 GHz
MAX. INPUT POWER	150 W
INSERTION LOSS (PASS BAND)	≤ 0.4 dB
ATTENUATION (STOP BAND)	> 60 dB
MECHANICAL	
TEMP. RANGE	-30° C → +80° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	108 x 40 x 36 mm
WEIGHT	Approx. 80 g



## TYPICAL RESPONSE CURVES



The LPZ 1300 is used to prevent RFI (Radio Frequency Interference) caused by excessive harmonic generation from transmitters operating in the 1100 - 1300 MHz band. By rejection, the filter reduces the amplitude of the harmonics and prevents them from being radiated by the antenna.

The filter is normally used in connection with base station transmitters, but as it is mechanically very ruggedly designed, it is perfectly suited for mobile and marine applications as well.

## LPC 470 N...

### Coaxial Low-Pass Filter for the 450 MHz Band



- Passes all signals below 470 MHz.
- Rejects signals above this range.

### DESCRIPTION

- Stop band from 1250 MHz to 2.5 GHz.
- Attenuation in stop band better than 80 dB.
- Insertion loss in pass band less than 0.4 dB.
- Provided with brackets for panel mounting.

### ORDERING DESIGNATIONS

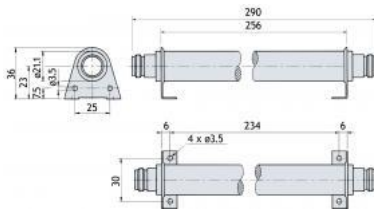
TYPE	PRODUCT NO.
LPC 470-N...	200002092

### SPECIFICATIONS

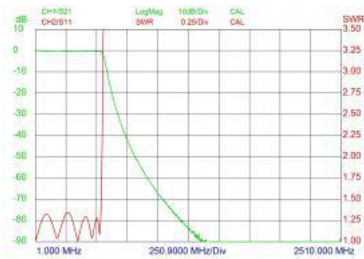
ELECTRICAL	
MODEL	LPC 470 N...
FILTER TYPE	Low-pass filter for the 450 MHz band
FREQUENCY	Pass band: 0 - 470 MHz Stop band: 1250 MHz - 2.5 GHz
MAX. INPUT POWER	150 W
INSERTION LOSS (PASS BAND)	≤ 0.4 dB
SWR (PASS BAND)	≤ 1.5
1 dB CUT-OFF FREQUENCY	> 500 MHz
ATTENUATION @ 660 MHz	> 20 dB
ATTENUATION (STOP BAND)	> 80 dB
MECHANICAL	
TEMP. RANGE	-30° C → +80° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	294 x 40 x 36 mm / 11.57 x 1.57 x 1.42 in
WEIGHT	Approx. 440 g / 0.97 lb



## DIMENSIONS



## TYPICAL RESPONSE CURVES



## PLEASE NOTE

The LPC 470 is used to prevent RFI (Radio Frequency Interference) caused by harmonics and spurious signals from transmitters operating in the 450 MHz band. By rejection, the filter reduces the amplitude of the various spurious signals and prevents them from being radiated by the antenna.

The filter is normally used in connection with base station transmitters, but as it is mechanically very ruggedly designed, it is perfectly suited for mobile and marine applications as well.



## LP 175

### Low-Pass Filter for the 160 MHz Band

- The LP 175 is a low-pass filter, which passes all signals in or below the 2 m-band (138 - 175 MHz) and rejects signals above this range.
- The LP 175 is used to prevent RFI (Radio Frequency Interference) caused by excessive harmonic-generation from transmitters operating in the 2 m band. By rejection, the filter reduces the amplitude of the harmonics and prevents them from being radiated by the antenna.

## DESCRIPTION

- The LP 175 has a very sharp rolloff between the pass band and the stop band while at the same time keeping a low ripple in the pass band.
- The use of extremely high-Q resonant circuits ensures that all of the attenuation is due to reflection and not dissipation, resulting in extraordinary low insertion loss and high power-handling capability.
- The filter is normally used in connection with base station transmitters, but as it is mechanically very ruggedly designed, it is also perfectly suited for mobile and marine applications.
- Materials used are brass and passivated steel and the filter is coated with black vinyl to prevent corrosion.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
LP 175	200001274

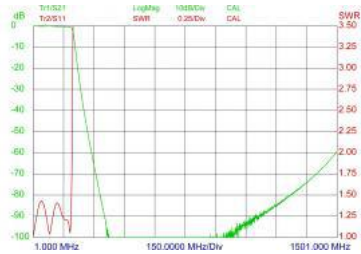
## SPECIFICATIONS

ELECTRICAL	
MODEL	LP 175
APPLICATION	Low-pass filter for the 2 m band
FREQUENCY	Pass band: 0 - 175 MHz (nominal): 138 - 175 MHz
MAX. INPUT POWER	150 W
INSERTION LOSS (PASS BAND)	≤ 0.5 dB
1 dB CUT-OFF FREQUENCY	> 180 MHz
ATTENUATION 270 - 320 MHz	> 50 dB
ATTENUATION 321 - 360 MHz	> 70 dB
ATTENUATION 361 - 800 MHz	> 80 dB
ATTENUATION 801 - 1100 MHz	> 60 dB
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	155 x 72 x 52 mm / 6.1 x 2.8 x 2.0 in.

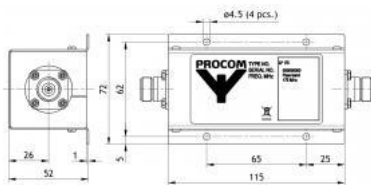
WEIGHT

Approx. 410 g / 0.9 lb.

## TYPICAL RESPONSE CURVES



## MOUNTING DETAILS





## LP 174-FME

### Low-Pass Filter for 0 - 174 MHz

- LP 174-FME is an LC low-pass filter.
- Allows the whole 0 - 174 MHz to pass.

## DESCRIPTION

- Can be used, together with HP 380-FME, to prevent possible interference between VHF and UHF radio systems, e.g. VHF LMR and TETRA.
- Can be used as a preselector to protect a receiver against interferences from transmitters normally being outside the pass range.
- LP 174-FME can be mounted as a preselector directly inside the PRO-AR4G-N, PRO-AR8G-N and the PRO-AR16G-N receiver multicouplers.
- Very small dimensions, mounted in a 45 x 50 mm box.
- FME connectors for easy and handy coupling to the surroundings.
- LP 174-FME is lacquered with black vinyl enamel to avoid corrosion.

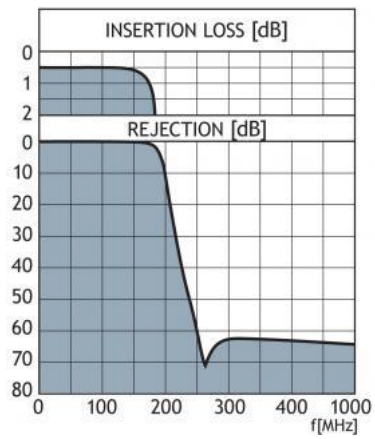
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
LP 174-FME	200002184

## SPECIFICATIONS

ELECTRICAL	
MODEL	LP 174-FME
PASS RANGE	0 - 174 MHz
MAX. INPUT POWER	35 W
INSERTION LOSS	$\leq 0.8$ dB typically $\leq 0.7$ dB
SWR	$\leq 1.5$
OUT OF BAND ATTENUATION	$\geq 60$ dB @ 380 - 1000 MHz
IMPEDANCE	Nom. 50 $\Omega$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	FME-male (others on request)
DIMENSIONS (W x H x D)	50 x 21 x 48 mm / 1.97 x 0.83 x 1.89 inches
WEIGHT	Approx. 60 g / 0.13 pound

## TYPICAL RESPONSE CURVES





## LHB 80/88-E

Diplexer for Mobile Telephone (66 - 86 MHz) and Car Radio (0 - 15 MHz and (88) - 91 - 108 MHz)

- Diplexer for simultaneous operation of mobile telephone and car radio on a common mobile telephone antenna.
- Extremely small dimensions.

## DESCRIPTION

- Quick installation using dual-adhesive pad provided.
- FME-connections on antenna and transceiver terminals
  - CRC (M10 x 0.75) connection on the car radio terminal.
- 1 m or 5 m Procom 75 Ohm car radio cable available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
LHB 80/88-E	200000787

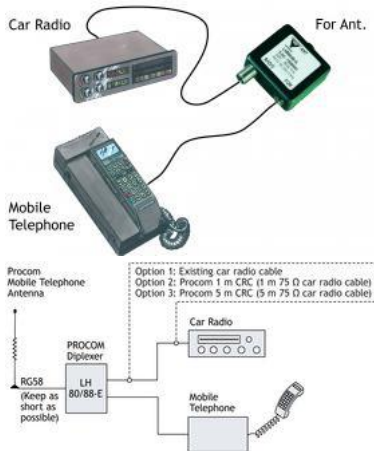
## SPECIFICATIONS

ELECTRICAL	
MODEL	LHB 80/88-E
FREQUENCY	Mobile telephone: 66 - 86 MHz Car radio: 0 - 15 MHz and (88) - 91 - 108 MHz
MAX. INPUT POWER	35 W
INSERTION LOSS	0 - 15 and 91 - 108 MHz: < 2.5 dB (88 MHz: < 5.0 dB) 66 - 80 MHz: < 1.5 dB 80 - 86 MHz: < 2.0 dB
ISOLATION	Low to high port: >20 dB @ 86 MHz >20 dB @ 91 - 108 MHz >35 dB @ 66 - 80 MHz
IMPEDANCE	Transceiver : 50 Ω Car radio : 75 Ω
MECHANICAL	
TEMP. RANGE	-30° C → +70° C
CONNECTORS	TX/RX : FME Car radio: CRC-Connector (M10 x 0.75) Antenna : FME
DIMENSIONS (W x H x D)	50 x 21 x 60 mm
WEIGHT	Approx. 67 g

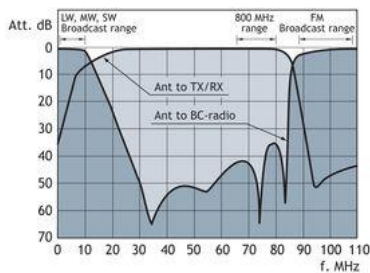


## ACCESSORIES

Car radio cable  
Type 1 m CRC (length 1 m)  
Type 5 m CRC (length 5 m)



## TYPICAL RESPONSE CURVES



## INSTALLATION NOTES

1. The 50 Ω cable between antenna and diplexer should be kept as short as possible (preferably not over 1 m).
2. Some communication antennas have insufficient height to ensure satisfactory broadcast reception. Antenna whips with loading coils or matching networks may affect broadcast reception.
3. Tuning: The antenna is tuned for best SWR at the operating frequency as usual. The filter is factory-tuned and ready for installation. The car radio is tuned for optimum reception on the MW-band by means of the antenna tuning screw (if present).



## LHB 80/88

Diplexer for Mobile Telephone (66 - 80 MHz) and Car Radio (0 - 10 MHz and 88 - 108 MHz)

- Diplexer for simultaneous operation of mobile telephone and car radio on a common mobile telephone antenna.
- Extremely small dimensions.

## DESCRIPTION

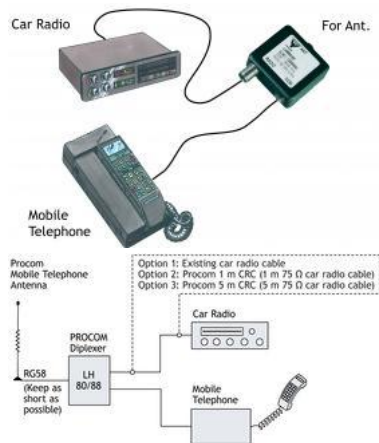
- Quick installation using dual-adhesive pad provided.
- FME-connections on antenna and transceiver terminals
  - CRC (M10 x 0.75) connection on the car radio terminal.
- 1 m or 5 m Procom 75 Ohm car radio cable available as an option.

## ORDERING DESIGNATIONS

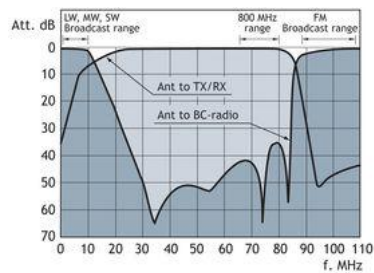
TYPE	PRODUCT NO.
LHB 80/88	20000770

## SPECIFICATIONS

ELECTRICAL	
MODEL	LHB 80/88
FREQUENCY	Mobile telephone: 66 - 80 MHz Car radio: 0 - 10 MHz and 88 - 108 MHz
MAX. INPUT POWER	35 W
INSERTION LOSS	0 - 10 and 88 - 108 MHz: $\leq 2.0$ dB 66 - 80 MHz: $\leq 1.5$ dB
ISOLATION	Low to high port: $\geq 35$ dB
IMPEDANCE	Transceiver : 50 $\Omega$ Car radio : 75 $\Omega$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +70° C
CONNECTORS	TX/RX : FME Car radio: CRC-Connector (M10 x 0.75) Antenna : FME
DIMENSIONS (W x H x D)	50 x 21 x 60 mm
WEIGHT	Approx. 67 g
ACCESSORIES	Car radio cable Type 1 m CRC (length 1 m) Type 5 m CRC (length 5 m)



## TYPICAL RESPONSE CURVES



## INSTALLATION NOTES

1. The 50  $\Omega$  cable between antenna and diplexer should be kept as short as possible (preferably not over 1 m).
2. Some communication antennas have insufficient height to ensure satisfactory broadcast reception. Antenna whips with loading coils or matching networks may affect broadcast reception.
3. Tuning: The antenna is tuned for best SWR at the operating frequency as usual. The filter is factory-tuned and ready for installation. The car radio is tuned for optimum reception on the MW-band by means of the antenna tuning screw (if present).



## LH 108/136 AMP

Diplexer for Mobile Telephone (136 - 1300 MHz) and Car Radio (0 - 108 MHz) with built-in low-noise amplifier

- Diplexer for simultaneous operation of mobile telephone and car radio on a common mobile radio antenna.
- A single diplexer covers all communication bands 136 - 1300 MHz.

### DESCRIPTION

- Built-in low-noise SMD-equipped amplifier in the car radio section gives freedom of choice of mobile telephone antenna.
- Better reception of car radio signals due to the built-in low-noise amplifier.
- Power supply of the low-noise amplifier via the car radio cable or by direct wiring.
- Extremely compact.
- Quick installation using dual-adhesive pad provided.
- FME-connections on antenna and mobile telephone terminals
  - CRC connection (M10 x 0.75) on the car radio terminal.
  - Power supply 12 V to the low-noise amplifier via CRC-connection.
- Procom 75 Ohm car radio cable available as an option.

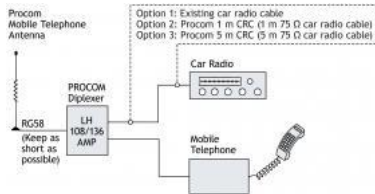
### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
LH 108/136 AMP	200000768

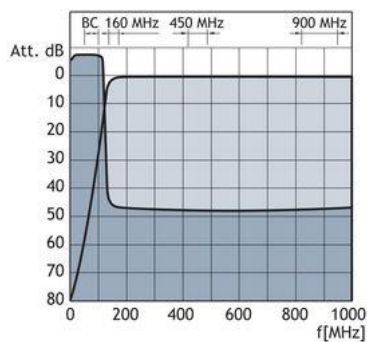
### SPECIFICATIONS

ELECTRICAL	
MODEL	LH 108/136 AMP
FREQUENCY	Mobile telephone: 136 - 1300 MHz Car radio : 0 - 108 MHz
MAX. INPUT POWER	35 W
GAIN	0 - 108 MHz : $\geq +6$ dB
INSERTION LOSS	136 - 1300 MHz : $\leq 0.8$ dB
ISOLATION RADIO to COM	$\geq 40$ dB typ. $\geq 45$ dB $> 38$ dB at 108 and 136 MHz
IMPEDANCE	COM : 50 $\Omega$ , SWR < 1.5 Radio : 75 $\Omega$
POWER SUPPLY	+12 V from the car via CRC-connection or directly
POWER CONSUMP.	$\sim 25$ mA
MECHANICAL	
TEMP. RANGE	$-30^{\circ}\text{C} \rightarrow +70^{\circ}\text{C}$
CONNECTORS	Antenna : FME

	COM : FME Radio: CRC-Connector (M10 x 0.75)
DIMENSIONS (W x H x D)	50 x 21 x 60 mm
WEIGHT	Approx. 73 g
ACCESSORIES	Car radio cable Type 1 m CRC (length 1 m) Type 5 m CRC (length 5 m)



## TYPICAL RESPONSE CURVES



## INSTALLATION NOTES

1. The 50  $\Omega$  cable between antenna and diplexer should be kept as short as possible (preferably not over 1 m).
2. Some communication antennas have insufficient height to ensure satisfactory broadcast reception. Only antenna whips with a height of at least 25 cm are acceptable.
3. Tuning: The antenna is tuned for best SWR at the operating frequency as usual. The filter is factory-tuned and ready for installation. The car radio is tuned for optimum reception on the MW-band by means of the antenna tuning screw (if present).



## LH 108/136-...

### Diplexer for Car Radio and Mobile Telephone

- Diplexer for simultaneous operation of mobile telephone and car radio on a common mobile telephone antenna.
- Extremely small dimensions.

## DESCRIPTION

- Diplexer for Car Radio 0 - 108 MHz and Mobile Telephone bands with 3 options:
  - LH 108/136-1G covers 136 - 1300 MHz
  - LH 108/136-2G covers 136 - 2300 MHz
  - LH 108/136-2G-3FME covers 136 - 2300 MHz
  - Quick installation using dual-adhesive pad provided.
  - FME-connections on antenna and transceiver terminals
  - 75  $\Omega$  (M10 x 0.75) or 50  $\Omega$  connector on the car radio terminal.
  - 1 m or 5 m Procom 75 Ohm car radio cable available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
LH 108/136-1G	200000769
LH 108/136-2G	200000762
LH 108/136-2G-3FME	200001709

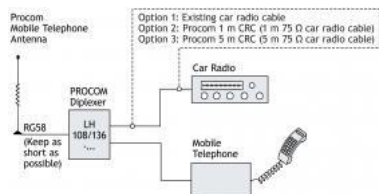
## SPECIFICATIONS

ELECTRICAL		
MODEL	LH 108/136-1G	LH 108/136-2G and LH 108/136-2G-3FME
FREQUENCY	Mobile telephone : 136 MHz - 1300 MHz Car radio : 0 - 108 MHz	Mobile telephone : 136 MHz - 2300 MHz Car radio : 0 - 108 MHz
MAX. INPUT POWER	136 - 500 MHz : < 35 W 500 - 1300 MHz : < 15 W	136 - 500 MHz : < 35 W 500 - 1500 MHz : < 15 W 1500 - 2300 MHz : < 10W
INSERTION LOSS	0 - 108 MHz : ≤ 2.0 dB 136 - 144 MHz : ≤ 0.8 dB 144 - 1300 MHz : ≤ 0.7 dB	136 - 500 MHz : ≤ 2.0 dB 500 - 1500 MHz : ≤ 0.8 dB 1500 - 2300 MHz : ≤ 0.7 dB
ISOLATION RADIO to COM	≥ 40 dB typ. ≥ 45 dB > 38 dB at 108 and 136 MHz	
IMPEDANCE	COM : 50 Ω, SWR < 1.5 Radio : 75 Ω CRC or 50 Ω FME, SWR < 1.5	
MECHANICAL		
TEMP. RANGE	-30° C → +70° C	
CONNECTORS	COM : FME	

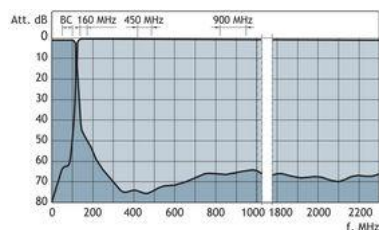


	Radio : CRC-Connector (M10 x 0.75) or FME Antenna : FME
DIMENSIONS (W x H x D)	50 x 21 x 60 mm
WEIGHT	Approx. 68 g
ACCESSORIES	Car radio cable Type 1 m CRC (length 1 m) Type 5 m CRC (length 5 m)

LH 108/136-2G



## TYPICAL RESPONSE CURVES



## INSTALLATION NOTES

1. The 50  $\Omega$  cable between antenna and diplexer should be kept as short as possible (preferably not over 1 m).
2. Some communication antennas have insufficient height to ensure satisfactory broadcast reception. Only antenna whips with a height of at least 25 cm are acceptable.
3. Tuning: The antenna is tuned for best SWR at the operating frequency as usual. The filter is factory-tuned and ready for installation. The car radio is tuned for optimum reception on the MW-band by means of the antenna tuning screw (if present).



## MPX 70/6...

### 6-Resonator Mini-Duplexer for the 450 MHz band

- The MPX 70/6... is a 6-resonator miniaturized duplex filter for duplex radiotelephones. This compact “miniplexer” meets the demand for a modern, space saving, high performance filter type.
- The duplexer is delivered in a low band version: MPX 70/6 L, tunable within the 406 - 440 MHz range, and a high band version: MPX 70/6 H, which is tunable within the 430 - 470 MHz range. These models are again delivered in 4 different versions according to required duplex spacing. See also “Ordering information” below.

## DESCRIPTION

- The MPX 70/6... models are primarily intended for equipment, where the TX and RX operate on single frequencies, but they can also, however with slightly reduced data, be used where the TX and RX operate on several channels, i.e. within a certain port bandwidth. In the last case, factory tuning is recommended.
- The miniaturization of the filter has been realized by using special high-Q, temperature compensated helical resonators.
- The housing is made of extruded aluminium, the chassis of steel, and teflon insulation has been applied in the rigid coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.

## ORDERING DESIGNATION

TYPE	TUNING RANGE (MHz)	DUPLEX SPACING (MHz)	PRODUCT NO.
MPX 70/6L-5/7-N(f)	406 - 440	5 - 7 *	200000581
MPX 70/6L-7/9-N(f)	406 - 440	7 - 9	200000586
MPX 70/6L-9/13-N(f)	406 - 440	9 - 13	200000593
MPX 70/6L-13/16-N(f)	406 - 440	13 - 16	200000578
MPX 70/6H-5/7-N(f)	430 - 470	5 - 7 *	200000558
MPX 70/6H-7/9-N(f)	430 - 470	7 - 9	200000563
MPX 70/6H-9/13-N(f)	430 - 470	9 - 13	200000569
MPX 70/6H-13/16-N(f)	430 - 470	13 - 16	200000553
MPX 70/6L-5/7-BNC(f)	406 - 440	5 - 7 *	200000580
MPX 70/6L-7/9-BNC(f)	406 - 440	7 - 9	200000585
MPX 70/6L-9/13-BNC(f)	406 - 440	9 - 13	200000594
MPX 70/6L-13/16-BNC(f)	406 - 440	13 - 16	200000577
MPX 70/6H-5/7-BNC(f)	430 - 470	5 - 7 *	200000554
MPX 70/6H-7/9-BNC(f)	430 - 470	7 - 9	200000560
MPX 70/6H-9/13-BNC(f)	430 - 470	9 - 13	200000568
MPX 70/6H-13/16-BNC(f)	430 - 470	13 - 16	200000550
*Note: Only 80 dB TX/RX isolation			

## ACCESSORIES

TYPE	PRODUCT NO.
MOUNTING KIT FOR HYTERA RD 625	200002515
19" MPX Mounting kit	210002291

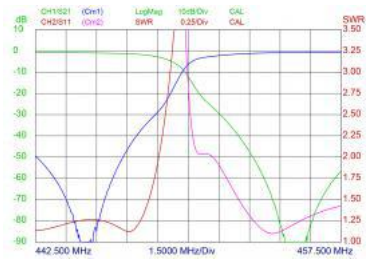
## ORDERING INFORMATION

When ordering, please use the table above to select the appropriate ordering designation for the desired filter type. If duplex TX and RX frequencies are stated when ordering, the duplexers are delivered factory adjusted. If TX and RX frequencies are not stated, the filters are delivered non-adjusted.

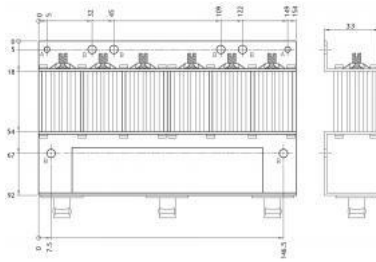
## SPECIFICATIONS

ELECTRICAL	
MODEL	MPX 70/6...
TX/RX FREQUENCY	MPX 70/6 L: 406 - 440 MHz MPX 70/6 H: 430 - 470 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS TX-ANT AND ANT-RX (at 10 MHz duplex spacing)	
Single-channel tuned:	< 1.4 dB
Multi-channel tuned, 1.5 MHz BW:	< 1.5 dB
TX NOISE SUPPRESSION	
ON RX-FREQUENCY	
Single-channel tuned:	> 90 dB
Multi-channel tuned, 1.5 MHz BW:	> 60 dB
RX ISOLATION ON TX-FREQUENCY Single-channel tuned: Multi-channel tuned, 1.5 MHz BW:	> 90 dB > 60 dB
DUPLEX SPACING	5 - 13 MHz (see tabel)
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.4$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	N-, BNC-, TNC- or SMA--female
DIMENSIONS (L x W x H)	110 x 154 x 33 mm
WEIGHT	Approx. 550 g

## TYPICAL RESPONSE CURVES



## MOUNTING DETAILS





## MPX 70/44-...-TETRA-N

### 8-Resonator Mini-Duplexer for the TETRA Band

- The MPX 70/44-...-TETRA-N is a 8-resonator miniaturized duplex filter for duplex radiotelephones. This compact “miniplexer” meets the demand for a modern, space saving, high performance filter type.
- The MPX 70/44-...-TETRA-N models are primarily intended for equipment, where the TX and RX operate on several channels, i.e. within a certain port bandwidth, but it can also be used where the TX and RX operate on single frequencies with even better performance on insertion loss and attenuation (up to 90 dB).

## DESCRIPTION

- The duplexer is available in a variety of different versions depending on duplex spacing, frequency, bandwidth and attenuation.  
The MPX 70/44-...-TETRA-N is tunable within 380 - 470 MHz range.  
See also “Ordering information”.
- The miniaturization of the filter has been realized by using special high-Q, temperature compensated helical resonators.
- The housing is made of extruded aluminium, the chassis of steel, and teflon insulation has been applied in the rigid coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.
- Other models with different frequencies, duplex spacing, bandwidth and attenuation are available on request.

## ORDERING DESIGNATION

TYPE	PRODUCT NO.	LOW	HIGH
MPX 70/44-A-TETRA-N	200002280	380 - 395	405 - 420
MPX 70/44-B-TETRA-N	200002281	380 - 395	410 - 425
MPX 70/44-C-TETRA-N	200002282	380 - 395	415 - 430

## ORDERING INFORMATION

When ordering, please use the table above to select the appropriate ordering designation for the desired filter type. If duplex TX and RX frequencies are stated when ordering, the duplexers are delivered factory adjusted.

## PLEASE NOTE

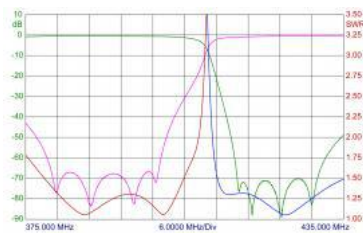
Special configurations of this filter type may be quoted on request. For instance, the filter can be delivered with other connector types or with flying leads (RG 316 coaxial cable) terminated with connectors or prepared for direct soldering into PCB.

## SPECIFICATIONS

ELECTRICAL	
MODEL	MPX 70/44-...-TETRA-N
MAX. INPUT POWER	50 W
TX/RX-FREQUENCY	See model selection table above

BANDWIDTH	15 MHz
INSERTION LOSS IN PASSBAND	$\leq 1.5$ dB (typ. 1.0)
ATTENUATION IN STOPBAND	$\geq 60$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR (All ports)	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 4.5 ppm/° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	145 x 104 x 56 mm / 5.7 x 4.1 x 2.2 in.
WEIGHT	Approx. 700 g / 1.5 lb.

### TYPICAL RESPONSE CURVES @ 10 MHz DUPLEX SPACING





## MPX 2/6...

### 6-Resonator Mini-Duplexer for the 160 MHz band

- The MPX 2/6... is a 6-resonator miniaturized duplex filter for duplex radiotelephones. This compact "miniplier" meets the demand for a modern space saving, high performance filter type.
- Model MPX 2/6 L can be tuned within the band 138-156 MHz and model MPX 2/6 H within the band 152 - 175 MHz, both with duplex spacing between 4 and 15 MHz.

## DESCRIPTION

- The MPX 2/6... is primarily intended for equipment, where the TX and RX operate on single frequencies, but it can also, however with slightly reduced data, be used where the TX and RX operate on several channels, i.e. within a certain port bandwidth. In the last case, factory tuning is recommended.
- The miniaturization of the filter has been realized by using special high-Q, temperature compensated helical resonators with discrete-component interconnections.
- The housing is made of extruded aluminium, and the connectors are provided with teflon insulation.
- The filter is black vinyl coated to prevent corrosion.

## ORDERING DESIGNATIONS

TYPE	TUNING RANGE (MHz)	DUPLEX SPACING (MHz)	PRODUCT NO.
MPX 2/6 L-4/6-N(f)	138 - 156	4 - 6	200001669
MPX 2/6 L-6/15-N(f)	138 - 156	6 - 15	200001632
MPX 2/6 H-4/6-N(f)	152 - 175	4 - 6	200001619
MPX 2/6 H-6/15-N(f)	152 - 175	6 - 15	200001733
MPX 2/6 L-4/6-BNC(f)	138 - 156	4 - 6	200001607
MPX 2/6 L-6/15-BNC(f)	138 - 156	6 - 15	200001637
MPX 2/6 H-4/6-BNC(f)	152 - 175	4 - 6	200001608
MPX 2/6 H-6/15-BNC(f)	152 - 175	6 - 15	200001614

## ACCESSORIES

TYPE	PRODUCT NO.
MOUNTING KIT FOR HYTERA RD 625	200002515
19" MPX Mounting kit	210002291

## SPECIFICATIONS

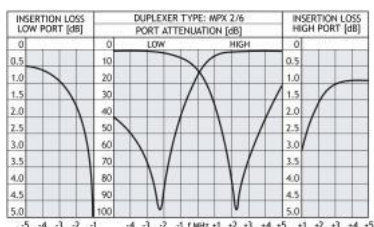
ELECTRICAL	
MODEL	MPX 2/6...
TX/RX FREQUENCY	MPX 2/6 L : 138 - 156 MHz MPX 2/6 H : 152 - 175 MHz
MAX. INPUT POWER	50 W

INSERTION LOSS TX-ANT AND ANT-RX	
(at 4.5 MHz duplex spacing)	
Single-channel tuned	$\leq 1.5$ dB
Multi-channel tuned, 1.5 MHz BW	$\leq 1.5$ dB
TX NOISE SUPPRESSION	
ON RX-FREQUENCY	
Single-channel tuned	$> 90$ dB
Multi-channel tuned, 1.5 MHz BW	$> 60$ dB
RX ISOLATION ON TX-FREQUENCY	
Single-channel tuned	$> 90$ dB
Multi-channel tuned, 1.5 MHz BW	$> 60$ dB
DUPLEX SPACING	4 - 15 MHz (see table)
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.4$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	N-, BNC-, TNC- or SMA-female
DIMENSIONS (L x W x H)	133 x 154 x 33 mm
WEIGHT	Approx. 660 g

#### PLEASE NOTE

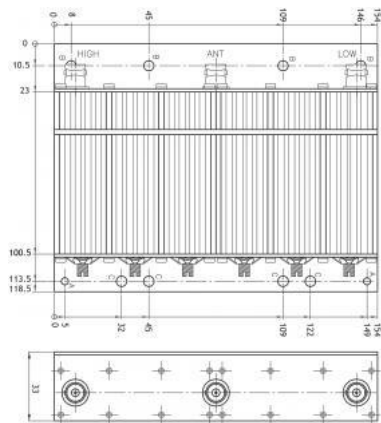
Special configurations of this filter type may be quoted on request. For instance, the filter can be delivered with other connector types or with flying leads (RG 316 coaxial cable) terminated with connectors or for soldering-connection.

#### TYPICAL RESPONSE CURVES



#### MOUNTING DETAILS







## MIX 70/44-PR-TETRA

Ultra-compact built-in type Duplexer for TETRA cellular radio telephones

- Miniaturized, light-weight, component-sized duplexer.
- Ideal for integration in compact radio telephones.

### DESCRIPTION

- Four cavities in TX-branch, four cavities in RX-branch.
- Low insertion loss and temperature drift.
- Rugged mechanical design.
- Fully environmentally tested.

### ORDERING DESIGNATIONS

TYPE	TX MHz	RX MHz	HOUSING HEIGHT	PRODUCT NO.
MIX 70/44-PR-TETRA-1-SMA(f)	380 - 385	390 - 395	27 mm	200000629
MIX 70/44-PR-TETRA-2-SMA(f)	385 - 390	395 - 400	27 mm	200002353
MIX 70/44-PR-TETRA-3-SMA(f)	410 - 415	420 - 425	27 mm	200002354
MIX 70/44-PR-TETRA-4-SMA(f)	415 - 420	425 - 430	27 mm	200002375
MIX 70/44-PR-TETRA-5-SMA(f)	450 - 455	460 - 465	22 mm	200002376
MIX 70/44-PR-TETRA-6-SMA(f)	455 - 460	465 - 470	22 mm	200002377

These filters can be delivered with other connector types:

Mex angle

Mex straight.

### ACCESSORIES

TYPE	PRODUCT NO.
MOUNTING KIT FOR HYTERA RD 965	200002517

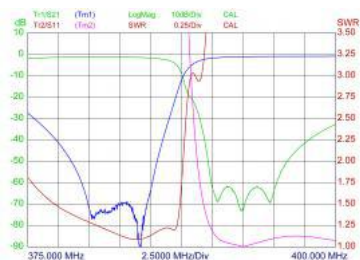
The HYTERA cable kit is used for mounting the duplexer inside the HYTERA RD 965 repeater. It consist of 3 cables. A manual for mounting the duplexer is provided with the kit.

### SPECIFICATIONS

ELECTRICAL		
MODEL	MIX 70/44-PR-TETRA	
MAX. INPUT POWER	25 W	

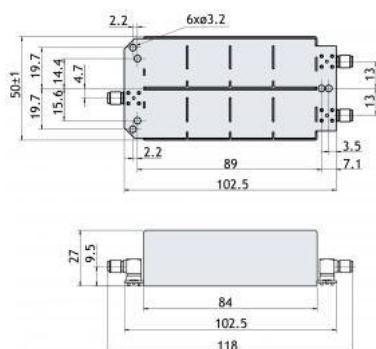
BRANCH	Low → Ant.	High → Ant.
INSERTION LOSS IN PASSBAND	$\leq 2.0$ dB (typ. 1.8 dB)	$\leq 2.0$ dB (typ. 1.8 dB)
ATTENUATION IN STOPBAND	$> 60$ dB	$> 60$ dB
IMPEDANCE	Nom. 50 $\Omega$	
SWR (All ports)	$\leq 1.5$	
MECHANICAL		
CONNECTIONS	SMA-female	
DIMENSIONS (L x W x H)	118 (incl. conn.) x 51 x 27 mm	
WEIGHT	Approx. 120 g	
ENVIROMENTAL		
TEMP. RANGE	$-30^{\circ}\text{C} \rightarrow +60^{\circ}\text{C}$	

## TYPICAL RESPONSE CURVES



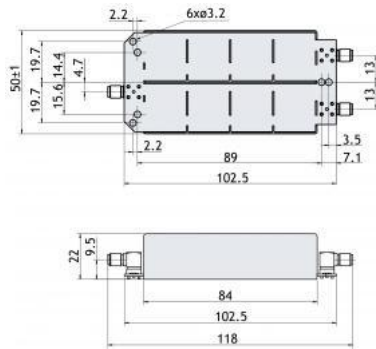
## MECHANICAL DIMENSIONS

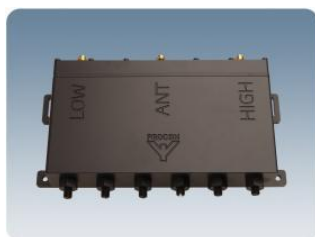
HOUSING HEIGHT 27 mm



## MECHANICAL DIMENSIONS

HOUSING HEIGHT 22 mm





## MIX 150/6

### 6-Resonator Mini-Duplexer for the 150 MHz band

- The MIX 150/6 is a 6-resonator miniaturized duplex filter for digital/analog repeaters. This compact "miniplier" meets the demand for a modern space-saving, high-performance filter type.

## DESCRIPTION

- The miniaturization of the filter has been realized by using special high-Q, temperature-compensated helical resonators with discrete-component interconnections.
- The housing is made of aluminium and the connectors are provided with teflon insulation.
- The model can be tuned within the band 136 - 174 MHz, min. TX/RX spacing 4 MHz.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
MIX 150/6	200002145

## ACCESSORIES

TYPE	PRODUCT NO.
MOUNTING KIT FOR HYTERA RD 965	200002517

The HYTERA cable kit is used for mounting the duplexer inside the HYTERA RD 965 repeater. It consist of 3 cables. A manual for mounting the duplexer is provided with the kit.

## ORDERING INFORMATION

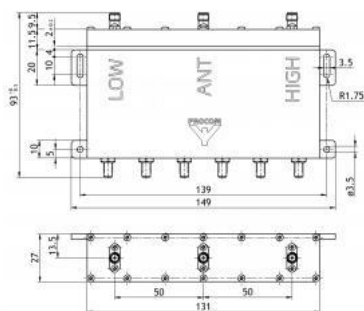
When ordering please specify TX and RX frequencies, the duplexers are delivered factory adjusted. If TX and RX frequencies are not stated, the filters are delivered non-adjusted.

## SPECIFICATIONS

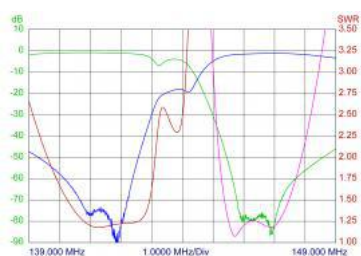
ELECTRICAL	
MODEL	MIX 150/6
TX/RX FREQUENCY	136 - 174 MHz
BANDWIDTH	1 - 4 MHz
MAX. INPUT POWER	15 W
INSERTION LOSS TX-ANT AND ANT-RX	$\leq 2.0$ dB (typ. $\leq 1.5$ dB)
IN-BAND ISOLATION	$> 60$ dB
TX/RX SPACING	$> 4 - 10$ MHz
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 2.0$
MECHANICAL	

TEMP. RANGE	-30° C → +60° C
CONNECTORS	SMA-female
DIMENSIONS (L x W x H)	93 x 149 x 27 mm / 3.66 x 5.86 x 1.06 in
WEIGHT	Approx. 500 g / 1.10 lb

## MOUNTING DETAILS



## TYPICAL RESPONSE CURVES





## HP 380-FME

### High-Pass Filter for 380 - 1000 MHz

- HP 380-FME is an LC High-Pass filter.
- Allows the whole 380 - 1000 MHz to pass.

## DESCRIPTION

- Can be used, together with LP 174-FME, to prevent possible interference between VHF and UHF radio systems, e.g. VHF LMR and TETRA.
- Can be used as a preselector to protect a receiver against interferences from transmitters normally being outside the pass range.
- HP 380-FME can be mounted as a preselector directly inside the PRO-AR4G-N, PRO-AR8G-N and the PRO-AR16G-N receiver multicouplers.
- Very small dimensions, mounted in a 45 x 50 mm box.
- FME connectors for easy and handy coupling to the surroundings.
- HP 380-FME is lacquered with black vinyl enamel to avoid corrosion.

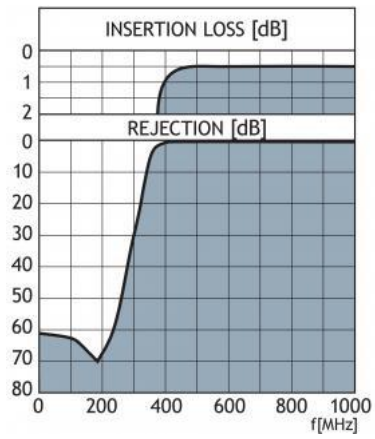
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
HP 380-FME	200002183

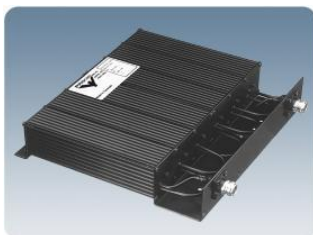
## SPECIFICATIONS

ELECTRICAL	
MODEL	HP 380-FME
PASS RANGE	380 - 1000 MHz
MAX. INPUT POWER	35 W
INSERTION LOSS	$\leq 0.5$ dB typically $\leq 0.4$ dB
SWR	$\leq 1.5$
OUT OF BAND ATTENUATION	$\geq 60$ dB @ 0-174 MHz
IMPEDANCE	Nom. 50 $\Omega$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	FME-male (others on request)
DIMENSIONS (W x H x D)	50 x 21 x 48 mm / 1.97 x 0.83 x 1.89 inches
WEIGHT	Approx. 60 g / 0.13 pound

## TYPICAL RESPONSE CURVES







## BRF 70/6-150

### Band-reject (notch) filter for the 450 MHz Band

- The BRF 70/6-150 is a 6-resonator notch-filter using full-length  $\frac{1}{4} \lambda$  cavities.
- This filter rejects a narrow band of frequencies and passes all others. The filter can be applied both in connection with transmitters and receivers to attenuate interfering signals which cause cross modulation effects. The filter can be employed as a single component or it can act as an integrated part of a complete multi-coupling system.

## DESCRIPTION

- The BRF 70/6-150 can be tuned within the complete 380 - 470 MHz band. Careful design and choice of materials ensure reliable operation over a wide temperature range.
- The housing is made of extruded aluminium, the chassis of brass, and teflon insulation has been applied in the coaxial cables and in the connectors.
- The filter is coated with black vinyl to prevent corrosion.

## ORDERING DESIGNATIONS

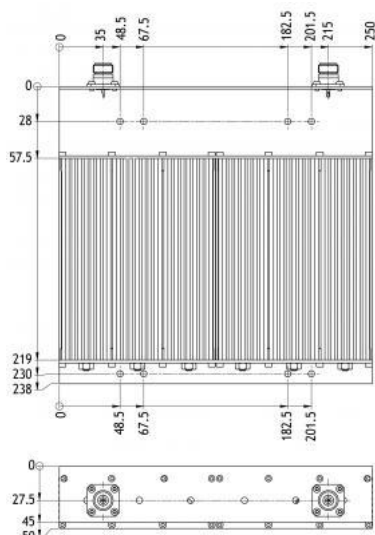
TYPE	PRODUCT NO.
BRF 70/6-150-N(f)	200001244

## SPECIFICATIONS

ELECTRICAL	
MODEL	BRF 70/6-150
FILTER TYPE	Band-reject (notch) filter
TUNING RANGE	380 - 470 MHz
MAX. INPUT POWER	50 W @ IL < 1.0 dB 150 W @ IL < 0.5 dB
INSERTION LOSS (Outside reject bandwidth: $F_c \pm 10$ MHz)	< 0.5 dB
REJECT ATTENUATION (Notch depth)	> 25 dB @ 5 MHz BW (See curve)
IMPEDANCE	Nom. 50 $\Omega$
SWR	20 - 380 MHz: < 1.5 420 - 530 MHz: < 2.0
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	N-female (others on request)

DIMENSIONS (L x W x H)	260 x 250 x 50 mm / 10.24 x 9.84 x 1.97 in.
WEIGHT	Approx. 2.5 kg / 5.51 lb.

## MOUNTING DETAILS



## TYPICAL RESPONSE CURVES



## PLEASE NOTE

The notch filter resonators can also be separately tuned to three different frequencies in a “multiple notch” configuration, but the attenuation on each frequency is then only approximately one third of the normal attenuation when all notches work together.



## PRO-BPF 800-1000-N

### Band-Pass Filter for 800 - 1000 MHz

- PRO-BPF 800-1000-N is a robust LC band-pass filter.
- Allows the whole 800 - 1000 MHz band to pass.

## Description

- Can be used as a preselector or cover filter to protect against out of band interferences.
- Small dimensions, mounted in a 62 x 57 mm case.
- N connectors for rugged and reliable connections.
- PRO-BPF 800-1000-N is lacquered with black vinyl enamel to avoid corrosion.

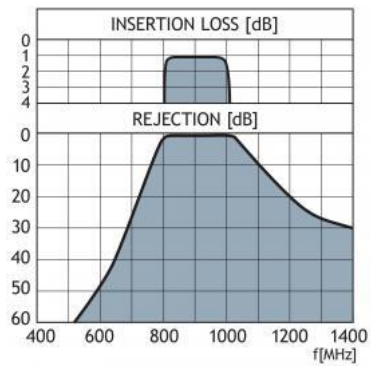
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-BPF 800-1000-N	200001834

## SPECIFICATIONS

ELECTRICAL	
MODEL	PRO-BPF 800-1000-N
PASS RANGE	800 - 1000 MHz
MAX. INPUT POWER	35 W
INSERTION LOSS	$\leq 1.2$ dB typ. $\leq 1.0$ dB
SWR	$\leq 1.4$
OUT OF BAND ATTENUATION	See curve (typ.)
IMPEDANCE	Nom. 50 $\Omega$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	N-female (others on request)
DIMENSIONS (W x H x D)	95 (incl. conn.) x 24 x 57 mm
WEIGHT	Approx. 240 g

## TYPICAL RESPONSE CURVES





## PRO-BPF 1800-1900-N

### Band-Pass Filter for 1800 - 1900 MHz

- PRO-BPF 1800-1900-N is a robust interdigital band-pass filter.
- Allows the whole 1800 - 1900 MHz band to pass.

## Description

- Can be used as a preselector or cover filter to protect against out of band interferences.
- Small dimensions, mounted in a 62 x 57 mm case.
- N connectors for rugged and reliable connections.
- PRO-BPF 1800-1900-N is lacquered with black vinyl enamel to avoid corrosion.

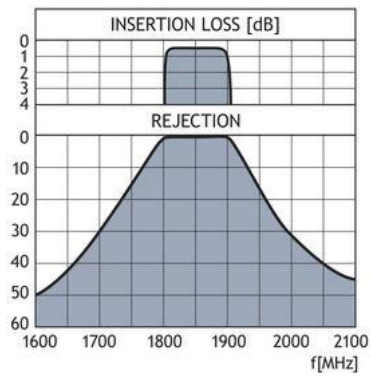
## ORDERING DESIGNATIONS

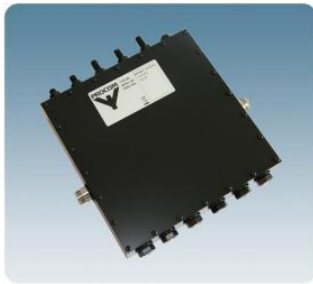
TYPE	PRODUCT NO.
PRO-BPF 1800-1900-N	200001835

## SPECIFICATIONS

ELECTRICAL	
MODEL	PRO-BPF 1800-1900-N
PASS RANGE	1800 - 1900 MHz
MAX. INPUT POWER	35 W
INSERTION LOSS	$\leq 0.8$ dB typ. $\leq 0.6$ dB
SWR	$\leq 1.4$
OUT OF BAND ATTENUATION	See curve (typ.)
IMPEDANCE	Nom. 50 $\Omega$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	N-female (others on request)
DIMENSIONS (W x H x D)	95 (incl. conn) x 24 x 57 mm
WEIGHT	Approx. 240 g

## TYPICAL RESPONSE CURVES





## PRO-BPF 118-137-N

### Band-Pass Filter for 118 - 137 MHz

- PRO-BPF 118-137-N is a rugged 6-resonator combline band-pass filter for handling high power levels.
- Allows the whole 118 - 137 MHz band to pass with low loss.

## Description

- No spurious responses below 900 MHz.
- Can be used as transmit filter to prevent out-of-band and harmonics radiation.
- Can be used as a preselector to protect a receiver against interferences from transmitters normally being outside the band-pass range.
- N connectors for strong and reliable coupling to the surroundings.
- PRO-BPF 118-137-N is lacquered with black vinyl enamel to avoid corrosion.

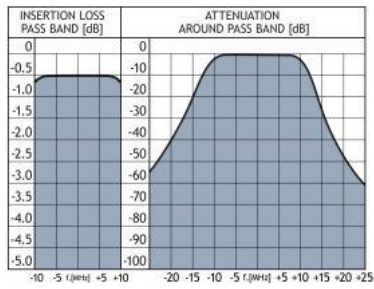
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-BPF 118-137-N	200001969

## SPECIFICATIONS

ELECTRICAL	
MODEL	PRO-BPF 118-137-N
PASS RANGE	118 - 137 MHz
MAX. INPUT POWER	200 / 100 W (peak / average)
INSERTION LOSS	≤ 0.8 dB @ corner freq. ≤ 0.6 dB @ centre freq.
SWR	≤ 1.4
ATTENUATION	> 40 dB : 98 - 107 MHz and 147 - 154 MHz > 60 dB : < 98 MHz and > 154 MHz
IMPEDANCE	Nom. 50 Ω
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
CONNECTORS	N-female (others on request)
DIMENSIONS (W x D x H)	188 x 204 x 42 mm (excl. connectors and tuning screws)
WEIGHT	Approx. 2.1 kg

## TYPICAL RESPONSE CURVES







## BRF 900/...-200

### Band-Reject Filters for the 900 MHz Band

- High power base station band-reject filters for the 890 – 960 MHz range.
- The use of large  $\varnothing 200$  mm cavities means a high Q, resulting in a very narrow notch bandwidth.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 7000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BRF 900/1-200	200001948
BRF 900/2-200	200001949
BRF 900/3-200	200001950

## SPECIFICATIONS

ELECTRICAL			
MODEL	BRF 900/1-200	BRF 900/2-200	BRF 900/3-200
FREQ. RANGE	890 - 960 MHz	890 - 960 MHz	890 - 960 MHz
MAX. INPUT POWER	350 W @ 0.5 dB IL 200 W @ 1.0 dB IL	350 W @ 1.0 dB IL 200 W @ 2.0 dB IL	350 W @ 1.5 dB IL 200 W @ 3.0 dB IL
1 dB NOTCH BANDWIDTH	1 ‰ of $f_c$	1 ‰ of $f_c$	1 ‰ of $f_c$
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 200$ x 200 mm	L:200 x W:400 x H:200 mm	L:200 x W:600 x H:200 mm

WEIGHT	Approx. 0.9 kg	Approx. 2 kg	Approx. 3.3 kg
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## BRF 900/...-125

### Band-Pass/Band-Reject Filters for the 900 MHz Band

- High power base station band-reject filters for the 890 – 960 MHz range.
- The use of large  $\varnothing 125$  mm cavities means a high Q, resulting in a very narrow notch bandwidth.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 4500.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BRF 900/1-125	200001601
BRF 900/2-125	200001946
BRF 900/3-125	200001947

## SPECIFICATIONS

ELECTRICAL			
MODEL	BRF 900/1-125	BRF 900/2-125	BRF 900/3-125
FREQ. RANGE	890 - 960 MHz	890 - 960 MHz	890 - 960 MHz
MAX. INPUT POWER	300 W @ 0.5 dB IL 175 W @ 1.0 dB IL	300 W @ 1.0 dB IL 175 W @ 2.0 dB IL	300 W @ 1.5 dB IL 175 W @ 3.0 dB IL
1 dB NOTCH BANDWIDTH	1 ‰ of $f_c$	1 ‰ of $f_c$	1 ‰ of $f_c$
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 125$ x 200 mm	L:125 x W:250 x H:200 mm	L:125 x W:375 x H:200 mm

WEIGHT	Approx. 0.7 kg	Approx. 1.5 kg	Approx. 2.5 kg
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## BRF 70/3

### Band reject (notch-) filter for the 450 MHz band

- The BRF 70/3 is a 3-resonator notch-filter using full-length  $\frac{1}{4} \lambda$  cavities.
- This filter rejects a narrow band of frequencies and passes all others. The filter can be applied both in connection with transmitters and receivers to attenuate interfering signals which cause cross modulation effects. The filter can be employed as a single component or it can act as an integrated part of a complete multi-coupling system.

## DESCRIPTION

- The BRF 70/3 can be tuned within the complete 400 - 470 MHz band. Careful design and choice of materials ensure reliable operation over a wide temperature range.
- The housing is made of extruded aluminium, the chassis of brass, and teflon insulation has been applied in the coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.

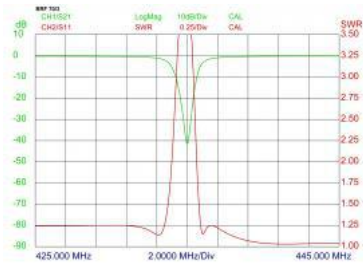
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BRF 70/3	200001224

## SPECIFICATIONS

ELECTRICAL	
MODEL	BRF 70/3
FILTER TYPE	Band-reject (notch) filter
TUNING RANGE	400 - 470 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS (Outside reject bandwidth: $F_c \pm 5$ MHz)	< 0.5 dB
REJECT ATTENUATION (Notch depth)	> 38 dB (See curve)
1 dB NOTCH BANDWIDTH	At 400 MHz: < $\pm 2.2$ MHz At 435 MHz: < $\pm 2.5$ MHz At 470 MHz: < $\pm 3.0$ MHz
IMPEDANCE	Nom. 50 $\Omega$
SWR	0-650 MHz: < 1.4 650-1000 MHz: < 2.0
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	BNC-female (others on request)
DIMENSIONS (L x W x H)	230 x 77 x 33 mm
WEIGHT	Approx. 550 g

## TYPICAL RESPONSE CURVES



## PLEASE NOTE

The notch filter resonators can also be separately tuned to three different frequencies in a “multiple notch” configuration, but the attenuation on each frequency is then only approximately one third of the normal attenuation when all notches work together.



## BRF 70/...-250

### Band-Reject Filters for the 450 MHz Band

- High power base station band-reject filters for the 380 – 470 MHz range.
- The use of large  $\varnothing 250$  mm cavities means a high Q, resulting in a very narrow notch bandwidth.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 8000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BRF 70/1-250	200001235
BRF 70/2-250	200001600
BRF 70/3-250	200001668

## SPECIFICATIONS

ELECTRICAL			
MODEL	BRF 70/1-250	BRF 70/2-250	BRF 70/3-250
FREQ. RANGE	380 - 470 MHz	380 - 470 MHz	380 - 470 MHz
MAX. INPUT POWER	350 W @ 0.5 dB IL 200 W @ 1.0 dB IL	350 W @ 1.0 dB IL 200 W @ 2.0 dB IL	350 W @ 1.5 dB IL 200 W @ 3.0 dB IL
ATTENUATION	See figure 1	See figure 2	See figure 3
1 dB NOTCH BANDWIDTH	1 ‰ of $f_c$	1 ‰ of $f_c$	1 ‰ of $f_c$
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 250$ x 400 mm	L:250 x W:500 x H:400 mm	L:250 x W:750 x H:400 mm

WEIGHT	Approx. 2.8 kg	Approx. 5.2 kg	Approx. 9.6 kg
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## TYPICAL RESPONSE CURVES

Figure 1

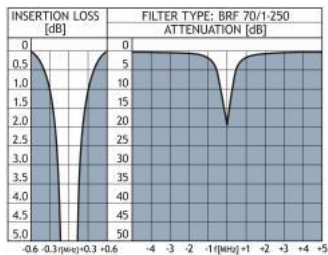


Figure 2

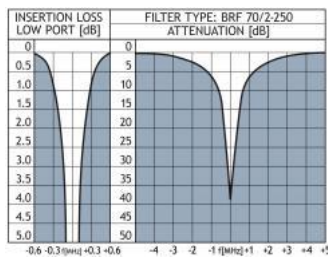
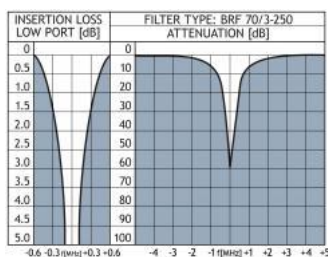


Figure 3







## BRF 70/...-200

### Band-Reject Filters for the 450 MHz Band

- High power base station band-reject filters for the 380 – 470 MHz range.
- The use of large  $\varnothing 200$  mm cavities means a high Q, resulting in a very narrow notch bandwidth.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 7000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BRF 70/1-200	200001943
BRF 70/2-200	200001239
BRF 70/3-200	200001944

## SPECIFICATIONS

ELECTRICAL			
MODEL	BRF 70/1-200	BRF 70/2-200	BRF 70/3-200
FREQ. RANGE	380 - 470 MHz	380 - 470 MHz	380 - 470 MHz
MAX. INPUT POWER	350 W @ 0.5 dB IL 200 W @ 1.0 dB IL	350 W @ 1.0 dB IL 200 W @ 2.0 dB IL	350 W @ 1.5 dB IL 200 W @ 3.0 dB IL
1 dB NOTCH BANDWIDTH	1 ‰ of $f_c$	1 ‰ of $f_c$	1 ‰ of $f_c$
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 200$ x 303 mm	L:200 x W:400 x H:303 mm	L:200 x W:600 x H:303 mm

WEIGHT	Approx. 2.3 kg	Approx. 4.9 kg	Approx. 7.5 kg
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## BRF 70/...-125

### Band-Reject Filters for the 450 MHz Band

- High power base station band-reject filters for the 380 – 470 MHz range.
- The use of large  $\varnothing 125$  mm cavities means a high Q, resulting in a very narrow notch bandwidth.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 4500.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BRF 70/1-125	200001240
BRF 70/2-125	200001941
BRF 70/3-125	200001942

## SPECIFICATIONS

ELECTRICAL			
MODEL	BRF 70/1-125	BRF 70/2-125	BRF 70/3-125
FREQ. RANGE	380 - 470 MHz	380 - 470 MHz	380 - 470 MHz
MAX. INPUT POWER	300 W @ 0.5 dB IL 175 W @ 1.0 dB IL	300 W @ 1.0 dB IL 175 W @ 2.0 dB IL	300 W @ 1.5 dB IL 175 W @ 3.0 dB IL
ATTENUATION	See figure 1	See figure 2	See figure 3
1 dB NOTCH BANDWIDTH	1 ‰ of $f_c$	1 ‰ of $f_c$	1 ‰ of $f_c$
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 125$ x 303 mm	L:125 x W:250 x H:303 mm	L:125 x W:375 x H:303 mm

WEIGHT	Approx. 1.2 kg	Approx. 3 kg	Approx. 4.2 kg
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## TYPICAL RESPONSE CURVES

Figure 1

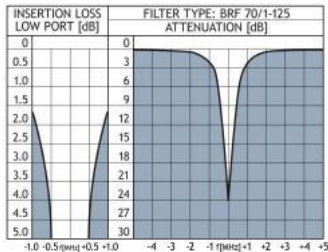


Figure 2

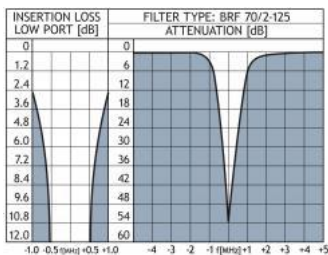
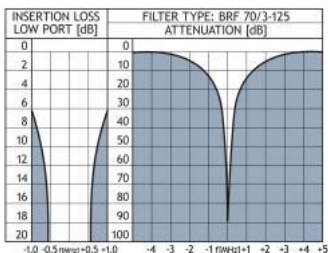


Figure 3





## BPBR 2/...-125

### Band-Pass/Band-Reject Filters for the 150 MHz Band

- High power base station band-pass/band-reject filters for the 140 - 175 MHz range.
- The use of large  $\varnothing 125$  mm cavities means a high Q, resulting in a very narrow pass/reject spacing.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 4500.
- High frequency stability on temperature and power.
- Mounted on 19" brackets.\*\*

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPBR 2/1-125	200001081
BPBR 2/2-125	200000959
BPBR 2/3-125	200001909

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPBR 2/1-125	BPBR 2/2-125	BPBR 2/3-125
FREQ. RANGE	140 - 175 MHz	140 - 175 MHz	140 - 175 MHz
MAX. INPUT POWER	250 W	250 W	250 W
INSERTION LOSS	See figure 1 (0.7 dB @ 500 kHz)	See figure 2 (1.4 dB @ 500 kHz)	See figure 3 (2.1 dB @ 500 kHz)
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 125$ x 600 mm	L:125 x W:285 x H:600 mm	L:125 x W:425 x H:600 mm

WEIGHT	Approx. 1.9 kg	Approx. 4 kg	Approx. 6.5 kg
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## TYPICAL RESPONSE CURVES

Figure 1

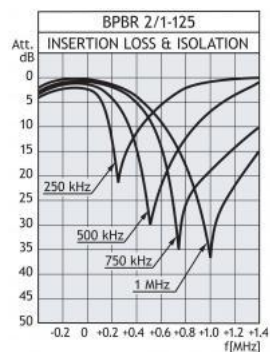


Figure 2

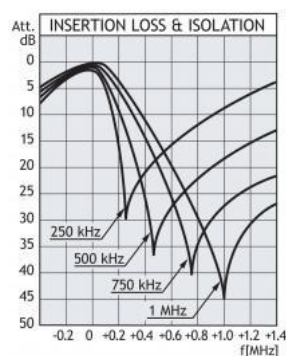
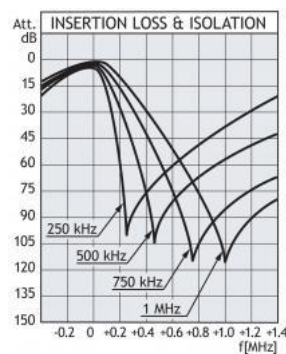


Figure 3







## BPBR 2/...-200

### Band-Pass/Band-Reject Filters for the 150 MHz Band

- High power base station band-pass/band-reject filters for the 140 - 175 MHz range.
- The use of large  $\varnothing 200$  mm cavities means a high Q, resulting in a very narrow pass/reject spacing.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 7000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPBR 2/1-200	200001084
BPBR 2/2-200	200001082
BPBR 2/3-200	200001755

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPBR 2/1-200	BPBR 2/2-200	BPBR 2/3-200
FREQ. RANGE	140 - 175 MHz	140 - 175 MHz	140 - 175 MHz
MAX. INPUT POWER	300 W @ 0.5 dB IL 125 W @ 2.0 dB IL	300 W @ 1.0 dB IL 125 W @ 4.0 dB IL	300 W @ 1.5 dB IL 125 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.3 - 2.0 dB	Adjustable 0.6 - 4.0 dB	Adjustable 0.9 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female



DIMENSIONS	ø200 x 600 mm	L:200 x W:400 x H:600 mm	L:200 x W:600 x H:600 mm
WEIGHT	Approx. 3.8 kg	Approx. 8 kg	Approx. 12.4 kg

## TYPICAL RESPONSE CURVES

Figure 1

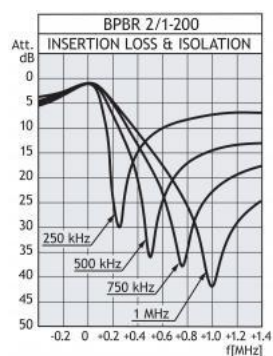


Figure 2

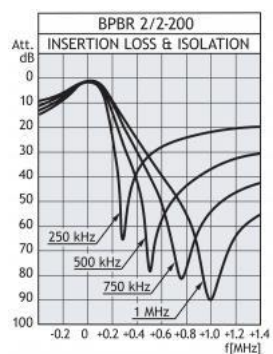
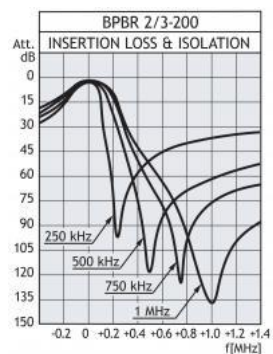


Figure 3







## BPBR 2/...-250

### Band-Pass/Band-Reject Filters for the 150 MHz Band

- High power base station band-pass/band-reject filters for the 140 - 175 MHz range.
- The use of large  $\varnothing 250$  mm cavities means a high Q, resulting in a very narrow pass/reject spacing.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 8000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option..

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPBR 2/1-250	200000982
BPBR 2/2-250	200001083
BPBR 2/3-250	200001910

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPBR 2/1-250	BPBR 2/2-250	BPBR 2/3-250
FREQ. RANGE	140 - 175 MHz	140 - 175 MHz	140 - 175 MHz
MAX. INPUT POWER	300 W @ 0.5 dB IL 125 W @ 2.0 dB IL	300 W @ 1.0 dB IL 125 W @ 4.0 dB IL	300 W @ 1.5 dB IL 125 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.3 - 2.0 dB	Adjustable 0.6 - 4.0 dB	Adjustable 0.9 - 6.0 dB
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 250$ x 600 mm	L:250 x W:500 x H:600 mm	L:250 x W:750 x H:600 mm
WEIGHT	Approx.	Approx.	Approx.



	4.3 kg	8.9 kg	14 kg
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## BPBR 2/3 / BRBP 2/3

### Band-Pass/Band-Reject Filters for the 160 MHz Band

- The BPBR 2/3... and the BRBP 2/3... are 3-cavity pass-reject filters, which pass one frequency or frequency band and reject another in immediate vicinity of the pass frequency.
- The filters are delivered in two basic models: The BPBR-types have the reject range on the high side of the pass frequency and the BRBP-types have the reject range situated on the low side of the pass frequency.

## DESCRIPTION

- These filter types can be used to protect a receiver against interference from a nearby transmitter. The filters are tuned to reject the interfering signal. Pass-reject-type filters are applied when the spacing between the utility signal and the interfering signal is so small, that the slope steepness of normal band-pass filters or notch filters are not sufficient enough to provide adequate rejection.
- These filters are primarily intended to pass and reject two single frequencies, but the filters can also be tuned to pass and reject several single frequencies or to having a certain pass and reject port bandwidth. In these cases, factory-tuning is recommended.
- Both the BPBR 2/3... and the BRBP 2/3... are delivered in a high-band and a low-band version tunable within 136 - 154 and 152 - 175 MHz, respectively. These models are again divided into submodels, each dedicated to work with a certain spacing between the pass frequency and the reject frequency. See "Ordering information" below.
- The filter has very small physical dimensions owing to the use of high-Q, temperature compensated helical resonators.
- The housing is made of extruded aluminium, the chassis of passivated steel, and teflon insulation has been applied in the rigid coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.	TUNING RANGE (MHz)	PASS/REJECT SPACING (MHz)
BPBR 2/3L-4/6 BRBP 2/3L-4/6	200001312 200001451	138 - 156	4 - 6
BPBR 2/3L-6/8 BRBP 2/3L-6/8	200001310 200001453	138 - 156	6 - 8
BPBR 2/3L-8/10 BRBP 2/3L-8/10	200001311 200001454	138 - 156	8 - 10
BPBR 2/3H-4/6 BRBP 2/3H-4/6	200001304 200001444	152 - 175	4 - 6
BPBR 2/3H-6/8 BRBP 2/3H-6/8	200001305 200001448	152 - 175	6 - 8
BPBR 2/3H-8/10 BRBP 2/3H-8/10	200001307 200001449	152 - 175	8 - 10

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPBR 2/3 / BRBP 2/3
FILTER TYPE	Band-pass / band-reject filters

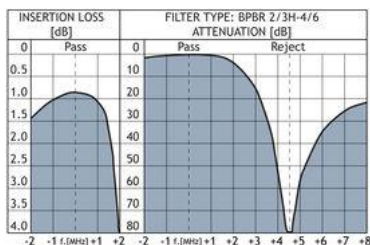
FREQUENCY	136 - 175 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS (PASS BAND) (at 4.5 MHz spacing)	Single-channel tuned < 1.0 dB Multi-channel tuned, 1.5 MHz BW < 1.2 dB
REJECT ATTENUATION	Single channel tuned > 75 dB Multi channel tuned, 1.5 MHz BW > 50 dB
PASS/REJECT SPACING	4 - 10 MHz (see table)
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
<b>MECHANICAL</b>	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	BNC-female
DIMENSIONS (L x W x H)	163 x 77 x 33 mm
WEIGHT	Approx. 380 g

## ORDERING INFORMATION

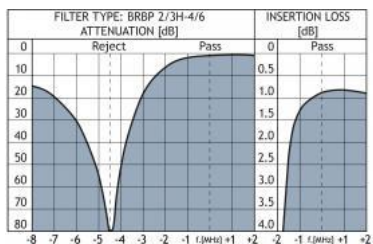
If pass and reject frequencies are stated when ordering, the filters are delivered factory-adjusted. Ordering example: BRBP 2/3..., LOW: 149.5 MHz, HIGH: 154.0 MHz. In this case, further information is not required.

When ordering untuned filters please use the model selection table above to select the appropriate ordering designation for the desired filter type.

## TYPICAL RESPONSE CURVES



## TYPICAL RESPONSE CURVES,





## BPBR 2/4 / BRBP 2/4

### Band-Pass/Band-Reject Filters for the 2m Band

- The BPBR 2/4... and the BRBP 2/4... are 4-cavity pass-reject filters, which pass one frequency or frequency band and reject another in immediate vicinity of the pass frequency.
- The filters are delivered in two basic models: The BPBR-types have the reject range on the high side of the pass frequency and the BRBP-types have the reject range situated on the low side of the pass frequency.

## DESCRIPTION

- These filter types can be used to protect a receiver against interference from a nearby transmitter. The filters are tuned to reject the interfering signal. Pass-reject-type filters are applied when the spacing between the utility signal and the interfering signal is so small, that the slope steepness of normal band-pass filters or notch filters are not sufficient enough to provide adequate rejection.
- These filters are primarily intended to pass and reject two single frequencies, but the filters can also be tuned to pass and reject several single frequencies or to having a certain pass and reject port bandwidth. In these cases, factory-tuning is recommended.
- Both the BPBR 2/4... and the BRBP 2/4... are delivered in a high-band and a low-band version tunable within 136 - 154 and 152 - 175 MHz, respectively. These models are again divided into submodels, each dedicated to work with a certain spacing between the pass frequency and the reject frequency. See "Ordering information" below.
- The filter has very small physical dimensions owing to the use of high-Q, temperature compensated helical resonators.
- The housing is made of extruded aluminium, the chassis of passivated steel, and teflon insulation has been applied in the rigid coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.	TUNING RANGE (MHz)	PASS/REJECT SPACING (MHz)
BPBR 2/4 L-4/6 BRBP 2/4 L-4/6	200001349 200001474	136 - 154	4 - 6
BPBR 2/4 L-6/8 BRBP 2/4 L-6/8	200001350 200001478	136 - 154	6 - 8
BPBR 2/4 L-8/10 BRBP 2/4 L-8/10	200001351 200001479	136 - 154	8 - 10
BPBR 2/4 H-4/6 BRBP 2/4 H-4/6	200001345 200001468	152 - 175	4 - 6
BPBR 2/4 H-6/8 BRBP 2/4 H-6/8	200001328 200001463	152 - 175	6 - 8
BPBR 2/4 H-8/10 BRBP 2/4 H-8/10	200001337 200001465	152 - 175	8 - 10

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPBR 2/4 / BRBP 2/4
FILTER TYPE	Band-pass / band-reject filters

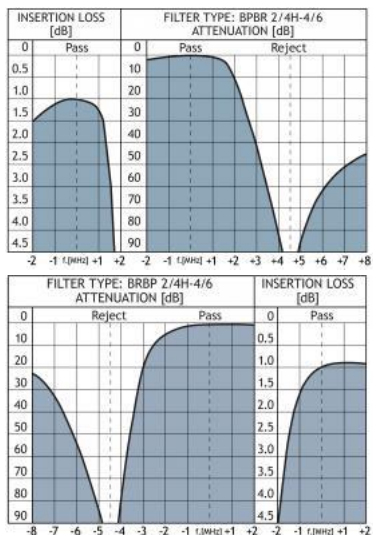
FREQUENCY	136 - 175 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS (PASS BAND) (at 4.5 MHz spacing)	Single-channel tuned $\leq 1.0$ dB Multi-channel tuned, 1.5 MHz BW $\leq 1.2$ dB
REJECT ATTENUATION	Single channel tuned $> 90$ dB Multi channel tuned, 1.5 MHz BW $> 60$ dB
PASS/REJECT SPACING	4 - 10 MHz (see table)
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
<b>MECHANICAL</b>	
TEMP. RANGE	$-30^{\circ}\text{C} \rightarrow +60^{\circ}\text{C}$
FREQ. STABILITY	Approx. 10 ppm/ $^{\circ}\text{C}$
CONNECTORS	BNC-female
DIMENSIONS (L x W x H)	210 x 104 x 33 mm
WEIGHT	Approx. 600 g

## ORDERING INFORMATION

If pass and reject frequencies are stated when ordering, the filters are delivered factory-adjusted. Ordering example: BRBP 2/4..., LOW: 149.5 MHz, HIGH: 154.0 MHz. In this case, further information is not required.

When ordering untuned filters please use the model selection table above to select the appropriate ordering designation for the desired filter type.

## TYPICAL RESPONSE CURVES @ 4.5 MHz DUPLEX SPACING







## BPBR 4/...-125

### Band-Pass/Band-Reject Filters for the 80 MHz Band

- High power base station band-pass/band-reject filters for the 66 – 88 MHz range.
- The use of large  $\varnothing 125$  mm cavities means a high Q, resulting in a very narrow pass/reject spacing.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 4500.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

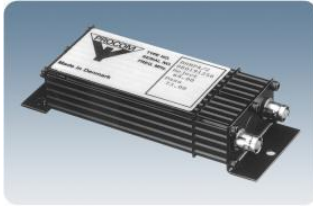
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPBR 4/1-125	200001085
BPBR 4/2-125	200001893
BPBR 4/3-125	200001894

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPBR 4/1-125	BPBR 4/2-125	BPBR 4/3-125
FREQ. RANGE	66 - 88 MHz	66 - 88 MHz	66 - 88 MHz
MAX. INPUT POWER	250 W	250 W	250 W
INSERTION LOSS	Approx. 0.7 dB	Approx. 1.4 dB	Approx. 2.1 dB
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	$\leq 1.5$	$\leq 1.5$	$\leq 1.5$
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C $\rightarrow$ +60° C	-30° C $\rightarrow$ +60° C	-30° C $\rightarrow$ +60° C
FREQ.	Approx. 1.5	Approx. 1.5	Approx. 1.5

STABILITY	ppm/° C	ppm/° C	ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	ø125 x 1200 mm	L:125 x W:250 x H:1200 mm	L:125 x W:375 x H:1200 mm
WEIGHT	Approx. 4.3 kg	Approx. 8.9 kg	Approx. 13.5 kg



## BPBR 4/2 / BRBP 4/2

### Band-Pass/Band-Reject Filters for the 80 MHz Band

- The BPBR 4/2 and the BRBP 4/2 are 2-cavity pass-reject filters, which pass one frequency or frequency band and reject another in immediate vicinity of the pass frequency.
- The BPBR 4/2 has the reject range on the high side of the pass frequency and the BRBP 4/2 has the reject range situated on the low side of the pass frequency.

## DESCRIPTION

- These filter types can be used to protect a receiver against interference from a nearby transmitter. The filters are tuned to reject the interfering signal. BPBR-type filters are applied when the spacing between the utility signal and the interfering signal is so small, that the slope steepness of normal band-pass filters or notch filters are not sufficient enough to provide adequate rejection.
- The standard BPBR-filters can be tuned within the complete 4 m-band with 1.5 to 16 MHz spacing between the operating frequencies. Insertion loss is below 1.0 dB at spacings between 2 and 16 MHz. At the narrowest spacing of 1.5 MHz, insertion loss is kept under 1.9 dB.
- The filters have very small dimensions owing to the use of high-Q helical resonators with discrete-component interconnections.
- The housing is made of extruded aluminium, the chassis of passivated steel, and the connectors are provided with teflon insulation. The filters are black vinyl coated to prevent corrosion.
- Careful design and choice of materials ensure reliable operation over a wide temperature range.

## ORDERING DESIGNATIONS

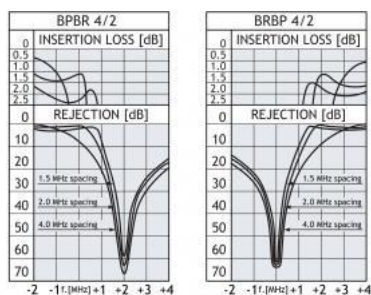
TYPE	PRODUCT NO.	PASS RANGE	REJECT RANGE
BPBR 4/2	200001361	Low	High
BRBP 4/2	200001487	High	Low

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPBR 4/2 / BRBP 4/2
FILTER TYPE	Band-pass / band-reject filters
TUNING RANGE	66 - 88 MHz (Option: 88 - 104 MHz)
MAX. INPUT POWER	@ 2-16 MHz spacing : 50 W @ 1.5 MHz spacing : 35 W
INSERTION LOSS at 1.5 MHz spacing at 2.5 MHz spacing at 3.5 MHz spacing at 16 MHz spacing	< 1.9 dB < 1.0 dB < 0.5 dB < 0.3 dB
REJECT ATTENUATION	≥ 60 dB
PASS/REJECT SPACING	1.5 - 16 MHz
IMPEDANCE	Nom. 50 Ω
SWR	≤ 1.5

MECHANICAL	
TEMP. RANGE	-30° C → +60° C
FREQ.STABILITY	Approx. 10 ppm/° C
CONNECTORS	BNC-female
DIMENSIONS (L x W x H)	150 x 52 x 33 mm
WEIGHT	Approx. 250 g

## TYPICAL RESPONSE CURVES





## BPBR 4/...-200

### Band-Pass/Band-Reject Filters for the 80 MHz Band

- High power base station band-pass/band-reject filters for the 66 - 88 MHz range.
- The use of large  $\varnothing 200$  mm cavities means a high Q, resulting in a very narrow pass/reject spacing.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 7000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPBR 4/1-200	200001089
BPBR 4/2-200	200001895
BPBR 4/3-200	200001896

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPBR 4/1-200	BPBR 4/2-200	BPBR 4/3-200
FREQ. RANGE	66 - 88 MHz	66 - 88 MHz	66 - 88 MHz
MAX. INPUT POWER	250 W	250 W	250 W
INSERTION LOSS	Approx. 0.7 dB	Approx. 1.4 dB	Approx. 2.1 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	$\leq 1.5$	$\leq 1.5$	$\leq 1.5$
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C $\rightarrow$ +60° C	-30° C $\rightarrow$ +60° C	-30° C $\rightarrow$ +60° C
FREQ.	Approx. 1.5	Approx. 1.5	Approx. 1.5

STABILITY	ppm/° C	ppm/° C	ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	ø200 x 1200 mm	L:200 x W:400 x H:1200 mm	L:200 x W:600 x H:1200 mm
WEIGHT	Approx. 6.7 kg	Approx. 13.7 kg	Approx. 20.9 kg

## TYPICAL RESPONSE CURVES

Figure 1

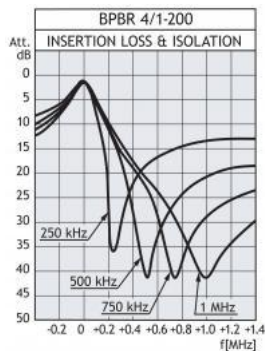


Figure 2

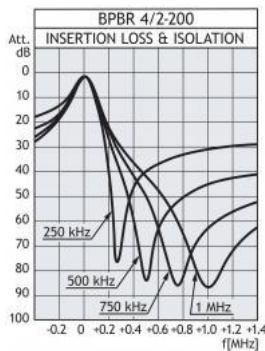
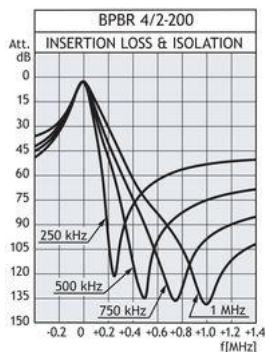


Figure 3







## BPBR 4/...-250

### Band-Pass/Band-Reject Filters for the 80 MHz Band

- High power base station band-pass/band-reject filters for the 66 – 88 MHz range.
- The use of large  $\varnothing 250$  mm cavities means a high Q, resulting in a very narrow pass/reject spacing.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 8000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPBR 4/1-250	200001897
BPBR 4/2-250	200001898
BPBR 4/3-250	200001899

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPBR 4/1-250	BPBR 4/2-250	BPBR 4/3-250
FREQ. RANGE	66 - 88 MHz	66 - 88 MHz	66 - 88 MHz
MAX. INPUT POWER	350 W @ 0.5 dB IL 150 W @ 2.0 dB IL	350 W @ 1.0 dB IL 150 W @ 4.0 dB IL	350 W @ 1.5 dB IL 150 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.3 - 2.0 dB	Adjustable 0.6 - 4.0 dB	Adjustable 0.3 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR	$\leq 1.5$	$\leq 1.5$	$\leq 1.5$
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C



FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	ø250 x 1200 mm	L:250 x W:500 x H:1200 mm	L:250 x W:750 x H:1200 mm
WEIGHT	Approx. 8.6 kg	Approx. 17.5 kg	Approx. 26.6 kg

## TYPICAL RESPONSE CURVES

Figure 1

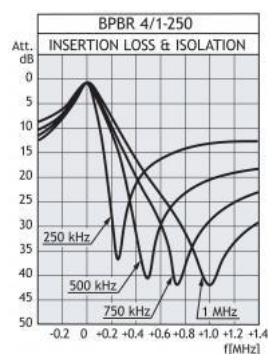


Figure 2

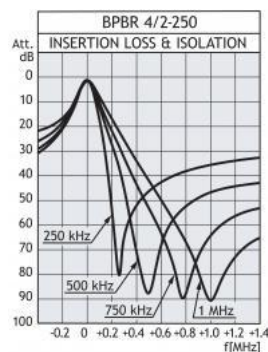
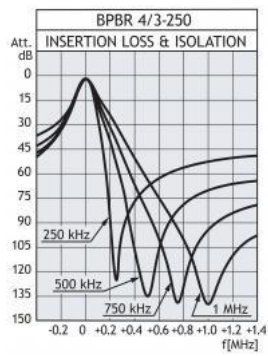


Figure 3





## BPBR 4/4 / BRBP 4/4

### Band-Pass/Band-Reject Filters for the 80 MHz Band

- The BPBR 4/4... and the BRBP 4/4... are 4-cavity pass-reject filters, which pass one frequency or frequency band and reject another in immediate vicinity of the pass frequency.
- The filters are delivered in two basic models: The BPBR-types have the reject range on the high side of the pass frequency and the BRBP-types have the reject range situated on the low side of the pass frequency.

## DESCRIPTION

- These filter types can be used to protect a receiver against interference from a nearby transmitter. The filters are tuned to reject the interfering signal. Pass-reject-type filters are applied when the spacing between the utility signal and the interfering signal is so small, that the slope steepness of normal band-pass filters or notch filters are not sufficient to provide adequate rejection.
- The filters are primarily intended to pass and reject two single frequencies, but the filters can also be tuned to pass and reject several single frequencies or to having a certain pass and reject port bandwidth. In these cases factory-tuning is recommended.
- The standard BPBR-filters can be tuned within the complete 4 m-band with 2 to 16 MHz spacing between the operating frequencies.
- Insertion loss is below 1.3 dB at spacings between 3 and 16 MHz. At the narrowest spacing of 2 MHz, insertion loss is kept under 2.0 dB.
- The filters have very small dimensions due to the use of high-Q helical resonators with discrete-component interconnections.
- The housing is made of extruded aluminium, the chassis of passivated steel, and the connectors are provided with teflon insulation. The filters are black vinyl coated to prevent corrosion.
- Careful design and choice of materials ensure reliable operation over a wide temperature range.

## ORDERING DESIGNATIONS

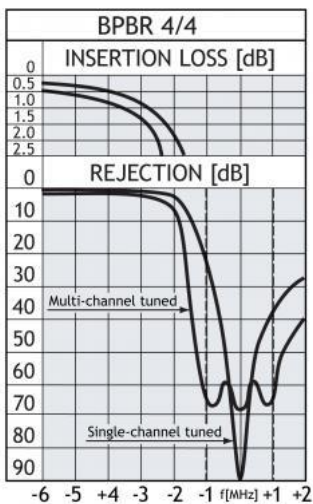
TYPE	PASS RANGE	REJECT RANGE	PRODUCT NO.
BPBR 4/4	Low	High	200001367
BRBP 4/4	High	Low	200000149

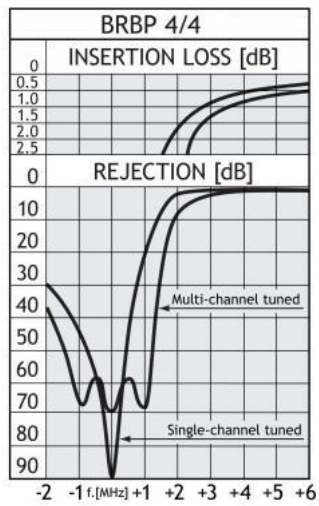
## SPECIFICATIONS

ELECTRICAL	
MODEL	BPBR 4/4 / BRBP 4/4
FILTER TYPE	Band-pass / band-reject filters
TUNING RANGE	66 - 88 MHz (Option: 88 - 104 MHz)
MAX. INPUT POWER	@ 3-16 MHz spacing : 50 W @ ≤3 MHz spacing : 35 W
INSERTION LOSS	
Single-channel tuned	
at 2 MHz spacing	≤ 2.0 dB
at 3 MHz spacing	≤ 1.3 dB
at 4 MHz spacing	≤ 1.0 dB

at 16 MHz spacing	$\leq 0.6$ dB
Multi-channel tuned	
closest spacing 2 MHz	$\leq 1.5$ dB
closest spacing 3 MHz	$\leq 1.0$ dB
closest spacing 4 MHz	$\leq 0.8$ dB
closest spacing 16 MHz	$\leq 0.6$ dB
REJECT ATTENUATION	
Single-channel tuned	$> 90$ dB
Multi-channel tuned 2 MHz BW	$> 60$ dB
PASS/REJECT SPACING	2-16 MHz
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	BNC-female
DIMENSIONS (L x W x H)	152 x 104 x 33 mm
WEIGHT	Approx 430 g

## TYPICAL RESPONSE CURVES







## BPBR 4/66-HX-150

12-cavity Mobile or Base Station Pass-reject Filter for the 68 - 108 MHz Band

- This type of filter uses 12 large 40 x 40 mm cavities all with 3.5 mm silverplated helical resonators, diameter 19 mm.
- Using these large helicals and cavities means higher Q-value and possibility of using very small spacing between pass and reject.

### DESCRIPTION

- Using large helicals and cavities also means higher power handling - up to 70 W with 1.5 dB insertion loss and 100 W with 1 dB insertion loss.
- BPBR 4/66-HX-150 is divided into two sub-bands:  
Pass 68 - 78 MHz or Pass 78 - 86.375 MHz. The reject is in both cases 87.6 - 108 MHz. Other tuning ranges on demand.
- The cavities are made of extruded aluminium, the chassis of passivated steel. All coaxial cables are the semirigid-type and teflon is used in connectors and cables.
- The filter is coated with black vinyl to prevent corrosion.
- Please specify pass and reject frequencies when ordering.

### ORDERING DESIGNATIONS

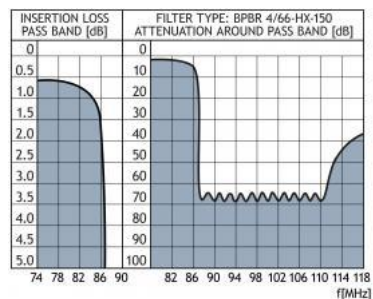
TYPE	PRODUCT NO.
BPBR 4/66-HX-150	200001429

### SPECIFICATIONS

ELECTRICAL	
MODEL	BPBR 4/66-HX-150
TX/RX FREQUENCY RANGE	68 - 108 MHz
MAX. INPUT POWER	100 W @ 1 dB insertion loss
MIN. SPACING BETWEEN PASS AND REJECT	800 kHz @ 2.4 dB insertion loss 2 MHz @ 1.6 dB insertion loss
TYPICAL INSERTION LOSS	@ 800 kHz spacing: 2.4 dB @ 1.5 MHz spacing: 2.0 dB @ 2.0 MHz spacing: 1.6 dB
REJECTION	@ 800 kHz spacing: min. 60 dB rest of 87.5 - 108 MHz: min. 55 dB
IMPEDANCE	Nom. 50 Ω
SWR	≤ 1.5
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
FREQUENCY STABILITY	Approx. 8 ppm/° C
CONNECTORS	N-female

DIMENSIONS (L x W x H)	200 x 250 x 95 mm
WEIGHT	Approx 2.3 kg

## TYPICAL RESPONSE CURVES





## BPBR 70/...-125

### Band-Pass/Band-Reject Filters for the 450 MHz Band

- High power base station band-pass/band-reject filters for the 380 – 470 MHz range.
- The use of large  $\varnothing 125$  mm cavities means a high Q, resulting in a very narrow pass/reject spacing.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 4500.
- High frequency stability on temperature and power.
- Mounted on 19" brackets. \*\*

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPBR 70/1-125	200000966
BPBR 70/2-125	200001409
BPBR 70/3-125	200001569

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPBR 70/1-125	BPBR 70/2-125	BPBR 70/3-125
FREQ. RANGE	380 - 470 MHz	380 - 470 MHz	380 - 470 MHz
MAX. INPUT POWER	300 W @ 0.5 dB IL 125 W @ 2.0 dB IL	300 W @ 1.0 dB IL 125 W @ 4.0 dB IL	300 W @ 1.5 dB IL 125 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.3 - 2.0 dB	Adjustable 0.6 - 4.0 dB	Adjustable 0.9 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female



DIMENSIONS	ø125 x 300 mm	L:125 x W:250 x H:300 mm	L:125 x W:375 x H:300 mm
WEIGHT	Approx. 1.2 kg	Approx. 2.7 kg	Approx. 4.3 kg

## TYPICAL RESPONSE CURVES

Figure 1

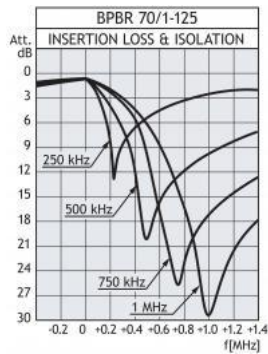


Figure 2

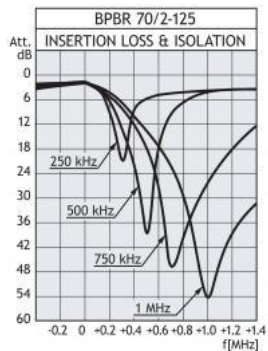
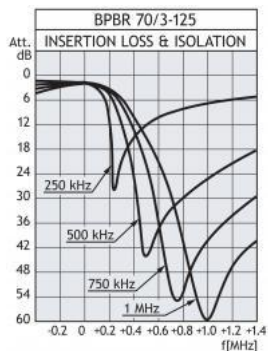


Figure 3







## LH 108/800

Diplexer for Mobile Telephone (800 - 2400 MHz) and Car Radio (0 - 108 MHz)

- Diplexer for simultaneous operation of mobile telephone and car radio on a common mobile telephone antenna.
- Excellent wide-band coverage 800 - 2400 MHz.

### DESCRIPTION

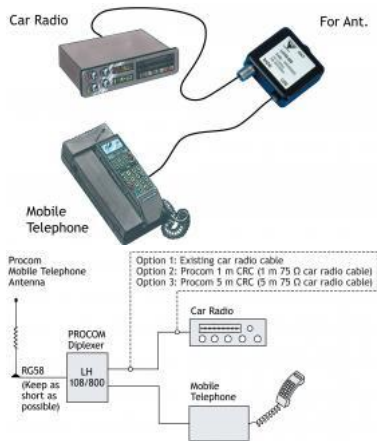
- Extremely small dimensions.
- Quick installation using dual-adhesive pad provided.
- FME-connections on antenna and transceiver terminals CRC (M10 x 0.75) connection on the car radio terminal.
- 1 m or 5 m Procom 75 Ohm car radio cable available as an option.

### ORDERING DESIGNATIONS

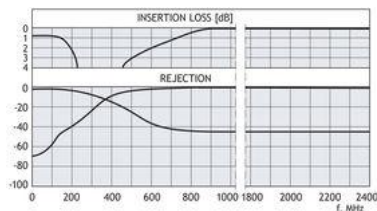
TYPE	PRODUCT NO.
LH 108/800	200000779

### SPECIFICATIONS

ELECTRICAL	
MODEL	LH 108/800
FREQUENCY	Mobile telephone: 800 MHz - 2400 MHz Car radio : 0 - 108 MHz
MAX. INPUT POWER	25 W
INSERTION LOSS	0 - 108 MHz : $\leq 1.0$ dB 800 - 2400 MHz : $\leq 0.7$ dB
ISOLATION	Low to high port: $\geq 45$ dB
IMPEDANCE	Transceiver : 50 $\Omega$ Car radio : 75 $\Omega$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +70° C
CONNECTORS	TX/RX: FME Car radio: CRC-Connector (M10 x 0.75) Antenna : FME
DIMENSIONS (W x H x D)	50 x 21 x 60 mm
WEIGHT	Approx. 68 g
ACCESSORIES	Car radio cable Type 1 m CRC (length 1 m) Type 5 m CRC (length 5 m)



## TYPICAL RESPONSE CURVES



(To be ordered separately)

## INSTALLATION NOTES

1. The 50  $\Omega$  cable between antenna and diplexer should be kept as short as possible (preferably not more than 1 m).
2. Some communication antennas have insufficient height to ensure satisfactory broadcast reception. Only antenna whips with a height of at least 25 cm are acceptable.
3. Tuning: The antenna is tuned for best SWR at the operating frequency as usual. The filter is factory-tuned and ready for installation.



## BPBR 70/...-200

### Band-Pass/Band-Reject Filters for the 450 MHz Band

- High power base station band-pass/band-reject filters for the 380 – 470 MHz range.
- The use of large  $\varnothing 200$  mm cavities means a high Q, resulting in a very narrow pass/reject spacing.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 7000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPBR 70/1-200	200001151
BPBR 70/2-200	200001399
BPBR 70/3-200	200001401

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPBR 70/1-200	BPBR 70/2-200	BPBR 70/3-200
FREQ. RANGE	380 - 470 MHz	380 - 470 MHz	380 - 470 MHz
MAX. INPUT POWER	300 W @ 0.5 dB IL 125 W @ 2.0 dB IL	300 W @ 1.0 dB IL 125 W @ 4.0 dB IL	300 W @ 1.5 dB IL 125 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.3 - 2.0 dB	Adjustable 0.6 - 4.0 dB	Adjustable 0.9 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female

DIMENSIONS	ø200 x 303 mm	L:200 x W:400 x H:303 mm	L:200 x W:600 x H:303 mm
WEIGHT	Approx. 2.3 kg	Approx. 4.9 kg	Approx. 7.5 kg

## TYPICAL RESPONSE CURVES

Figure 1

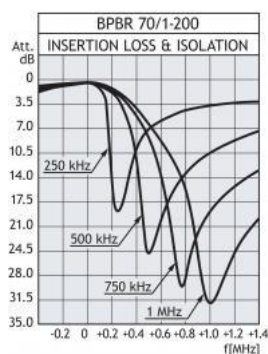


Figure 2

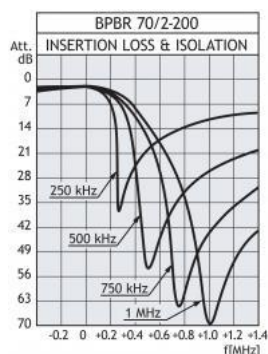
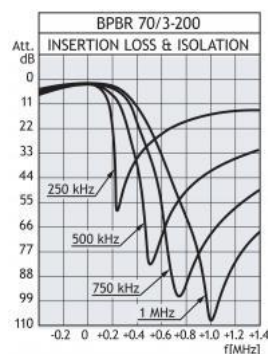


Figure 3







## BPF 2/4-...

### Band-Pass Filter for the 160 MHz Band

- The BPF 2/4-... is a 4-helical resonator band-pass filter with aperture coupling between the resonators.
- This filter can be used as a preselector to protect a receiver from interference from transmitters outside the band-pass limits.

## DESCRIPTION

- The BPF 2/4-C (C = cable) can be installed directly into the PRO-AR4G-N, PRO-AR8G-N and PRO-AR16G-N receiver multicouplers as a preselector.
- When installed in the output of a transmitter, the BPF 2/4 reduces spurious signals.
- The BPF 2/4-... is adjustable over the range 144 - 175 MHz.
- Very compact due to use of helical resonators.
- Careful choice of materials ensures reliable performance over a wide temperature range.
- Extruded aluminium sections, steel racks and coaxial cables and connectors with teflon insulation ensure good mechanical strength.
- The filter is black vinyl coated to prevent corrosion.

## ORDERING DESIGNATIONS

TYPE	BW	CONNECTOR	PRODUCT NO.
BPF 2/4-2-BNC(f)	2	BNC(f)	200000848
BPF 2/4-4-BNC(f)	4	BNC(f)	200000870
BPF 2/4-2-N(f)	2	N(f)	200000845
BPF 2/4-4-N(f)	4	N(f)	200000816
BPF 2/4-2-TNC(f)	2	TNC(f)	200001142
BPF 2/4-4-TNC(f)	4	TNC(f)	200002530

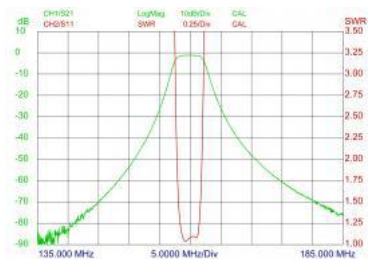
## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 2/4-...
FILTER TYPE	Band-pass filter
TUNING RANGE	144 - 175 MHz
MAX. INPUT POWER	35 W
INSERTION LOSS	≤ 1.5 dB typ. 1.2 dB
ATTENUATION AROUND PASS-BAND	Can be ordered in BW: 2 MHz BW: 4 MHz
OUT OF BAND ATTENUATION	See curves
IMPEDANCE	Nom. 50 Ω
SWR	≤ 1.5



MECHANICAL	
TEMP. RANGE	-30° C → +60° C
CONNECTORS	BNC-female (others on request)
DIMENSIONS (L x W x H)	165 x 104 x 33 mm
WEIGHT	Approx. 500 g

## TYPICAL RESPONSE CURVES





## BPF 2/3-150...

Highly Selective Band-Pass Filter for the 2 m Band with High Power-Handling Capability (150 watts)

- This band-pass filter is mainly applied to prevent interference between transceivers with narrow frequency spacing which are operating on antennas installed very close to each other.
- One of the transmitters may cause intermodulation in the output amplifier of the other transmitter, or the presence of one transmitter might “block” the contrary receiver or desense it because of excess sideband noise.

## DESCRIPTION

- The BPF 2/3-150... consists of 3 full-size quarter wavelength cavities with adjustable capacitive coupling between the resonators. This filter is applied when other available band-pass filters or pass-reject filters do not provide adequate power handling capability, or lack in attenuation at narrow separations.
- The filter has a very steep rolloff between the pass-range and the stop-band. This rolloff can be made even steeper by sacrificing on insertion loss. This “trade-off” may be necessary by very small separations or by high required stop-band attenuation. Please note that the full power rating of 150 watts can only be kept when keeping insertion loss below 1 dB. If insertion loss is raised to 2 dB, maximum allowable input power is 75 W.
- Another feature of this filter is its ability to be tuned with a certain pass-range bandwidth.
- The filter is delivered in two basic models: Model BPF 2/3-150 L can be applied within the band 136 - 154 MHz and model BPF 2/3-150 H within the band 152 - 175 MHz.
- The housing is made of extruded aluminium, the chassis of passivated steel, and teflon insulation has been used in the coaxial cables and in the connectors. The filter is black vinyl coated to prevent corrosion.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.	TUNING RANGE
BPF 2/3-150L	200000842	136 - 154 MHz
BPF 2/3-150H	200000843	152 - 175 MHz

## ORDERING INFORMATION

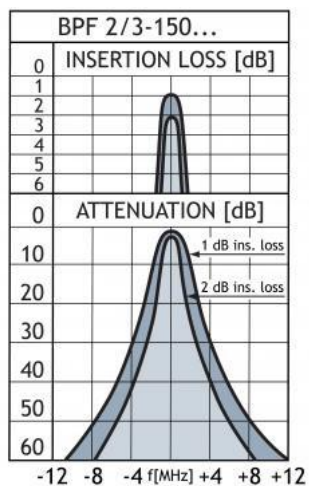
The BPF 2/3-150... is delivered factory tuned. Depending on the nature of the problem the band-pass filter has to solve, please specify the relevant of the following data when ordering: Centre frequency, operating frequency of disturbed or disturbing transmitter, required attenuation at stop-frequency, tolerable insertion loss and, optionally: pass range bandwidth.

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 2/3-150...
FILTER TYPE	Band-pass filter
FREQUENCY (tuning range)	BPF 2/3-150 L : 136 - 154 MHz BPF 2/3-150 H : 152 - 175 MHz
MAX. INPUT POWER	@ max. 1 dB insertion loss: 150 W @ max. 2 dB insertion loss: 75 W
ATTENUATION AROUND PASS-BAND	See curves
OUT OF BAND REJECTION	See curves

IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.4$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 18 ppm/° C
CONNECTORS	N-female
LENGTH (INCL. CONN.)	Type L: 550 mm Type H: 535 mm
WIDTH	125 mm
HEIGHT	50 mm
WEIGHT	Approx. 2.1 kg

## TYPICAL RESPONSE CURVES





## BPF 2/3-HX-150

### Band-Pass Filter for the 160 MHz Band

- The BPF 2/3 is a 3-helical resonator band-pass filter with aperture-coupling between the resonators.
- This filter can be used as a preselector to protect a receiver against interference from transmissions out of the passband, or it can be used to reduce spurious output from a transmitter with up to 50 W output power.

## DESCRIPTION

- The filter can be tuned within the entire 144 - 175 MHz band. It has very small dimensions owing to the use of helical resonators. Careful design and choice of materials ensure reliable operation over a wide temperature range.
- The housing is made of extruded aluminium, the chassis of steel, and teflon insulation has been used in the coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.

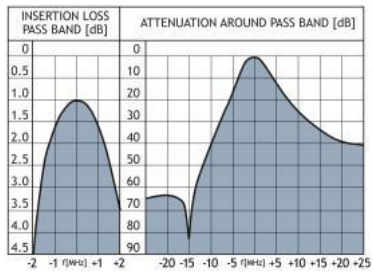
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 2/3	200000808

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 2/3
FILTER TYPE	Band-pass filter
TUNING RANGE	144 - 175 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS	≤ 1.0 dB (typ.)
ATTENUATION AROUND PASS-BAND	See curves
OUT OF BAND ATTENUATION	See curves
IMPEDANCE	Nom. 50 Ω
SWR	≤ 1.5
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
CONNECTORS	BNC-female (others on request)
DIMENSIONS (L x W x H)	160 x 77 x 33 mm
WEIGHT	Approx. 420 g

## TYPICAL RESPONSE CURVES





## BPF 2/...-200

### Band-Pass Filters for the 150 MHz Band

- High power base station band-pass filters for the 140 - 175 MHz range.
- The use of large  $\varnothing 200$  mm cavities means a high Q, resulting in a very narrow passband.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 7000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 2/1-200	200001055
BPF 2/2-200	200000965
BPF 2/3-200	200001057

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPF 2/1-200	BPF 2/2-200	BPF 2/3-200
FREQ RANGE	140 - 175 MHz	140 - 175 MHz	140 - 175 MHz
MAX. INPUT POWER	350 W @ 0.5 dB IL 150 W @ 2.0 dB IL	350 W @ 1.0 dB IL 150 W @ 4.0 dB IL	350 W @ 1.5 dB IL 150 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.4 - 2.0 dB	Adjustable 0.8 - 4.0 dB	Adjustable 1.2 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 200$ x	L:200 x W:400 x H:600 mm	L:200 x W:600 x H:600 mm

	600 mm		
WEIGHT	Approx. 3.8 kg	Approx. 8.5 kg	Approx. 12.6 kg

## TYPICAL RESPONSE CURVES

Figure 1

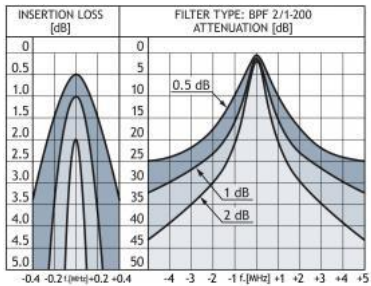


Figure 2

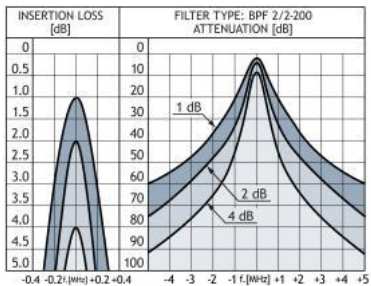
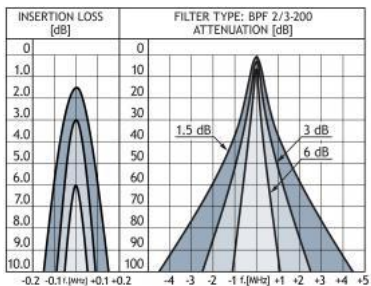


Figure 3





## BPF 2/...-125

### Band-Pass Filters for the 150 MHz Band

- High power base station band-pass filters for the 140 - 175 MHz range.
- The use of large  $\varnothing 125$  mm cavities means a high Q, resulting in a very narrow passband.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 4500.
- High frequency stability on temperature and power.
- Mounted on 19" brackets.\*\*

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 2/1-125	200000956
BPF 2/2-125	200000986
BPF 2/3-125	200000961

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPF 2/1-125	BPF 2/2-125	BPF 2/3-125
FREQ. RANGE	140 - 175 MHz	140 - 175 MHz	140 - 175 MHz
MAX. INPUT POWER	300 W @ 0.5 dB IL 125 W @ 2.0 dB IL	300 W @ 1.0 dB IL 125 W @ 4.0 dB IL	300 W @ 1.5 dB IL 125 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.4 - 2.0 dB	Adjustable 0.8 - 4.0 dB	Adjustable 1.2 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 125$ x	L:125 x W:285 x H:600 mm	L:125 x W:425 x H:600 mm



	600 mm		
WEIGHT	Approx. 1.9 kg	Approx. 4 kg	Approx. 6.5 kg

## TYPICAL RESPONSE CURVES

Figure 1

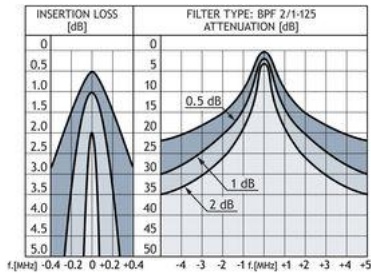


Figure 2

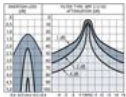
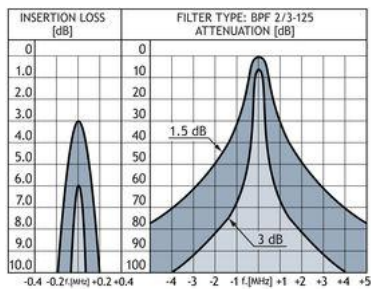


Figure 3





## BPF 1800/9

### Interdigital Band-Pass Filter for the 1800 MHz Band

- The BPF 1800/9 is a 9-resonator, interdigital band-pass filter for multichannel systems in the 1800 MHz band.

## DESCRIPTION

- Using interdigital principles the following features are obtained at the same time:
  - Wide Pass Range
  - Low insertion loss and ripple inside pass range
  - Steep slopes immediately outside pass range
  - Heavy attenuation outside the pass range.
- The BPF 1800/9 housing is made of silvered brass. Careful design and choice of materials ensure a long lifetime and reliable operation over a wide temperature range.
- The filter can be delivered with centre frequency between 1740 and 1840 MHz.  
The specifications and the curves below refer to a filter with 60 MHz port width, but interdigital filters with other port widths and filter characteristics may be quoted on request.

## ORDERING DESIGNATIONS

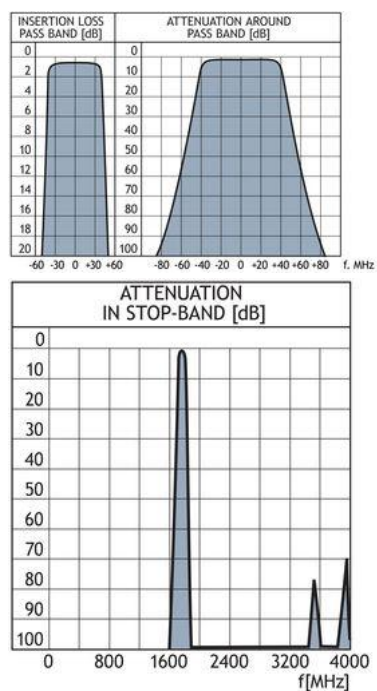
TYPE	FREQUENCY	PRODUCT NO.
BPF 1800/9 L	1740 - 1800 MHz	200000951
BPF 1800/9 H	1780 - 1840 MHz	200000948

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 1800/9
FILTER TYPE	Interdigital band-pass filter
CENTRE FREQUENCY	To be stated within 1740 - 1840 MHz
MAX. INPUT POWER	100 W
PASS RANGE WIDTH	60 MHz (others on request)
INSERTION LOSS	$\leq 1.0$ dB, typ. 0.9 dB
ATTENUATION AROUND PASSBAND	$\pm 50$ MHz rel. $f_c$ : $> 30$ dB $\pm 80$ MHz rel. $f_c$ : $> 80$ dB
ATTENUATION OUTSIDE PASS-RANGE, 0-2 GHz	$> 70$ dB, typ. $> 100$ dB (see curves)
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	$-30^\circ\text{C} \rightarrow +60^\circ\text{C}$
FREQ. STABILITY	Approx. 8ppm/ $^\circ\text{C}$

CONNECTORS	N-female or 7/16-female
DIMENSIONS (L x W x H)	360 x 75 x 32 mm
WEIGHT	Approx. 2.2 kg

## TYPICAL RESPONSE CURVES





## BPF 136-225

### Band-Pass Filter for 136 - 225 MHz

- BPF 136-225 is an LC band-pass filter.
- Allows the whole 136 - 225 MHz band to pass.

## DESCRIPTION

- Can be used as a preselector to protect a receiver against interferences from transmitters normally being outside the band-pass range.
- BPF 136-225 can be mounted as a preselector directly inside the PRO-AR4G-N, PRO-AR8G-N and the PRO-AR16G-N receiver multicouplers.
- Very small dimensions, mounted in a 45 x 50 mm case.
- FME connectors for easy and handy coupling to the surroundings.
- BPF 136-225 is coated with black vinyl to prevent corrosion.

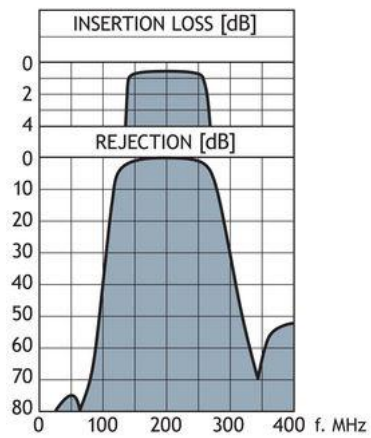
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 136-225	200000895

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 136-225
PASS RANGE	136 - 225 MHz
MAX. INPUT POWER	35 W
INSERTION LOSS	$\leq 0.9$ dB typically $\leq 0.7$ dB
SWR	$\leq 1.5$
OUT OF BAND ATTENUATION	See curve (typically)
IMPEDANCE	Nom. 50 $\Omega$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	FME-male (others on request)
DIMENSIONS (W x H x D)	50 x 21 x 48 mm
WEIGHT	Approx. 60 g

## TYPICAL RESPONSE CURVES





## BPF 112-136

### Band-Pass Filter for 112 - 136 MHz

- BPF 112-136 is an LC band-pass filter.
- Allows the whole 112 - 136 MHz band to pass.
- Good out of band rejection.

## DESCRIPTION

- Can be used as a preselector to protect a receiver against interferences from transmitters normally being outside the band-pass range.
- BPF 112-136 can be mounted as a preselector directly inside the PRO-AR4G-N, PRO-AR8G-N and the PRO-AR16G-N receiver multicouplers.
- Very small dimensions, mounted in a 45 x 50 mm case.
- FME connectors for easy and handy coupling to the surroundings.
- BPF 112-136 is coated with black vinyl to prevent corrosion.

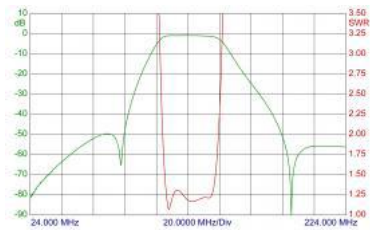
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 112-136	200000888

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 112-136
PASS RANGE	112 - 136 MHz
MAX. INPUT POWER	35 W
INSERTION LOSS	$\leq 1.1$ dB typically $\leq 0.9$ dB
SWR	$\leq 1.4$
OUT OF BAND ATTENUATION	See curve (typically)
IMPEDANCE	Nom. 50 $\Omega$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	FME-male (others on request)
DIMENSIONS (W x H x D)	50 x 21 x 50 mm (incl. connectors)
WEIGHT	Approx. 60 g

## TYPICAL RESPONSE CURVES





## BPF 10G/9

### Interdigital Band-Pass Filter for the 10 GHz Band

- The BPF 10G/9 is a 9-resonator, interdigital band-pass filter for multichannel systems in the 10 GHz band.
- Using interdigital principles the following features are obtained at the same time:
  - Wide Pass Range
  - Low insertion loss and ripple inside pass range
  - Steep slopes immediately outside pass range
  - Heavy attenuation outside the pass range.

## DESCRIPTION

- The BPF 10G/9 housing is made of silvered brass. Careful design and choice of materials ensure a long lifetime and reliable operation over a wide temperature range.
- The filter can be delivered with centre frequency between 9.5 GHz and 11.5 GHz. The specifications and the curves below refer to a filter with 500 MHz port width, but interdigital filters with other port widths and filter characteristics may be quoted on request.

## ORDERING DESIGNATIONS

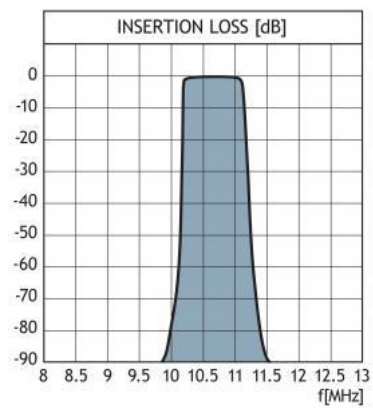
TYPE	PRODUCT NO.
BPF 10G/9	200000936

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 10G/9
FILTER TYPE	Interdigital band-pass filter
CENTRE FREQUENCY	To be stated within 9.5 and 11.5 GHz
MAX. INPUT POWER	10 W
PASS RANGE WIDTH	500 MHz
INSERTION LOSS	
ATTENUATION AROUND PASSBAND	± 400 MHz rel. fc: approx. 30 dB ± 500 MHz rel. fc: approx. 60 dB
ATTENUATION OUTSIDE PASS-RANGE	> 70 dB, typ. > 75-80 dB
IMPEDANCE	Nom. 50 Ω
SWR	< 1.5
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
FREQ. STABILITY	Approx. 8 ppm/° C
CONNECTORS	SMA-female
DIMENSIONS (L x W x H)	104 x 10 x approx. 20 mm



	incl. conn.
WEIGHT	Approx. 100 g





## BPF 1/...-200-SHT

### Band-Pass Filters for the 225 - 400 MHz Band

- High power base station band-pass filters for the 225 - 400 MHz range.
- The use of large  $\varnothing 200$  mm cavities means a high Q, resulting in a very narrow passband.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 7000.
- High frequency stability on temperature and power.
- Mounted on 19" brackets. \*\*

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.	FREQUENCY	
BPF 1/1-200-SHT	200001562	225 - 400 MHz	
BPF 1/2-200-SHT-L	200001564	225 - 265 MHz	
BPF 1/2-200-SHT-H	200002011	260 - 400 MHz	
BPF 1/3-200-SHT-L	200001728	225 - 265 MHz	
BPF 1/3-200-SHT-H	200002012	260 - 400 MHz	
N-Straight-RG 214- N-Straight-230 mm (H)	210001447		Cable 230 mm for tuning BPF 1/...- 200-SHT-L in the H range
N-Straight-RG 214- N-Straight-340 mm (L)	210001446		Cable 340 mm for tuning BPF 1/...- 200-SHT-H in the L range

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPF 1/1-200-SHT	BPF 1/2-200-SHT	BPF 1/3-200-SHT
FREQ. RANGE	225 - 400 MHz	225 - 400 MHz	225 - 400 MHz
MAX. INPUT POWER	350 W @ 0.5 dB IL 150 W @ 2.0 dB IL	350 W @ 1.0 dB IL 150 W @ 4.0 dB IL	350 W @ 1.5 dB IL 150 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.5 - 2.0 dB	Adjustable 1.0 - 4.0 dB	Adjustable 1.5 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$

SWR (at resonance)	< 1.5	< 1.5	< 1.5
<b>MECHANICAL</b>			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	ø200 x 450 mm	L:200 x W:415 x H:450 mm	L:410 x W:410 x H:450 mm
WEIGHT	Approx. 5.0 kg	Approx. 11.5 kg	Approx. 16.5 kg

## TYPICAL RESPONSE CURVES

Figure 1

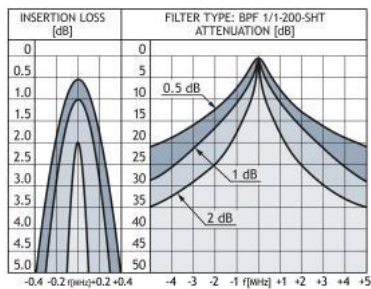


Figure 2

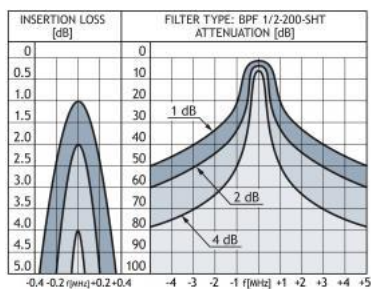
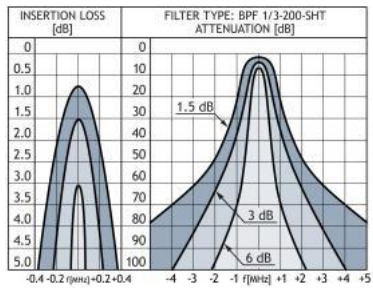


Figure 3





## BPF 1/...-200

### Band-Pass Filters for the 225 - 400 MHz Band

- High power base station band-pass filters for the 225 - 400 MHz range.
- The use of large  $\varnothing 200$  mm cavities means a high Q, resulting in a very narrow passband.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 7000.
- High frequency stability on temperature and power.
- Mounted on 19" brackets. \*\*

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 1/1-200	200002289
BPF 1/2-200	200002290
BPF 1/3-200	200002291

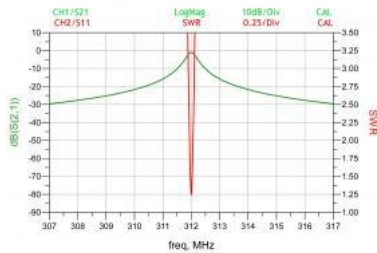
## SPECIFICATIONS

ELECTRICAL			
MODEL	BPF 1/1-200	BPF 1/2-200	BPF 1/3-200
FREQ. RANGE	225 - 400 MHz	225 - 400 MHz	225 - 400 MHz
MAX. INPUT POWER	350 W @ 0.5 dB IL 150 W @ 2.0 dB IL	350 W @ 1.0 dB IL 150 W @ 4.0 dB IL	350 W @ 1.5 dB IL 150 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.5 - 2.0 dB	Adjustable 1.0 - 4.0 dB	Adjustable 1.5 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female

DIMENSIONS	ø200 x 450 mm	L:200 x W:415 x H:450 mm	L:410 x W:410 x H:450 mm
WEIGHT	Approx. 3.2 kg	Approx. 6.6 kg	Approx. 10 kg

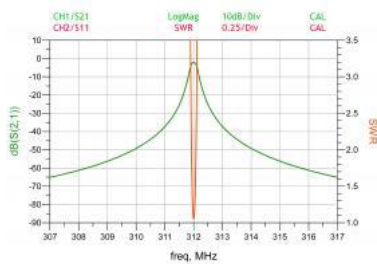
### TYPICAL RESPONSE CURVE FOR BPF 1/1-200

Figure 1



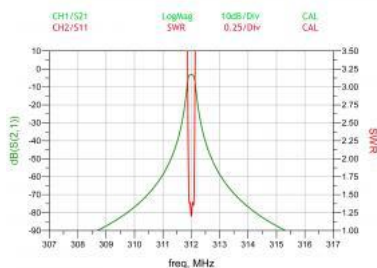
### TYPICAL RESPONSE CURVE FOR BPF 1/2-200

Figure 2



### TYPICAL RESPONSE CURVE FOR BPF 1/3-200

Figure 3





## TRI 70/900/1800/UMTS/FM-SMA

**Triplexer for TETRA (380-470 MHz), GSM (870-2300 MHz) and Car Radio (0-108 MHz)**

- Triplexer for simultaneous operation of TETRA, GSM mobile telephone and car radio on a common mobile telephone antenna.
- Excellent coverage of the two bands 380 – 470 MHz and 870 – 2300 MHz.

## DESCRIPTION

- Small dimensions.
- Two mounting options available:
  - Dual-adhesive pad for quick installation.
  - Mounting brackets with  $\varnothing 3.2$  mm holes for screw mounting.



## ORDERING DESIGNATIONS

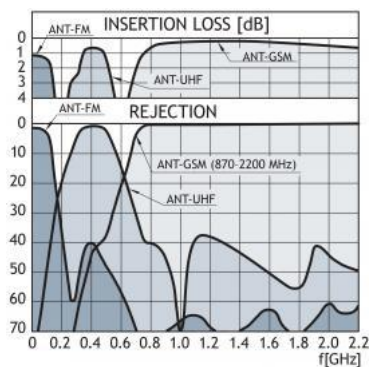
TYPE	PRODUCT NO.	MOUNTING
TRI 70/900/1800/UMTS/FM-SMA	200002134	Dual-adhesive pad
TRI 70/900/1800/UMTS/FM-SMA-M	200002331	Mounting brackets

## SPECIFICATIONS

ELECTRICAL	
MODEL	TRI 70/900/1800/UMTS/FM-SMA
FREQUENCY	TETRA : 380 – 470 MHz (UHF) Mobile telephone : 870 – 2300 MHz (GSM) Car radio : 0 – 108 MHz (FM)
MAX. INPUT POWER	35 W mobile telephone and TETRA
INSERTION LOSS	0 – 108 MHz : $\leq 2.0$ dB 380 – 470 MHz : $\leq 1.0$ dB 870 – 2300 MHz : $\leq 0.7$ dB
ISOLATION	UHF to GSM $\geq 40$ dB UHF to FM $\geq 35$ dB

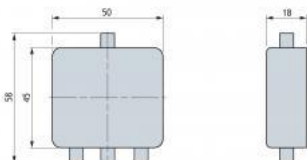
	GSM to FM $\geq 40$ dB
IMPEDANCE	Transceivers : 50 $\Omega$ Car radio : 50 $\Omega$
<b>MECHANICAL</b>	
TEMP. RANGE	-30° C $\rightarrow$ +70° C
CONNECTORS	SMA
DIMENSIONS (W x H x D)	50 x 21 x 60 mm
WEIGHT	Approx. 68 g

## TYPICAL RESPONSE CURVES



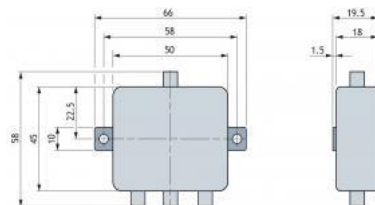
## MOUNTING DETAILS

TRI 70/900/1800/UMTS/FM-SMA



## MOUNTING DETAILS

TRI 70/900/1800/UMTS/FM-SMA-M



## INSTALLATION NOTES

1. The 50  $\Omega$  cable between antenna and diplexer should be kept as short as possible (preferably not more than 1 m).
2. Some communication antennas have insufficient height to ensure satisfactory broadcast reception. Only antenna whips with a height of at least 25 cm are acceptable.
3. Tuning: The antenna is tuned for best SWR at the operating frequency as usual. The filter is factory-tuned and ready for installation.







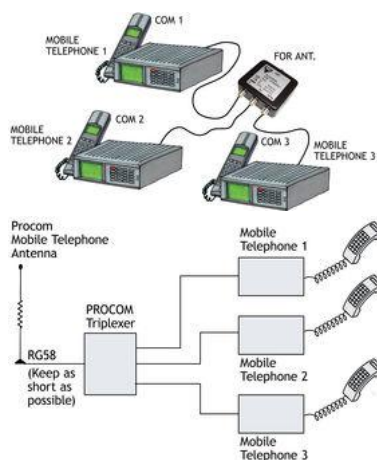
## TRI 4/2/TETRA

Triplexer for Three Mobile Telephones 68-88 MHz (COM1) / 144-175 MHz (COM2) and TETRA (COM3)

- Triplexer for simultaneous operation of three mobile telephones on a common mobile telephone antenna.
- Excellent coverage of the three bands 0 - 90 MHz, 144 - 175 MHz and 380 - 470 MHz.

## DESCRIPTION

- Extremely small dimensions.
- Quick installation by means of dual-adhesive pad (provided).



## ORDERING DESIGNATIONS

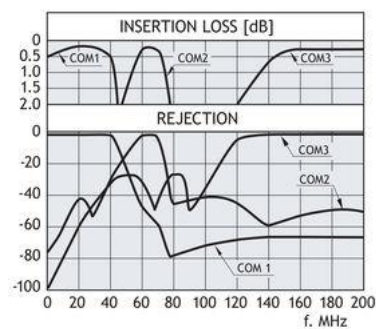
TYPE	PRODUCT NO.
TRI 4/2/TETRA	200001672

## SPECIFICATIONS

ELECTRICAL	
MODEL	TRI 4/2/TETRA
FREQUENCY	Mobile telephone 1 : 68 - 88 MHz (COM1) Mobile telephone 2 : 144 - 175 MHz (COM2) Mobile telephone 3 : TETRA (COM3)
MAX. INPUT POWER	35 W max./mobile telephone
INSERTION LOSS	68 - 88 MHz : $\leq 0.7$ dB 144 - 175 MHz : $\leq 1.0$ dB TETRA : $\leq 0.4$ dB
ISOLATION	COM1 to COM2 $\geq 35$ dB COM2 to COM1 $\geq 40$ dB COM2 to COM3 $\geq 30$ dB COM3 to COM2 $\geq 50$ dB

IMPEDANCE	Transceivers : 50 $\Omega$
MECHANICAL	
TEMP. RANGE	-30° C → +70° C
CONNECTORS	COM1, COM2, COM3, Antenna: SMA
DIMENSIONS (W x H x D)	58 x 21 x 60 mm
WEIGHT	Approx. 68 g

## TYPICAL RESPONSE CURVES



## INSTALLATION NOTES

1. The 50  $\Omega$  cable between antenna and diplexer should be kept as short as possible (preferably not more than 1 m).
2. Tuning: The antenna is tuned for best SWR at the operating frequency as usual. The filter is factory-tuned and ready for installation.



## TRI 2/900/FM

Triplexer for Two Mobile Telephones (144-175 MHz (COM1) / 880-960 MHz (COM2)) and Car Radio (0-108 MHz)

- Triplexer for simultaneous operation of two mobile radios and car radio on a common mobile telephone antenna.
- Excellent coverage of the two bands 144 – 175 MHz and 880 – 960 MHz.

## DESCRIPTION

- Extremely small dimensions.
- Quick installation using dual-adhesive pad provided.
- FME-connections on antenna and transceiver terminals
  - CRC (M10 x 0.75) connection on the car radio terminal.
- 1 m or 5 m Procom 75 Ohm car radio cable available as an option.



## ORDERING DESIGNATIONS

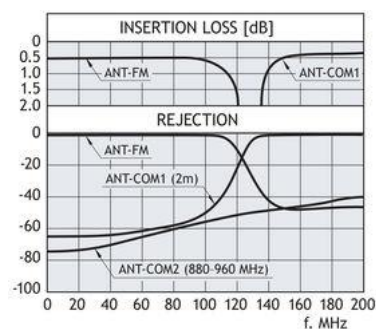
TYPE	PRODUCT NO.
TRI 2/900/FM	200000791

## SPECIFICATIONS

ELECTRICAL	
MODEL	TRI 2/900/FM
FREQUENCY	Mobile telephone 1 : 144 – 175 MHz (COM1) Mobile telephone 2 : 880 – 960 MHz (COM2) Car radio : 0 – 108 MHz (RADIO)
MAX. INPUT POWER	35 W mobile telephone
INSERTION LOSS	0 - 108 MHz : ≤ 1.0 dB 144 – 175 MHz : ≤ 0.8 dB 880 – 960 MHz : ≤ 0.7 dB

ISOLATION	COM1 to COM2 $\geq 40$ dB COM1 to car radio $\geq 35$ dB COM2 to car radio $\geq 40$ dB
IMPEDANCE	Transceivers : 50 $\Omega$ Car radio : 75 $\Omega$
<b>MECHANICAL</b>	
TEMP. RANGE	-30° C $\rightarrow$ +70° C
CONNECTORS	COM1, COM2, Antenna: FME Car radio: CRC-Connector (M10 x 0.75)
DIMENSIONS (W x H x D)	50 x 21 x 60 mm
WEIGHT	Approx. 68 g
ACCESSORIES	Car radio cable Type 1 m CRC (length 1 m) Type 5 m CRC (length 5 m)

## TYPICAL RESPONSE CURVES



## INSTALLATION NOTES

1. The 50  $\Omega$  cable between antenna and diplexer should be kept as short as possible (preferably not more than 1 m).
2. Some communication antennas have insufficient height to ensure satisfactory broadcast reception. Only antenna whips with a height of at least 25 cm are acceptable.
3. Tuning: The antenna is tuned for best SWR at the operating frequency as usual. The filter is factory-tuned and ready for installation.



## TRI 2/900/1800/UMTS/FM

Triplexer for Two Mobile Telephones (144-175 MHz (COM1) / 880-2300 MHz (COM2)) and Car Radio (0-108 MHz)

- Triplexer for simultaneous operation of two mobile telephones and car radio on a common mobile telephone antenna.
- Excellent coverage of the two bands 144 – 175 MHz and 880 – 2300 MHz.

## DESCRIPTION

- Extremely small dimensions.
- Quick installation using dual-adhesive pad provided.
- FME-connections on antenna and transceiver terminals
  - CRC (M10 x 0.75) connection on the car radio terminal.
- 1 m or 5 m Procom 75 Ohm car radio cable available as an option.



## ORDERING DESIGNATIONS

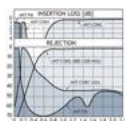
TYPE	PRODUCT NO.
TRI 2/900/1800/UMTS/FM	200000792

## SPECIFICATIONS

ELECTRICAL	
MODEL	TRI 2/900/1800/UMTS/FM
FREQUENCY	Mobile telephone 1 : 144 – 175 MHz (COM1) Mobile telephone 2 : 880 – 2300 MHz (COM2) Car radio : 0 – 108 MHz (RADIO)
MAX. INPUT POWER	35 W mobile telephone
INSERTION LOSS	0 – 108 MHz : $\leq 1.5$ dB 144 – 175 MHz : $\leq 1.0$ dB 880 – 2300 MHz : $\leq 0.7$ dB
ISOLATION	COM1 to COM2 $\geq 40$ dB COM1 to car radio $\geq 35$ dB COM2 to car radio $\geq 40$ dB
IMPEDANCE	Transceivers : 50 $\Omega$ Car radio : 75 $\Omega$
MECHANICAL	

TEMP. RANGE	-30° C → +70° C
CONNECTORS	COM1, COM2, Antenna: FME Car radio: CRC-Connector (M10 x 0.75)
DIMENSIONS (W x H x D)	50 x 21 x 60 mm
WEIGHT	Approx. 68 g
ACCESSORIES	Car radio cable Type 1 m CRC (length 1 m) Type 5 m CRC (length 5 m)

## TYPICAL RESPONSE CURVES



## INSTALLATION NOTES

1. The 50  $\Omega$  cable between antenna and diplexer should be kept as short as possible (preferably not more than 1 m).
2. Some communication antennas have insufficient height to ensure satisfactory broadcast reception. Only antenna whips with a height of at least 25 cm are acceptable.
3. Tuning: The antenna is tuned for best SWR at the operating frequency as usual. The filter is factory-tuned and ready for installation.



## SMI 70-C1-SN(50)-BU

### 450 MHz Ceramic Microplexer

- Extremely small and lightweight ceramic duplexer (Extremely small: only 12 cm<sup>3</sup>!).
- Ideal for integration in portable 450 MHz cellular radio telephones.
- Rugged mechanical design and low temperature drift.

## DESCRIPTION

- High power handling – handles 20 W at 85° C when mounted on a 40 cm<sup>2</sup> heatsink!
- Designed for direct drop-in on microstrip PCB. Coplanar terminals save space and provide ease-of-manufacturing and a non-discontinuity interface to the PCB.
- Rejection of image frequency of receiver.
- Weather- and shockproof.
- Request quotation for other systems.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
SMI 70-C1-SN(50)-BU	200000647

## COMMON SPECIFICATIONS

ELECTRICAL	
MODEL	SMI 70-C1-SN(50)-BU
MAX. INPUT POWER	6 W without heatsink 20 W with heatsink
IMPEDANCE	Nom. 50 Ω
MECHANICAL	
TEMP. RANGE	-30° C → +85° C
CONNECTIONS	Drop-in, coplanar
TOTAL DIMENSIONS (L x W x H)	77.5 x 36 x 7.5 mm
HOUSING ONLY (L x W x H)	64.5 x 26 x 7.5 mm
WEIGHT	Approx. 50 g

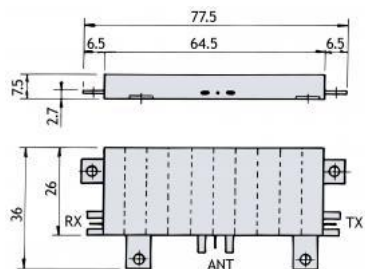
## SPECIFICATION

MODEL	SMI 70-C1-SN(50)-BU	
TX FREQ.	448.343 - 449.343 MHz	
RX FREQ.	454.843 - 455.843 MHz	
BRANCH	TX → Ant.	Ant. → RX
INSERTION LOSS IN PASSBAND	≤ 1.7 - 2.3 dB	≤ 2.7 - 3.3 dB



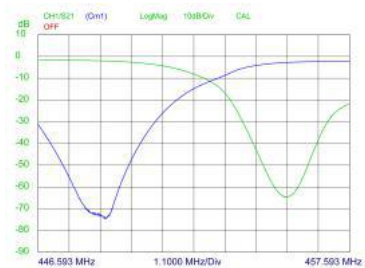
ATT. IN STOPBAND	> 55 dB	> 60 dB
NOTCH DEPTH	70 - 80 dB	
SWR	$\leq 1.5$ dB	

## FUNCTIONAL DIMENSIONS



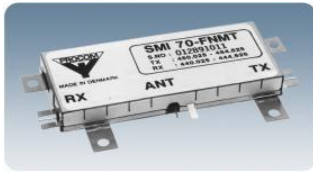
Detailed installation drawing available upon request.

## TYPICAL RESPONSE CURVES



## TYPICAL RESPONSE CURVES





## SMI 70/...

### 450 MHz Ceramic Microplexer

- Extremely small and lightweight ceramic duplexer (Extremely small: only 12 cm<sup>3</sup>!). Ideal for integration in portable 450 MHz cellular services.
- Low insertion loss by use of high-performance ceramic materials and computer optimized interconnection networks.

## DESCRIPTION

- Rugged mechanical design and low temperature drift.
- High power handling – handles 30 watts at 85° C when mounted on a 40 cm heatsink!
- Designed for direct drop-in on microstrip PCB. Coplanar terminals save space and provide ease-of-manufacturing and a non-discontinuity interface to the PCB.
- Rejection of image frequency of receiver.
- Environment proof.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
SMI 70/NMT	Contact us for info on availability
SMI 70/R2000	Contact us for info on availability
SMI 70/SFR	Contact us for info on availability

## COMMON SPECIFICATIONS

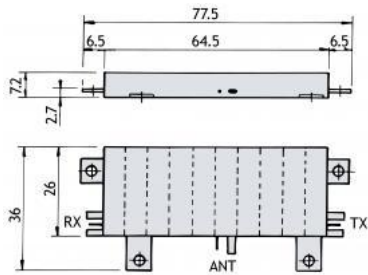
ELECTRICAL	
MODEL	SMI 70/...
MAX. INPUT POWER	6 W without heatsink 30 W with heatsink
IMPEDANCE	Nom. 50 Ω
MECHANICAL	
TEMP. RANGE	-30° C → +85° C
CONNECTIONS	Drop-in, coplanar
TOTAL DIMENSIONS (L x W x H)	77.5 x 36 x 7.3 mm
HOUSING ONLY (L x W x H)	64.5 x 26 x 7.3 mm
WEIGHT	Approx. 50 g

## SPECIFICATION

MODEL	SMI 70/NMT
CELLULAR SYSTEM	
TX FREQ.	453.0 - 457.5 MHz
RX FREQ.	463.0 - 467.5 MHz

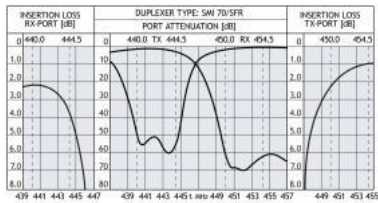
BRANCH	TX → Ant.	Ant. → RX
INSERTION LOSS IN PASSBAND	≤ 2.8 dB	≤ 4.7 dB
ATT. IN STOPBAND	> 50 dB	> 60 dB
SWR	≤ 1.5 dB	≤ 1.7 dB
OUT OF BAND REJECTION	2.harm.: > 50 dB 3.harm.: > 50 dB 4.harm.: > 40 dB	< 225 MHz: > 10 dB 443 - 453 MHz: > 47 dB 1 - 3.5 GHz: > 50 dB 3.5 - 6 GHz: > 25 dB
MODEL	SMI 70/R2000	
CELLULAR SYSTEM		
TX FREQ.	414.8 - 418.0 MHz	
RX FREQ.	424.8 - 428.0 MHz	
BRANCH	TX → Ant.	Ant. → RX
INSERTION LOSS IN PASSBAND	≤ 2.4 dB	≤ 4.2 dB
ATT. IN STOPBAND	> 50 dB	> 60 dB
SWR	≤ 1.5 dB	≤ 1.7 dB
OUT OF BAND REJECTION	2.harm.: > 50 dB 3.harm.: > 50 dB 4.harm.: > 40 dB	10 dB 405 - 415 MHz: > 47 dB 1 - 3.5 GHz: > 50 dB 3.5 - 6 GHz: > 25 dB
MODEL	SMI 70/SFR	
CELLULAR SYSTEM		
TX FREQ.	450.0 - 454.5 MHz	
RX FREQ.	440.0 - 444.5 MHz	
BRANCH	TX → Ant.	Ant. → RX
INSERTION LOSS IN PASSBAND	≤ 2.7 dB	≤ 4.6 dB
ATT. IN STOPBAND	> 50 dB	> 60 dB
SWR	≤ 1.5 dB	≤ 1.7 dB
OUT OF BAND REJECTION	2.harm.: > 50 dB 3.harm.: > 50 dB 4.harm.: > 40 dB	10 dB 455 - 465 MHz: > 47 dB 1 - 3.5 GHz: > 50 dB 3.5 - 6 GHz: > 25 dB

## FUNCTIONAL DIMENSIONS

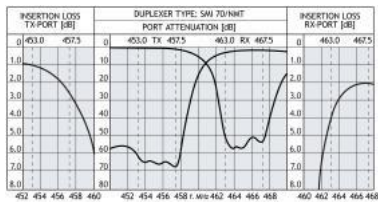


Detailed installation drawing available upon request.

## TYPICAL RESPONSE CURVES



## TYPICAL RESPONSE CURVES





## SMI 450/66

### Ceramic Micro Duplexer Covering 380-470 MHz

- Extremely small and lightweight ceramic micro duplexer.
- Ideal for integration in mobile and portable 450 MHz PMR radios.

## DESCRIPTION

- Rugged mechanical design and low temperature drift.
- High power handling – handles 20 W average
- Surface mount package.
- Request quotation for other systems.

## ORDERING DESIGNATIONS

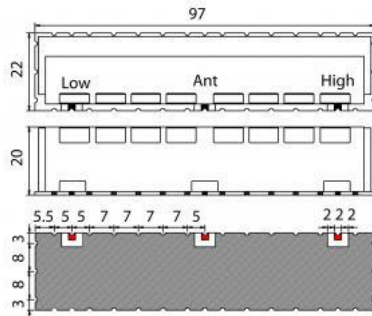
TYPE	FREQUENCY BAND	PRODUCT NO.
SMI 450/66-1	380 - 385 MHz 390 - 395 MHz	200002567
SMI 450/66-2	385 - 390 MHz 395 - 400 MHz	200002568
SMI 450/66-3	410 - 415 MHz 420 - 425 MHz	200002569
SMI 450/66-4	415 - 420 MHz 425 - 430 MHz	200002570
SMI 450/66-5	450 - 455 MHz 460 - 465 MHz	200002571
SMI 450/66-6	455 - 460 MHz 465 - 470 MHz	200002572

## SPECIFICATIONS

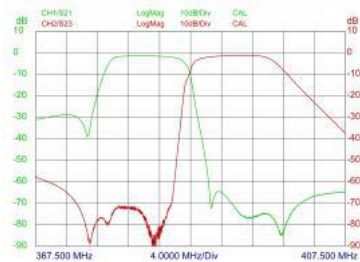
ELECTRICAL		
MODEL	SMI 450/66	
MAX. INPUT POWER	20 W	
BRANCH	Low → Ant.	High → Ant.
INSERTION LOSS IN PASSBAND	≤ 2.1 dB	≤ 2.1 dB
ATTENUATION IN STOPBAND	> 60 dB	> 60 dB
IMPEDANCE	Nom. 50 Ω	
SWR (All ports)	≤ 1.5	
MECHANICAL		
CONNECTIONS	SMD	
DIMENSIONS (L x W x H)	97 x 22 x 20 mm / 3.8 x 0.8 x 0.7 in.	

WEIGHT	Approx. 160 g / 0.4 lb.	
ENVIRONMENTAL		
TEMP. RANGE	-30° C → +85° C	

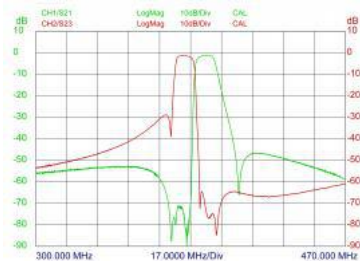
## FUNCTIONAL DIMENSIONS



## TYPICAL RESPONSE CURVES



## TYPICAL RESPONSE CURVE (out of band response)





## PRO-TRI 60/80-100/120-...

50 W Triplexer for the 0-60 MHz / 80-100 MHz and 120-960 MHz Tanges

- Triplexer for combining or splitting the three ranges 0 – 60 MHz, 80 – 100 MHz and 120 – 960 MHz.
- Chebychev design ensures very high isolation across the whole pass ranges.
- High power handling capability.

### DESCRIPTION

- Low insertion loss.
- Low weight.
- Wide temperature range.
- Milled aluminium box ensures extraordinarily high mechanical strength.
- Black vinyl-coated to prevent corrosion.
- N-connectors on all ports (standard).
- Also available with SMA-, TNC- or BNC- connector types.

### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-TRI 60/80-100/120-N	200002324
PRO-TRI 60/80-100/120-SMA	200002301
PRO-TRI 60/80-100/120-TNC	200002325
PRO-TRI 60/80-100/120-BNC	200002326

### SPECIFICATIONS

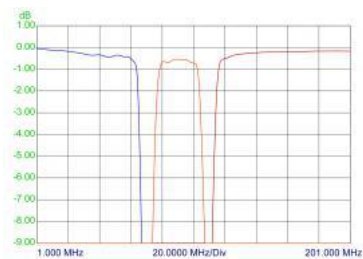
ELECTRICAL	
MODEL	PRO-TRI 60/80-100/120-...
FREQUENCY	COM-LOW port: 0 - 60 MHz COM-MEDIUM port: 80 - 100 MHz COM-HIGH port: 120 - 960 MHz
MAX. RF POWER	50W CW simultaneously on both HIGH, MEDIUM and LOW port
INSERTION LOSS	0 - 60 MHz: ≤ 0.6 dB 80 - 100 MHz: ≤ 1.0 dB 120 - 960 MHz: ≤ 0.6 dB
ISOLATION BETWEEN LOW, MEDIUM and HIGH ports	≥40 dB
IMPEDANCE	Nom. 50 Ω
SWR	Max. 1.5:1 on all ports
MECHANICAL	
TEMP.RANGE*	-40° C to +60° C

CONNECTORS	INPUT: N-female OUTPUT: N-female (Other types available on request)
IP RATING	IP62
DIMENSIONS (L x W x H)	133 x 106 x 31 mm / 5.24 x 4.17 / 1.22 in. (incl. connectors and flanges)
WEIGHT	Approx. 475 g / 1.05 lb.
MOUNTING	∅4.3 mm / ∅0.17 in. (4 holes)

\* Temperature on box surface. Adequate cooling to keep max. temperature below +60° C must be provided.

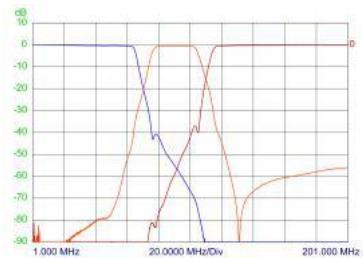
## TYPICAL RESPONSE CURVES

INSERTION LOSS [dB]

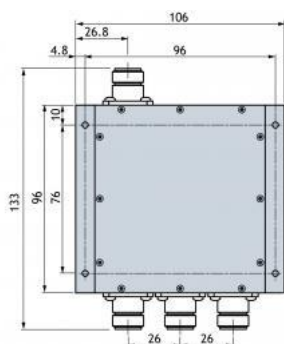


## TYPICAL RESPONSE CURVES

PORT ATTENUATION [dB]



## MOUNTING DETAILS



The PRO-TRI 60/80-100/120-... makes it possible to use only one antenna for the operation of three transceivers (one in each range). See the figure below. The antenna must be a triple-frequency antenna, i.e. it must be resonant on the actual frequencies in the three bands.

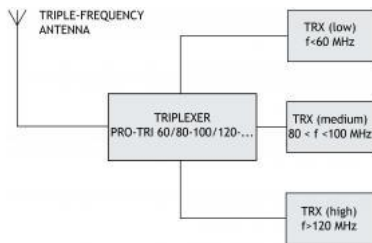
The transceivers may be used independently and will have no degrading influence on each other. Typically, the triplexer is



installed next to the transceivers and only one cable is used between the triplexer and the antenna. The triplexer is suitable both for base station and mobile use.

The main tasks of the triplexer are to protect the individual receiver input from being destroyed by the transceiver in the contrary bands and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branches.

The triplexer can be operated together with any set of transceivers operating within the 0 - 60 MHz, 80 - 100 MHz and 120 - 960 MHz frequency bands.





## PRO-QUAD GSM/DCS/UMTS/WIFI

Quadroplexer for the 0-960 MHz, 1710-1880 mHz, 1920-2170 MHz and 2400-2500 MHz ranges

- Quadroplexer for combining or splitting the four ranges  
0 - 960 MHz, 1710 - 1880 MHz, 1920 - 2170 MHz and 2400 - 2500 MHz.
- Low weight.

### DESCRIPTION

- Wide temperature range.
- Milled aluminium box ensures high mechanical strength.
- Coated with black vinyl to prevent corrosion.
- SMA-connectors on all ports (standard).

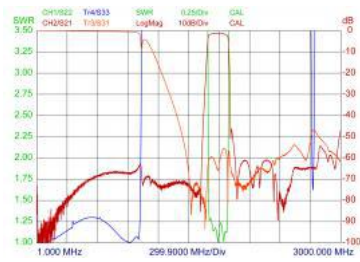
### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-QUAD GSM/DCS/UMTS/WIFI	200002490

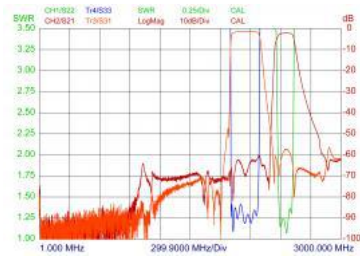
### SPECIFICATIONS

ELECTRICAL				
MODEL	PRO-QUAD GSM/DCS/UMTS/WIFI			
FREQUENCY BANDS (MHz)	0 - 960	1710 - 1880	1920 - 2170	2400 - 2500
INSERTION LOSS	< 1.0 dB	< 3.5 dB	< 3.5 dB	< 3.0 dB
RIPPLE	< 1.0 dB	< 2.0 dB	< 2.0 dB	< 1.0 dB
SWR	Max. 1.5:1 on all ports			
ATTENUATION (dB) FREQUENCY (MHz)	>45 1710-2500	>45 0-960, 1920-2500	>45 0-1880, 2400-2500	>45 0-2170
MAX. INPUT POWER	3 W			
IMPEDANCE	Nom. 50 Ω			
MECHANICAL				
TEMP.RANGE	-40° C to +85° C			
CONNECTORS	SMA			
DIMENSIONS (L x W x H)	95 x 79 x 20 mm / 3.74 x 3.11 / 0.79 in. (incl. connectors)			
WEIGHT	Approx. 185 g / 0.41 lb.			
MOUNTING	ø3.5 mm / ø0.14 in. (four holes)			

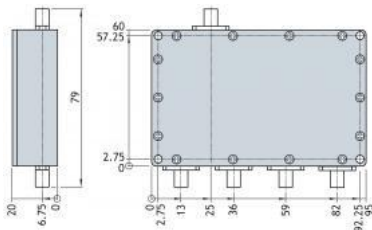
## TYPICAL RESPONSE CURVES for GSM and DCS



## TYPICAL RESPONSE CURVES for UMTS and WIFI



## MOUNTING DETAILS





## AMP 0.1-100

### Miniature Dynamic Low-noise Preamplifier

- Miniature dynamic low-noise preamplifier.
- Ultra-high P1dB-compression point.

## DESCRIPTION

- Ultra-high 3rd order intercept point > +25 dBm.
- To be used where extra preamplification is needed:
  - receivers with long antenna cabling
  - measuring instruments
  - multicoupler systems
  - scanners.
- Low noise figure < 3 dB.
- 12 V operational voltage (24 V as option).
- Provided with FME-male connector on input and output.

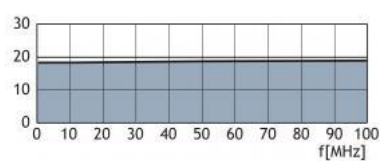
## ORDERING DESIGNATIONS

TYPE NO.	PRODUCT NO.
AMP 0.1-100	200000899

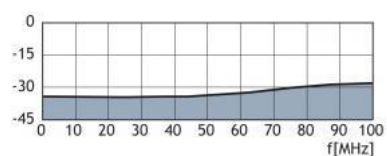
## SPECIFICATIONS

ELECTRICAL	
MODEL	AMP 0.1-100
FREQUENCY RANGE	0.1-100 MHz
GAIN [S21]	+18 dB
P1dB	+15 dBm
NOISE FIGURE	< 2.7 dB @ 80 MHz
3rd ORDER INTERCEPT POINT	+25 dBm
INPUT SWR	Max. 2 typically $\leq 1.7$
OUTPUT SWR	Max. 2 typically $\leq 1.7$
ISOLATION OUTPUT TO INPUT	> 20 dB
VOLTAGE	11-18 V @ 12 V; 80 mA (24 V as option)
MECHANICAL	
CONNECTORS	FME-male, 2 pcs. + flexible wire
DIMENSIONS (L x W x H)	50 x 40 x 20 mm
WEIGHT	Approx. 65 g

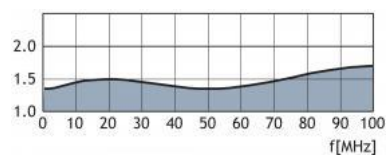
### TYPICAL GAIN CURVE



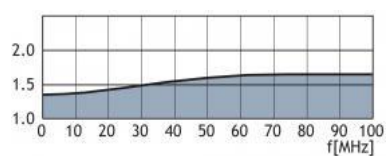
### REVERSE GAIN CURVE

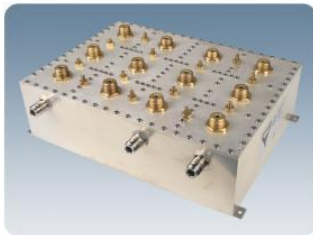


### TYPICAL SWR OUTPUT



### TYPICAL SWR INPUT





## DPBP 70/3333-20-TETRA

12-Resonator Band-Pass Duplex Filter for TETRA Band with 20 MHz bandwidth

- The DPBP 70/3333-20-TETRA is a 2 x 6 resonator band-pass duplex filter designed to combine TETRA 380 - 400 MHz and 410 - 430 MHz to one common feeder.
- The filter uses reduced-length  $\frac{1}{4} \lambda$  cavities in a compact, strong aluminium housing.

### DESCRIPTION

- 19" drawers available as options.
- Silver-plating ensures low insertion loss.
- Built-in DC stop between all ports.

### ORDERING DESIGNATIONS

TYPE	LOW	HIGH	PRODUCT NO.
DPBP 70/3333-20-TETRA-N	380 - 400	410 - 430	200002160

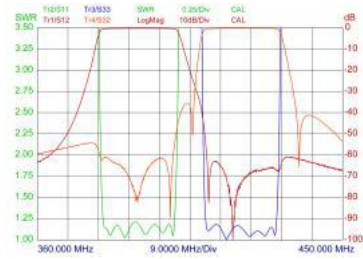
### SPECIFICATIONS

ELECTRICAL	
MODEL	DPBP 70/3333-20-TETRA
MAX. INPUT POWER	200 W
FREQUENCY	
LOW	380 - 400 MHz
HIGH	410 - 430 MHz
LOW/HIGH-SPACING	10 MHz
INSERTION LOSS IN PASSBAND	$\leq 0.7$ dB (typ. 0.5)
ATTENUATION IN STOPBAND	$> 60$ dB (typ. $> 63$ dB)
IMPEDANCE	Nom. 50 $\Omega$
SWR (All ports)	$\leq 1.5$ (typ. $\leq 1.3$ )
MECHANICAL	
FREQ. STABILITY	Approx. 4.5 ppm/ $^{\circ}$ C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	218 x 300 x approx. 105 mm (incl. adjusting screw) / 8.58 x 11.81 x approx. 4.13 in. (incl. adjusting screw)
WEIGHT	Approx. 6600 g/ 14.55 lb.
ENVIRONMENTAL	

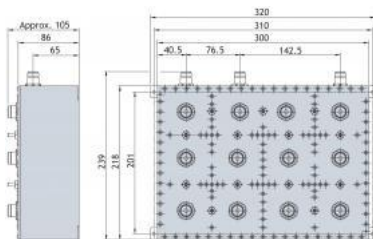
TEMP. RANGE

-20° C → +60° C

## TYPICAL RESPONSE CURVES



## MOUNTING DETAILS





## BRF 4/...-250

### Band-Reject Filters for the 80 MHz

- High power base station band-reject filters for the 66 – 88 MHz range.
- The use of large  $\varnothing 250$  mm cavities means a high Q, resulting in a very narrow notch bandwidth.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 8000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BRF 4/1-250	200001923
BRF 4/2-250	200001924
BRF 4/3-250	200001212

## SPECIFICATIONS

ELECTRICAL			
MODEL	BRF 4/1-250	BRF 4/2-250	BRF 4/3-250
FREQ. RANGE	66 - 88 MHz	66 - 88 MHz	66 - 88 MHz
MAX. INPUT POWER	350 W @ 0.5 dB IL 200 W @ 1.0 dB IL	350 W @ 1.0 dB IL 200 W @ 2.0 dB IL	350 W @ 1.5 dB IL 200 W @ 3.0 dB IL
1 dB NOTCH BANDWIDTH	1 ‰ of $f_c$	1 ‰ of $f_c$	1 ‰ of $f_c$
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	$\leq 1.5$	$\leq 1.5$	$\leq 1.5$
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female



DIMENSIONS	ø250 x 1200 mm	L:250 x W:500 x H:1200 mm	L:250 x W:600 x H:750 mm
WEIGHT	Approx. 8.6 kg	Approx. 17.5 kg	Approx. 26.6 kg



## BRF 4/...-125

### Band-Reject Filters for the 80 MHz

- High power base station band-reject filters for the 66 – 88 MHz range.
- The use of large  $\varnothing 125$  mm cavities means a high Q, resulting in a very narrow notch bandwidth.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 4500.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

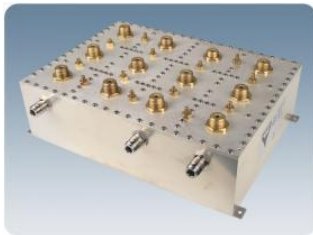
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BRF 4/1-125	200001918
BRF 4/2-125	200001919
BRF 4/3-125	200001211

## SPECIFICATIONS

ELECTRICAL			
MODEL	BRF 4/1-125	BRF 4/2-125	BRF 4/3-125
FREQ. RANGE	66 - 88 MHz	66 - 88 MHz	66 - 88 MHz
MAX. INPUT POWER	300 W @ 0.5 dB IL 175 W @ 1.0 dB IL	300 W @ 1.0 dB IL 175 W @ 2.0 dB IL	300 W @ 1.5 dB IL 175 W @ 3.0 dB IL
1 dB NOTCH BANDWIDTH	1 ‰ of $f_c$	1 ‰ of $f_c$	1 ‰ of $f_c$
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	$\leq 1.5$	$\leq 1.5$	$\leq 1.5$
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ.	Approx. 1.5 ppm/° C	Approx. 1.5	Approx. 1.5

STABILITY		ppm/° C	ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	ø125 x 1200 mm	L:125 x W:250 x H:1200 mm	L:125 x W:375 x H:1200 mm
WEIGHT	Approx. 4.3 kg	Approx. 8.9 kg	Approx. 13.5 kg



## DPBP 70/3333-TETRA-N-...

### 12-Resonator Band-Pass Duplex Filter for TETRA Band

- The DPBP 70/3333-TETRA-N-... is a 2 x 6 resonator band-pass duplex filter designed to combine TETRA TX and RX to one common feeder.
- The filter uses reduced-length  $\frac{1}{4} \lambda$  cavities in a compact, strong aluminium housing.

## DESCRIPTION

- 19" drawers available as options.
- Silver-plating ensures low insertion loss.
- Built-in DC stop between all ports.

## ORDERING DESIGNATIONS

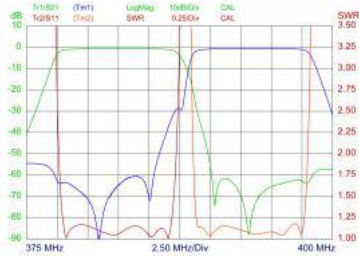
TYPE	PRODUCT NO.	TX MHz	RX MHz
DPBP 70/3333-TETRA-N-1	200000655	380 - 385	390 - 395
DPBP 70/3333-TETRA-N-2	200001806	385 - 390	395 - 400
DPBP 70/3333-TETRA-N-3	200001807	410 - 415	420 - 425
DPBP 70/3333-TETRA-N-4	200001808	415 - 420	425 - 430
DPBP 70/3333-TETRA-N-5	200001809	450 - 455	460 - 465
DPBP 70/3333-TETRA-N-6	200001810	455 - 460	465 - 470

## SPECIFICATIONS

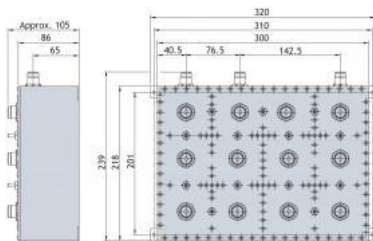
ELECTRICAL	
MODEL	DPBP 70/3333-TETRA-N-...
MAX. INPUT POWER	200 W
TX/RX-FREQUENCY	380 - 470 MHz
TX/RX-SPACING	5 MHz
INSERTION LOSS IN PASSBAND	$\leq 1.2$ dB (typ. 1.0)
ATTENUATION IN STOPBAND	$> 60$ dB (typ. $> 63$ dB)
IMPEDANCE	Nom. 50 $\Omega$
SWR (All ports)	$\leq 1.5$ (typ. $\leq 1.3$ )
MECHANICAL	
FREQ. STABILITY	Approx. 4.5 ppm/ $^{\circ}$ C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	218 x 300 x approx. 105 mm (incl. adjusting screw) / 8.58 x 11.81 x approx. 4.13 in. (incl. adjusting screw)

WEIGHT	Approx. 6600 g/ 14.55 lb.
ENVIRONMENTAL	
TEMP. RANGE	-20° C → +60° C

## TYPICAL RESPONSE CURVES



## MOUNTING DETAILS





## BRF 2/3

### Band-Reject (Notch) Filters for the 160 MHz

- The BRF 2/3 is a 3-cavity notchfilter using helical resonators.

## DESCRIPTION

- This filter rejects a narrow band of frequencies in the 2 m band and passes all others in the range 0 - 430 MHz. The filter can be applied both in connection with transmitters and receivers to attenuate interfering signals causing cross modulation effects. The filter can be employed as a single component or it can function as an integrated part of a complete multicoupling system.
- The BRF 2/3 can be tuned within the complete 144 - 175 MHz band. Careful design and choice of materials ensure reliable operation over a wide temperature range.
- The housing is made of extruded aluminium, the chassis of passivated steel, and teflon insulation has been applied in the coaxial cables and in the connectors.
- The filter is black-vinyl coated to prevent corrosion.

## ORDERING DESIGNATIONS

TYPE NO.	PRODUCT NO.
BRF 2/3	200001201

## SPECIFICATIONS

ELECTRICAL	
MODEL	BRF 2/3
FILTER TYPE	Band-reject (notch) filter
TUNING RANGE	144 - 175 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS (out-of-reject area 0-430 MHz)	≤ 0.8 dB
REJECT ATTENUATION (Notch depth)	Single-channel tuned: ≥ 53 dB Multi-channel tuned, 1.0 MHz BW: ≥ 24 dB
1 dB NOTCH BAND WIDTH	At 144 MHz: Approx. +2.3/-2.2 MHz At 175 MHz: Approx. +2.6/-3.6 MHz
IMPEDANCE	Nom. 50 Ω
SWR (out-of-reject area)	≤ 1.5
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
FREQ. STABILITY	Approx. 10 ppm/° C
CONNECTORS	BNC-female
DIMENSIONS (L x W x H)	165 x 77 x 33 mm

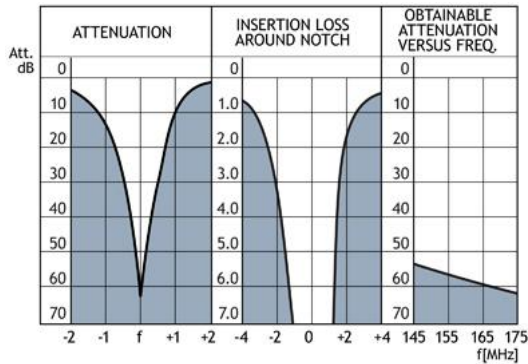
WEIGHT

Approx 420 g

## PLEASE NOTE

The notch filter resonators can also be separately tuned to three different frequencies in a “multiple notch” configuration, but the attenuation on each frequency is then only approximately one third of the normal attenuation when all notches work together.

## TYPICAL RESPONSE CURVES





## BRF 2/...-250

### Band-Reject Filters for the 150 MHz

- High power base station band-reject filters for the 140 - 175 MHz range.
- The use of large  $\varnothing 250$  mm cavities means a high Q, resulting in a very narrow notch bandwidth.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 8000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BRF 2/1-250	200001579
BRF 2/2-250	200001939
BRF 2/3-250	200001940

## SPECIFICATIONS

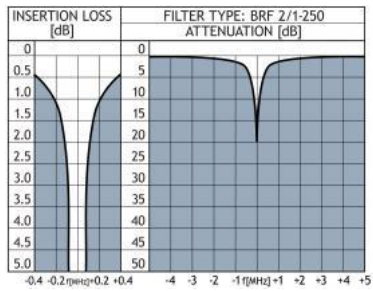
ELECTRICAL			
MODEL	BRF 2/1-250	BRF 2/2-250	BRF 2/3-250
FREQ. RANGE	140 - 175 MHz	140 - 175 MHz	140 - 175 MHz
MAX. INPUT POWER	350 W @ 0.5 dB IL 200 W @ 1.0 dB IL	350 W @ 1.0 dB IL 200 W @ 2.0 dB IL	350 W @ 1.5 dB IL 200 W @ 3.0 dB IL
ATTENUATION	See figure 1	See figure 2	See figure 3
1 dB NOTCH BANDWIDTH	1 ‰ of $f_c$	1 ‰ of $f_c$	1 ‰ of $f_c$
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR	$\leq 1.5$	$\leq 1.5$	$\leq 1.5$
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 250$ x 600 mm	L:250 x W:500 x H:600 mm	L:510 x W:500 x H:600 mm



WEIGHT	Approx. 4.3 kg	Approx. 8.9 kg	Approx. 14 kg
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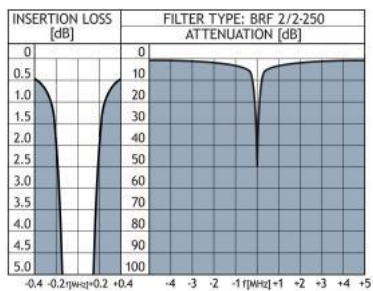
## TYPICAL RESPONSE CURVES

Figure 1



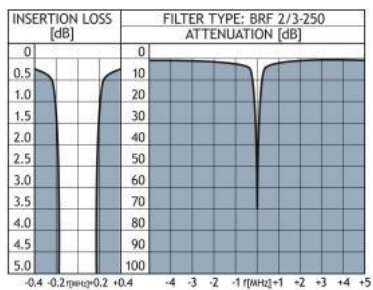
## TYPICAL RESPONSE CURVES

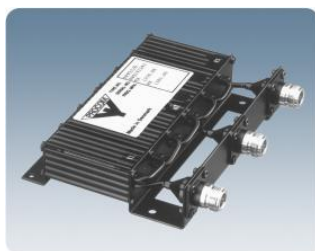
Figure 2



## TYPICAL RESPONSE CURVES

Figure 3





## DPF 1400/6

### 6-Cavity Duplexer for 1400 MHz Band

- The DPF 1400/6 is a 6-cavity duplex filter.
- The DPF 1400/6 can be tuned within the 1240 - 1600 MHz band with a nominal duplex separation of 35 MHz.

## DESCRIPTION

- The filter uses full-length  $\frac{1}{4} \lambda$  cavities in a compact, extruded aluminium housing. The chassis is made of passivated steel, and teflon insulation has been applied in the rigid coaxial cables and in the connectors.
- The filter is black vinyl-coated to prevent corrosion.

## ORDERING DESIGNATIONS

TYPE NO.	PRODUCT NO.	Frequency range MHz
DPF 1400/6 - l	200001986	1240 - 1440 MHz
DPF 1400/6 - h	200002300	1440 - 1600 MHz

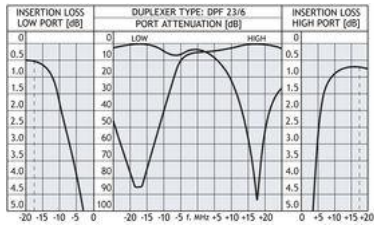
## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 1400/6
TX/RX FREQUENCY	1240 - 1600 MHz
MAX. INPUT POWER	50 W
NOM. SPACING TX-RX	35 MHz - 28 MHz on request
INSERTION LOSS TX-ANT AND ANT-RX	$\leq 1.0$ dB (typically $\leq 0.7$ dB)
TX-NOISE SUPPRESSION ON RX-FREQUENCY (SINGLE CHANNEL TUNED)	$\geq 85$ dB
RX ISOLATION ON TX-FREQUENCY (SINGLE CHANNEL TUNED)	$\geq 85$ dB
DUPLEX SPACING	35 MHz (nominal) 28 MHz on request
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$ dB
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQUENCY STABILITY	Approx. 5 ppm/° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	135 x 154 x 33 mm 5.3 x 6.1 x 1.3 in.

WEIGHT

Approx. 620 g / 1.37 lb.

## TYPICAL RESPONSE CURVES





## DPF 2/...-125

### Duplex Filter for the 160 MHz Band

- High power base station duplex filter for the 140 - 175 MHz range.
- The use of large  $\varnothing 125$  mm cavities means a high Q, resulting in a very small duplex spacing.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- High frequency stability on temperature and power.
- Mounting brackets for 19" mounting included.
- Please specify the frequencies for TX and RX when ordering.

## ORDERING DESIGNATIONS

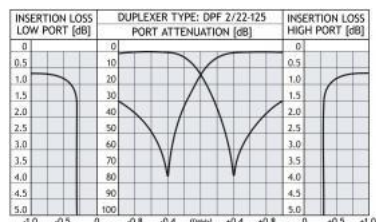
TYPE	PRODUCT NO.
DPF 2/22-125	200000273
DPF 2/33-125	200000270

## SPECIFICATIONS

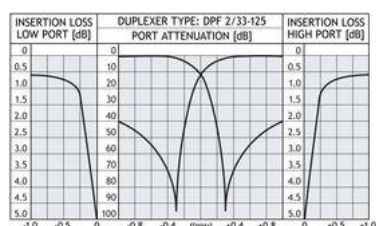
ELECTRICAL			
MODEL	DPF 2/22-125	DPF 2/33-125	DPF 2/33-125
FREQ. RANGE	140 - 175 MHz	140 - 175 MHz	140 - 175 MHz
MAX. INPUT POWER	300 W	300 W	300 W
MIN. DUPLEX SPACING	800 kHz	600 kHz	500 kHz
TYP. INSERTION LOSS	< 1.0 dB	< 1.5 dB	< 2.0 dB
ATTENUATION	> 70 dB	> 90 dB	> 90 dB
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR	$\leq 1.5$	$\leq 1.5$	$\leq 1.5$
CAVITIES	4	6	6
MECHANICAL			
TEMP. RANGE	-30° C $\rightarrow$ +60° C		
FREQ. STABILITY	Approx. 1.5 ppm/° C		
CONNECTORS	N-female		

DIMENSIONS (D x W x H)	260 x 483 x 600 (700) mm (incl. adjustment bolts)		
WEIGHT	Approx. 8 kg	Approx. 14 kg	Approx. 14 kg

## TYPICAL RESPONSE CURVES @ 0.8 MHz DUPLEX SPACING



## TYPICAL RESPONSE CURVES @ 0.6 MHz DUPLEX SPACING





## PRO-LPF 500

### Low-Pass Filter for 0 - 500 MHz Band

- PRO-LPF 500 is a LC low-pass filter.

## DESCRIPTION

- Low-pass filter for 0 - 500 MHz range.
- Attenuation in stop band better than 60 dB.

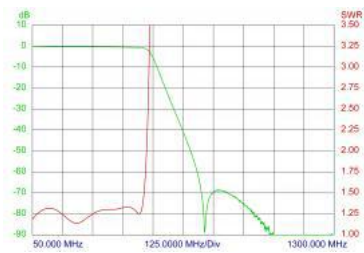
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-LPF 500	210000140

## SPECIFICATIONS

ELECTRICAL	
MODEL	PRO-LPF 500
FREQUENCY RANGE	Pass band: 0 - 500 MHz Stop band: 750 - 1300 MHz
MAX. INPUT POWER	35 W
INSERTION LOSS (PASS BAND)	< 0.8 dB
ATTENUATION (STOP BAND)	> 60 dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	N-female/N-female
DIMENSIONS (L x W x H)	130 x 152 x 35 mm / 5.12 x 5.98 x 1.38 in
WEIGHT	Approx. 150 g / 0.33 lb

## TYPICAL RESPONSE CURVES





## PRO-LP-900

### Low-Pass Filter for the 900 MHz band

- Medium power low-pass filter for the 890 - 960 MHz range.
- Attenuates especially 2. harmonics.

## DESCRIPTION

- High frequency stability on temperature and power.
- Attenuation in stop band better than 40 dB.
- Extremely low insertion loss (less than 0.2 dB).

## ORDERING DESIGNATIONS

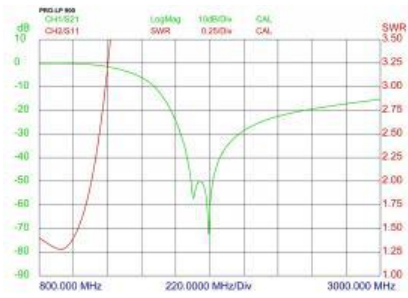
TYPE	PRODUCT NO.
PRO-LP-900	200001290

## SPECIFICATIONS

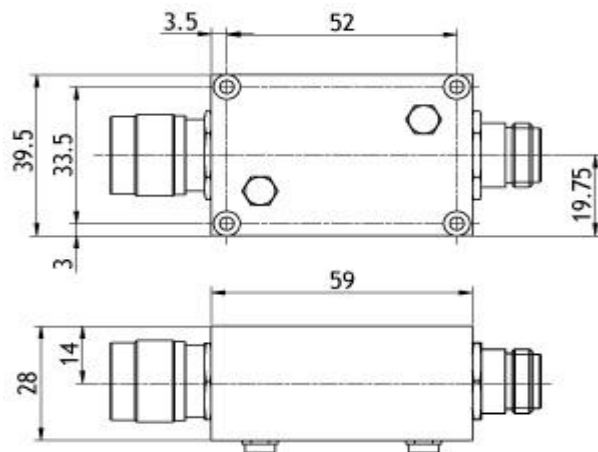
ELECTRICAL	
MODEL	PRO-LP-900
APPLICATION	Low-pass filter for the 900 MHz band
FREQUENCY RANGE	Pass band: 890 - 960 MHz Stop band: 1780 - 1920 MHz
MAX. INPUT POWER	150 W
INSERTION LOSS (PASS BAND)	< 0.2 dB (typ. < 0.1dB)
ATTENUATION (STOP BAND)	> 40 dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	N-female/N-male
DIMENSIONS (L x W x H)	89 (incl. conn.) x 39.5 x 28 mm 3.5 x 1.5 x 1.1 in.
WEIGHT	Approx. 150 g / 5.2 lb.
MOUNTING	$\varnothing 3.2$ mm (four holes)

## TYPICAL RESPONSE CURVES





## MOUNTING DETAILS





## PRO-LP-80

### Low-Pass Filter for the 80 MHz Band

- Medium power low-pass filter for the 66 – 88 MHz range.
- Attenuates especially 2. and 3. harmonics.

## DESCRIPTION

- High frequency stability on temperature and power.
- Attenuation in stop band better than 40 dB.
- Extremely low insertion loss (less than 0.2 dB).

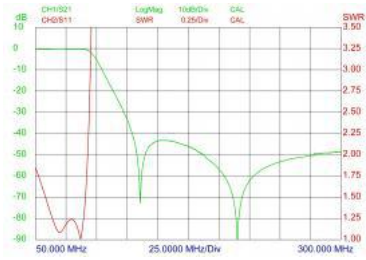
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-LP 80	200001278

## SPECIFICATIONS

ELECTRICAL	
APPLICATION	Low-pass filter for the 80 MHz band
FREQUENCY RANGE	Pass band: 66 – 88 MHz Stop band: 132 – 264 MHz
MAX. INPUT POWER	150 W
INSERTION LOSS (PASS BAND)	< 0.2 dB (typ. < 0.1dB)
ATTENUATION (STOP BAND)	> 40 dB
IMPEDANCE	Nom. 50 Ω
SWR	≤ 1.5
MECHANICAL	
TEMP. RANGE	–30° C → +60° C
CONNECTORS	N-female/N-male
DIMENSIONS (L x W x H)	89 (incl. conn.) x 39.5 x 29 mm
WEIGHT	Approx 150 g

## TYPICAL RESPONSE CURVES





## PRO-LP 450

### Low-Pass Filter for the 450 MHz Band

- Medium power low-pass filter for the 400 – 470 MHz range.
- Attenuates especially 2. and 3. harmonics.

## DESCRIPTION

- High frequency stability on temperature and power.
- Attenuation in stop band better than 40 dB.
- Extremely low insertion loss (less than 0.2 dB).

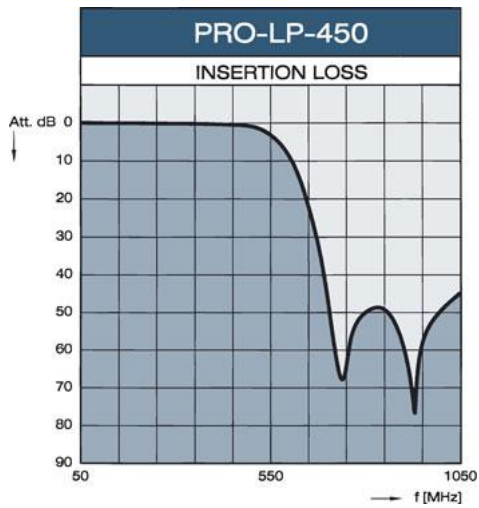
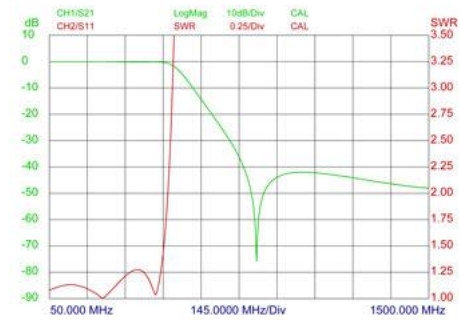
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-LP 450	200001279

## SPECIFICATIONS

ELECTRICAL	
MODEL	PRO-LP 450
APPLICATION	Low-pass filter for the 450 MHz band
FREQUENCY RANGE	Pass band: 400 – 470 MHz Stop band: 800 - 1410 MHz
MAX. INPUT POWER	150 W
INSERTION LOSS (PASS BAND)	< 0.2 dB (typ. < 0.1 dB)
ATTENUATION (STOP BAND)	> 40 dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	N-female/N-male
DIMENSIONS (L x W x H)	89 (incl. conn.) x 39.5 x 29 mm
WEIGHT	Approx. 150 g

## TYPICAL RESPONSE CURVES





## PRO-LP 150

### Low-Pass Filter for the 150 MHz Band

- Medium power low-pass filter for the 140 – 175 MHz range.
- Attenuates especially 2. and 3. harmonics.

## DESCRIPTION

- High frequency stability on temperature and power.
- Attenuation in stop band better than 40 dB.
- Extremely low insertion loss (less than 0.2 dB).

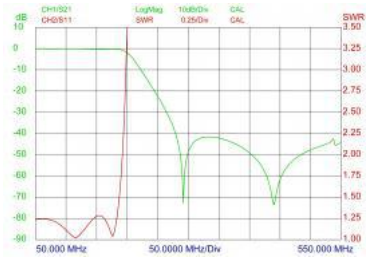
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-LP 150	200001280

## SPECIFICATIONS

ELECTRICAL	
APPLICATION	Low-pass filter for the 150 MHz band
FREQUENCY RANGE	Pass band: 140 – 175 MHz Stop band: 280 - 525 MHz
MAX. INPUT POWER	150 W
INSERTION LOSS (PASS BAND)	< 0.2 dB (typ. < 0.1 dB)
ATTENUATION (STOP BAND)	> 40 dB
IMPEDANCE	Nom. 50 Ω
SWR	≤ 1.5
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
CONNECTORS	N-female/N-male
DIMENSIONS (L x W x H)	89 (incl. conn.) x 39.5 x 29 mm
WEIGHT	Approx. 150 g

## TYPICAL RESPONSE CURVES





## BPBR 900/...-200

### Band-Pass/Band-Reject Filters for the 900 MHz Band

- High power base station band-pass/band-reject filters for the 890 - 960 MHz range.
- The use of large  $\varnothing 200$  mm cavities means a high Q, resulting in a very narrow pass/reject spacing.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 7000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPBR 900/1-200	200001915
BPBR 900/2-200	200001916
BPBR 900/3-200	200001917

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPBR 900/1-200	BPBR 900/2-200	BPBR 900/3-200
FREQ. RANGE	890 - 960 MHz	890 - 960 MHz	890 - 960 MHz
MAX. INPUT POWER	300 W @ 0.5 dB IL 125 W @ 2.0 dB IL	300 W @ 1.0 dB IL 125 W @ 4.0 dB IL	300 W @ 1.5 dB IL 125 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.3 - 2.0 dB	Adjustable 0.6 - 4.0 dB	Adjustable 0.9 - 6.0 dB
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 200$ x 200 mm	L:200 x W:400 x H:200 mm	L:200 x W:600 x H:200 mm



WEIGHT	Approx. 0.9 kg	Approx. 2.2 kg	Approx. 3.3 kg
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## BPBR 900/...-125

### Band-Pass/Band-Reject Filters for the 900 MHz Band

- High power base station band-pass/band-reject filters for the 800 - 960 MHz range.
- The use of large  $\varnothing 125$  mm cavities means a high Q, resulting in a very narrow pass/reject spacing.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 4500.
- High frequency stability on temperature and power.
- Mounted on 19" brackets.\*\*

## ORDERING DESIGNATIONS

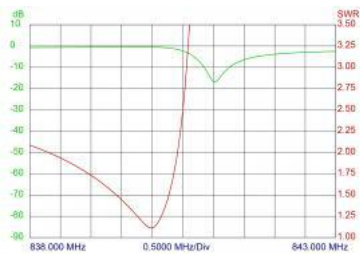
TYPE	PRODUCT NO.
BPBR 900/1-125	200001912
BPBR 900/2-125	200001913
BPBR 900/3-125	200001914

## SPECIFICATIONS

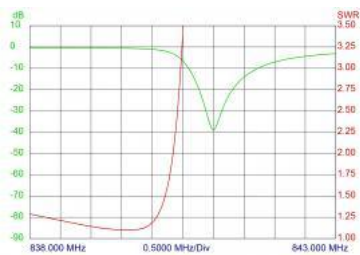
ELECTRICAL			
MODEL	BPBR 900/1-125	BPBR 900/2-125	BPBR 900/3-125
FREQ. RANGE	800 - 960 MHz	800 - 960 MHz	800 - 960 MHz
MAX. INPUT POWER	300 W @ 0.5 dB IL 125 W @ 2.0 dB IL	300 W @ 1.0 dB IL 125 W @ 4.0 dB IL	300 W @ 1.5 dB IL 125 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.3 - 2.0 dB	Adjustable 0.6 - 4.0 dB	Adjustable 0.9 - 6.0 dB
REJECT.			
Depending on			
spacing and			
configuration.			
1 MHz:	15 (< 0.5)	35 (< 1)	60 (< 1.5)
2 MHz:	25 (< 0.5)	55 (< 1)	80 (< 1.5)
3 MHz:	30 (< 0.8)	60 (< 1)	90 (< 1.8)
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR	< 1.5	< 1.5	< 1.5

(at resonance)			
<b>MECHANICAL</b>			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	ø125 x 150 mm	L:125 x W:250 x H:150 mm	L:125 x W:375 x H:150 mm
WEIGHT	Approx. 0.7 kg	Approx. 1.5 kg	Approx. 2.5 kg

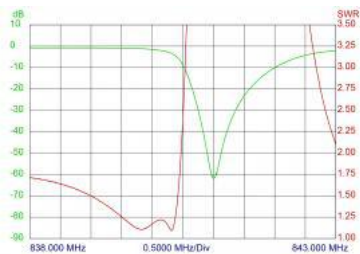
### BPBR 900/1-125



### BPBR 900/2-125



### BPBR 900/3-125





## DPID 900/18-EGSM

### Interdigital Base Station Duplexer for E-GSM

- The DPID 900/18-EGSM is an 18-cavity base station duplex filter designed to operate as a part of the combining systems of cellular E-GSM base station installations.
- The duplexer consists of two interdigital band-pass filters, which are connected together by a cross-over network.

## Description

- The interdigital principles ensure that ripple and insertion loss figures are kept very low over the wide port widths, and that steep slopes immediately beside the pass ranges and heavy attenuation outside the pass ranges are realized.
- The filter is capable of operating continuously at a power level of 200 W.
- The filter parts are mounted together on an aluminium plate with thickness: 2.5 mm and dimensions: 275 x 400 mm. Total height is 32.5 mm. This assembly fits nicely into a 19" rack system.
- Construction and choice of materials have been carried out to ensure that electrical characteristics are maintained over a long life-span despite the influence of environmental factors such as corrosion, temperature, humidity, shock and vibration.
- The assembly is end-treated with a black, 2-component polyurethane coating.

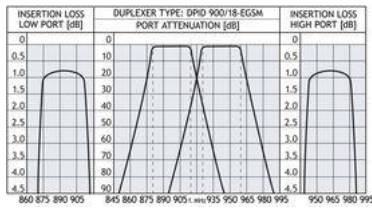
## ORDERING DESIGNATIONS

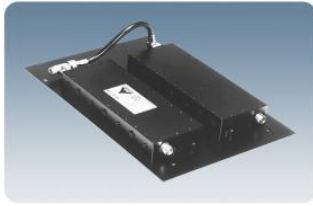
TYPE	PRODUCT NO.
DPID 900/18-EGSM	200000469

## SPECIFICATIONS

ELECTRICAL	
FREQUENCY	RX: 880 - 915 MHz TX: 925 - 960 MHz
MAX. INPUT POWER	200 W
INSERTION LOSS	Both ports: $\leq 1.4$ dB typ.: $\leq 1.2$ dB
TX-NOISE SUPPRESSION ON RX-FREQUENCY	$> 40$ dB
RX-ISOLATION ON TX-FREQUENCY	$> 40$ dB
OUT OF BAND REJECTION	960 MHz - 2 GHz: $> 70$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.4$
MECHANICAL	
TEMP. RANGE	$-30^{\circ}\text{C} \rightarrow +60^{\circ}\text{C}$
CONNECTORS	N-female
DIMENSIONS (L x W x H)	275 x 400 x 32.5 mm
WEIGHT	Approx. 6 kg

## TYPICAL RESPONSE CURVES





## DPID 900/14-GSM

### Interdigital Base Station Duplexer for GSM 900

- The DPID 900/14-GSM is a 14-cavity base station duplex filter designed to operate as a part of the combining systems of cellular GSM 900 base station installations.
- The duplexer consists of two interdigital band-pass filters, which are connected together by a cross-over network.

## Description

- The interdigital principles ensure that ripple and insertion loss figures are kept very low over the wide port widths, and that steep slopes immediately beside the pass ranges and heavy attenuation outside the pass ranges are realized.
- The filter is capable of operating continuously at a power level of 200 W.
- The filter parts are mounted together on an aluminium plate with thickness: 2.5 mm and dimensions: 275 x 400 mm. Total height is 32.5 mm. This assembly fits nicely into a 19" rack system.
- Construction and choice of materials have been carried out to ensure that electrical characteristics are maintained over a long life-span despite the influence of environmental factors such as corrosion, temperature, humidity, shock and vibration.
- The assembly is end-treated with a black, 2-component polyurethane coating.

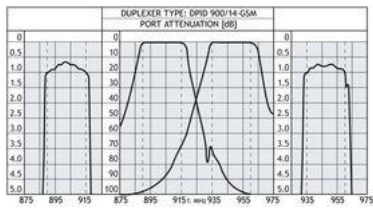
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
DPID 900/14-GSM	200000470

## SPECIFICATIONS

ELECTRICAL	
FREQUENCY	GSM 900: RX: 890 - 915 MHz TX: 935 - 960 MHz
MAX. INPUT POWER	200 W
INSERTION LOSS	Both ports: $\leq 1.4$ dB typ.: $\leq 1.2$ dB
TX-NOISE SUPPRESSION ON RX-FREQUENCY	$> 70$ dB
RX-ISOLATION ON TX-FREQUENCY	$> 70$ dB
OUT OF BAND REJECTION	960 MHz - 2 GHz: $> 70$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.4$
MECHANICAL	
TEMP. RANGE	$-30^{\circ}\text{C} \rightarrow +60^{\circ}\text{C}$
CONNECTORS	N-female
DIMENSIONS (L x W x H)	275 x 400 x 32.5 mm
WEIGHT	Approx. 5.3 kg

## TYPICAL RESPONSE CURVES





## BPBR 70/6 / BRBP 70/6

### Band-Pass/Band-Reject Filters for the 450 MHz Band

- The BPBR 70/6... and the BRBP 70/6... are 6-cavity pass-reject filters, which pass one frequency or frequency band and reject another in immediate vicinity of the pass frequency.

## DESCRIPTION

- The filters are delivered in two basic models: The BPBR-types have the reject range on the high side of the pass frequency and the BRBP-types have the reject range situated on the low side of the pass frequency.
- These filter types can be used to protect a receiver against interference from a nearby transmitter. The filters are tuned to reject the interfering signal. Pass-reject-type filters are applied when the spacing between the utility signal and the interfering signal is so small, that the slope steepness of normal band-pass filters or notch filters are not sufficient enough to provide adequate rejection.
- The filters are primarily intended to pass and reject two single frequencies, but the filters can also be tuned to pass and reject several single frequencies or to having a certain pass and reject port bandwidth. In these cases, factory-tuning is recommended.
- The BPBR 70/6... and the BRBP 70/6... are both adjustable within the complete 406 - 470 MHz band. Both types can be delivered in four different versions, each dedicated to work with a certain spacing between the pass frequency and the reject frequency. See "Ordering information" below.
- The filters use full-length  $\frac{1}{4}$  cavities in a compact, extruded aluminium housing. The chassis is made of passivated steel, and teflon insulation has been applied in the coaxial cables and in the connectors. The filters are black vinyl coated to prevent corrosion.
- Careful design and choice of materials ensure reliable operation over a wide temperature range.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.	PASS/REJECT SPACING (MHz)	CONFIGURATION
BPBR 70/6-5/7	200001415	5 - 7	BPBR Low Pass High Reject
BPBR 70/6-7/9	200001410	7 - 9	
BPBR 70/6-9/13	200001413	9 - 13	
BPBR 70/6-13/16	200001402	13 - 16	
BRBP 70/6-5/7	200001539	5 - 7	BRBP Low Reject High Pass
BRBP 70/6-7/9	200001541	7 - 9	
BRBP 70/6-9/13	200001544	9 - 13	
BRBP 70/6-13/16	200001530	13 - 16	

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPBR 70/6 / BRBP 70/6
FILTER TYPE	Band-pass / band-reject filters
TUNING RANGE	406 - 470 MHz
MAX. INPUT POWER	50 W



INSERTION LOSS (PASS BAND)	
(at 10 MHz spacing)	
Single-channel tuned:	$\leq 1.0$ dB
Multi-channel tuned, 2 MHz BW:	$\leq 1.2$ dB
REJECT ATTENUATION	
Single-channel tuned:	$> 85$ dB
Multi-channel tuned, 2 MHz BW:	$> 65$ dB
Multi-channel tuned, 4.5 MHz BW:	$> 55$ dB
PASS/REJECT SPACING	5 - 16 MHz (see table)
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 10ppm/° C
CONNECTORS	BNC-female
DIMENSIONS (L x W x H)	225 x 154 x 33 mm
WEIGHT	Approx. 990 g

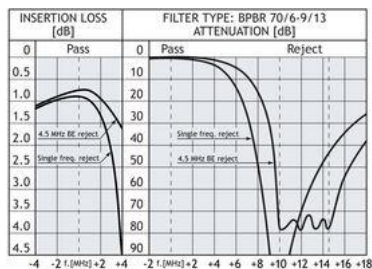
## ORDERING INFORMATION

If pass and reject frequencies are stated when ordering, the filters are delivered factory-adjusted. Ordering example: BRBP 70/6, LOW: 443.7 MHz, HIGH: 450.3 MHz. In this case, further information is not required.

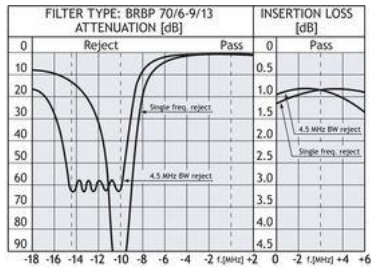
When ordering untuned filters please use the model selection table above to select the appropriate ordering designation for the desired filter type.

Special versions of the filters with spacings down to 3 MHz may be quoted on request.

## TYPICAL RESPONSE CURVES



## TYPICAL RESPONSE CURVES





## DPID 1800/18

### Interdigital Base Station Duplexer

- The DPID 1800/18 is an 18-resonator base station duplex filter designed to operate as a part of the combining systems on base station installations.
- The duplexer consists of two interdigital band-pass filters, which are interconnected by a cross-over network.

### Description

- The interdigital principles ensure that ripple and insertion loss figures are kept very low over the wide port widths, and that steep slopes immediately beside the pass ranges and heavy attenuation outside the pass ranges are realized.
- The filter is capable of operating continuously at a power level of 200 W.
- The filter parts are mounted on an aluminium plate with thickness: 4 mm and dimensions: 266 x 483 mm. Total height is 36 mm. This assembly fits nicely into a 19" rack system.
- Construction and choice of materials have been carried out to ensure that electrical characteristics are maintained over a long life-span despite the influence of environmental factors such as corrosion, temperature, humidity, shock and vibration.
- The assembly is finished with a black, 2-component polyurethane coating.

### ORDERING DESIGNATIONS

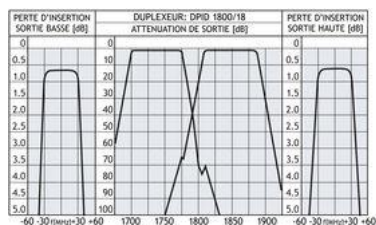
TYPE	PRODUCT NO.
DPID 1800/18-N	200000468
DPID 1800/18-7/16	200000473

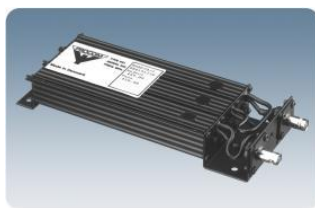
### SPECIFICATIONS

ELECTRICAL	
MODEL	DPID 1800/18
FREQUENCY	TX: 1815 - 1868 MHz RX: 1710 - 1773 MHz
MAX. INPUT POWER	200 W
INSERTION LOSS	Both ports: $\leq 1.0$ dB typ.: $\leq 0.9$ dB
TX-NOISE SUPPRESSION ON RX-FREQUENCY	$> 70$ dB
RX-ISOLATION ON TX-FREQUENCY	$> 70$ dB
OUT OF BAND REJECTION	2 GHz - 3.5 GHz: $> 70$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.4$
MECHANICAL	
TEMP. RANGE	$-30^{\circ}\text{C} \rightarrow +60^{\circ}\text{C}$
CONNECTORS	N-female or 7/16-female

DIMENSIONS (L x W x H)	266 x 483 x 36 mm
WEIGHT	Approx. 6.1 kg

## TYPICAL RESPONSE CURVES





## BPBR 70/3 / BRBP 70/3

### Band-Pass/Band-Reject Filters for the 450 MHz Band

- The BPBR 70/3... and the BRBP 70/3... are 3-cavity pass-reject filters, which pass one frequency or frequency band and reject another in immediate vicinity of the pass frequency.

## DESCRIPTION

- The filters are delivered in two basic models: The BPBR-types have the reject range on the high side of the pass frequency and the BRBP-types have the reject range situated on the low side of the pass frequency.
- These filter types can be used to protect a receiver against interference from a nearby transmitter. The filters are tuned to reject the interfering signal. Pass-reject-type filters are applied when the spacing between the utility signal and the interfering signal is so small, that the slope steepness of normal band-pass filters or notch filters are not sufficient enough to provide adequate rejection.
- The filters are primarily intended to pass and reject two single frequencies, but the filters can also be tuned to pass and reject several single frequencies or to having a certain pass and reject port bandwidth. In these cases, factory-tuning is recommended.
- The BPBR 70/3... and the BRBP 70/3... are both adjustable within the complete 406 - 470 MHz band. Both types can be delivered in four different versions, each dedicated to work with a certain spacing between the pass frequency and the reject frequency. See "Ordering information" below.
- The filters use full-length  $\frac{1}{4}$  cavities in a compact, extruded aluminium housing. The chassis is made of passivated steel, and teflon insulation has been applied in the coaxial cables and in the connectors. The filters are black vinyl coated to prevent corrosion.
- Careful design and choice of materials ensure reliable operation over a wide temperature range.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.	PASS/REJECT SPACING (MHz)	CONFIGURATION
BPBR 70/3-5/7	200001391	5 - 7	BPBR Low Pass High Reject
BPBR 70/3-7/9	200001381	7 - 9	
BPBR 70/3-9/13	200001386	9 - 13	
BPBR 70/3-13/16	200001377	13 - 16	
BRBP 70/3-5/7	200001521	5 - 7	BRBP Low Reject High Pass
BRBP 70/3-7/9	200001511	7 - 9	
BRBP 70/3-9/13	200001515	9 - 13	
BRBP 70/3-13/16	200001505	13 - 16	

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPBR 70/3 / BRBP 70/3
FILTER TYPE	Band-pass / band-reject filters
TUNING RANGE	406 - 470 MHz
MAX. INPUT POWER	50 W

INSERTION LOSS (PASS BAND)	
(at 10 MHz spacing)	
Single-channel tuned:	$\geq 0.7$ dB
Multi-channel tuned, 2 MHz BW:	$\geq 0.8$ dB
REJECT ATTENUATION	
Single-channel tuned:	$\geq 80$ dB
Multi-channel tuned, 2 MHz BW:	$\geq 55$ dB
PASS/REJECT SPACING	5 - 16 MHz (see table)
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 10ppm/° C
CONNECTORS	BNC-female
DIMENSIONS (L x W x H)	225 x 77 x 33 mm
WEIGHT	Approx. 510 g

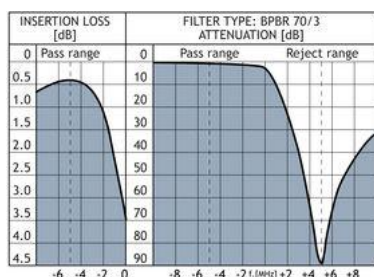
## ORDERING INFORMATION

If pass and reject frequencies are stated when ordering, the filters are delivered factory-adjusted. Ordering example: BRBP 70/3, LOW: 443.7 MHz, HIGH: 450.3 MHz. In this case, further information is not required.

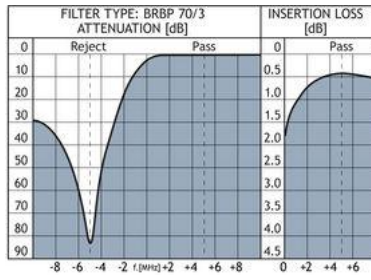
When ordering untuned filters please use the model selection table above to select the appropriate ordering designation for the desired filter type.

Special versions of the filters with spacings down to 3 MHz may be quoted on request.

## TYPICAL RESPONSE CURVES



## TYPICAL RESPONSE CURVES





## BPBR 70/...-250

### Band-Pass/Band-Reject Filters for the 450 MHz Band

- High power base station band-pass/band-reject filters for the 380 – 470 MHz range.
- The use of large  $\varnothing 250$  mm cavities means a high Q, resulting in a very narrow pass/reject spacing.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 8000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPBR 70/1-250	200001400
BPBR 70/2-250	200001398
BPBR 70/3-250	200001408

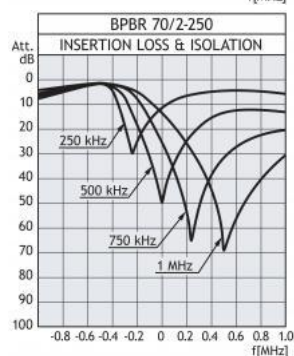
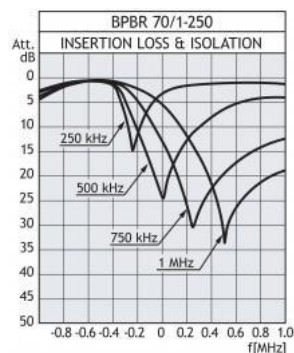
## SPECIFICATIONS

ELECTRICAL			
MODEL	BPBR 70/1-250	BPBR 70/2-250	BPBR 70/3-250
FREQ. RANGE	380 -512 MHz	380 - 512 MHz	380 - 512 MHz
MAX. INPUT POWER	300 W @ 0.5 dB IL 125 W @ 2.0 dB IL	300 W @ 1.0 dB IL 125 W @ 4.0 dB IL	300 W @ 1.5 dB IL 125 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.3 - 2.0 dB	Adjustable 0.6 - 4.0 dB	Adjustable 0.9 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 250$ x	L:250 x W:500 x	L:250 x W:750 x



	400 mm	H:400 mm	H:400 mm
WEIGHT	Approx. 2.8 kg	Approx. 5.2 kg	Approx. 9.6 kg

## TYPICAL RESPONSE CURVES





## DPF VHF/33-DR 3000

6-Cavity Duplexer for the 160 MHz band for installation inside Motorola DR 3000 base station / repeater

- The DPF VHF/33-DR 3000 is a 6-cavity duplex filter designed to be built into the Motorola DR 3000 duplex base station / repeater.
- This duplexer is delivered in a low-band version, DPF VHF/33-DR 3000-L, tunable within 138 - 156 MHz, and a high band version, DPF VHF/33-DR 3000-H, tunable within 152 - 175 MHz. The duplexer can be delivered with 4 - 10 MHz spacing.

## Description

- The DPF VHF/33-DR 3000 is primarily intended for TX and RX operation on single frequencies, but it can also, however with slightly reduced data, be used where the TX and RX operate on several channels, i.e. within a certain port bandwidth. In the latter case, factory tuning is recommended.
- The filter has very small physical dimensions due to the use of high-Q, temperature-compensated helical resonators in a compact, extruded aluminium housing. The chassis is made of passivated steel, and teflon insulation has been applied in the coaxial cables and in the connectors.
- The filter is coated with black vinyl to prevent corrosion.

## ORDERING DESIGNATION

TYPE	TUNING RANGE (MHz)	DUPLEX SPACING (MHz)	PRODUCT NO.
DPF VHF/33-DR 3000-L-4/6	138 - 156	4 - 6	200002189
DPF VHF/33-DR 3000-L-6/8	138 - 156	6 - 8	200002430
DPF VHF/33-DR 3000-L-8/10	138 - 156	8 - 10	200002429
DPF VHF/33-DR 3000-H-4/6	152 - 175	4 - 6	200002202
DPF VHF/33-DR 3000-H-6/8	152 - 175	6 - 8	200002432
DPF VHF/33-DR 3000-H-8/10	152 - 175	8 - 10	200002431

## ORDERING INFORMATION

When ordering, please state TX and RX frequencies. If TX and RX frequencies are not stated, the filters are delivered non-adjusted.

## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF VHF/33-DR 3000
FREQUENCY	
DPF VHF/33-DR 3000-L	: 138 - 156 MHz
DPF VHF/33-DR 3000-H	: 152 - 175 MHz
MAX. INPUT POWER	50 W

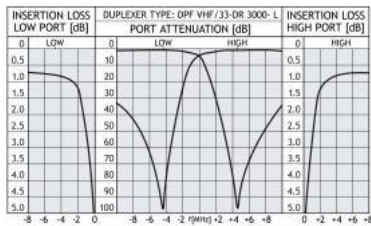
INSERTION LOSS LOW	
OR HIGH TO ANT.	
(at 5 MHz duplex spacing)	
Single-channel tuned:	$\leq 1.5$ (typ. 1.3 dB)
Multi-channel tuned, 1.5 MHz BW:	$\leq 1.6$ (typ. 1.4 dB)
LOW TO HIGH ISOLATION	
ON LOW FREQUENCY	
Single-channel tuned:	$\geq 80$ dB
Multi-channel tuned, 1.5 MHz BW:	$\geq 40$ dB
HIGH TO LOW ISOLATION	
ON HIGH FREQUENCY	
Single-channel tuned:	$\geq 80$ dB
Multi-channel tuned, 1.5 MHz BW:	$\geq 40$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR (All ports)	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 4.5 ppm/° C
CONNECTION	RG 400 Length = 510 mm / 20.08 in
CONNECTORS	
Low and high port:	BNC-male
Ant. port:	N-female, bulkhead
DIMENSIONS (L x W x H)	170 x 77 x 61.7 mm / 6.69 x 3.03 x 2.43 in
WEIGHT	Approx. 860 g / 1.90 lb.
MOUNTING	Supplied with three stays (length 63 mm / 2.48 in) for mounting with screws M4 x 12 mm/0.47 in

#### PLEASE NOTE

Special configurations of this filter type may be quoted on request. The filter is supplied with flying leads (RG 400 coaxial cable) terminated with connectors.

The filter is delivered with 3 stays and screws for mounting.

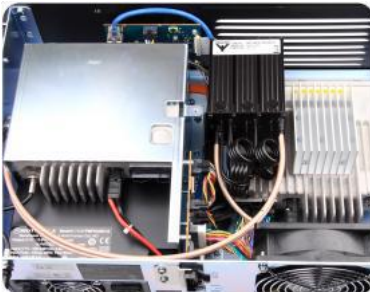
#### TYPICAL RESPONSE CURVES



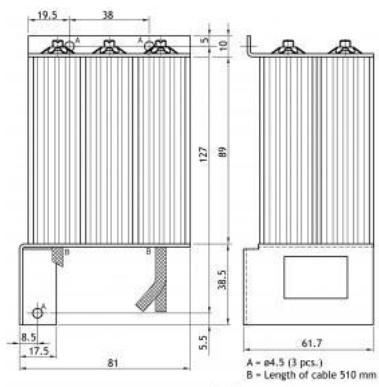
## MOUNTING IN MOTOROLA DR 3000



## MOUNTING IN MOTOROLA DR 3000



## MOUNTING DETAILS





## DIPX 900/1800-7/16

Diplexer for the 820 - 960 MHz and 1700 - 1900 MHz Rangers

- Diplexer for combining or splitting the two ranges 820 - 960 MHz and 1700 - 1900 MHz.

### DESCRIPTION

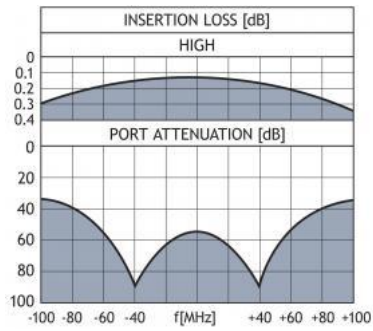
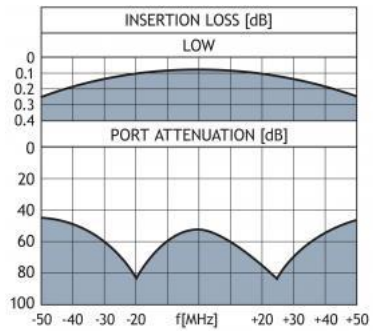
- Extremely low insertion loss.
- 7/16 DIN connectors on all terminals.

### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
DIPX 900/1800-7/16	200000745

### SPECIFICATIONS

ELECTRICAL	
MODEL	DIPX 900/1800-7/16
FREQUENCY RANGES	Low port: 820 - 960 MHz High port: 1700 - 1900 MHz
MAX. INPUT POWER	150 W each port
PORT WIDTH	Low port: max. 70 MHz High port: max. 135 MHz
INSERTION LOSS IN PASS-BANDS	Low port: < 0.2 dB High port: < 0.3 dB
ATTENUATION IN STOP-BANDS	Low port: > 55 dB High port: > 45 dB
IMPEDANCE	50 $\Omega$ on all terminals
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +70° C
FREQUENCY STABILITY	Approx. 5 ppm/° C
CONNECTORS	7/16 DIN-connectors on all ports
DIMENSIONS (W x H x D)	240 x 160 x 202 mm
WEIGHT	Approx. 2 kg





## DPF UHF/33-DR 3000

### 6-Cavity Duplexer for the 450 MHz Band Base Station / Repeater

- The DPF UHF/33-DR 3000 is a 6-cavity duplex filter designed to be built into the Motorola DR 3000 duplex base station/repeater.
- The DPF UHF/33-DR 3000 can be adjusted within the complete 406 - 470 MHz band. The duplexer can delivered with a 5 - 16 MHz spacing.

## Description

- The DPF UHF/33-DR 3000 is primarily intended for TX and RX operation on single frequencies, but it can also, however with slightly reduced data, be used where the TX and RX operate on several channels, i.e. within a certain port bandwidth. In the latter case, factory tuning is recommended.
- The filter uses full-length  $\frac{1}{4} \lambda$  cavities in a compact, extruded aluminium housing. The chassis is made of passivated steel, and teflon insulation has been applied in the coaxial cables and in the connectors.
- The filter is coated with black vinyl to prevent corrosion.

## ORDERING DESIGNATION

TYPE	DUPLEX SPACING (MHz)	PRODUCT NO.
DPF UHF/33-DR 3000-5/7	5 - 7	200002426
DPF UHF/33-DR 3000-7/9	7 - 9	200002427
DPF UHF/33-DR 3000-9/13	9 - 13	200002067
DPF UHF/33-DR 3000-13/16	13 - 16	200002428

## ORDERING INFORMATION

When ordering, please state TX and RX frequencies. If TX and RX frequencies are not stated, the filters are delivered non-adjusted.

## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF UHF/33-DR 3000
FREQUENCY	406 - 470 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS LOW OR HIGH TO ANT. (at 10 MHz duplex spacing)	
Single-channel tuned:	$\leq 1.2$ dB (typ. 1.0 dB)
Multi-channel tuned, 2 MHz BW:	$\leq 1.2$ dB (typ. 1.0 dB)



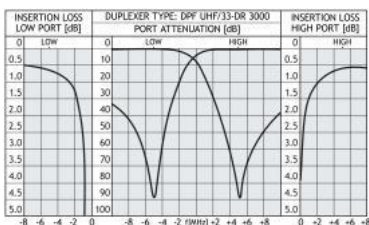
LOW TO HIGH ISOLATION	
ON LOW FREQUENCY	
Single-channel tuned:	$\geq 85$ dB
Multi-channel tuned, 2 MHz BW:	$\geq 65$ dB
HIGH TO LOW ISOLATION	
ON HIGH FREQUENCY	
Single-channel tuned:	$\geq 85$ dB
Multi-channel tuned, 2 MHz BW:	$\geq 65$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR (All ports)	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 4.5 ppm/° C
CONNECTION	RG 400 Length = 430 mm
CONNECTORS	
Low and high port:	BNC male
Ant. port:	N female, bulkhead
DIMENSIONS (L x W x H)	186.5 x 77 x 60 mm
WEIGHT	Approx. 930 g
MOUNTING	Supplied with 4 stays (length 63 mm) for mounting with screws M4 x 12 mm

## PLEASE NOTE

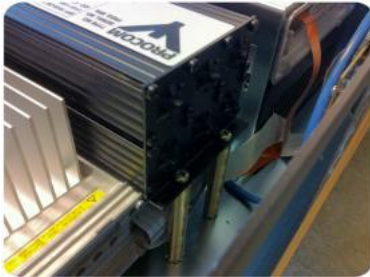
Special configurations of this filter type may be quoted on request. The filter is supplied with flying leads (RG 400 coaxial cable) terminated with connectors.

The filter is delivered with 4 stays and screws for mounting.

## TYPICAL RESPONSE CURVES @ 10 MHz SPACING



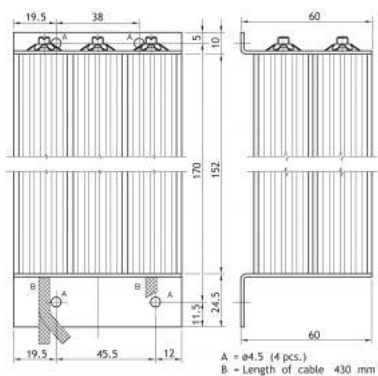
## MOUNTING IN MOTOROLA DR 3000



**MOUNTING IN MOTOROLA DR 3000**



**MOUNTING DETAILS**







## DPF 900/6-...

### 6-Cavity Duplexer for the 900 MHz Band

- The DPF 900/6-... is a 6-cavity duplex filter for duplex radiotelephones operating in the 900 MHz band.
- The DPF 900/6-... can be tuned within the 780 - 960 MHz band with a nominal duplex separation of 45 MHz. The duplexer can, however, be especially delivered to work with duplex separations down to 10-15 MHz.

## Description

- The DPF 900/6-... is primarily intended for equipment which the TX and RX operate on single frequencies, but it can also, however with slightly reduced data, be used where the TX and RX operate on several channels, i.e. within a certain port bandwidth. In the last case, factory tuning is recommended.
- The filter uses full-length  $\frac{1}{4} \lambda$  cavities in a compact, extruded aluminium housing. The chassis is made of passivated steel and teflon insulation has been applied in the rigid coaxial cables and in the connectors.
- The filter is coated with black vinyl to prevent corrosion.

## ORDERING DESIGNATIONS

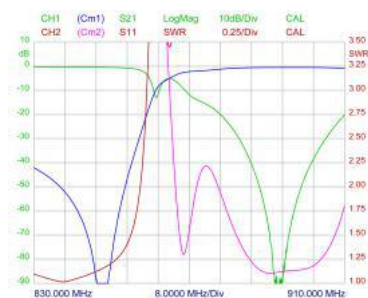
TYPE	PRODUCT NO.	DUPLEX SPACING
DPF 900/6	200000460	45 MHz
DPF 900/6-10	200002256	10 - 15 MHz

## SPECIFICATIONS

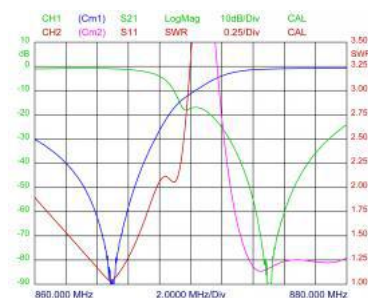
ELECTRICAL		
MODEL	DPF 900/6-...	
TX/RX FREQUENCY	780 - 960 MHz	
MAX. INPUT POWER	50 W	
INSERTION LOSS TX-ANT AND ANT-RX (at 45 MHz duplex spacing)	10 - 15 MHz	45 MHz
Single-channel tuned:	$\leq 1.5$ dB	$\leq 1.0$ dB
Multi-channel tuned, 5 MHz BW:	$\leq 1.5$ dB	$\leq 1.0$ dB
TX NOISE SUPPRESSION ON RX-FREQUENCY		
Single-channel tuned:	$> 85$ dB	$> 85$ dB
Multi-channel tuned, 5 MHz BW:	$> 60$ dB	$> 65$ dB
RX ISOLATION ON TX-FREQUENCY		

Single-channel tuned:	> 85 dB	> 85 dB
Multi-channel tuned, 5 MHz BW:	> 60 dB	> 65 dB
DUPLEX SPACING	10 - 15 or 45 MHz (norm.)	
IMPEDANCE	Nom. 50 Ω	
SWR	≤ 1.5	
MECHANICAL		
FREQ. STABILITY	Approx. 4.5 ppm/° C	
CONNECTORS	BNC-female	
DIMENSIONS (L x W x H)	158 x 154 x 33 mm / 6.2 x 6.1 x 1.3 in	
WEIGHT	Approx. 0.85 kg / 1.9 lb	
ENVIRONMENTAL		
TEMP. RANGE	-30° C → +60° C	

### TYPICAL RESPONSE CURVES FOR 45 MHz DUPLEX SPACING



### TYPICAL RESPONSE CURVES FOR 10 MHz DUPLEX SPACING





## BPF 8/3

### Band-Pass Filter for the 8 m Band

- This filter can be used as a preselector to protect a receiver against interference from transmissions out of the pass-band, or it can be used to reduce spurious output from a transmitter with up to 50 watt of output power.

## DESCRIPTION

- The BPF 8/3 is a 3-helical resonator band-pass filter with aperture-coupling between the resonators.
- The filter has very small dimensions owing to the use of helical resonators. Careful design and choice of materials ensure reliable operation over a wide temperature range.
- The housing is made of extruded aluminium, the chassis of passivated steel, and teflon insulation has been used in the coaxial cables and in the connectors. The filter is black vinyl coated to prevent corrosion.
- Band-pass filters similar to the BPF 8/3 but with pass-band frequency between 30 and 66 MHz may be quoted on request.

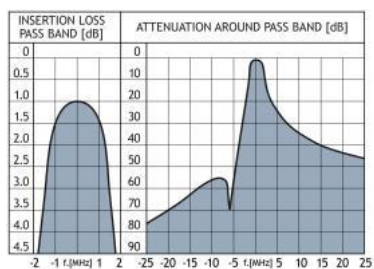
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 8/3	200000934

## SPECIFICATIONS

ELECTRICAL	
FILTER TYPE	Band-pass filter
TUNING RANGE	32 - 35 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS	$\leq 1.5$ dB
ATTENUATION AROUND PASS-BAND	See curves
OUT OF BAND ATTENUATION	See curves
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 10 ppm/° C
CONNECTORS	BNC-female (others on request)
DIMENSIONS (L x W x H)	175 (incl. conn.) x 77 x 33 mm
WEIGHT	Approx 390 g

## TYPICAL RESPONSE CURVES



## PLEASE NOTE

BPF 8/3 provided with other connector types, or filters similar to the BPF 8/3 but with pass-band frequency between 30 and 66 MHz may be quoted on request.



## DPF 8/6-HX-150

### 6-Resonator Duplexer for the 8 m Band

- The DPF 8/6-HX-150 is a six-cavity high-power mobile or base station duplexer for the 26 - 45 MHz band.
- This type of filter uses six large 40 x 40 mm cavities, all equipped with 2.5 mm silver-plated helical resonators, 19 mm diameter.

## Description

- The use of large cavities and resonators means higher Q, resulting in smaller duplex spacing with lower loss.
- The larger dimensions extend power rating to 100 W continuous.
- The DPF 8/6-HX-150 is designed for single-channel equipment, but can, with slightly reduced data, be broadband-adjusted to allow multichannel equipment to be used.
- The cavities are made of extruded aluminium, the chassis of passivated steel. All coaxial cables are of the semi-rigid type, and teflon has been used in all connectors and cables.
- The filter is black vinyl coated to prevent corrosion.
- Please specify the frequencies for TX and RX when ordering, as all filters are made individually.

## ORDERING DESIGNATIONS

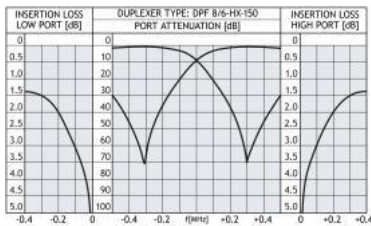
TYPE	PRODUCT NO.
DPF 8/6-HX-150	200001688

## SPECIFICATIONS

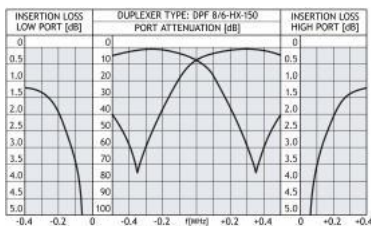
ELECTRICAL	
MODEL	DPF 8/6-HX-150
TX/RX FREQUENCY	26 - 45 MHz
MAX. INPUT POWER	100 W @ 1 dB insertion loss
MIN. DUPLEX SPACING	600 kHz
TYPICAL INSERTION LOSS	@ 600 kHz spacing: 1.5 dB @ 750 kHz spacing: 1.2 dB @ 1.5 MHz spacing: 1.0 dB
TX NOISE SUPPRESSION ON RX-FREQUENCY AND RX ISOLATION ON TX-FREQUENCY	@ 600 kHz spacing: 75 dB @ 750 kHz spacing: 80 dB @ 1.5 MHz spacing: 100 dB
IMPEDANCE	Nom. 50 Ω
SWR	≤ 1.5
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
FREQ. STABILITY	Approx. 8 ppm/° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	295 x 250 x 50 mm
WEIGHT	Approx 2.5 kg



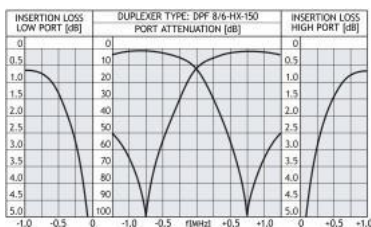
## TYPICAL RESPONSE CURVES @ 0.6 MHz DUPLEX SPACING



## TYPICAL RESPONSE CURVES @ 0.75 MHz DUPLEX SPACING



## TYPICAL RESPONSE CURVES @ 1.5 MHz DUPLEX SPACING





## BPF 70/6

### Band-Pass Filter for the 450 MHz Band

- The BPF 70/6 is a  $6\frac{1}{4}\lambda$  resonator band-pass filter with inductive coupling between the resonators.

## DESCRIPTION

- This filter can be used as a preselector to protect a receiver from interference from transmitters outside the band-pass limits.
- When installed in the output of a transmitter, the BPF 70/6 reduces spurious signals.
- The BPF 70/6 is adjustable over the range 406 - 470 MHz.
- Careful choice of materials ensures reliable functioning over a wide temperature range.
- Extruded aluminium sections, steel racks and coax cables and connectors with teflon insulation ensure good mechanical strength.
- The filter is black vinyl coated to prevent corrosion.

## ORDERING DESIGNATIONS

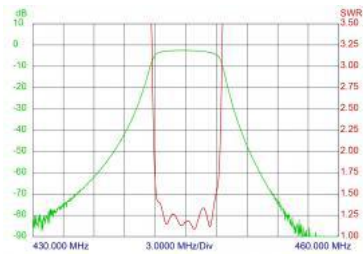
TYPE	PRODUCT NO.
BPF 70/6-BNC	200001047
BPF 70/6-N	200001767
BPF 70/6-TNC	200001077

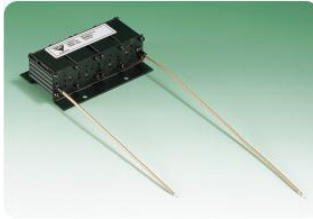
## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 70/6
FILTER TYPE	Band-pass filter
TUNING RANGE	406 - 470 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS	$\leq 3.2$ dB
BW	Max. 4 MHz
ATTENUATION AROUND PASS-BAND	See curves
OUT OF BAND ATTENUATION	See curves
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	BNC-female (others on request)
DIMENSIONS (L x W x H)	230 (with connectors) x 154 x 33 mm / 9 x 6 x 1.3 in

WEIGHT	Approx. 1.0 kg
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## TYPICAL RESPONSE CURVES





## BPF 70/4-HX

### Band-Pass Filter for the 450 MHz Band

- The BPF 70/4-HX is a 4 helical resonator band-pass filter with aperture coupling between the resonators.
- This filter can be used as a preselector to protect a receiver from interference from transmitters outside the band-pass limits.

## DESCRIPTION

- The BPF 70/4-HX-C (C = cable) can be installed directly into the PRO-AR4G-N, PRO-AR8G-N and PRO-AR16G-N receiver multicouplers as a preselector.
- When installed in the output of a transmitter, the BPF 70/4-HX reduces spurious signals.
- The BPF 70/4-HX is adjustable over the range 406 - 470 MHz.
- Very compact due to use of helical resonators.
- Careful choice of materials ensures reliable functioning over a wide temperature range.
- Extruded aluminium sections, steel racks and coax cables and connectors with teflon insulation ensure good mechanical strength.
- The filter is black vinyl coated to prevent corrosion.

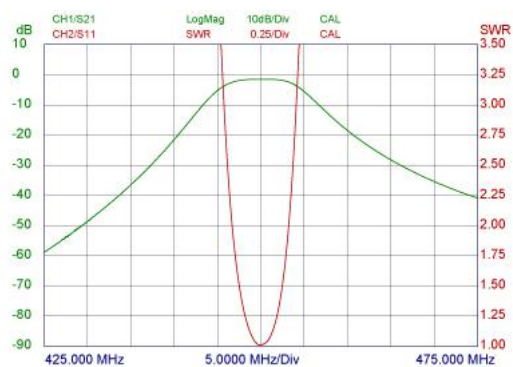
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 70/4-HX	200000908

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 70/4-HX
FILTER TYPE	Band-pass filter
TUNING RANGE	406 - 470 MHz
MAX. INPUT POWER	35 W
INSERTION LOSS	$\leq 1.5$ dB typ. 1.2 dB
0.5 dB BW MHz	Min. 3 MHz
ATTENUATION AROUND PASS-BAND	See curves
OUT OF BAND ATTENUATION	See curves
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	BNC-female (others on request)
DIMENSIONS (L x W x H)	115 x 104 x 33 mm
WEIGHT	Approx. 430 g

## TYPICAL RESPONSE CURVES





## DPF 8/6-4/8

### 6-Resonator Duplexer for the 8 m Band

- The DPF 8/6-4/8 is a 6-resonator duplex filter for duplex radiotelephones.
- The filter is primarily intended for equipment where the TX and the RX operate on single frequencies, but it can also, however with slightly reduced data, be used where the TX and RX operate on several channels, i.e. within a certain port bandwidth. In the last case, factory-tuning is recommended.

## Description

- The filter can be tuned within the 34 - 42 MHz band with a duplex separation between 4 and 8 MHz.
- The filter has very small dimensions due to the use of high-Q, temperature compensated helical resonators with discrete-component interconnections.
- The housing is made of extruded aluminium, the chassis of passivated steel, and the connectors are provided with teflon insulation.
- The filter is black vinyl-coated to prevent corrosion.

## ORDERING DESIGNATIONS

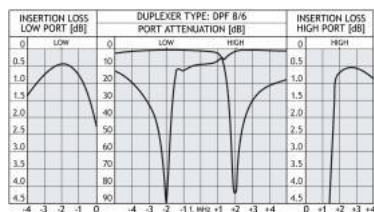
TYPE NO.	PRODUCT NO.
DPF 8/6-4/8	200000450

## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 8/6-4/8
TX/RX FREQUENCY	34 - 42 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS TX-ANT AND ANT-RX (at 4 MHz duplex spacing)	
Single-channel tuned	≤ 0.8 dB
Multi-channel tuned, 0.6 MHz BW	≤ 1.2 dB
TX NOISE SUPPRESSION ON RX-FREQUENCY	
Single-channel tuned	> 80 dB
Multi-channel tuned, 0.6 MHz BW	≥ 60 dB
RX ISOLATION ON TX-FREQUENCY	
Single-channel tuned	> 80 dB
Multi-channel tuned, 0.6 MHz BW	> 60 dB

DUPLEX SPACING	4 - 8 MHz
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 15 ppm/° C
CONNECTORS	BNC-female
DIMENSIONS (L x W x H)	215 x 154 x 33 mm
WEIGHT	Approx 900 g

### Typical response curves @ 4 MHz duplex spacing



### PLEASE NOTE!

Duplex filters with other connector types or duplexers similar to the DPF 8/6-4/8, but with other TX/RX frequencies, can be quoted on request.

## BPF 70/4

### Band-Pass Filter for the 450 MHz Band



- The BPF 70/4 is a 4 resonator  $\frac{1}{4} \lambda$  band-pass filter with inductive coupling between the resonators.
- This filter can be used as a preselector to protect a receiver from interference from transmitters outside the band-pass limits.

## DESCRIPTION

- When installed at the output of a transmitter, the BPF 70/4 reduces spurious signals.
- The BPF 70/4 is adjustable over the range 380 - 470 MHz.
- Careful choice of materials ensures reliable functioning over a wide temperature range.
- Extruded aluminium sections, steel racks and coax cables and connectors with teflon insulation ensure good mechanical strength.
- The filter is coated with black vinyl to prevent corrosion.
- The filter is delivered in standard version with 4 MHz bandwidth, other bandwidths can be requested when ordering (up to 10 MHz)

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 70/4 N(f)	200000925
BPF 70/4 BNC(f)	200000923
BPF 70/4 TNC(f)	200001125

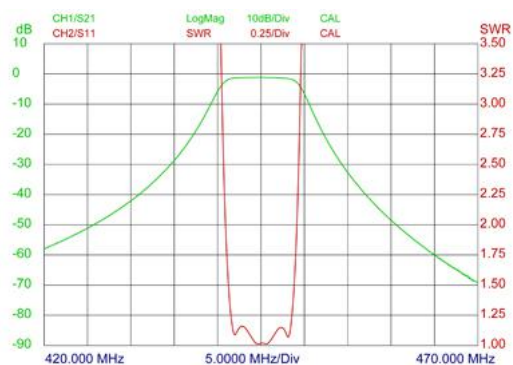
## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 70/4
FILTER TYPE	Band-pass filter
TUNING RANGE	380 - 470 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS	< 1.5 dB
BANDWIDTH	4 MHz - 10 MHz (Specify when ordering)
ATTENUATION AROUND PASS-BAND	See curves
OUT OF BAND ATTENUATION	See curves
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C to +60° C
CONNECTORS	N-female, BNC-female or TNC-female



	(others on request)
DIMENSIONS (L x W x H)	230 (with connectors) x 104 x 33 mm
WEIGHT	Approx. 690 g

## TYPICAL RESPONSE CURVES





## DPF 70/6-XL...

### 6-cavity duplexer for the 400 MHz band

- The DPF 70/6-XL... is a 6-cavity duplex filter for duplex radiotelephones.
- The DPF 70/6-XL... can be adjusted within the complete 340 - 400 MHz band. The duplexer can be supplied in four different versions according to duplex spacing required. Also see "Ordering information" below

## Description

- The DPF 70/6-XL... is primarily intended for equipment with TX and RX operating on single frequencies, but it can also, however with slightly reduced data, be used where the TX and RX operate on several channels, i.e. within a certain port bandwidth. In the last case, factory tuning is recommended.
- The filter uses full-length  $\frac{1}{4}$  cavities in a compact, extruded aluminium housing. The chassis is made of passivated steel and teflon insulation has been applied in the coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.

## ORDERING INFORMATION

If duplex TX and RX frequencies are stated when ordering, the duplexers are delivered factory-adjusted. If TX and RX frequencies are not stated, the filters are delivered non-adjusted.

## ORDERING DESIGNATIONS

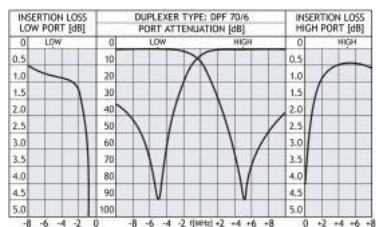
TYPE	PRODUCT NO.	DUPLEX SPACING (MHz)
DPF 70/6-XL - 5/7	200001838	5 - 7
DPF 70/6-XL - 7/9	200001839	7 - 9
DPF 70/6-XL - 9/13	200001840	9 - 13
DPF 70/6-XL - 13/16	200000448	13 - 16

## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 70/6-XL...
TX/RX FREQUENCY	340 - 400 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS TX-ANT AND ANT-RX (at 10 MHz duplex spacing) Single-channel tuned: Multi-channel tuned, 2 MHz BW:	$\leq 1.2$ dB (typ. 1.0 dB) $\leq 1.2$ dB (typ. 1.0 dB)
TX NOISE SUPPRESSION ON RX-FREQUENCY Single-channel tuned: Multi-channel tuned, 2 MHz BW:	$\geq 85$ dB $\geq 85$ dB
RX ISOLATION ON TX-FREQUENCY Single-channel tuned:	$\geq 85$ dB $\geq 65$ dB

Multi-channel tuned, 2 MHz BW:	
IMPEDANCE	Nom. 50 $\Omega$
SWR (All ports)	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 4.5 ppm/° C
CONNECTIONS	BNC-female
DIMENSIONS (L x W x H)	245 x 154 x 33 mm
WEIGHT	Approx. 1123 g

## TYPICAL RESPONSE CURVES @ 10 MHz SPACING



## PLEASE NOTE

Special configurations of this filter type may be quoted on request. For instance, the filter can be delivered with other connector types, or with flying leads (RG 316 coaxial cable) terminated with connectors or for soldering-connection.



## BPF 70/33-TETRA-....

### 6 Resonator Band-Pass Filter for TETRA Band

- The BPF 70/33-TETRA-.... are 6 resonator band-pass filters designed for TETRA.
- The filters use reduced-length  $\frac{1}{4} \lambda$  cavities in a compact, strong aluminium housing.

## DESCRIPTION

- 19" drawers available as options.
- Built-in DC stop between all ports.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.	MHz
BPF 70/33-TETRA-N-1	200001953	380 - 385
BPF 70/33-TETRA-N-2	200001954	385 - 390
BPF 70/33-TETRA-N-3	200001955	390 - 395
BPF 70/33-TETRA-N-4	200001956	395 - 400
BPF 70/33-TETRA-N-5	200001957	410 - 415
BPF 70/33-TETRA-N-6	200001958	415 - 420
BPF 70/33-TETRA-N-7	200001959	420 - 425
BPF 70/33-TETRA-N-8	200001960	425 - 430
BPF 70/33-TETRA-N-9	200001961	450 - 455
BPF 70/33-TETRA-N-10	200001962	455 - 460
BPF 70/33-TETRA-N-11	200001963	460 - 465
BPF 70/33-TETRA-N-12	200001964	465 - 470

## ORDERING DESIGNATIONS

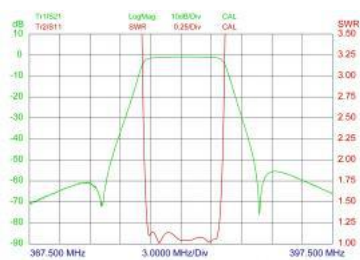
TYPE	PRODUCT NO.	MHz
BPF 70/33-TETRA-7/16-1	200001629	380 - 385
BPF 70/33-TETRA-7/16-2	200002023	385 - 390
BPF 70/33-TETRA-7/16-3	200002024	390 - 395
BPF 70/33-TETRA-7/16-4	200002025	395 - 400
BPF 70/33-TETRA-7/16-5	200002026	410 - 415
BPF 70/33-TETRA-7/16-6	200002027	415 - 420
BPF 70/33-TETRA-7/16-7	200002028	420 - 425
BPF 70/33-TETRA-7/16-8	200002029	425 - 430
BPF 70/33-TETRA-7/16-9	200002030	450 - 455

BPF 70/33-TETRA-7/16-10	200002031	455 - 460
BPF 70/33-TETRA-7/16-11	200002032	460 - 465
BPF 70/33-TETRA-7/16-12	200002033	465 - 470

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 70/33-TETRA-...-...
MAX. INPUT POWER	200 W
TX/RX-FREQUENCY	See ordering designations
INSERTION LOSS IN PASSBAND	$\leq 1.5$ dB (typ. 1.3)
ATTENUATION IN STOPBAND	> 55 dB / 5 MHz Typ. 58 dB / 5 MHz
IMPEDANCE	Nom. 50 $\Omega$
SWR (All ports)	$\leq 1.5$ (typ. $\leq 1.3$ )
MECHANICAL	
CONNECTORS	N-female or 7/16-female
DIMENSIONS (L x W x H)	220 x 155 x 86 mm / 8.66 x 6.10 x 3.39 in.
WEIGHT	Approx. 3500 g / 7.72 lb.
ENVIRONMENTAL	
TEMP. RANGE	-20° C $\rightarrow$ +60° C

## TYPICAL RESPONSE CURVES





## BPF 70/3-150

Highly Selective Band-Pass Filter for the 450 MHz Band with High Power-Handling Capability (150 W)

- This band-pass filter is mainly applied to prevent interference between transceivers with narrow frequency spacing which are operating on antennas installed very close to each other.

### DESCRIPTION

- One of the transmitters may cause intermodulation in the output amplifier of the other transmitter, or the presence of one transmitter might "block" the contrary receiver or desense it because of excess sideband noise.
- The BPF 70/3-150 consists of 3 full-size quarter wavelength cavities with adjustable capacitive coupling between the resonators. This filter is applied when other available band-pass filters or pass-reject filters do not provide adequate power handling capability, or lack in attenuation at narrow separations.
- The filter has a very steep rolloff between the pass-range and the stop-band. This rolloff can be made even steeper by sacrificing on insertion loss. This "trade-off" may be necessary by very small separations or by highly required stop-band attenuation. Please note that the full power rating of 150 W can only be kept when keeping insertion loss below 1 dB. If insertion loss is raised to 2 dB, maximum allowable input power is 75 W.
- Another feature of this filter is its ability to be tuned with a certain pass-range bandwidth.
- The housing is made of extruded aluminium, the chassis of passivated steel, and teflon insulation has been used in the coaxial cables and in the connectors. The filter is black vinyl coated to prevent corrosion.

### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 70/3-150	200000926

### ORDERING INFORMATION

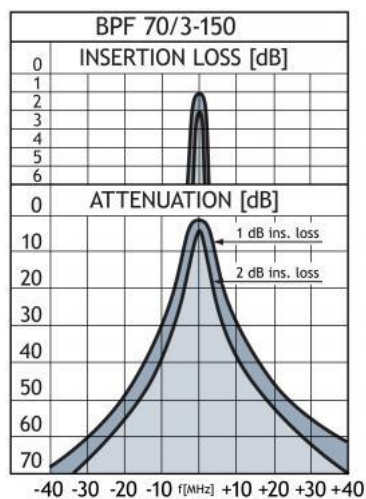
The BPF 70/3-150 is delivered factory tuned. Depending on the nature of the problem the band-pass filter has to solve, please specify the relevant of the following data when ordering: Centre frequency, operating frequency of disturbed or disturbing transmitter, required attenuation at stop-frequency, tolerable insertion loss and, optionally: pass range bandwidth.

### SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 70/3-150
FILTER TYPE	Band-pass filter
TUNING RANGE	380 - 470 MHz
MAX. INPUT POWER	@ max. 1 dB insertion loss: 150 W @ max. 2 dB insertion loss: 75 W
ATTENUATION AROUND PASS-BAND	See curves
OUT OF BAND REJECTION	See curves
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.4$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C

CONNECTORS	N-female
DIMENSIONS (L x W x H)	257 (incl. conn.) x 125 x 50 mm
WEIGHT	Approx. 1.17 kg

## TYPICAL RESPONSE CURVES



DPF 70/6-150 cavity type  $\frac{1}{4} \lambda$



DPF 70/6-150 cavity type  $\frac{3}{4} \lambda$



## DPF 70/6-150...

### 6-Cavity base station duplexers for the 450 MHz band

- 150 W base station duplexers.
- Both the  $\frac{1}{4} \lambda$  models and the  $\frac{3}{4} \lambda$  models are continuously tunable from 406 to 470 MHz.

## DESCRIPTION

- Low insertion loss due to silver-plated, temperature compensated resonator elements in high-Q 40 x 40 mm cavities.
- Multi-channel tuning possible with slightly reduced data (factory tuning recommended).
- Fully environmentally tested.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.	CAVITY TYPE	DUPLEX SPACING (MHz)
DPF 70/6-150-2/3	200000369	$\frac{1}{4} \lambda$	2 - 3
DPF 70/6-150-3/5	200001617	$\frac{1}{4} \lambda$	3 - 5
DPF 70/6-150-5/7	200001610	$\frac{1}{4} \lambda$	5 - 7
DPF 70/6-150-7/9	200001615	$\frac{1}{4} \lambda$	7 - 9
DPF 70/6-150-9/11	200001612	$\frac{1}{4} \lambda$	9 - 11
DPF 70/6-150-11/13	200001872	$\frac{1}{4} \lambda$	11 - 13
DPF 70/6-150-13/15	200001873	$\frac{1}{4} \lambda$	13 - 15
DPF 70/6-150-2/3- $\frac{3}{4}$	200001689	$\frac{3}{4} \lambda$	2 - 3
DPF 70/6-150-3/5- $\frac{3}{4}$	200002062	$\frac{3}{4} \lambda$	3 - 5

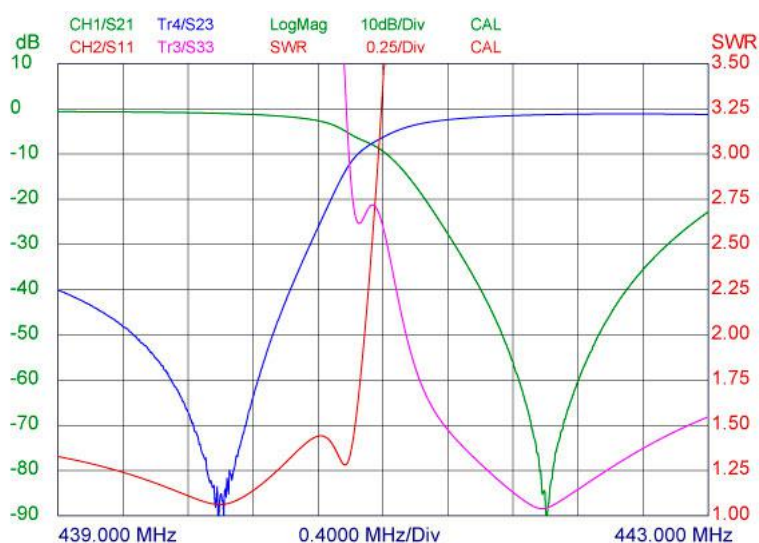
## SPECIFICATIONS

ELECTRICAL				
MODEL	DPF 70/6-150-2/3- $\frac{3}{4}$		DPF 70/6-150-3/5	
CAVITY TYPE	$\frac{3}{4} \lambda$		$\frac{1}{4} \lambda$	
TX/RX FREQUENCY	406 - 470 MHz			
MAX. INPUT POWER	150 W			



TUNING	Single-channel tuned. Spacing = 2 MHz 100 W	Single-channel tuned. Spacing = 3.5 MHz 100 W	Single-channel tuned. Spacing = 5 MHz 150 W	Multi-channel tuned. Spacing = 5 MHz Port width = 2 MHz 100 W
INSERTION LOSS TX - ANT. AND ANT. - RX	≤ 1.4 dB	≤ 1.3 dB	≤ 1.2 dB	≤ 1.4 dB
TX NOISE SUPPRESSION ON RX-FREQ.	> 70 dB	> 80 dB	> 80 dB	> 60 dB
RX ISOLATION ON TX-FREQUENCY	> 70 dB	> 80 dB	> 80 dB	> 60 dB
DUPLEX SPACING	2 - 3 MHz		3 - 5 MHz	
IMPEDANCE	Nom. 50 Ω			
SWR	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5
MECHANICAL				
TEMP. RANGE	-30° C → +60° C			
FREQ. STABILITY	Approx. 4.5 ppm/° C			
CONNECTOR TYPE	N-female			
COLOUR	Black			
DIMENSIONS (without connectors) (L x W x H)	557 x 250 x 50 mm		238 x 250 x 50 mm	
WEIGHT	Approx. 4.6 kg		Approx. 2.5 kg	

## TYPICAL RESPONSE CURVES





## DPF 70/6...

6-cavity duplexer for the 450 MHz band

- The DPF 70/6... is a 6-cavity duplex filter for duplex transceivers.
- The DPF 70/6... can be adjusted within the complete 406 - 470 MHz band. The duplexer can be delivered in four different versions according to required duplex spacing. See also "Ordering information" below.

## Description

- The DPF 70/6... is primarily intended for equipment where the TX and RX operate on single frequencies, but it can also, however with slightly reduced data, be used where the TX and RX operate on multi channels, i.e. within a certain port bandwidth. In the last case, factory-tuning is recommended.
- The filter uses full-length  $\frac{1}{4}$  cavities in a compact extruded aluminium housing. The chassis is made of passivated steel, and teflon insulation has been applied in the coaxial cables and in the connectors.
- The filter is coated with black vinyl to prevent corrosion.

## ORDERING DESIGNATION

TYPE	DUPLEX SPACING (MHz)	PRODUCT NO.
DPF 70/6-5/7-N(f)	5 - 7	200000392
DPF 70/6-7/9-N(f)	7 - 9	200000404
DPF 70/6-9/13-N(f)	9 - 13	200000414
DPF 70/6-13/16-N(f)	13 - 16	200000419

## PLEASE NOTE

Special configurations of this filter type may be quoted on request. For instance, the filter can be delivered with other connector types, or with flying leads (RG 316 coaxial cable) terminated with connectors or for soldering-connection.

## ACCESSORIES

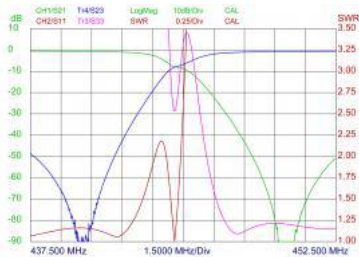
TYPE	PRODUCT NO.
19" DPF Mounting kit	210002327

## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 70/6...
TX/RX FREQUENCY	406 - 470 MHz
MAX. INPUT POWER	50 W
TX NOISE SUPPRESSION ON RX-FREQUENCY	$\geq 85$ dB

Single-channel tuned: Multi-channel tuned, 2 MHz BW:	$\geq 65$ dB
INSERTION LOSS TX-ANT AND ANT-RX (at 10 MHz duplex spacing) Single-channel tuned: Multi-channel tuned, 2 MHz BW:	$\leq 1.2$ dB (typ. 1.0 dB) $\leq 1.2$ dB (typ. 1.0 dB)
RX ISOLATION ON TX-FREQUENCY Single-channel tuned: Multi-channel tuned, 2 MHz BW:	$\geq 85$ dB $\geq 65$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR (All ports)	$\leq 1.5$
<b>MECHANICAL</b>	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 4.5 ppm/° C
CONNECTIONS	N-female
DIMENSIONS (L x W x H)	226 x 154 x 33 mm / 8.9 x 6.0 x 1.3 in.
WEIGHT	Approx. 990 g / 2.2 lb.

## TYPICAL RESPONSE CURVES @ 10 MHz SPACING



## ORDERING INFORMATION

When ordering, please use the table to select the appropriate ordering designation for the desired filter type. If duplex TX and RX frequencies are stated when ordering, the duplexers are delivered factory-adjusted. If TX and RX frequencies are not stated, the filters are delivered non-adjusted.



## DPF 70/55-...-TETRA-N

### 10-Cavity Duplexer for TETRA Band

- The DPF 70/55-...-TETRA-N is a 2 x 5 cavity filter for duplex radio telephones.

## Description

- The filter uses full-length  $\frac{1}{4} \lambda$  cavities in a compact, extruded aluminium housing. The chassis is made of passivated steel, and teflon insulation has been applied in the coaxial cables and in the connectors.
- The filter is coated with black vinyl to prevent corrosion.

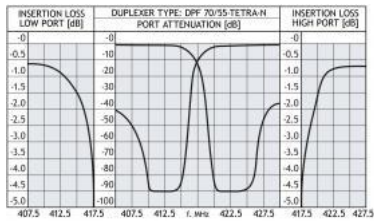
## ORDERING DESIGNATIONS

TYPE NO.	PRODUCT NO.	TX MHz	RX MHz
DPF 70/55-1-TETRA-N	200000341	380 - 385	390 - 395
DPF 70/55-2-TETRA-N	200000348	385 - 390	395 - 400
DPF 70/55-3-TETRA-N	200000347	410 - 415	420 - 425
DPF 70/55-4-TETRA-N	200000342	415 - 420	425 - 430

## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 70/55-...-TETRA-N
MAX. INPUT POWER	50 W
TX/RX-FREQUENCY	See model selection table
INSERTION LOSS IN PASSBAND	$\leq 1.5$ dB (typ. 1.3)
ATTENUATION IN STOPBAND	$> 60$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR (All ports)	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 4.5 ppm/° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	260 x 130 x 58 mm
WEIGHT	Approx. 1400 g

## TYPICAL RESPONSE CURVES





## DPF 70/4...

### 4-Cavity Duplexer for the 450 MHz Band

- The DPF 70/4... is a 4-cavity duplex filter for duplex radiotelephones.
- The DPF 70/4... can be adjusted within the complete 406 - 470 MHz band. The duplexer can be delivered in four different versions according to required duplex spacing. See also "Ordering information" below.

## Description

- The DPF 70/4... is primarily intended for equipment, where the TX and RX operate on single frequencies, but it can also, however with slightly reduced data, be used where the TX and RX operate on several channels, i.e. within a certain port bandwidth. In the last case, factory tuning is recommended.
- The filter uses full-length  $\frac{1}{4}$  cavities in a compact, extruded aluminium housing. The chassis is made of passivated steel, and teflon insulation has been applied in the coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.	DUPLEX SPACING (MHz)
DPF 70/4 - 5/7	200000299	5 - 7
DPF 70/4 - 7/9	200000303	7 - 9
DPF 70/4 - 9/13	200000306	9 - 13
DPF 70/4 - 13/16	200000293	13 - 16

## ORDERING INFORMATION

When ordering, please use the table above to select the appropriate ordering designation for the desired filter type. If duplex TX and RX frequencies are stated when ordering, the duplexers are delivered factory adjusted. If TX and RX frequencies are not stated, the filters are delivered non-adjusted.

## SPECIFICATIONS

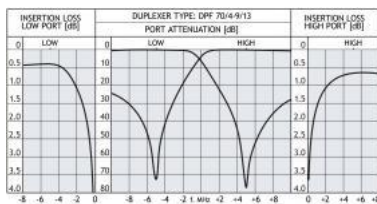
ELECTRICAL	
MODEL	DPF 70/4...
TX/RX FREQUENCY	406 - 470 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS TX-ANT AND ANT-RX (at 10 MHz duplex spacing)	
Single-channel tuned:	$\leq 1.0$ dB (typ. 0.8 dB)
Multi-channel tuned, 2 MHz BW:	$\leq 1.2$ dB (typ. 1.0 dB)
TX NOISE SUPPRESSION	
ON RX-FREQUENCY	
Single-channel tuned:	$\leq 65$ dB

Multi-channel tuned, 2 MHz BW:	$\leq 45$ dB
RX ISOLATION ON TX-FREQUENCY	
Single-channel tuned:	$\leq 65$ dB
Multi-channel tuned, 2 MHz BW:	$\leq 45$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR (All ports)	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 4.5 ppm/° C
CONNECTIONS	BNC-female
DIMENSIONS (L x W x H)	226 x 104 x 33 mm
WEIGHT	Approx. 690 g

#### PLEASE NOTE

Special configurations of this filter type may be quoted on request. For instance, the filter can be delivered with other connector types, or with flying leads (RG 316 coaxial cable) terminated with connectors or for soldering-connection.

#### TYPICAL RESPONSE CURVES





## BPF 70/...-250

### Band-Pass Filters for the 450 MHz Band

- High power base station band-pass filters for the 380 - 470 MHz range.
- The use of large  $\varnothing 250$  mm cavities means a high Q, resulting in a very narrow passband.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 8000.
- High frequency stability on temperature and power.
- 19" mounting brackets are included for BPF 70/2-250 and BPF 70/3-250 models.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 70/1-250	200000955
BPF 70/2-250	200000963
BPF 70/3-250	200000957

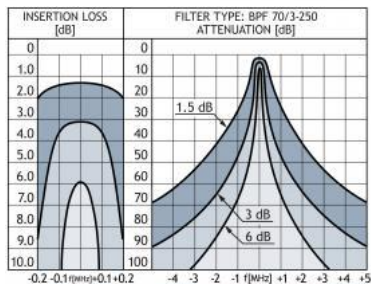
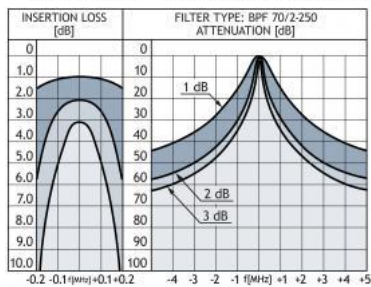
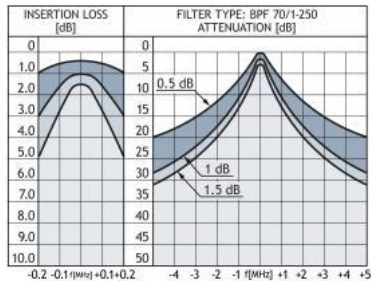
## SPECIFICATIONS

ELECTRICAL			
MODEL	BPF 70/1-250	BPF 70/2-250	BPF 70/3-250
FREQ. RANGE	380 - 470 MHz	380 - 470 MHz	380 - 470 MHz
MAX. INPUT POWER	350 W @ 0.5 dB IL 150 W @ 2.0 dB IL	350 W @ 1.0 dB IL 150 W @ 4.0 dB IL	350 W @ 1.5 dB IL 150 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.5 - 2.0 dB	Adjustable 0.8 - 4.0 dB	Adjustable 1.2 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 250$ x	L:250 x W:500 x	L:250 x W:750 x



	400 mm	H:400 mm	H:400 mm
WEIGHT	Approx. 2.8 kg	Approx. 5.2 kg	Approx. 9.6 kg

## TYPICAL RESPONSE CURVES





## DPF 70/22-250

### Duplex Filter for the 450 MHz Band

#### Description

- High power base station duplex filter for the 400 – 470 MHz range.
- The use of large  $\varnothing 250$  mm cavities means a high Q, resulting in a small duplex spacing.

#### Description

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 8000.
- High frequency stability on temperature and power.
- Mounted on 19" brackets.

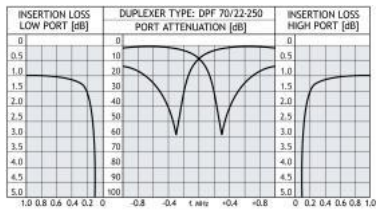
#### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
DPF 70/22-250	200000275

#### SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 70/22-250
TX/RX FREQUENCY	406 - 470 MHz
MAX. INPUT POWER	300 W @ 1.5 dB
TYP. INSERTION LOSS	250 kHz @ 1.5 dB 500 kHz @ 1.2 dB 1.0 MHz @ 1.0 dB
TX NOISE SUPPRESSION ON RX FREQ. AND RX ISOLATION ON TX FREQ.	250 kHz @ 50 dB 500 kHz @ 60 dB 1.0 MHz @ 70 dB
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	510 x 515 x 300 mm
WEIGHT	Approx. 15 kg

#### TYPICAL RESPONSE CURVES FOR 500 kHz DUPLEX SPACING





## BPF 70/3

### Band-Pass Filter for the 70 cm Band

- The BPF 70/3 is a  $3\frac{1}{4}\lambda$  resonator band-pass filter with internal coupling between the resonators.

## DESCRIPTION

- This filter can be used as a preselector to protect a receiver against interference from transmissions out of the passband, or it can be used to reduce spurious output from a transmitter with up to 50 W output power.
- The filter can be tuned within the entire 406 - 470 MHz band. Careful design and choice of materials ensure reliable operation over a wide temperature range.
- The housing is made of extruded aluminium, the chassis of brass, and teflon insulation has been used in the coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.

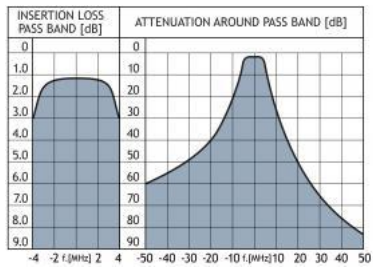
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 70/3	200000896

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 70/3
FILTER TYPE	Band-pass filter
TUNING RANGE	406 - 470 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS	$\leq 1.4$ dB (typ.)
ATTENUATION AROUND PASS-BAND	See curves
OUT OF BAND ATTENUATION	See curves
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	BNC-female (others on request)
DIMENSIONS (L x W x H)	230 x 77 x 33 mm
WEIGHT	Approx. 550 g

## TYPICAL RESPONSE CURVES





## DPF 70/22-200

### Duplex Filter for the 450 MHz Band

- High power base station duplex filter for the 400 – 470 MHz range.
- The use of large ø200 mm cavities means a high Q, resulting in a small duplex spacing.

## Description

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 4500.
- High frequency stability on temperature and power.
- Mounted on 19" brackets.

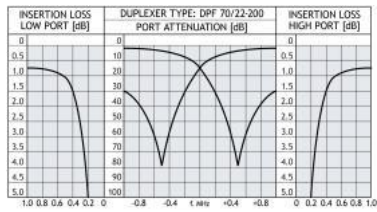
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
DPF 70/22-200	200000283

## Specifications

ELECTRICAL	
MODEL	DPF 70/22-200
TX/RX FREQUENCY	406 - 470 MHz
MAX. INPUT POWER	300 W @ 1.0 dB
TYP. INSERTION LOSS	0.25 MHz @ 1.5 dB 0.5 MHz @ 1.2 dB 1.0 MHz @ 1.0 dB
TX NOISE SUPPRESSION ON RX FREQ. AND RX ISOLATION ON TX FREQ.	0.25 MHz @ 50 dB 0.5 MHz @ 60 dB 1.0 MHz @ 70 dB
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	410 x 410 x 300 mm
WEIGHT	Approx. 8.6 kg

## TYPICAL RESPONSE CURVES FOR 1 MHz DUPLEX SPACING





## BPF 70/...-200

### Band-Pass Filter for the 450 MHz Band

- High power base station band-pass filters for the 380 - 470 MHz range.
- The use of large  $\varnothing 200$  mm cavities means a high Q, resulting in a very narrow passband.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 7000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 70/1-200	200000960
BPF 70/2-200	200000958
BPF 70/3-200	200001071

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPF 70/1-200	BPF 70/2-200	BPF 70/3-200
FREQ. RANGE	380 - 470 MHz	380 - 470 MHz	380 - 470 MHz
MAX. INPUT POWER	350 W @ 0.5 dB IL 150 W @ 2.0 dB IL	350 W @ 1.0 dB IL 150 W @ 4.0 dB IL	350 W @ 1.5 dB IL 150 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.4 - 2.0 dB	Adjustable 0.8 - 4.0 dB	Adjustable 1.2 - 6.0 dB
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 200$ x 303 mm	L:200 x W:400 x H:303 mm	L:200 x W:600 x H:303 mm
WEIGHT	Approx.	Approx.	Approx.





	2.3 kg	4.9 kg	7.5 kg
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## DPF 70/...-125

### Duplex Filters for the 450 MHz Band

- High power base station duplex filters for the 400 – 475 MHz range.
- The use of large  $\varnothing 125$  mm cavities means a high Q, resulting in a very small duplex spacing.

### Description

- The large dimensions also mean a high power rating.
- High frequency stability on temperature and power.
- Mounting brackets for 19" mounting included.
- Please specify the frequencies for TX and RX when ordering.

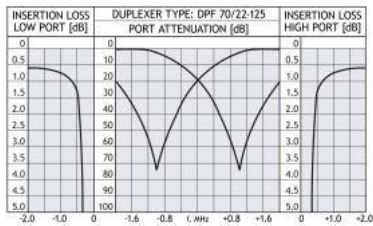
### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
DPF 70/22-125	200000271
DPF 70/33-125	200000287
DPF 70/44-125	200000435

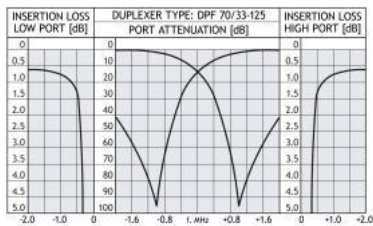
### SPECIFICATIONS

ELECTRICAL		
MODEL	DPF 70/22-125	DPF 70/33-125
FREQ. RANGE	400 - 470 MHz	400 - 470 MHz
MAX. INPUT POWER	250 W @ 1 dB IL	250 W @ 1.5 dB IL
MIN. DUPLEX SPACING	0.5 MHz	0.5 MHz
TYP. INSERTION LOSS	0.5 MHz: 1 dB 1 MHz: 0.8 dB	0.5 MHz: 1.2 dB 1 MHz: 1.0 dB
ATTENUATION	0.5 MHz: 58 dB 1 MHz: 63 dB	0.5 MHz: 85 dB 1 MHz: 90 dB
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR	$\leq 1.5$	$\leq 1.5$
MECHANICAL		
TEMP. RANGE	-30° C $\rightarrow$ +60° C	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 0.8 ppm/° C	Approx. 0.8 ppm/° C
CONNECTORS	N-female	N-female
DIMENSIONS (L x W x H)	260 x 483 x 300(400) mm	260 x 483 x 300(400) mm
WEIGHT	Approx. 7 kg	Approx. 8.6 kg

## TYPICAL RESPONSE CURVES @ 2 MHz DUPLEX SPACING



## TYPICAL RESPONSE CURVES @ 2 MHz DUPLEX SPACING





## BPF 70/...-125

### Band-Pass Filters for the 450 MHz Band

- High power base station band-pass filters for the 380 - 470 MHz range.
- The use of large  $\varnothing 125$  mm cavities means a high Q, resulting in a very narrow passband.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 4500.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

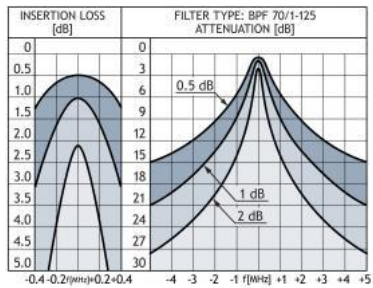
TYPE	PRODUCT NO.
BPF 70/1-125	200000962
BPF 70/2-125	200001049
BPF 70/3-125	200001050

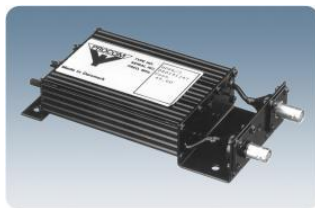
## SPECIFICATIONS

ELECTRICAL			
MODEL	BPF 70/1-125	BPF 70/2-125	BPF 70/3-125
FREQ. RANGE	380 - 470 MHz	380 - 470 MHz	380 - 470 MHz
MAX. INPUT POWER	300 W @ 0.5 dB IL 125 W @ 2.0 dB IL	300 W @ 1.0 dB IL 125 W @ 4.0 dB IL	300 W @ 1.5 dB IL 125 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.4 - 2.0 dB	Adjustable 0.8 - 4.0 dB	Adjustable 1.2 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female

DIMENSIONS	ø125 x 300 mm	L:125 x W:250 x H:300 mm	L:125 x W:375 x H:300 mm
WEIGHT	Approx. 1.2 kg	Approx. 2.7 kg	Approx. 4.3 kg

## TYPICAL RESPONSE CURVES





## BPF 6/3

### Band-Pass Filter for the 6 m Band

- The BPF 6/3 is a 3-helical resonator band-pass filter with aperture-coupling between the resonators.
- This filter can be used as a preselector to protect a receiver against interference from transmissions out of the pass-band, or it can be used to reduce spurious output from a transmitter with up to 50 watts of output power.

## DESCRIPTION

- The filter has very small dimensions owing to the use of helical resonators. Careful design and choice of materials ensure reliable operation over a wide temperature range.
- The housing is made of extruded aluminium, the chassis of passivated steel, and teflon insulation has been used in the coaxial cables and in the connectors. The filter is black vinyl coated to prevent corrosion.
- Band-pass filters similar to the BPF 6/3 but with pass-band frequency between 30 and 66 MHz may be quoted on request.

## PLEASE NOTE

BPF 6/3 provided with other connector types, or filters similar to the BPF 6/3 but with pass-band frequency between 30 and 66 MHz may be quoted on request.

## ORDERING DESIGNATIONS

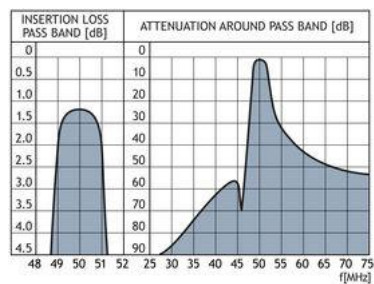
TYPE NO.	PRODUCT NO.
BPF 6/3	200000886

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 6/3
FILTER TYPE	Band-pass filter
TUNING RANGE	48 - 52 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS	$\leq 1.5$ dB
ATTENUATION AROUND PASS-BAND	See curves
OUT OF BAND ATTENUATION	See curves
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 10 ppm/° C
CONNECTORS	BNC-female (others on request)

DIMENSIONS (L x W x H)	175 (incl. conn.) x 77 x 33 mm
WEIGHT	Approx 390 g

## TYPICAL RESPONSE CURVES





## BPF 47G/2

### Band-Pass Filter for the GHz Band

- 2-resonator, cavity filter.
- Low insertion loss.

## DESCRIPTION

- High image rejection in 47 GHz heterodyne systems.
- Rugged brass housing ensures reliable function and long life time.
- Waveguide flange connection.

## Ordering designations

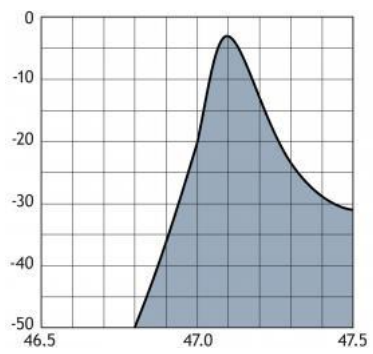
TYPE NO.	PRODUCT NO.
BPF 47G/2	200001844

## Specifications

ELECTRICAL	
MODEL	BPF 47G/2
FILTER TYPE	Cavity filter
CENTRE FREQUENCY	47.088 GHz
MAX. INPUT POWER	10 W
PASS RANGE WIDTH	Approx. 50 MHz
INSERTION LOSS	≤1.5 dB typ.
REJECTION fo-144 MHz	Approx. 30 dB
REJECTION fo-288 MHz	Approx. 50 dB
MECHANICAL	
TEMP. RANGE	-30°C → +60°C
CONNECTION	Fits Procom waveguide PRO-47-006
DIMENSIONS (L x W x H)	20 x 20 x 26 mm incl. adj. screws.
WEIGHT	Approx. 70 g

## INSERTION LOSS







## BPF 4/4

### Band-Pass Filter for the 80 MHz Band

- The BPF 4/4 is a 4-helical resonator band-pass filter with aperture-coupling between the resonators.

## DESCRIPTION

- This filter can be used as a preselector to protect a receiver against interference from transmissions out of the pass-band, or it can be used to reduce spurious output from a transmitter with up to 50 W of output power.
- The BPF 4/4-C-version fits directly into our receiver multicouplers PRO-AR4G-N... etc.
- The filter can be tuned within the entire 66 - 88 MHz band. It has very small dimensions owing to the use of helical resonators. Careful design and choice of materials ensure reliable operation over a wide temperature range.
- The housing is made of extruded aluminium, the chassis of steel, and teflon insulation has been used in the coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.

## ORDERING DESIGNATIONS

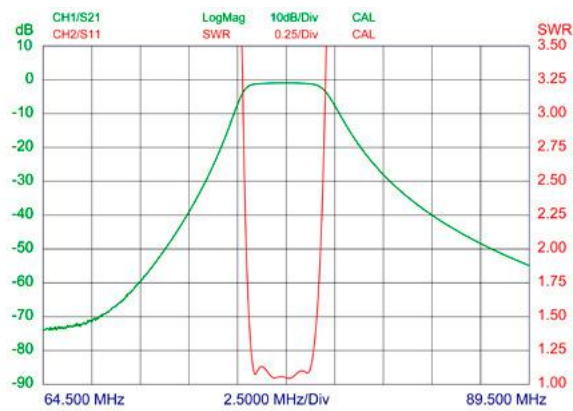
TYPE	PRODUCT NO.
BPF 4/4-BNC(f)	200000883
BPF 4/4-4-BNC(f)	200001827

## SPECIFICATIONS

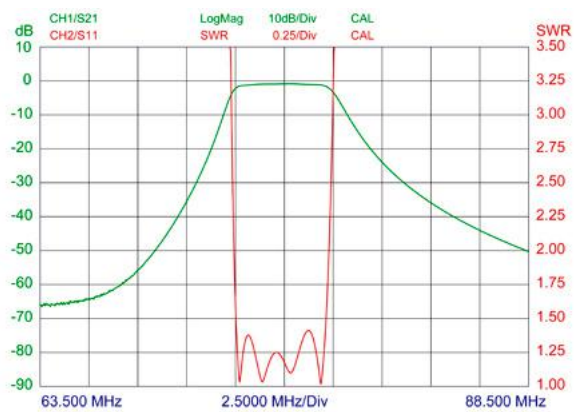
ELECTRICAL	
MODEL	BPF 4/4
FILTER TYPE	Band-pass filter
TUNING RANGE	66 - 88 MHz (88 - 108 MHz)
MAX. INPUT POWER	50 W
INSERTION LOSS	≤ 1.4 dB (typ. 1.2 dB)
BANDWIDTH	3 - 4 MHz
ATTENUATION AROUND PASS-BAND	See curves
OUT OF BAND ATTENUATION	See curves
IMPEDANCE	Nom. 50 Ω
SWR	≤ 1.5
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
CONNECTORS	BNC-female (others on request)
DIMENSIONS (L x W x H)	165 x 104 x 33 mm / 6.50 x 4.10 x 1.30 in.
WEIGHT	Approx 500 g / 1.10 lb.

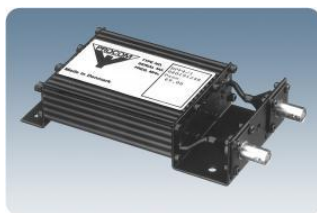
## TYPICAL RESPONSE CURVES

BPF 4/4



BPF 4/4-4





## BPF 4/3

### Band-Pass Filter for the 80 MHz Band

- The BPF 4/3 is a 3-helical resonator band-pass filter with aperture-coupling between the resonators.

## DESCRIPTION

- This filter can be used as a preselector to protect a receiver against interference from transmissions out of the pass-band, or it can be used to reduce spurious output from a transmitter with up to 50 W of output power.
- The filter can be tuned within the entire 66 - 88 MHz band. It has very small dimensions owing to the use of helical resonators. Careful design and choice of materials ensure reliable operation over a wide temperature range.
- The housing is made of extruded aluminium, the chassis of steel, and teflon insulation has been used in the coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.

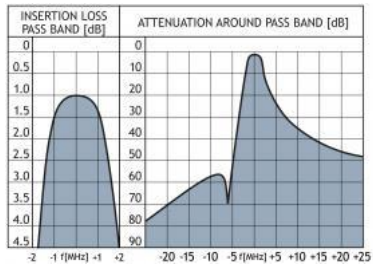
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 4/3	200000857

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 4/3
FILTER TYPE	Band-pass filter
TUNING RANGE	66 - 88 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS	≤ 1.0 dB (typ.)
ATTENUATION AROUND PASS-BAND	See curves
OUT OF BAND ATTENUATION	See curves
IMPEDANCE	Nom. 50 Ω
SWR	≤ 1.5
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
CONNECTORS	BNC-female (others on request)
DIMENSIONS (L x W x H)	180 x 77 x 33 mm
WEIGHT	Approx 420 g

## TYPICAL RESPONSE CURVES





## BPF 4/...-250

### Band-Pass Filters for the 80 MHz Band

- High power base station band-pass filters for the 66 – 88 MHz range.
- The use of large  $\varnothing 250$  mm cavities means a high Q, resulting in a very narrow passband.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 8000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

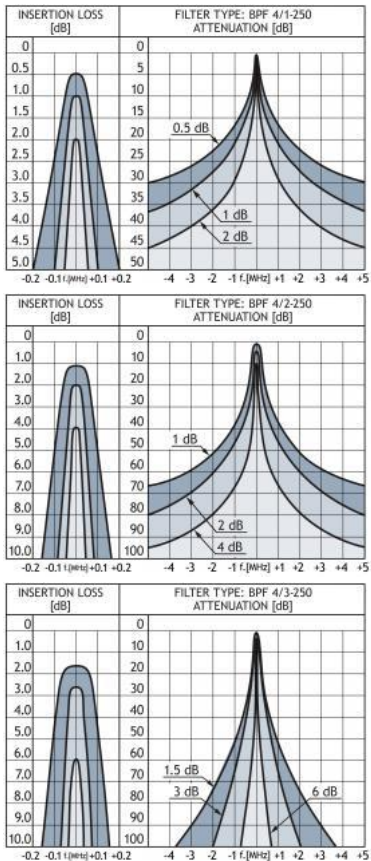
TYPE	PRODUCT NO.
BPF 4/1-250	200000967
BPF 4/2-250	200001883
BPF 4/3-250	200001063

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPF 4/1-250	BPF 4/2-250	BPF 4/3-250
FREQ. RANGE	66 - 88 MHz	66 - 88 MHz	66 - 88 MHz
MAX. INPUT POWER	350 W @ 0.5 dB IL 150 W @ 2.0 dB IL	350 W @ 1.0 dB IL 150 W @ 4.0 dB IL	350 W @ 1.5 dB IL 150 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.4 - 2.0 dB	Adjustable 0.8 - 4.0 dB	Adjustable 1.2 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	$\leq 1.5$	$\leq 1.5$	$\leq 1.5$
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C $\rightarrow$ +60° C	-30° C $\rightarrow$ +60° C	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
MAX. RPM	200 (On tuning rod)		

CONNECTORS	N-female	N-female	N-female
DIMENSIONS	ø250 x 1200 mm	L:250 x W:500 x H:1200 mm	L:250 x W:750 x H:1200 mm
WEIGHT	Approx. 8.6 kg	Approx. 17.5 kg	Approx. 26.6 kg

## TYPICAL RESPONSE CURVES





## DP6 6/6-HX-150

### 6-cavity Mobile or Base Station Duplexer for the 45 - 68 MHz Band

- The DP6 6/6-HX-150 is a six-cavity high-power mobile or base station duplexer for the 45 - 68 MHz band.
- This type of filter uses six large 40 x 40 mm cavities, all equipped with 3.5 mm silver-plated helical resonators, 19 mm diameter.

## Description

- The use of large cavities and resonators means higher Q, resulting in smaller duplex spacing with lower loss.
- The larger dimensions extend power rating to 100 W continuous.
- The DP6 6/6-HX-150 is designed for single-channel equipment, but can, with slightly reduced data, be broadband-adjusted to allow multichannel equipment to be used.
- The cavities are made of extruded aluminium, the chassis of passivated steel. All coaxial cables are of the semi-rigid type, and teflon has been used in all connectors and cables.
- The filter is black vinyl coated to prevent corrosion.
- Please specify the frequencies for TX and RX when ordering, as all filters are made individually.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
DP6 6/6-HX-150	200000447

## SPECIFICATIONS

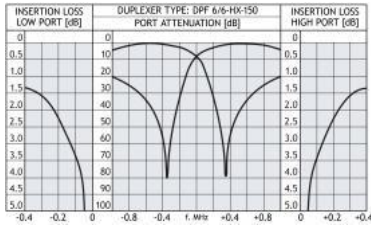
ELECTRICAL	
MODEL	DP6 6/6-HX-150
TX/RX FREQUENCY	45 - 68 MHz
MAX. INPUT POWER	100 W @ 1 dB insertion loss
MIN. DUPLEX SPACING	700 kHz
TYPICAL INSERTION LOSS	@ 700 kHz spacing: 1.5 dB @ 1.0 MHz spacing: 1.2 dB @ 1.5 MHz spacing: 1.0 dB
TX NOISE SUPPRESSION ON RX-FREQUENCY AND RX ISOLATION ON TX-FREQUENCY	@ 700 kHz spacing: 85 dB @ 1.0 MHz spacing: 90 dB @ 1.5 MHz spacing: 95 dB
IMPEDANCE	Nom. 50 Ω
SWR	≤ 1.5
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
FREQ. STABILITY	Approx. 8 ppm/° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	270 x 250 x 50 mm



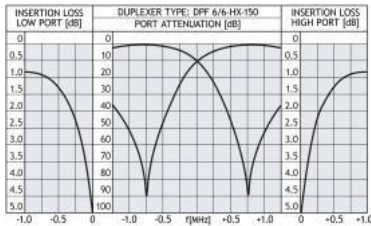
WEIGHT

Approx 2.5 kg

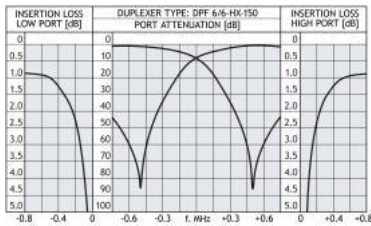
### TYPICAL RESPONSE CURVES @ 0.7 MHz DUPLEX SPACING



### TYPICAL RESPONSE CURVES @ 1 MHz DUPLEX SPACING



### TYPICAL RESPONSE CURVES @ 1.5 MHz DUPLEX SPACING





## BPF 4/...-200

### Band-Pass Filters for the 80 MHz Band

- High power base station band-pass filters for the 66 - 88 MHz range.
- The use of large  $\varnothing 200$  mm cavities means a high Q, resulting in a very narrow passband.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 7000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

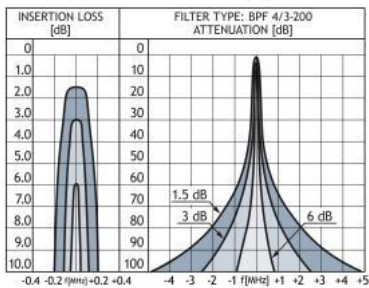
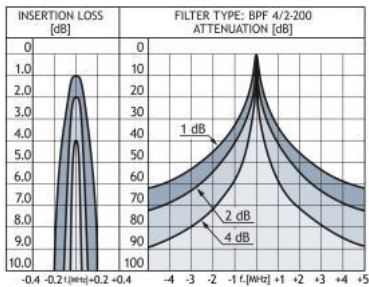
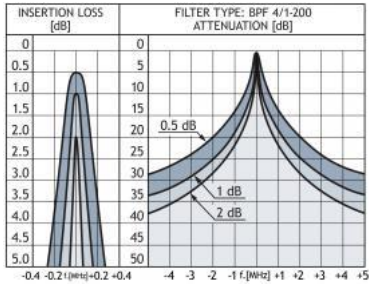
TYPE	PRODUCT NO.
BPF 4/1-200	200000989
BPF 4/2-200	200001166
BPF 4/3-200	200001882

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPF 4/1-200	BPF 4/2-200	BPF 4/3-200
FREQ. RANGE	66 - 88 MHz	66 - 88 MHz	66 - 88 MHz
MAX. INPUT POWER	350 W @ 0.5 dB IL 150 W @ 2.0 dB IL	350 W @ 1.0 dB IL 150 W @ 4.0 dB IL	350 W @ 1.5 dB IL 150 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.4 - 2.0 dB	Adjustable 0.8 - 4.0 dB	Adjustable 1.2 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	$\leq 1.5$	$\leq 1.5$	$\leq 1.5$
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C

MAX. RPM	200 (On tuning rod)		
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	ø200 x 1200 mm	L:200 x W:400 x H:1200 mm	L:200 x W:600 x H:1200 mm
WEIGHT	Approx. 6.7 kg	Approx. 13.7 kg	Approx. 20.9 kg

## TYPICAL RESPONSE CURVES





## BPF 4/...-125

### Band-Pass Filters for the 80 MHz Band

- High power base station band-pass filters for the 66 - 88 MHz range.
- The use of large  $\varnothing 125$  mm cavities means a high Q, resulting in a very narrow passband.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 4500.
- High frequency stability on temperature and power.
- 19" mounting brackets are included on BPF 4/2-125 and BPF 4/3-125.

## ORDERING DESIGNATIONS

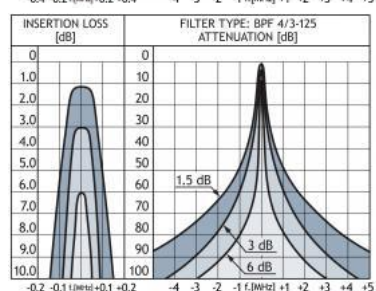
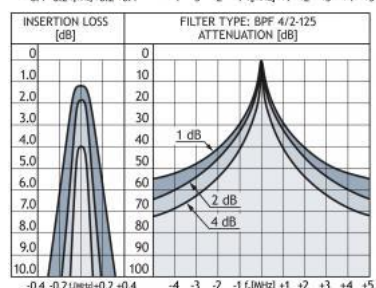
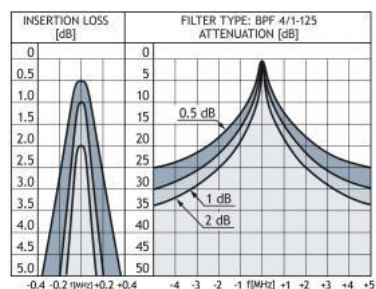
TYPE	PRODUCT NO.
BPF 4/1-125	200000987
BPF 4/2-125	200000988
BPF 4/3-125	200001881

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPF 4/1-125	BPF 4/2-125	BPF 4/3-125
FREQ. RANGE	66 - 88 MHz	66 - 88 MHz	66 - 88 MHz
MAX. INPUT POWER	300 W @ 0.5 dB IL 125 W @ 2.0 dB IL	300 W @ 1.0 dB IL 125 W @ 4.0 dB IL	300 W @ 1.5 dB IL 125 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.4 - 2.0 dB	Adjustable 0.8 - 4.0 dB	Adjustable 1.2 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	$\leq 1.5$	$\leq 1.5$	$\leq 1.5$
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C $\rightarrow$ +60° C	-30° C $\rightarrow$ +60° C	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
MAX. RPM	200 (On tuning rod)		

CONNECTORS	N-female	N-female	N-female
DIMENSIONS	ø125 x 1200 mm	L:125 x W:250 x H:1200 mm	L:125 x W:375 x H:1200 mm
WEIGH	Approx. 4.3 kg	Approx. 9.3 kg	Approx. 13.7 kg

## TYPICAL RESPONSE CURVES





## DPF 4/8 S-4/13

### 8-Resonator Duplexer for the 80 MHz Band

- The DPF 4/8 S-4/13 is an 8-resonator duplex filter for duplex radiotelephones.
- This filter is primarily intended for equipment, where the TX and the RX operate on single frequencies, but it can also, however with slightly reduced data, be used where the TX and RX operate on several channels, i.e. within a certain port bandwidth. In the last case, factory tuning is recommended.

## Description

- The duplexer can be tuned within the complete 66 - 88 MHz range with a duplex separation between 4 and 13 MHz.
- The filter has very small physical dimensions owing to the use of high-Q, temperature compensated helical resonators with discrete-component interconnections.
- The housing is made of extruded aluminium, the chassis of passivated steel, and the connectors are provided with teflon insulation.
- The filter is black vinyl coated to prevent corrosion.

## ORDERING DESIGNATIONS

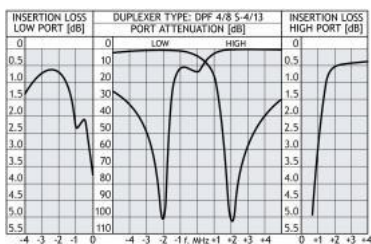
TYPE	PRODUCT NO.
DPF 4/8 S-4/13	200000258

## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 4/8 S-4/13
TX/RX FREQUENCY	66 - 88 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS TX-ANT AND ANT-RX (at 4 MHz duplex spacing)	
Single-channel tuned	≤ 1.0 dB
Multi-channel tuned, 1.4 MHz BW	≤ 1.2 dB
TX NOISE SUPPRESSION ON RX-FREQUENCY	
Single-channel tuned	> 100 dB
Multi-channel tuned, 1.4 MHz BW	> 60 dB
RX ISOLATION ON TX-FREQUENCY	
Single-channel tuned	> 100 dB
Multi-channel tuned, 1.4 MHz BW	> 60 dB
DUPLEX SPACING	4 - 13 MHz (adjustable)

IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 9 ppm/° C
CONNECTORS	BNC-female
DIMENSIONS (L x W x H)	168 x 208 x 33 mm
WEIGHT	Approx 1060 g

### TYPICAL RESPONSE CURVES @ 4 MHz DUPLEX SPACING



### PLEASE NOTE

Special configurations of this filter type may be quoted on request. As an example, the filter can be delivered with the resonators stacked 4 over 4, thereby accomodating special space restrictions. In this case the filter designation is DPF 4/44 S.



## DPF 4/6 S-...

### 6-Resonator Duplexer for the 80 MHz Band

- The DPF 4/6 S-... is a 6-resonator duplex filter for duplex radiotelephones.
- This filter is primarily intended for equipment, where the TX and the RX operate on single frequencies, but it can also, however with slightly reduced data, be used where the TX and RX operate on several channels, i.e. within a certain port bandwidth. In the last case, factory-tuning is recommended.

## Description

- The filter can be tuned within the complete 66 - 88 MHz range with a duplex separation between 4 and 13 MHz.
- The filter has very small dimensions owing to the use of high-Q, temperature compensated helical resonators with discrete-component interconnections.
- The housing is made of extruded aluminium, the chassis of passivated steel, and the connectors are provided with teflon insulation.
- The filter is black vinyl-coated to prevent corrosion.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.	DUPLEX SPACING (MHz)
DPF 4/6 S-3/4	200000280	3 - 4
DPF 4/6 S-4/13	200000248	4 - 13

## PLEASE NOTE

This filter type can also be delivered with the resonators stacked 3 over 3, thereby accomodating special space restrictions. In this case please order DPF 4/33 S.

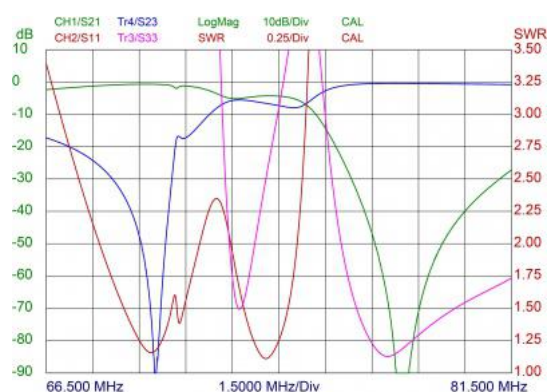
## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 4/6 S-...
TX/RX FREQUENCY	66 - 88 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS	
TX-ANT AND ANT-RX	
(at 4 MHz duplex spacing)	
Single-channel tuned	< 1.2 dB
Multi-channel tuned, 2 MHz BW	< 1.3 dB
TX NOISE SUPPRESSION ON	
RX-FREQUENCY	
Single-channel tuned	> 80 dB



Multi-channel tuned, 2 MHz BW	> 40 dB
RX ISOLATION ON	
TX-FREQUENCY	
Single-channel tuned	> 80 dB
Multi-channel tuned, 2 MHz BW	> 40 dB
SPACING	3 - 16 MHz (see table)
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.4$
<b>MECHANICAL</b>	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 9 ppm/° C
CONNECTORS	BNC-female
DIMENSIONS (L x W x H)	170 x 154 x 33 mm
WEIGHT	Approx 1050 g

## TYPICAL RESPONSE CURVES





## DPF 4/6-HX-150

### 6-cavity Mobile or Base Station Duplexer for the 68 - 88 MHz Band

- The DPF 4/6-HX-150 is a six-cavity high-power mobile or base station duplexer for the 68 - 88 MHz band.
- This type of filter uses six large 40 x 40 mm cavities, all equipped with 3.5 mm silver-plated helical resonators, 19 mm diameter.

## Description

- The use of large cavities and resonators means higher Q, resulting in smaller duplex spacing with lower loss.
- The larger dimensions extend power rating to 100 W continuous.
- The DPF 4/6-HX-150 is designed for single-channel equipment, but can, with slightly reduced data, be broadband-adjusted to allow multichannel equipment to be used.
- The cavities are made of extruded aluminium, the chassis of passivated steel. All coaxial cables are of the semi-rigid type, and teflon has been used in all connectors and cables.
- The filter is black vinyl coated to prevent corrosion.
- Please specify the frequencies for TX and RX when ordering, as all filters are made individually.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
DPF 4/6-HX-150	200000266

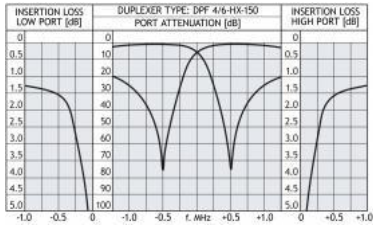
## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 4/6-HX-150
TX/RX FREQUENCY	68-88 MHz (88-112 MHz)
MAX. INPUT POWER	100 W @ 1 dB insertion loss
MIN. DUPLEX SPACING	800 kHz
TYPICAL INSERTION LOSS	@ 1.0 MHz spacing: 1.5 dB @ 1.5 MHz spacing: 1.2 dB @ 3.0 MHz spacing: 1.0 dB
TX NOISE SUPPRESSION ON RX-FREQUENCY AND RX ISOLATION ON TX-FREQUENCY	@ 1. MHz spacing: 70 dB @ 1.5 MHz spacing: 80 dB @ 3.0 MHz spacing: 100 dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 8 ppm/° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	210 x 250 x 50 mm

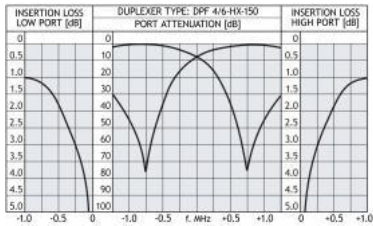
WEIGHT

Approx. 2.5 kg

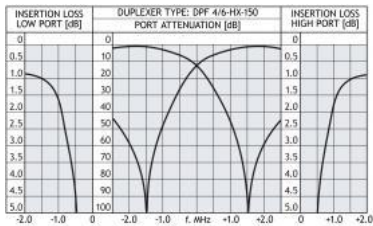
## TYPICAL RESPONSE CURVES @ 1 MHz DUPLEX SPACING



## TYPICAL RESPONSE CURVES @ 1.5 MHz DUPLEX SPACING



## TYPICAL RESPONSE CURVES @ 3 MHz DUPLEX SPACING





## DPF 4/4 S-4/13

### 4-Resonator Duplexer for the 80 MHz Band

- The DPF 4/4 S-4/13 is a 4-resonator duplex filter for duplex radiotelephones.
- This filter is primarily intended for equipment, where the TX and the RX operate on single frequencies, but it can also, however with slightly reduced data, be used where the TX and RX operate on several channels, i.e. within a certain port bandwidth. In the last case, factory tuning is recommended.

## Description

- The duplexer can be tuned within the complete 66 - 88 MHz range with a duplex separation between 4 and 13 MHz.
- The filter has very small physical dimensions owing to the use of high-Q, temperature compensated helical resonators with discrete-component interconnections.
- The housing is made of extruded aluminium, the chassis of passivated steel, and the connectors are provided with teflon insulation.
- The filter is black vinyl coated to prevent corrosion.

## ORDERING DESIGNATIONS

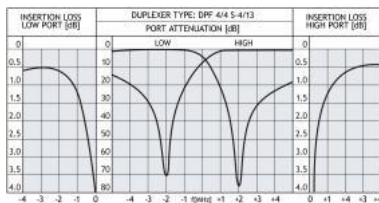
TYPE	PRODUCT NO.
DPF 4/4 S-4/13	200000221

## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 4/4 S-4/13
TX/RX FREQUENCY	66 - 88 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS TX-ANT AND ANT-RX (at 4 MHz duplex spacing) Single-channel tuned Multi-channel tuned, 1 MHz BW	   ≤ 0.8 dB ≤ 1.0 dB
TX NOISE SUPPRESSION ON RX-FREQUENCY Single-channel tuned Multi-channel tuned, 1 MHz BW	  > 80 dB > 40 dB
RX ISOLATION ON TX-FREQUENCY Single-channel tuned	 > 60 dB

Multi-channel tuned, 1 MHz BW	> 40 dB
DUPLEX SPACING	4 - 13 MHz (adjustable)
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 9 ppm/° C
CONNECTORS	BNC-female
DIMENSIONS (L x W x H)	173 x 104 x 33 mm
WEIGHT	Approx 540 g

### TYPICAL RESPONSE CURVES @ 4 MHz DUPLEX SPACING





## DPF 4/...-125

### Duplex Filters for the 85 MHz Band

- High power base station duplex filters for the 66 – 88 MHz range.
- The use of large  $\varnothing 125$  mm cavities means a high Q, resulting in a very small duplex spacing.

### Description

- The large dimensions also mean a high power rating.
- High frequency stability on temperature and power.
- Mounting brackets for 19" mounting included.
- Please specify the frequencies for TX and RX when ordering.

### ORDERING DESIGNATIONS

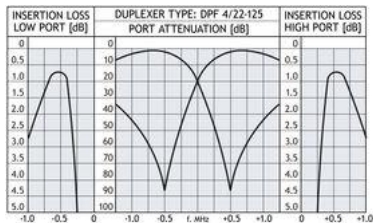
TYPE	PRODUCT NO.
DPF 4/22-125	200001581
DPF 4/33-125	200001582

### Specifications

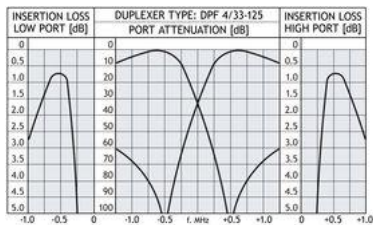
ELECTRICAL		
MODEL	DPF 4/22-125	DPF 4/33-125
FREQUENCY RANGE	66 - 88 MHz	66 - 88 MHz
MAX. INPUT POWER	250 W @ 1 dB IL	250 W @ 1.5 dB IL
MIN. DUPLEX SPACING	250 kHz	250 kHz
TYP. INSERTION LOSS	< 1.0 dB	< 1.5 dB
ATTENUATION	> 40 dB	> 60 dB
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR	$\leq 1.5$	$\leq 1.5$
MECHANICAL		
TEMP. RANGE	-30° C $\rightarrow$ +60° C	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 0.8 ppm/° C	Approx. 0.8 ppm/° C

CONNECTORS	N-female	N-female
DIMENSIONS (L x W x H)	260 x 483 x 1400 (1500) mm	260 x 483 x 1400 (1500) mm
WEIGHT	Approx. 19 kg	Approx. 28.4 kg

### TYPICAL RESPONSE CURVES @ 1 MHz DUPLEX SPACING



### TYPICAL RESPONSE CURVES @ 1 MHz DUPLEX SPACING





## DPF 3/6-HX-150

### 6-cavity Mobile or Base Station Duplexer for the 112 - 136 MHz Band

- The DPF 3/6-HX-150 is a six-cavity high-power mobile or base station duplexer for the 112 - 136 MHz band.
- This type of filter uses six large 40 x 40 mm cavities, all equipped with 3.5 mm silver-plated helical resonators, diameter 19 mm.

## Description

- The use of large cavities and resonators means higher Q, resulting in smaller duplex spacing with lower loss.
- The larger dimensions extend power rating to 100 W continuous.
- The DPF 3/6-HX-150 is designed for single-channel equipment, but can, with slightly reduced specification, be broadband-adjusted to allow multichannel equipment to be used.
- The cavities are made of extruded aluminium, the chassis of passivated steel. All coaxial cables are of the semi-rigid type, and teflon has been used in all connectors and cables.
- The filter is black vinyl coated to prevent corrosion.
- Please specify the frequencies for TX and RX when ordering, as all filters are made individually.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
DPF 3/6-HX-150	200000249

## SPECIFICATIONS

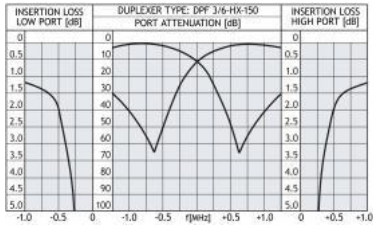
ELECTRICAL	
MODEL	DPF 3/6-HX-150
TX/RX FREQUENCY	112 - 136 MHz
MAX. INPUT POWER	100 W @ 1 dB insertion loss
MIN. DUPLEX SPACING	1 MHz
TYPICAL INSERTION LOSS	@ 1.3 MHz spacing: 1.5 dB @ 2.0 MHz spacing: 1.2 dB @ 3.0 MHz spacing: 1.0 dB
TX NOISE SUPPRESSION ON RX-FREQUENCY AND RX ISOLATION ON TX-FREQUENCY	@ 1.3 MHz spacing: 65 dB @ 2.0 MHz spacing: 80 dB @ 3.0 MHz spacing: 100 dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 8 ppm/° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	185 x 250 x 50 mm



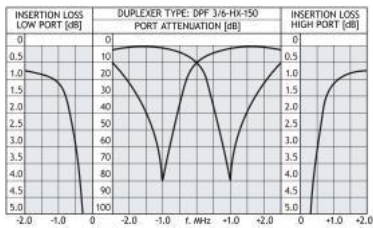
WEIGHT

Approx. 2.1 kg

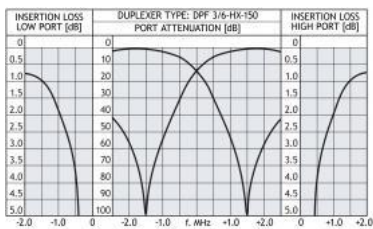
## TYPICAL RESPONSE CURVES @ 1.3 MHz DUPLEX SPACING

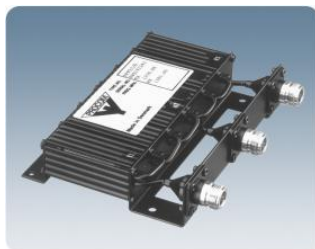


## TYPICAL RESPONSE CURVES @ 2 MHz DUPLEX SPACING



## TYPICAL RESPONSE CURVES @ 3 MHz DUPLEX SPACING





## DPF 23/6

### 6-Cavity Duplexer for the 23 cm Amateur Radio Band

- The DPF 23/6 is a 6-cavity duplex filter for the 23 cm amateur band.
- The DPF 23/6 can be tuned within the 1240 - 1300 MHz amateur band with a nominal duplex separation of 35 MHz.

## Description

- The filter uses full-length  $\frac{1}{4} \lambda$  cavities in a compact, extruded aluminium housing. The chassis is made of passivated steel, and teflon insulation has been applied in the rigid coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.

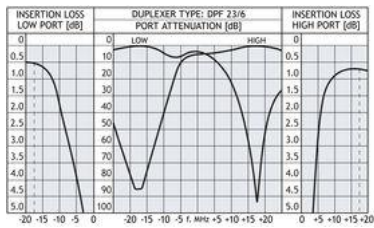
## ORDERING DESIGNATIONS

TYPE NO.	PRODUCT NO.
DPF 23/6	200000049

## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 23/6
TX/RX FREQUENCY	1240 - 1300 MHz
MAX. INPUT POWER	50 W
NOM. SPACING TX-RX	35 MHz - 28 MHz on request
INSERTION LOSS TX-ANT AND ANT-RX	$\leq 1.0$ dB (typically $\leq 0.7$ dB)
TX-NOISE SUPPRESSION ON RX-FREQUENCY (SINGLE CHANNEL TUNED)	$\geq 85$ dB
RX ISOLATION ON TX-FREQUENCY (SINGLE CHANNEL TUNED)	$\geq 85$ dB
DUPLEX SPACING	35 MHz (nominal) 28 MHz on request
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$ dB
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQUENCY STABILITY	Approx. 5 ppm/° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	135 x 154 x 33 mm
WEIGHT	Approx. 620 g

## TYPICAL RESPONSE CURVES





## DPF 2/6-SHT-...

### 6-Cavity Duplexer for the 175 - 250 MHz Band

- The DPF 2/6-SHT-... is a 6-cavity duplex filter for duplex radiotelephones.
- This duplexer is delivered in a low band version type DPF 2/6-SHT-L, tunable within 175 - 250 MHz, medium band version type DPF 2/6-SHT-M, tunable within 200 - 230 MHz and a high band version type DPF 2/6-SHT-H, tunable within 230 - 260 MHz. These models are again delivered in 3 submodels, each dedicated to work with a certain duplex spacing. See ordering information under the tab "Specifications" below.

## Description

- The DPF 2/6-SHT-... models are primarily intended for equipment, where the TX and RX operate on single frequencies, but they can also, however with slightly reduced data, be used where the TX and RX operate on several channels, i.e. within a certain port bandwidth. In the last case, factory tuning is recommended.
- The filter has very small physical dimensions owing to the use of high-Q, temperature compensated helical resonators.
- The housing is made of extruded aluminium, the chassis of passivated steel, and teflon insulation has been applied in the rigid coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.

## ORDERING DESIGNATIONS

TYPE NO.	PRODUCT NO.	TUNING RANGE (MHz)	DUPLEX SPACING (MHz)
DPF 2/6-SHT-L-4/6	200001852	175 - 200	4 - 6
DPF 2/6-SHT-L-6/8	200001853		6 - 8
DPF 2/6-SHT-L-8/10	200001854		8 - 10
DPF 2/6-SHT-M-4/6	200001855	200 - 230	4 - 6
DPF 2/6-SHT-M-6/8	200001856		6 - 8
DPF 2/6-SHT-M-8/10	200001857		8 - 10
DPF 2/6-SHT-H-4/6	200001858	230 - 260	4 - 6
DPF 2/6-SHT-H-6/8	200001859		6 - 8
DPF 2/6-SHT-H-8/10	200001860		8 - 10

## ORDERING INFORMATION

When ordering, please use the table above to select the appropriate ordering designation for the desired filter type. If duplex TX and RX frequencies are stated when ordering, the duplexers are delivered factory adjusted. If TX and RX frequencies are not stated, the filters are delivered non-adjusted.

## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 2/6-SHT-...
TX/RX FREQUENCY	DPF 2/6-SHT-L: 175 - 200 MHz DPF 2/6-SHT-M: 200 - 230 MHz DPF 2/6-SHT-H: 230 - 260 MHz

MAX. INPUT POWER	50 W
INSERTION LOSS TX-ANT AND ANT-RX (at 4.5 MHz duplex spacing)	
Single-channel tuned	$\leq 1.2$ dB (typ. 1.0 dB)
Multi-channel tuned, 1.5 MHz BW	$\leq 1.4$ dB (typ. 1.2 dB)
TX NOISE SUPPRESSION ON RX-FREQUENCY	
Single-channel tuned	$> 80$ dB
Multi-channel tuned, 1.5 MHz BW	$> 60$ dB
RX ISOLATION ON TX-FREQUENCY	
Single-channel tuned	$> 80$ dB
Multi-channel tuned, 1 MHz BW	$> 60$ dB
DUPLEX SPACING	4 - 10 MHz (adjustable)
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 5 ppm/° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	191 x 154 x 33 mm
WEIGHT	Approx. 800 g

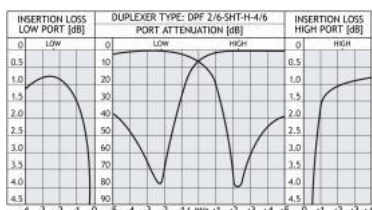
## ORDERING INFORMATION

When ordering, please use the table above to select the appropriate ordering designation for the desired filter type. If duplex TX and RX frequencies are stated when ordering, the duplexers are delivered factory adjusted. If TX and RX frequencies are not stated, the filters are delivered non-adjusted.

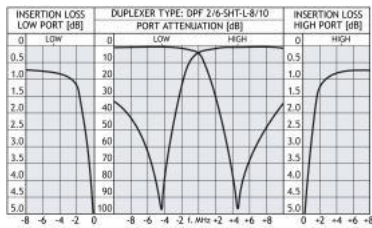
## PLEASE NOTE

Special configurations of this filter type may be quoted on request. For instance, the filter can be delivered with other connector types or with flying leads (RG 316 coaxial cable) terminated with connectors or for soldering-connection.

## TYPICAL RESPONSE CURVES @ 4.5 MHz DUPLEX SPACING



## TYPICAL RESPONSE CURVES @ 9 MHz DUPLEX SPACING





## DPF 2/6-HX-150

### 6-cavity Mobile or Base Station Duplexer for the 136 - 175 MHz Band

- The DPF 2/6-HX-150 is a six-cavity high-power mobile or base station duplexer for the 136 - 175 MHz band.
- This type of filter uses six large 40 x 40 mm cavities, all equipped with 3.5 mm silver-plated helical resonators, diameter 19 mm.

## Description

- The use of large cavities and resonators means higher Q, resulting in smaller duplex spacing with lower loss.
- The larger dimensions extend power rating to 100 W continuous.
- The DPF 2/6-HX-150 is designed for single-channel equipment, but can, with slightly reduced specification, be broadband-adjusted to allow multichannel equipment to be used.
- The cavities are made of extruded aluminium, the chassis of passivated steel. All coaxial cables are of the semi-rigid type, and teflon has been used in all connectors and cables.
- The filter is black vinyl coated to prevent corrosion.
- Please specify the frequencies for TX and RX when ordering, as all filters are made individually.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
DPF 2/6-HX-150	200000220

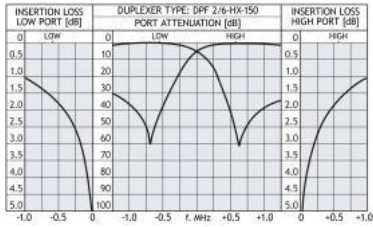
## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 2/6-HX-150
TX/RX FREQUENCY	136 - 175 MHz
MAX. INPUT POWER	100 W @ 1 dB insertion loss
MIN. DUPLEX SPACING	1.3 MHz
TYPICAL INSERTION LOSS	@ 1.3 MHz spacing: 1.5 dB @ 2.0 MHz spacing: 1.2 dB @ 3.0 MHz spacing: 1.0 dB
TX NOISE SUPPRESSION ON RX-FREQUENCY AND RX ISOLATION ON TX-FREQUENCY	@ 1.3 MHz spacing: 60 dB @ 2.0 MHz spacing: 85 dB @ 3.0 MHz spacing: 100 dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 8 ppm/° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	185 x 250 x 50 mm

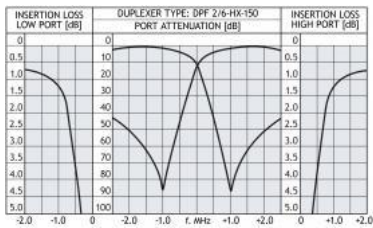
WEIGHT

Approx. 2.1 kg

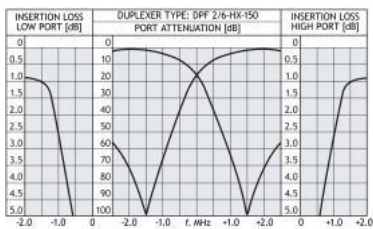
## TYPICAL RESPONSE CURVES @ 1.3 MHz DUPLEX SPACING



## TYPICAL RESPONSE CURVES @ 2 MHz DUPLEX SPACING



## TYPICAL RESPONSE CURVES 3 MHz DUPLEX SPACING







## PRO-DIPX 88/136-N

Diplexer for the 0 - 88 MHz and 136 - 960 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 88 MHz and 136 - 960 MHz.

### DESCRIPTION

- Excellent wide-band coverage – usable for a lot of applications.
- N-connections on all terminals.

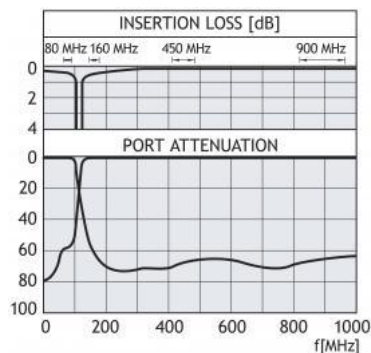
### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-DIPX 88/136-N	200000681

### SPECIFICATIONS

ELECTRICAL	
MODEL	PRO-DIPX 88/136-N
FREQUENCY	Low port : 0 - 88 MHz High port : 136 - 960 MHz
MAX. INPUT POWER	35 W each port
INSERTION LOSS	0 - 88 MHz : $\leq 0.7$ dB 136 - 1300 MHz : $\leq 0.7$ dB
ISOLATION	Low to high port: $\geq 40$ dB
IMPEDANCE	50 $\Omega$ on all terminals
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +70° C
CONNECTORS	Low : N High : N Antenna: N
DIMENSIONS (W x H x D)	138 (incl. connectors) x 152 (incl. flanges) x 35 mm / 5.43 (incl. connectors) x 5.98 (incl. flanges) x 1.38 in.
WEIGHT	Approx. 325 g / 0.72 lb.

### TYPICAL RESPONSE CURVES

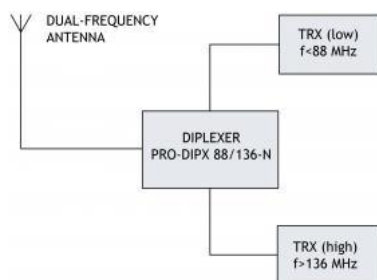


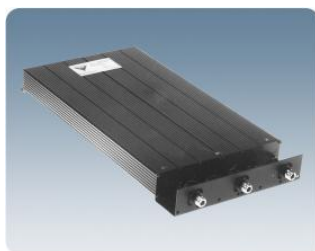
The PRO-DIPX 88/136-N makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure below. The antenna must be a dual-frequency antenna, that is, it must be resonant on the actual frequencies in the two bands. The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable both for base station and mobile use.

The main tasks of the diplexer are to protect the individual receiver input from being destroyed by the transceiver in the contrary band and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 88 MHz and 136 - 960 MHz frequency bands.

Dual-frequency antennas are available for both mobile and base station applications.





## DPF 2/6-150...

### 6-Cavity Base Station Duplexer for the 160 MHz Band

- The DPF 2/6-150... is a 6-cavity high-power, base-station duplex filter for the frequency band 138 - 175 MHz.
- The duplexer is delivered in two basic models:  
Model DPF 2/6-150 L can be tuned within the band 138 - 156 MHz and model DPF 2/6-150 H within the band 152 - 175 MHz, both with a nominal duplex separation of 4.5 MHz.

## Description

- This filter type uses enlarged (40 x 40 mm), full quarter-wavelength cavities with silver-plated, temperature compensated resonator elements. The high Q's obtainable in these cavities enable the filter to work with very narrow duplex spacing while at the same time keeping low insertion losses. Further, duplex isolation is improved at medium spacings.
- The enlarged dimensions also improve the power-handling capability of the filter as insulation distances at high-voltage points are increased, and the inevitable power dissipation (which always will be present though insertion loss is kept to a minimum) will be distributed over a larger area. The filter is capable of working continuously at a power level of 150 W.
- The DPF 2/6-150... is primarily intended for equipment, where the TX and RX operate on single frequencies, but it can also, with slightly reduced data, be used where the TX and RX operate on several channels, i.e. within a certain port bandwidth. In the last case, factory-tuning is recommended.
- The housing is made of extruded aluminium, the chassis of passivated steel, and the rigid coaxial cables and the connectors are provided with teflon insulation.
- The filter is coated with black vinyl to prevent corrosion.

## ORDERING DESIGNATION

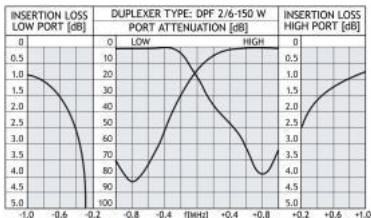
TYPE NO.	PRODUCT NO.	TUNING RANGE (MHz)	DUPLEX SPACING (MHz)
DPF 2/6-150L-1/2	200000204	138 - 156	1 - 2
DPF 2/6-150L-2/4	200000216		2 - 4
DPF 2/6-150L-4/6	200000209		4 - 6
DPF 2/6-150L-6/8	200001863		6 - 8
DPF 2/6-150L-8/10	200001864		8 - 10
DPF 2/6-150H-1/2	200000199	152 - 175	1 - 2
DPF 2/6-150H-2/4	200000198		2 - 4
DPF 2/6-150H-4/6	200001648		4 - 6
DPF 2/6-150H-6/8	200001649		6 - 8
DPF 2/6-150H-8/10	200000189		8 - 10

## SPECIFICATIONS

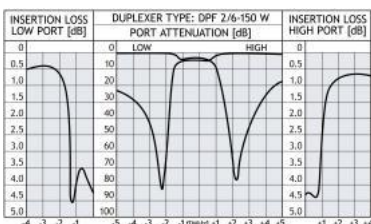
ELECTRICAL	
MODEL	DPF 2/6-150...
TX/RX FREQUENCY	DPF 2/6-150 L: 138 - 156 MHz

	DPF 2/6-150 H: 152 - 175 MHz
MAX. INPUT POWER	150 W
INSERTION LOSS TX-ANT AND ANT-RX (at 4.5 MHz duplex spacing)	
Single-channel tuned	$\leq 1.2$ dB (typ. 1.0 dB)
Multi-channel tuned, 1.5 MHz BW	$\leq 1.4$ dB (typ. 1.2 dB)
TX NOISE SUPPRESSION ON RX-FREQUENCY	
Single-channel tuned	$> 80$ dB
Multi-channel tuned, 1.5 MHz BW	$> 60$ dB
RX ISOLATION ON TX-FREQUENCY	
Single-channel tuned	$> 80$ dB
Multi-channel tuned, 1.5 MHz BW	$> 60$ dB
DUPLEX SPACING	1 - 10 MHz
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
<b>MECHANICAL</b>	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 4.5 ppm/° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	540 x 250 x 50 mm
WEIGHT	Approx. 4.5 kg

### TYPICAL RESPONSE CURVES @ 1.6 MHz DUPLEX SPACING



### TYPICAL RESPONSE CURVES @ 4.5 MHz DUPLEX SPACING







## DPF 2/6...

### 6-Cavity Duplexer for the 160 MHz Band

- The DPF 2/6... is a 6-cavity duplex filter for duplex radiotelephones.
- This duplexer is delivered in a low band version type DPF 2/6 L, tunable within 138 - 156 MHz and a high band version type DPF 2/6 H, tunable within 152 - 175 MHz. These models are again delivered in 3 submodels, each dedicated to work with a certain duplex spacing. See "Ordering information" below.

## Description

- The DPF 2/6... models are primarily intended for equipment, where the TX and RX operate on single frequencies, but they can also, however with slightly reduced data, be used where the TX and RX operate on several channels, i.e. within a certain port bandwidth. In the last case, factory-tuning is recommended.
- The filter has very small physical dimensions owing to the use of high-Q, temperature compensated helical resonators.
- The housing is made of extruded aluminium, the chassis of passivated steel, and teflon insulation has been applied in the rigid coaxial cables and in the connectors.
- The filter is coated with black vinyl to prevent corrosion.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.	TUNING RANGE (MHz)	DUPLEX SPACING (MHz)
DPF 2/6 L-4/6-UHF	200000132	138 - 156	4 - 6
DPF 2/6 L-6/8-UHF	200000134	138 - 156	6 - 8
DPF 2/6 L-8/10-UHF	200000137	138 - 156	8 - 10
DPF 2/6 H-4/6-UHF	200000103	152 - 175	4 - 6
DPF 2/6 H-6/8-UHF	200000104	152 - 175	6 - 8
DPF 2/6 H-8/10-UHF	200000117	152 - 175	8 - 10
DPF 2/6 L-4/6-N	200000130	138 - 156	4 - 6
DPF 2/6 L-6/8-N	200000136	138 - 156	6 - 8
DPF 2/6 L-8/10-N	200000141	138 - 156	8 - 10
DPF 2/6 H-4/6-N	200000100	152 - 175	4 - 6
DPF 2/6 H-6/8-N	200000108	152 - 175	6 - 8
DPF 2/6 H-8/10-N	200000113	152 - 175	8 - 10

## ACCESSORIES

TYPE	PRODUCT NO.
19" MPX Mounting kit	210002291

## SPECIFICATIONS

ELECTRICAL	

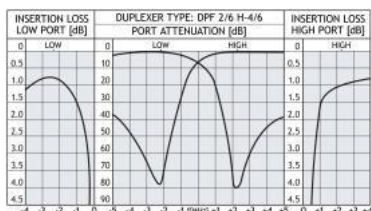
MODEL	DPF 2/6...
TX/RX FREQUENCY	DPF 2/6 L : 138 - 156 MHz DPF 2/6 H : 152 - 175 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS TX-ANT AND ANT-RX (at 4.5 MHz duplex spacing) Single-channel tuned Multi-channel tuned, 1.5 MHz BW	$\leq 1.2$ dB (typ. 1.0 dB) $\leq 1.4$ dB (typ. 1.2 dB)
TX NOISE SUPPRESSION ON RX-FREQUENCY Single-channel tuned Multi-channel tuned, 1.5 MHz BW	$> 80$ dB $> 60$ dB
RX ISOLATION ON TX-FREQUENCY Single-channel tuned Multi-channel tuned, 1.5 MHz BW	$> 80$ dB $> 60$ dB
DUPLEX SPACING	4 - 10 MHz (adjustable)
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
<b>MECHANICAL</b>	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 5 ppm/° C
CONNECTORS	UHF-female or N-female
DIMENSIONS (L x W x H)	211 x 154 x 33 mm
WEIGHT	Approx. 940 g

## ORDERING INFORMATION

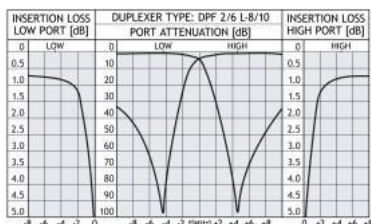
When ordering, please use the table above to select the appropriate ordering designation for the desired filter type. If duplex TX and RX frequencies are stated when ordering, the duplexers are delivered factory adjusted. If TX and RX frequencies are not stated, the filters are delivered non-adjusted.

Special configurations of this filter type may be quoted on request. For instance, the filter can be delivered with other connector types or with flying leads (RG 316 coaxial cable) terminated with connectors or for soldering-connection.

## TYPICAL RESPONSE CURVES @ 4.5 MHz DUPLEX SPACING



## TYPICAL RESPONSE CURVES @ 9 MHz DUPLEX SPACING









## PRO-DIPX 80/100-...

100 W Diplexer for the 0 - 80 MHz and 100 - 960 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 80 MHz and 100 - 960 MHz.
- Chebychev design ensures very high isolation across the whole pass ranges.

### DESCRIPTION

- High power handling capability.
- Low insertion loss.
- Low weight.
- Wide temperature range.
- Milled aluminium box ensures extraordinarily high mechanical strength.
- Black vinyl-coated to prevent corrosion.
- N-connectors on all ports (standard).
- Also available with SMA-, TNC- or BNC- connector types.

### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-DIPX 80/100-N	200002263
PRO-DIPX 80/100-SMA	200002264
PRO-DIPX 80/100-TNC	200002265
PRO-DIPX 80/100-BNC	200002266

### SPECIFICATIONS

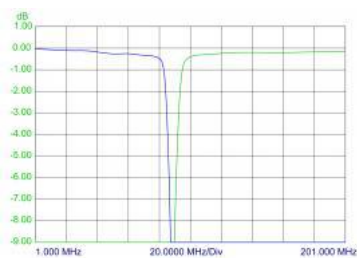
ELECTRICAL	
MODEL	PRO-DIPX 80/100-...
FREQUENCY	COM-LOW port: 0 - 80 MHz COM-HIGH port: 100 - 960 MHz
MAX. RF POWER	100W CW simultaneously on both HIGH and LOW port
INSERTION LOSS	0 - 80 MHz: $\leq 0.6$ dB 100 - 960 MHz: $\leq 0.6$ dB
ISOLATION	LOW to HIGH port: $\geq 40$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	Max. 1.5:1 on all ports
MECHANICAL	
TEMP.RANGE*	-40° C to +60° C
CONNECTORS	INPUT: N-female OUTPUT: N-female

	(Other types available on request)
IP RATING	IP62
DIMENSIONS (L x W x H)	133 x 80 x 31 mm / 5.24 x 3.15 / 1.22 in. (incl. connectors and flanges)
WEIGHT	Approx. 380 g / 0.84 lb.
MOUNTING	ø4.3 mm / ø0.17 in. (4 holes)

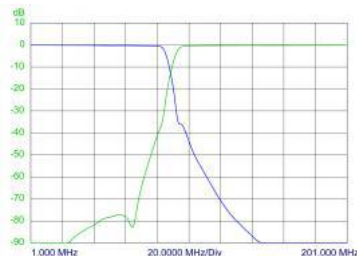
\* Temperature on box surface. Adequate cooling to keep max. temperature below +60° C must be provided.

## TYPICAL RESPONSE CURVES

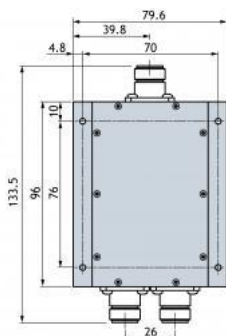
INSERTION LOSS [dB]



PORT ATTENUATION [dB]



## MOUNTING DETAILS

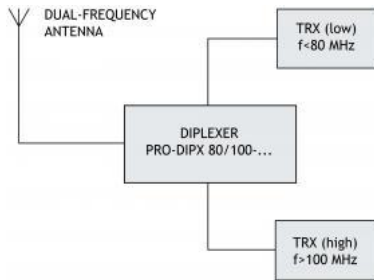


The PRO-DIPX 80/100-... makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure below. The antenna must be a dual-frequency antenna, i.e. it must be resonant on the actual frequencies in the two bands.

The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable both for base station and mobile use.

The main tasks of the diplexer are to protect the individual receiver input from being destroyed by the transceiver in the contrary band and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 80 MHz and 100 - 960 MHz frequency bands.





## PRO-DIPX 520/790-2700-...

50 W Diplexer for the 0 - 520 MHz and 790 - 2700 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 520 MHz and 790 - 2700 MHz.
- IP67 rated for both indoor and outdoor use.

### DESCRIPTION

- Chebychev filter design ensures very high isolation across the entire pass ranges.
- Very low insertion loss.
- Wide temperature range.
- 7/16 DIN-female or N-female connectors on all ports.
- Coated with 2-component lacquer for maximum weather protection.

### ORDERING DESIGNATIONS

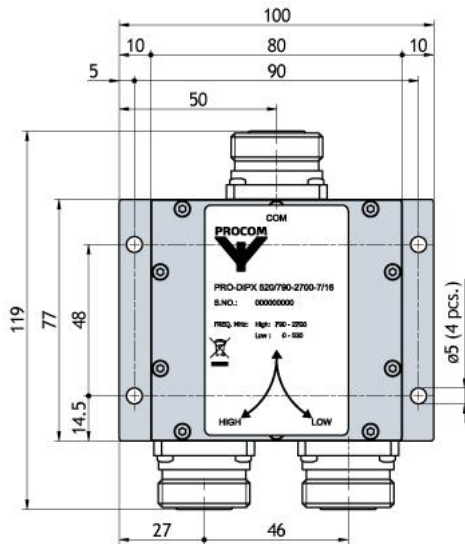
TYPE	PRODUCT NO.
PRO-DIPX 520/790-2700-7/16(f)	200002445
PRO-DIPX 520/790-2700-N(f)	200002501

### SPECIFICATIONS

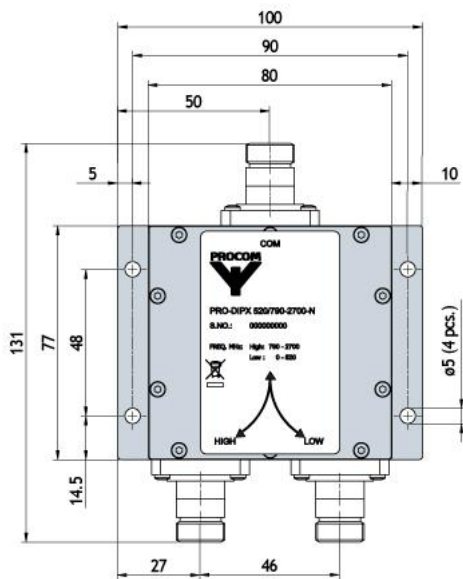
ELECTRICAL		
MODEL	PRO-DIPX 520/790-2700-...	
FREQUENCY	COM-LOW port : 0 - 520 MHz COM-HIGH port : 790 - 2700 MHz	
MAX. RF POWER	50 W CW simultaneously on both HIGH and LOW port	
INSERTION LOSS	0 - 520 MHz	: ≤ 0.6 dB, typ. < 0.5 dB
	790 - 870 MHz	: ≤ 1.2 dB, typ. < 0.9 dB
	870 - 2700 MHz	: ≤ 1.0 dB, typ. < 0.7 dB
ISOLATION	LOW to HIGH port: ≥ 70 dB, typ. 80 dB	
IMPEDANCE	Nom. 50 Ω	
SWR	Max. 1.5:1 on all ports	
PIM	< -130 dBc @ 2 x 43 dBm	
MECHANICAL		
TEMP. RANGE	-30° C → +60° C	
IP rating	IP67	
CONNECTORS	7/16 DIN-female or N-female	
DIMENSIONS (L x W x H)	120 x 100 x 41 mm / 4.72 x 3.94 x 1.61 in. (incl. connectors and flanges)	

WEIGHT	Approx. 800 g / 1.76 lb.
MOUNTING	ø5.2 mm / ø0.20 in. (4 holes)

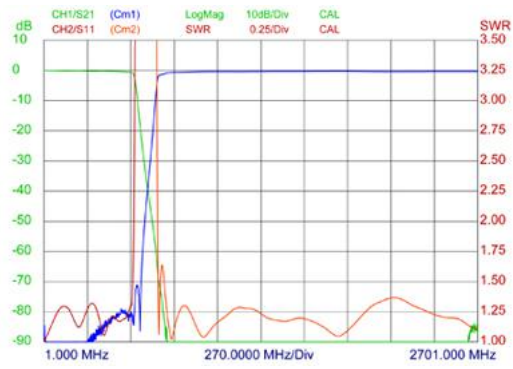
### MOUNTING DETAILS FOR PRO-DIPX 520/790-2700-7/16



### MOUNTING DETAILS FOR PRO-DIPX 520/790-2700-N



### TYPICAL RESPONSE CURVES





## DPF 2/44...

### 8-Cavity Duplexer for the 160 MHz Band

- The DPF 2/44... is a 8-cavity duplex filter for duplex radio transceivers.
- This duplexer is delivered in a low band version type DPF 2/44 L, tunable within 138 - 156 MHz and a high band version type DPF 2/44 H, tunable within 152 - 175 MHz. These models are again delivered in 3 submodels, each dedicated to work with a certain duplex spacing. See Ordering information under the "Specifications" tab below.

## Description

- The DPF 2/44... models are primarily intended for equipment, where the TX and RX operate on several channels, i.e. within a certain port bandwidth.
- The filter has very small physical dimensions owing to the use of high-Q, temperature compensated helical resonators.
- The housing is made of extruded aluminium, the chassis of passivated steel, and teflon insulation has been applied in the rigid coaxial cables and in the connectors.
- The filter is black vinyl-coated to prevent corrosion.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.	TUNING RANGE (MHz)	TX-RX SPACING (MHz)
DPF 2/44 L-4/6-N	200002379	138 - 156	4 - 6
DPF 2/44 L-6/8-N	200002380	138 - 156	6 - 8
DPF 2/44 L-8/10-N	200002381	138 - 156	8 - 10
DPF 2/44 H-4/6-N	200002382	152 - 175	4 - 6
DPF 2/44 H-6/8-N	200002383	152 - 175	6 - 8
DPF 2/44 H-8/10-N	200002384	152 - 175	8 - 10

## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 2/44...
TX/RX FREQUENCY	DPF 2/44 L : 138 - 156 MHz DPF 2/44 H : 152 - 175 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS TX-ANT AND ANT-RX (at 4 MHz TX-RX spacing)	
Multi-channel tuned, 1.5 MHz BW	≤ 1.4 dB (typ. 1.2 dB)
Multi-channel tuned, 5 MHz BW	≤ 1.4 dB (typ. 1.2 dB)
TX NOISE SUPPRESSION ON RX-FREQUENCY	

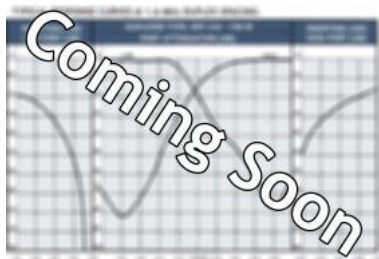
Multi-channel tuned, 1.5 MHz BW	> 90 dB
Multi-channel tuned, 5 MHz BW	> 65 dB
RX ISOLATION ON TX-FREQUENCY	
Multi-channel tuned, 1.5 MHz BW	> 90 dB
Multi-channel tuned, 5 MHz BW	> 65 dB
TX-RX SPACING	4 - 10 MHz (adjustable)
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C to +60° C
FREQ. STABILITY	Approx. 5 ppm/° C
CONNECTORS	N-female
DIMENSIONS (L x W x H) With connector	215 x 105 x 54 mm
WEIGHT	Approx. 1100 g

### ORDERING INFORMATION

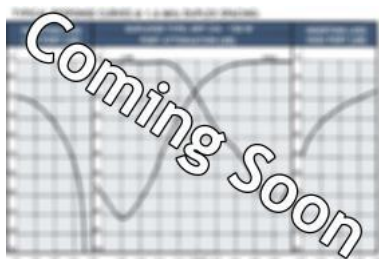
When ordering, please use the table above to select the appropriate ordering designation for the desired filter type. If duplex TX and RX frequencies are stated when ordering, the duplexers are delivered factory adjusted. If TX and RX frequencies are not stated, the filters are delivered non-adjusted.

Special configurations of this filter type may be quoted on request. For instance, the filter can be delivered with other connector types or with flying leads (RG 316 coaxial cable) terminated with connectors or for soldering-connection.

### TYPICAL RESPONSE CURVES @ 4 MHz DUPLEX SPACING & 1,5 BW



### TYPICAL RESPONSE CURVES @ 4 MHz DUPLEX SPACING & 5 BW







## PRO-DIPX 520/790-2.7G-N XS

Diplexer for the 0 - 520 MHz and 790 - 2700 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 520 MHz and 790 - 2700 MHz.
- Excellent wide-band coverage.

### DESCRIPTION

- Can be used to combine e.g. TETRA and GSM/UMTS on a common multiband antenna.
- Smaller model in milled aluminium box.
- Extraordinarily high mechanical strength.
- Black vinyl-coated to prevent corrosion.
- Provided with brackets for panel mounting.
- N-connections on all terminals.

### ORDERING DESIGNATIONS

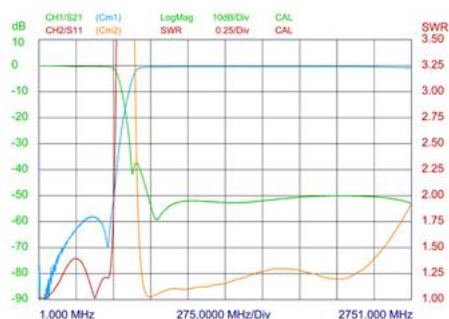
TYPE	PRODUCT NO.
PRO-DIPX 520/790-2.7G-N XS	200002173

### SPECIFICATIONS

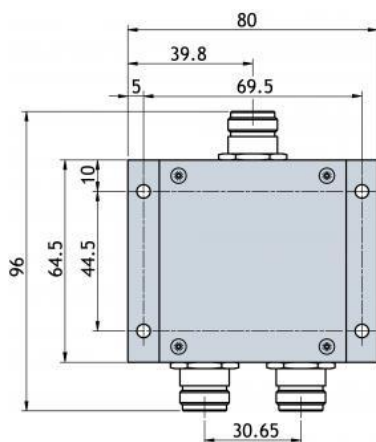
ELECTRICAL	
MODEL	PRO-DIPX 520/790-2.7G-N XS
FREQUENCY	Ant-low port : 0 - 520 MHz Ant-high port : 790 - 2700 MHz
MAX. INPUT POWER	Ant-low port: 35 W Ant-high port: 15 W
INSERTION LOSS	
Ant-low port:	0 - 520 MHz : Max. 0.5 dB typ. < 0.4 dB
Ant-high port:	790 - 2500 MHz: Max. 0.7 dB typ. < 0.5 dB 2500 - 2700 MHz: Max. 0.9 dB typ. < 0.7 dB
ISOLATION	
Low to high port:	0 - 520 MHz: Min. 45 dB typ. > 50 dB  <b>790 - 2700 MHz: Min. 40 dB typ. &gt; 50 dB</b>
IMPEDANCE	50 Ω on all terminals
SWR Low:	< 1.5 (0 - 520 MHz) with the other terminals with 50 Ω.
SWR High:	< 1.5 (790 - 2500 MHz)

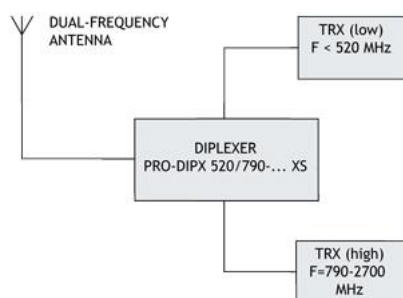
	< 2.0 (2500 - 2700 MHz) with the other terminals with 50 $\Omega$ .
<b>MECHANICAL</b>	
TEMP. RANGE	-30° C to +60° C
CONNECTORS	Low : N High : N Antenna: N
DIMENSIONS (W x D x H)	96 (incl. connectors) x 80 mm (incl. flanges) x 32 mm, 3.7 x 3.2 x 1.2 in.
WEIGHT	Approx. 350 g, 0.8 lb.
MOUNTING	$\varnothing$ 4.3 mm (4 holes)

## TYPICAL RESPONSE CURVES



## MOUNTING DETAILS





The PRO-DIPX 520/790-2.7G-N XS makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure below. The antenna must be a dual-frequency antenna, i.e. it must be resonant on the actual frequencies in the two bands.

The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable both for base station and mobile use.

The main tasks of the diplexer are to protect the individual receiver input from being destroyed by the transceiver in the contrary band and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 520 MHz and 790 - 2700 MHz frequency bands.

Dual-frequency antennas are available for both mobile and base station applications.



## DPF 2/4...

### 4-Cavity Duplexer for the 160 MHz Band

- The DPF 2/4... is a 4-cavity duplex filter for duplex radiotelephones.
- This duplexer is delivered in a low band version type DPF 2/4 L, tunable within 138 - 156 MHz and a high band version type DPF 2/4 H, tunable within 152 - 175 MHz. These models are again delivered in 3 submodels, each dedicated to work with a certain duplex spacing. See "Ordering information" below.

## Description

- The DPF 2/4... models are primarily intended for equipment, where the TX and RX operate on single frequencies, but they can also, however with slightly reduced data, be used where the TX and RX operate on several channels, i.e. within a certain port bandwidth. In the last case, factory-tuning is recommended.
- The filter has very small physical dimensions owing to the use of high-Q, temperature compensated helical resonators.
- The housing is made of extruded aluminium, the chassis of passivated steel, and teflon insulation has been applied in the rigid coaxial cables and in the connectors.
- The filter is black vinyl-coated to prevent corrosion.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.	TUNING RANGE (MHz)	DUPLEX SPACING (MHz)
DPF 2/4 L-4/6	200000067	138 - 156	4 - 6
DPF 2/4 L-6/8	200000068		6 - 8
DPF 2/4 L-8/10	200000069		8 - 10
DPF 2/4 H-4/6	200000058	152 - 175	4 - 6
DPF 2/4 H-6/8	200000060		6 - 8
DPF 2/4 H-8/10	200000063		8 - 10

## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 2/4...
TX/RX FREQUENCY	DPF 2/4 L : 138 - 156 MHz DPF 2/4 H : 152 - 175 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS	
TX-ANT AND ANT-RX	
(at 4.5 MHz duplex spacing)	
Single-channel tuned	≤ 1.0 dB (typ. 0.8 dB)
Multi-channel tuned, 1.5 MHz BW	≤ 1.2 dB (typ. 1.0 dB)

TX NOISE SUPPRESSION	
ON RX-FREQUENCY	
Single-channel tuned	> 60 dB
Multi-channel tuned, 1.5 MHz BW	> 40 dB
RX ISOLATION	
ON TX-FREQUENCY	
Single-channel tuned	> 60 dB
Multi-channel tuned, 1 MHz BW	> 40 dB
DUPLEX SPACING	4 - 10 MHz (adjustable)
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
FREQ. STABILITY	Approx. 5 ppm/° C
CONNECTORS	UHF-female
DIMENSIONS (L x W x H)	211 x 104 x 33 mm
WEIGHT	Approx. 670 g

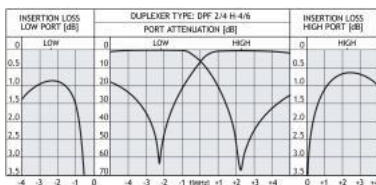
## ORDERING INFORMATION

When ordering, please use the table above to select the appropriate ordering designation for the desired filter type. If duplex TX and RX frequencies are stated when ordering, the duplexers are delivered factory adjusted. If TX and RX frequencies are not stated, the filters are delivered nonadjusted.

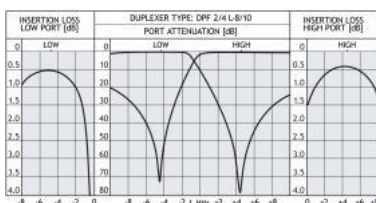
## PLEASE NOTE

Special configurations of this filter type may be quoted on request. For instance, the filter can be delivered with other connector types or with flying leads (RG 316 coaxial cable) terminated with connectors or for soldering-connection.

## TYPICAL RESPONSE CURVES @ 4.5 MHz DUPLEX SPACING



## TYPICAL RESPONSE CURVES @ 9 MHz DUPLEX SPACING







## PRO-DIPX 44/56-...

100 W Diplexer for the 0 - 44 MHz and 56 - 520 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 44 MHz and 56 - 520 MHz.
- Chebychev design ensures very high isolation across the whole pass ranges.

### DESCRIPTION

- High power handling capability.
- Low insertion loss.
- Low weight.
- Wide temperature range.
- Milled aluminium box ensures extraordinarily high mechanical strength.
- Black vinyl-coated to prevent corrosion.
- N-connectors on all ports (standard).
- Also available with SMA-, TNC- or BNC- connector types.

### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-DIPX 44/56-N	200002271
PRO-DIPX 44/56-SMA	200002223
PRO-DIPX 44/56-TNC	200002272
PRO-DIPX 44/56-BNC	200002273

### SPECIFICATIONS

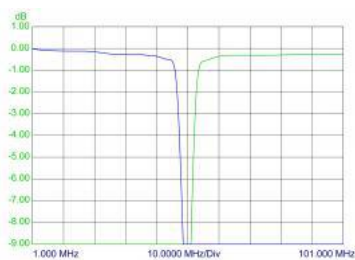
ELECTRICAL	
MODEL	PRO-DIPX 44/56-...
FREQUENCY	COM-LOW port: 0 - 44 MHz COM-HIGH port: 56 - 520 MHz
MAX. RF POWER	100W CW simultaneously on both HIGH and LOW port
INSERTION LOSS	0 - 44 MHz: $\leq 0.6$ dB 56 - 520 MHz: $\leq 0.6$ dB
ISOLATION	LOW to HIGH port: $\geq 40$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	Max. 1.5:1 on all ports
MECHANICAL	
TEMP.RANGE*	-40° C to +60° C
CONNECTORS	INPUT: N-female OUTPUT: N-female

	(Other types available on request)
IP RATING	IP62
DIMENSIONS (L x W x H)	133 x 80 x 31 mm / 5.24 x 3.15 / 1.22 in. (incl. connectors and flanges)
WEIGHT	Approx. 380 g / 0.84 lb.
MOUNTING	ø4.3 mm / ø0.17 in. (4 holes)

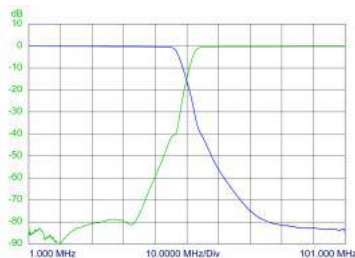
\* Temperature on box surface. Adequate cooling to keep max. temperature below +60° C must be provided.

## TYPICAL RESPONSE CURVES

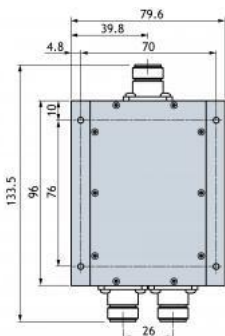
INSERTION LOSS [dB]



PORT ATTENUATION [dB]



## MOUNTING DETAILS



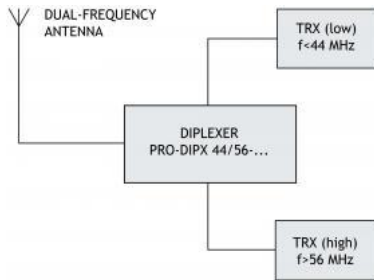
The PRO-DIPX 44/56-... makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure below. The antenna must be a dual-frequency antenna, i.e. it must be resonant on the actual frequencies in the two bands.



The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable both for base station and mobile use.

The main tasks of the diplexer are to protect the individual receiver input from being destroyed by the transceiver in the contrary band and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 44 MHz and 56 - 520 MHz frequency bands.





## DPF 2/33-250-WM

### Duplex Filter for the 150 MHz Band

- High power base station duplex filter for the 140 - 175 MHz range.
- The use of large  $\varnothing 250$  mm cavities means a high Q, resulting in a very narrow duplex spacing.

## Description

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 8000.
- High frequency stability on temperature and power.
- Mounted on 19" brackets.

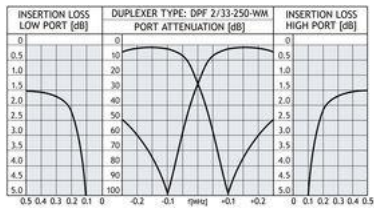
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
DPF 2/33-250-WM	200001877

## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 2/33-250-WM
FREQ. RANGE	140 - 175 MHz
MAX. INPUT POWER	300 W @ 1.5 dB IL 150 W @ 3.0 dB IL
TYP. INSERTION LOSS	250 kHz @ 2.0 dB 500 kHz @ 1.5 dB 750 kHz @ 1.0 dB
TX NOISE SUPPRESSION ON RX FREQ. AND RX ISOLATION ON TX FREQ.	250 kHz @ 80 dB 500 kHz @ 85 dB 750 kHz @ 90 dB
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C
CONNECTORS	N-female
DIMENSIONS	510 x 750 x 600 mm
WEIGHT	Approx. 19.2 kg

## TYPICAL RESPONSE CURVES FOR 500 kHz DUPLEX





## PRO-DIPX 400/440-... XS

50 W Diplexer for the 0 - 400 MHz and 440 - 520 MHz Ranges

- 50 W Diplexer for the 0 - 400 MHz and 440 - 520 MHz Ranges

### DESCRIPTION

- Diplexer for combining or splitting the two ranges 0 - 400 MHz and 440 - 520 MHz.
- Elliptical filter design ensures high isolation across the entire pass ranges.
- High power handling capability.
- Low insertion loss.
- Low weight.
- Wide temperature range.
- Milled aluminium box ensures extraordinarily high mechanical strength.
- Black vinyl-coated to prevent corrosion.
- N-connectors on all ports (standard).
- Also available with SMA-, TNC- or BNC- connector types.

### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-DIPX 400/440-N XS	200002525
PRO-DIPX 400/440-SMA XS	200002534
PRO-DIPX 400/440-TNC XS	200002535
PRO-DIPX 400/440-BNC XS	200002536

### SPECIFICATIONS

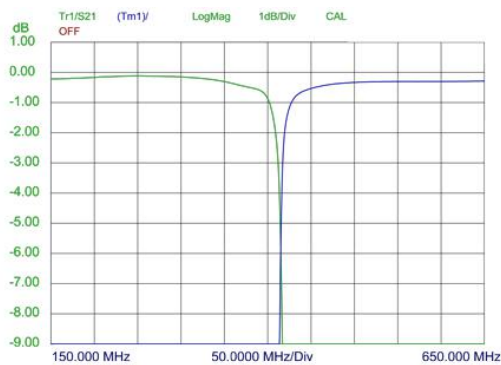
ELECTRICAL	
MODEL	PRO-DIPX 400/440-... XS
FREQUENCY	COM-LOW port: 0 - 400 MHz COM-HIGH port: 440 - 520 MHz
MAX. RF POWER	50W CW simultaneously on both HIGH and LOW port
INSERTION LOSS	0 - 400 MHz: $\leq 1.0$ dB 440- 520 MHz: $\leq 1.0$ dB
ISOLATION	LOW to HIGH port: $\geq 40$ dB
IMPEDANCE	Nom. 50 $\Omega$

SWR	Max. 1.5:1 on all ports
<b>MECHANICAL</b>	
CONNECTORS	N, SMA, TNC or BNC-female (Please see ordering designations)
DIMENSIONS (L x W x H)	103 x 80 x 31 mm / 4.06 x 3.15 / 1.22 in. (incl. connectors and flanges)
WEIGHT	Approx. 310 g / 0.68 lb.
MOUNTING	∅4.3 mm / ∅0.17 in. (4 holes)
<b>ENVIRONMENTAL</b>	
TEMP.RANGE*	-30° C to +60° C
IP RATING	IP 64

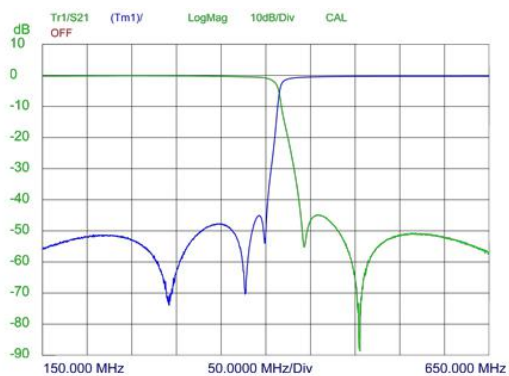
\* Temperature on box surface. Adequate cooling to keep max. temperature below +60° C must be provided.

## TYPICAL RESPONSE CURVES

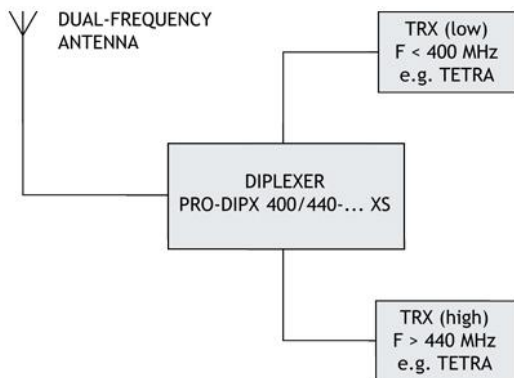
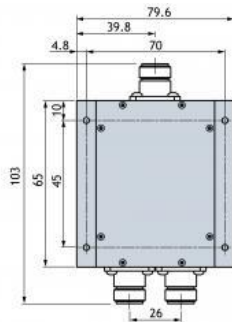
INSERTION LOSS [dB]



PORT ATTENUATION [dB]



## MOUNTING DETAILS



The PRO-DIPX 400/440-... makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure. The antenna must be a dual-frequency antenna, i.e. it must be resonant on the actual frequencies in the two bands.

The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable both for base station and mobile use.

The main tasks of the diplexer are to protect the individual receiver input from being destroyed by the transceiver in the contrary band and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 400 MHz and 440 - 520 MHz frequency bands.

Dual-frequency antennas are available for both mobile and base station applications.



## DIPX 88/136

Diplexer for the 0 - 88 MHz and 136 - 1300 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 88 MHz and 136 - 1300 MHz.
- Excellent wide-band coverage – usable for a lot of applications.

### Description

- Extremely small dimensions.
- Quick installation using dual-adhesive pad provided.
- FME-connections on all terminals.

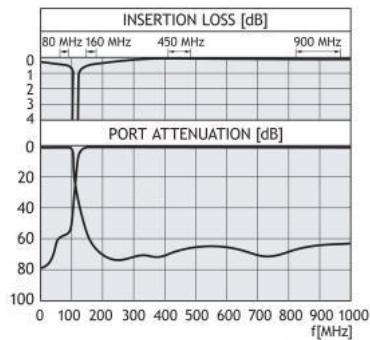
### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
DIPX 88/136	200000659

### SPECIFICATIONS

ELECTRICAL	
MODEL	DIPX 88/136
FREQUENCY	Low port : 0 - 88 MHz High port : 136 - 1300 MHz
MAX. INPUT POWER	35 W each port
INSERTION LOSS	0 - 88 MHz : $\leq 0.7$ dB 136 - 1300 MHz : $\leq 0.7$ dB
ISOLATION	Low to high port: $\geq 45$ dB
IMPEDANCE	50 $\Omega$ on all terminals
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +70° C
CONNECTORS	Low : FME High : FME Antenna: FME
DIMENSIONS (W x H x D)	50 x 21 x 50 mm
WEIGHT	Approx. 62 g

### TYPICAL RESPONSE CURVES



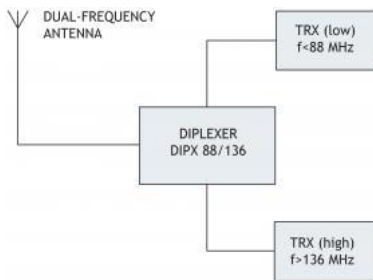
The DIPX 88/136 makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure below. The antenna must be a dual-frequency antenna, that is, it must be resonant on the actual frequencies in the two bands.

The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable both for base station and mobile use.

The main tasks of the diplexer are to protect the individual receiver input from being destroyed by the transceiver in the contrary band and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 88 MHz and 136 - 1300 MHz frequency bands.

Dual-frequency antennas are available for both mobile and base station applications.







## DIPX 500/800-2.5G

Diplexer for the 0 - 500 MHz and 800 - 2500 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 500 MHz and 800 - 2500 MHz.
- Excellent wide-band coverage – usable for a lot of applications.

### Description

- Extremely small dimensions.
- Quick installation using dual-adhesive pad (provided).
- FME-connections on all terminals.

### ORDERING DESIGNATIONS

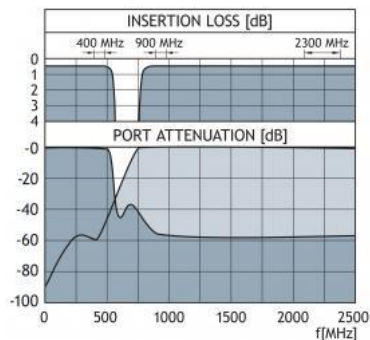
TYPE	PRODUCT NO.
DIPX 500/800-2.5G	200000790

### SPECIFICATIONS

ELECTRICAL	
MODEL	DIPX 500/800-2.5G
FREQUENCY	Ant-low port : 0 - 500 MHz Ant-high port : 800 - 2500 MHz
MAX. INPUT POWER	Ant-low port: 20 W Ant-high port: 15 W
INSERTION LOSS	Ant-low port: 0 - 500 MHz : < 0.5 dB typ. < 0.3 dB Ant-high port: 800 - 2000 MHz: < 0.9 dB typ. < 0.4 dB 2000 - 2500 MHz: < 1.0 dB typ. < 0.7 dB
ISOLATION	Low to high port: 0 - 500 MHz: > 45 dB typ. > 50 dB 800 - 2500 MHz: > 40 dB typ. > 50 dB
IMPEDANCE	50 $\Omega$ on all terminals
VSWR	Ant: < 1.5 (0 - 500 MHz, 800 - 2000 MHz) and < 2.0 (2000 - 2500 MHz) with the others ports terminated with 50 $\Omega$ . Low: < 1.5 (0 - 500 MHz) with the others ports terminated with 50 $\Omega$ . High: < 2.0 (2000 -2500 MHz) with the others ports terminated with 50 $\Omega$ .
MECHANICAL	

TEMP. RANGE	-30° C → +60° C
CONNECTORS	Low : FME High : FME Antenna: FME
DIMENSIONS (W x H x D)	50 x 21 x 50 mm
MOUNTING	Fitted with dual-adhesive pad at the bottom of box
WEIGHT	Approx. 60 g

## TYPICAL RESPONSE CURVES

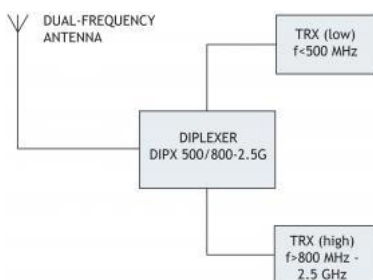


The DIPX 500/800-2.5G makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure below. The antenna must be a dual-frequency antenna, i.e. it must be resonant on the actual frequencies in the two bands. The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable both for base station and mobile use.

The main tasks of the diplexer are to protect the individual receiver input from being destroyed by the transceiver in the contrary band and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 500 MHz and 800 - 2500 MHz frequency bands.

Dual-frequency antennas are available for both mobile and base station applications.





## DIPX 500/800

Diplexer for the 0 - 500 MHz and 800 - 1300 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 500 MHz and 800 - 1300 MHz.
- Excellent wide-band coverage – usable for a lot of applications.

## Description

- Extremely small dimensions.
- Quick installation using dual-adhesive pad provided.
- FME-connections on all terminals.

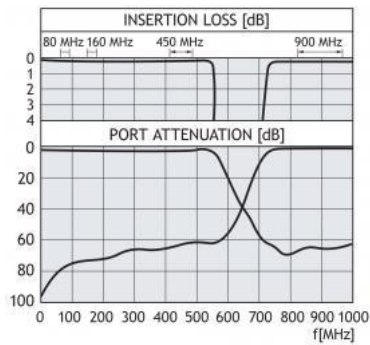
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
DIPX 500/800	200000742

## SPECIFICATIONS

ELECTRICAL	
MODEL	DIPX 500/800
FREQUENCY	Low port : 0 - 500 MHz High port : 800 - 1300 MHz
MAX. INPUT POWER	35 W each port
INSERTION LOSS	0 - 500 MHz : $\leq 0.7$ dB 800 - 1300 MHz: $\leq 0.7$ dB
ISOLATION	Low to high port: $\geq 45$ dB
IMPEDANCE	50 $\Omega$ on all terminals
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +70° C
CONNECTORS	Low : FME High : FME Antenna: FME
DIMENSIONS (W x H x D)	50 x 21 x 50 mm
WEIGHT	Approx. 60 g

## TYPICAL RESPONSE CURVES

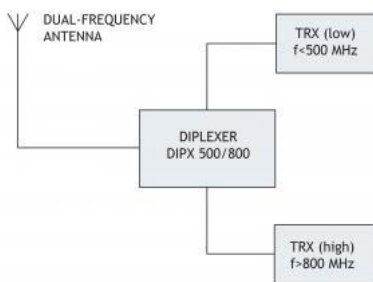


The DIPX 500/800 makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure below. The antenna must be a dual-frequency antenna, e.g. it must be resonant on the actual frequencies in the two bands. The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable both for base station and mobile use.

The main tasks of the diplexer are to protect the individual receiver inputs from being overloaded by the transmitter in the opposite band and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 500 MHz and 800 - 1300 MHz frequency bands.

Dual-frequency antennas are available for both mobile and base station applications.





## PRO-DIPX 240/370-7/16-...

100 W Diplexer for the 0 - 240 MHz and 370 - 960 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 240 MHz and 370 - 960 MHz.
- Available in an indoor and outdoor version.

### DESCRIPTION

- Elliptical filter design ensures very high isolation across the entire pass ranges.
- High power-handling capability.
- Very low insertion loss.
- Wide temperature range.
- DIN 7/16 connectors on all ports.
- Coated with 2-component lacquer for maximum weather protection.
- Mast mounting bracket available for the outdoor version.

### OUTDOOR VERSION



### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.	
PRO-DIPX 240/370-7/16	200002314	Indoor
PRO-DIPX 240/370-7/16-OD	200002313	Outdoor
Mast mounting bracket for PRO-DIPX 240/370-7/16 OD	200002305	

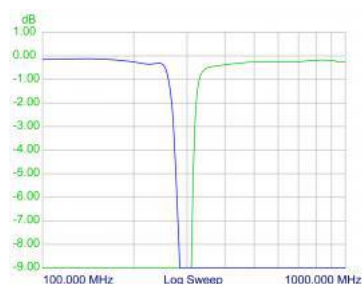
### SPECIFICATIONS

ELECTRICAL	
MODEL	PRO-DIPX 240/370-7/16-...
FREQUENCY	COM-LOW port : 0 - 240 MHz COM-HIGH port : 370 - 960 MHz
MAX. RF POWER	100 W CW simultaneously on both HIGH and LOW port
INSERTION LOSS	0 - 240 MHz: $\leq 0.4$ dB 370 - 960 MHz: $\leq 0.5$ dB
ISOLATION	LOW to HIGH port: $\geq 70$ dB

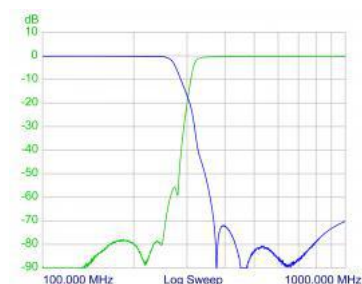
IMPEDANCE	Nom. 50 $\Omega$
SWR	Max. 1.5:1 on all ports
<b>MECHANICAL</b>	
CONNECTORS	DIN 7/16 female
DIMENSIONS (L x W x H) (incl. connectors and flanges)	Indoor version: 120 x 100 x 46 mm / 4.72 x 3.94 x 1.81 in. Outdoor version: 126 x 100 x 46 mm / 4.96 x 3.94 x 1.81 in.
WEIGHT	Indoor version: Approx. 865 g / 1.90 lb. Outdoor version: Approx. 1000 g / 2.20 lb.
MOUNTING	Indoor: $\varnothing$ 5.2 mm / $\varnothing$ 0.20 in. (4 holes) Outdoor: $\varnothing$ 7.0 mm / 0.28 in. (2 holes)
<b>ENVIRONMENTAL</b>	
TEMP. RANGE	-30° C $\rightarrow$ +50° C
IP rating	Indoor version : IP64 Outdoor version: IP67

## TYPICAL RESPONSE CURVES

INSERTION LOSS [dB]



PORT ATTENUATION [dB]





## DIPX 225/330

Diplexer for the 0 - 225 MHz and 330 - 1300 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 225 MHz and 330 - 1300 MHz.
- Excellent wide-band coverage – usable for a lot of applications.

## Description

- Extremely small dimensions.
- Quick installation using dual-adhesive pad provided.
- FME-connections on all terminals.

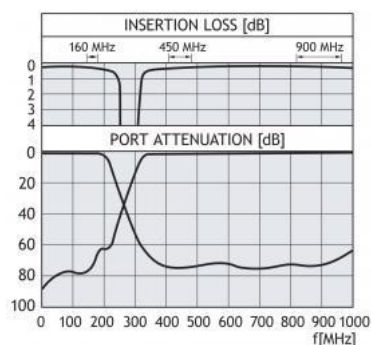
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
DIPX 225/330	200000670

## SPECIFICATIONS

ELECTRICAL	
MODEL	DIPX 225/330
FREQUENCY	Low port : 0 - 225 MHz High port : 330 - 1300 MHz
MAX. INPUT POWER	35 W each port
INSERTION LOSS	0 - 225 MHz : $\leq 0.7$ dB 330 - 1300 MHz: $\leq 0.7$ dB
ISOLATION	Low to high port: $\geq 40$ dB
IMPEDANCE	50 $\Omega$ on all terminals
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +70° C
CONNECTORS	Low : FME High : FME Antenna: FME
DIMENSIONS (W x H x D)	50 x 21 x 50 mm
WEIGHT	Approx. 62 g

## TYPICAL RESPONSE CURVES



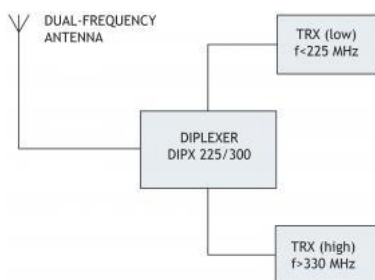
The DIPX 225/330 makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure below. The antenna must be a dual-frequency antenna, e.i. it must be resonant on the actual frequencies in the two bands.

The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable both for base station and mobile use.

The main tasks of the diplexer are to protect the individual receiver input from being destroyed by the transceiver in the contrary band and to ensure a lowloss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 225 MHz and 330 - 1300 MHz frequency bands.

Dual-frequency antennas are available for both mobile and base station applications.







## DIPX 1000/1550-DC-H/DCK

Diplexer for the 0 - 1000 MHz and 1550 - 2500 MHz Ranges

- Diplexer for splitting a combined GPS and TETRA radio signal.
- Allows you to connect a separate radio and GPS antenna to a common radio port.

### Description

- DC power supply for the high port to supply power to an active GPS antenna.
- Extremely low insertion loss.
- High isolation between the two antenna ports.
- Especially suitable for the Motorola Digital Car Kit (DCK).
- Wide-band coverage on the antenna ports:
  - low (radio): 0000 - 1000 MHz
  - high (GPS): 1550 - 2500 MHz
- Easy installation with the mounted, double-sided adhesive pad.
- RF Connectors: FME mounting plug.
- DC connection: 1 m RG 316 cable with FME female connector for Motorola Car Kit.

### ORDERING DESIGNATIONS

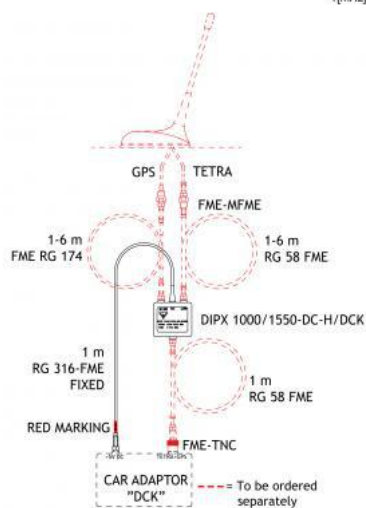
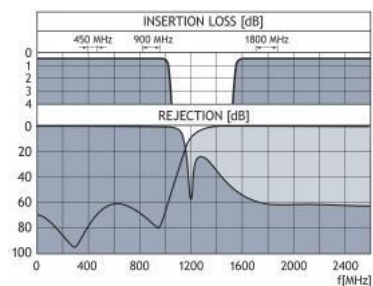
TYPE	PRODUCT NO.
DIPX 1000/1550-DC-H/DCK	200000789

### SPECIFICATIONS

ELECTRICAL	
MODEL	DIPX 1000/1550-DC-H/DCK
FREQUENCY	Low port : 0 - 1000 MHz High port : 1550 - 2500 MHz
MAX. INPUT POWER	15 W each port
INSERTION LOSS	0 - 1000 MHz : $\leq 0.8$ dB 1550 - 2500 MHz: $\leq 1.0$ dB
ISOLATION	Low to high port: $\geq 45$ dB
MAX. DC-CURRENT ON HIGH	200 mA
MAX. DC-VOLTAGE ON HIGH	25 V
IMPEDANCE	50 $\Omega$ on all terminals
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +70° C
CONNECTORS	LOW : FME HIGH : FME COM: FME

	DC cable: FME FEMALE
DIMENSIONS (W x H x D)	50 x 21 x 50 mm
WEIGHT	Approx. 75 g
DC CABLE	Fixed 1 m RG 316

## Diagrams





## DIPX 1000/1550-5V-H/DCRS

Diplexer for the 0 - 1000 MHz and 1550 - 2500 MHz ranges with built-in GPS antenna power supply

- Diplexer for splitting a combined GPS and TETRA radio signal or combining a GPS and a TETRA radio signal on a common line.
- Allows you to connect a separate TETRA antenna and a GPS antenna to a common radio port.

### Description

- 5V DC power supply on the HIGH port to supply power to an active GPS antenna.
- Built-in 12V to 5V converter.
- Extremely low RF insertion loss.
- High isolation between the two antenna ports.
- Wide-band coverage on the antenna ports:
  - LOW (radio): 0 - 1000 MHz.
  - HIGH (GPS): 1550 - 2500 MHz.
- FME male RF connectors.
- 12V DC connection with 1m red/black two-wire cable.
- Easy installation with the mounted double-sided adhesive pad.

### ORDERING DESIGNATIONS

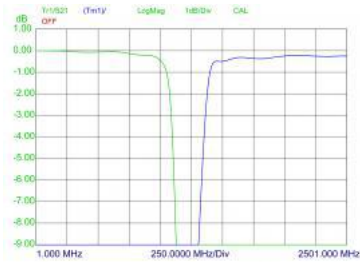
TYPE	PRODUCT NO.
DIPX 1000/1550-5V-H/DCRS	200002551

### SPECIFICATIONS

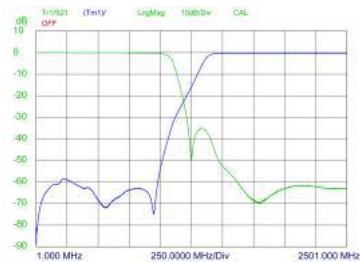
ELECTRICAL	
MODEL	DIPX 1000/1550-5V-H/DCRS
FREQUENCY	Low port : 0 - 1000 MHz High port : 1550 - 2500 MHz
MAX. INPUT POWER	15 W each port
INSERTION LOSS	0 - 1000 MHz : $\leq 0.8$ dB 1550 - 2500 MHz: $\leq 1.0$ dB
ISOLATION	Low to high port: $\geq 45$ dB
DC INPUT VOLTAGE ON DC CABLE	8 to 14 V
DC-VOLTAGE ON HIGH PORT	5 V
MAX. DC-CURRENT HIGH PORT	200 mA
IMPEDANCE	50 $\Omega$ on all terminals
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +70° C
CONNECTORS	LOW : FME-male HIGH : FME-male

	COM: FME-male DC cable: red (+) / black (-)
DIMENSIONS (W x H x D)	50 x 21 x 50 mm / 1.97 x 0.83 x 1.97 in.
WEIGHT	Approx. 75 g / 0.17 lb.
DC CABLE	Fixed 1 m / 40 in. dual wire red / black

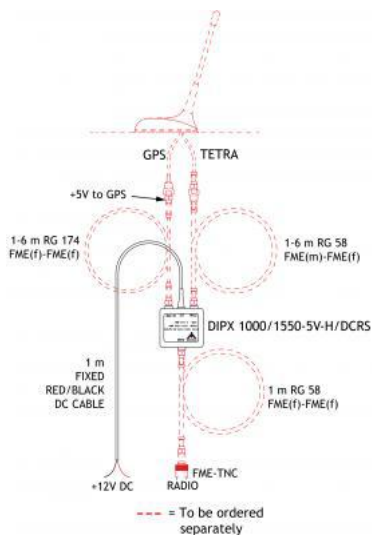
## TYPICAL RESPONSE CURVES FOR 1 dB



## TYPICAL RESPONSE CURVES FOR 10 dB



## CABLE MOUNTING





## PRO-DIPX 225/330-N XS

Diplexer for the 0 - 225 MHz and 330 - 1300 MHz Rangers

- Diplexer for combining or splitting the two ranges 0 - 225 MHz and 330 - 1300 MHz.
- Excellent wide-band coverage.

### DESCRIPTION

- Can be used to combine e.g. VHF LMR and TETRA/GSM on a common multiband antenna.
- Smaller model in milled aluminium box.
- Extraordinarily high mechanical strength.
- Black vinyl-coated to prevent corrosion.
- Provided with brackets for panel mounting.
- N-connections on all terminals.

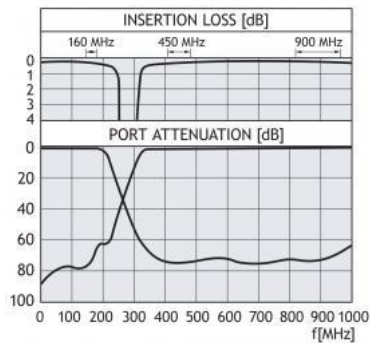
### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-DIPX 225/330-N XS	200002166

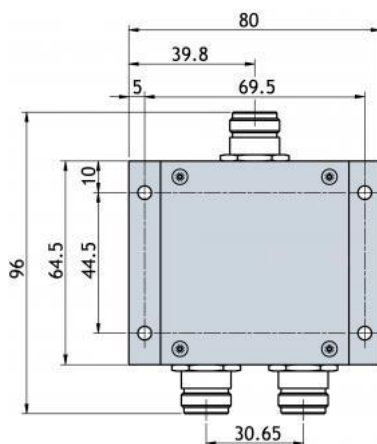
### SPECIFICATIONS

ELECTRICAL	
MODEL	PRO-DIPX 225/330-N XS
FREQUENCY	Ant-low port : 0 - 225 MHz Ant-high port : 330 - 1300 MHz
MAX. INPUT POWER	35 W each port
INSERTION LOSS	0 - 225 MHz : $\leq 0.7$ dB 330 - 1300 MHz: $\leq 0.7$ dB
ISOLATION	Low to high port: $\geq 45$ dB
IMPEDANCE	50 $\Omega$ on all terminals
SWR	$\leq 1.5$ on all ports
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	Low : N High : N Antenna: N
DIMENSIONS (W x D x H)	96 (incl. connectors) x 80 mm (incl. flanges) x 32 mm
WEIGHT	Approx. 350 g
MOUNTING	$\varnothing 4.3$ mm (4 holes)

## TYPICAL RESPONSE CURVES



## MOUNTING DETAILS



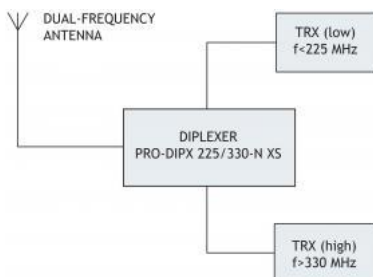
The PRO-DIPX 225/330-N XS makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure below. The antenna must be a dual-frequency antenna, i.e. it must be resonant on the actual frequencies in the two bands.

The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable both for base station and mobile use.

The main tasks of the diplexer are to protect the individual receiver input from being destroyed by the transceiver in the contrary band and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 225 MHz and 330 - 1300 MHz frequency bands.

Dual-frequency antennas are available for both mobile and base station applications.





## DIPX 1000/1550-...

Diplexer for the 0 - 1000 MHz and 1550 - 2700 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 1000 MHz and 1550 - 2700 MHz.
- Excellent wide-band coverage – usable for a lot of applications.

## Description

- Extremely small dimensions.
- Quick installation using the dual-adhesive pad provided.
- FME-connections on all terminals.

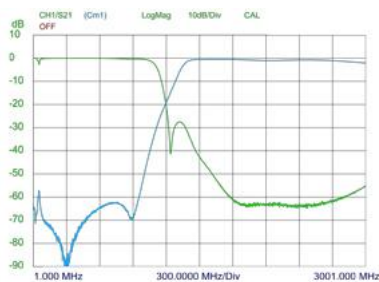
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.	DC PASS
DIPX 1000/1550-DC-L	200000750	Low port
DIPX 1000/1550-DC-H	200000749	High port
DIPX 1000/1550-DC-LH	200000748	Low and high port
DIPX 1000/1550-DC-NO	200002054	No pass

## SPECIFICATIONS

ELECTRICAL	
MODEL	DIPX 1000/1550-...
FREQUENCY	Low port : 0 - 1000 MHz High port : 1550 - 2700 MHz
MAX. INPUT POWER	35 W each port
INSERTION LOSS	0 - 1000 MHz : 1550 - 2700 MHz: < 1.1 dB typ. < 0.7 dB
ISOLATION	Low to high port: ≥ 45 dB
IMPEDANCE	50 Ω on all terminals
MECHANICAL	
TEMP. RANGE	-30° C → +70° C
CONNECTORS	Low : FME High : FME Antenna: FME
DIMENSIONS (W x H x D)	50 x 21 x 50 mm
WEIGHT	Approx. 60 g

## TYPICAL RESPONSE CURVES

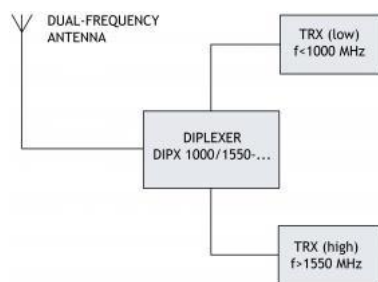


The DIPX 1000/1550-... makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure below. The antenna must be a dual-frequency antenna, i.e. it must be resonant on the actual frequencies in the two bands. The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable both for base station and mobile use.

The main tasks of the diplexer are to protect the individual receiver input from being destroyed by the transceiver in the contrary band and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 1000 MHz and 1550 - 2500 MHz frequency bands.

Dual-frequency antennas are available for both mobile and base station applications.







## BRF 2/...-200

### Band-Reject Filters for the 150 MHz Band

- High power base station band-reject filters for the 140 - 175 MHz range.
- The use of large  $\varnothing 200$  mm cavities means a high Q, resulting in a very narrow passband.

## Description

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 7000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BRF 2/1-200	200001578
BRF 2/2-200	200001580
BRF 2/3-200	200001938

## SPECIFICATIONS

ELECTRICAL			
MODEL	BRF 2/1-200	BRF 2/2-200	BRF 2/3-200
FREQ. RANGE	140 - 175 MHz	140 - 175 MHz	140 - 175 MHz
MAX. INPUT POWER	350 W @ 0.5 dB IL 200 W @ 1.0 dB IL	350 W @ 1.0 dB IL 200 W @ 2.0 dB IL	350 W @ 1.5 dB IL 200 W @ 3.0 dB IL
INSERTION LOSS	Adjustable 0.4 - 2.0 dB	Adjustable 0.8 - 4.0 dB	Adjustable 1.2 - 6.0 dB
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 200$ x 600 mm	L:200 x W:400 x H:600 mm	L:200 x W:600 x H:600 mm

WEIGHT	Approx. 3.8 kg	Approx. 8.5 kg	Approx. 12.6 kg
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## BRF 2/...-125

### Band-Reject Filters for the 150 MHz Band

- High power base station band-reject filters for the 140 – 175 MHz range.
- The use of large  $\varnothing 125$  mm cavities means a high Q, resulting in a very narrow notch bandwidth.

### Description

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 4500.
- High frequency stability on temperature and power.
- Mounted on 19" brackets. \*\*

### ORDERING DESIGNATIONS

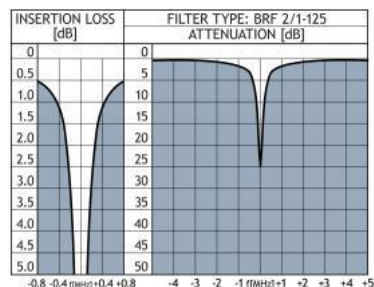
TYPE	PRODUCT NO.
BRF 2/1-125	200001577
BRF 2/2-125	200001936
BRF 2/3-125	200001937

### SPECIFICATIONS

ELECTRICAL			
MODEL	BRF 2/1-125	BRF 2/2-125	BRF 2/3-125
FREQ. RANGE	140 - 175 MHz	140 - 175 MHz	140 - 175 MHz
MAX. INPUT POWER	300 W @ 0.5 dB IL 175 W @ 1.0 dB IL	300 W @ 1.0 dB IL 175 W @ 2.0 dB IL	300 W @ 1.5 dB IL 175 W @ 3.0 dB IL
ATTENUATION	See figure 1	See figure 2	See figure 3
1 dB NOTCH BANDWIDTH	1 ‰ of $f_c$	1 ‰ of $f_c$	1 ‰ of $f_c$
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 125$ x 600 mm	L:125 x W:285 x	L:125 x W:425 x

		H:600 mm	H:600 mm
WEIGHT	Approx. 1.9 kg	Approx. 4 kg	Approx. 6.5 kg

## TYPICAL RESPONSE CURVES

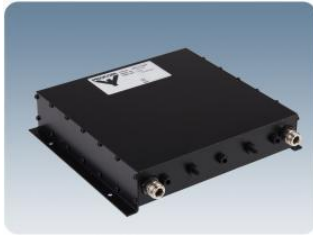


## TYPICAL RESPONSE CURVES



## TYPICAL RESPONSE CURVES





## BPID 370-400/5-N

- The BPID 370 - 400/5-N is a 5-cavity interdigital filter designed to operate at TETRA frequencies.

- The interdigital principles ensure that ripple and insertion loss figures are kept very low over the wide pass band, and heavy attenuation outside the pass band are realized.
- The filter is capable of operating continuously at a power level of 200 W.
- Construction and choice of materials have been carried out to ensure that electrical characteristics are maintained over a long life-span despite the influence of environmental factors such as corrosion, temperature, humidity, shock and vibration.
- The assembly is end-treated with a black, 2-component polyurethane coating.

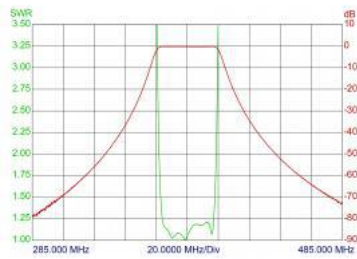
## ORDERING DESIGNATIONS

TYPE	PRODUCT NR.
BPID 370 - 400/5-N	200001134

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPID 370 - 400/5-N
FILTER TYPE	Interdigital band-pass filter
FREQUENCY	TETRA: 370 - 400 MHz
MAX. INPUT POWER	200 W
INSERTION LOSS	Both ports: $\leq 0.3$ dB typ.: $\leq 0.25$ dB
REJECTION 345 MHz	$> 30$ dB
REJECTION 425 MHz	$> 30$ dB
OUT OF BAND REJECTION	490 - 960 Mhz: $> 70$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.25$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	200 x 230 x 48 mm
DIMENSIONS (L x W x H) incl. connectors and trimming screws	235 x 230 x 48
WEIGHT	Approx. 1.7 kg

## TYPICAL SWR & INSERTION LOSS CURVES





## PRO-DIPX 175/380-...

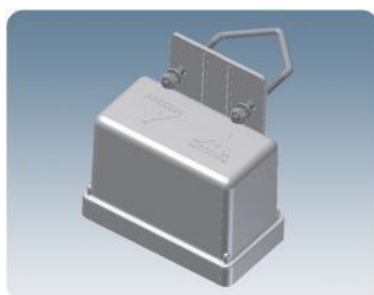
Diplexer for the 0 - 175 MHz and 380 - 510 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 175 MHz and 380 - 510 MHz.
- Excellent wide-band coverage – usable for a lot of applications.

### DESCRIPTION

- N-connections on all terminals.
- The diplexer comes in two versions. MAMO for Mast Mount and WAMO for Wall Mount.

#### MAMO



#### WAMO



### ORDERING DESIGNATIONS

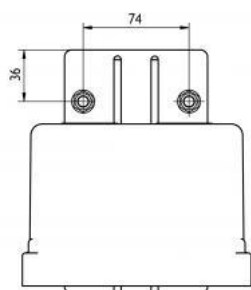
TYPE	PRODUCT NO.	
PRO-DIPX 175/380-MAMO	200000726	Mast mount max. ø65 mm
PRO-DIPX 175/380-WAMO	200001768	Wall mount

### SPECIFICATIONS

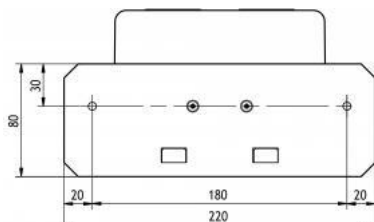
ELECTRICAL	
MODEL	PRO-DIPX 175/380-...
FREQUENCY	Low port : 0 - 175 MHz High port : 380 - 510 MHz

MAX. INPUT POWER	$\leq 200 \text{ W}$
INSERTION LOSS	$\leq 0.5 \text{ dB}$ , typ. $0.3 \text{ dB}$
ISOLATION	$\geq 45 \text{ dB}$
IMPEDANCE	$50 \Omega$
SWR	Typ. $\leq 1.5$
<b>MECHANICAL</b>	
TEMP. RANGE	$-20^{\circ} \text{ C} \rightarrow +50^{\circ} \text{ C}$
CONNECTORS	Low : N-female High : N-female Antenna: N-female
DIMENSIONS (W x H x D)	160 x 113 x 88 mm
WEIGHT	Approx. 500 g

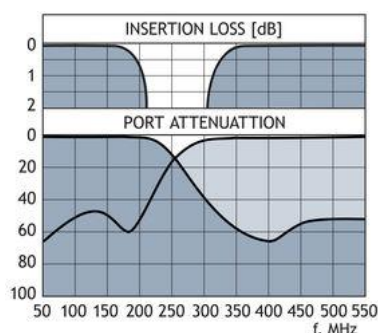
## MOUNTING DETAILS



## WAMO



## TYPICAL RESPONSE CURVES



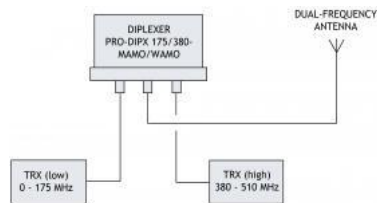
The PRO-DIPX 175/380-MAMO/WAMO makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure below. The antenna must be a dual-frequency antenna, that is, it must be resonant on the actual frequencies in the two bands. The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable both for base station and mobile use.



The main tasks of the diplexer are to protect the individual receiver input from being destroyed by the transceiver in the contrary band and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 175 MHz and 380 - 510 MHz frequency bands.

Dual-frequency antennas are available for both mobile and base station applications.





## BPF-WiMAX 2.3-2.6/5-1x2

### Comblin Band-Pass Filter for the 2.3 - 2.6 GHz Band

- The BPF-WiMAX 2.3-2.6/5-1x2 is a 5-resonator, cavity band-pass filter specially designed for WiMAX applications and other wireless area network systems.
- The WiMAX cavity filter is able to cover 2.3 to 2.6 GHz frequency range.

### Description

- A bandwidth of 30 MHz.
- Insertion loss of less than 0.8 dB on the passband edges.
- More than 25 dB attenuation just 20 MHz from the passband.
- The BPF-WiMAX 2.3-2.6/5-1x2 housing is made of silver-plated aluminium.
- Careful design and choice of materials ensure a long lifetime and reliable operation over a wide temperature range.

### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF-WiMAX 2.3-2.6/5-1x2	200002130

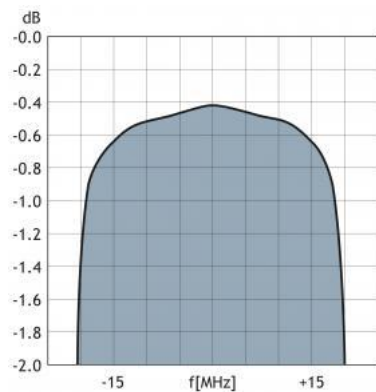
### SPECIFICATIONS

ELECTRICAL	
MODEL	BPF-WiMAX 2.3-2.6/5-1x2
FILTER TYPE	Comblin band-pass filter
CENTRE FREQUENCY	To be stated within 2.3 - 2.6 GHz
MAX. INPUT POWER	100 W
PASS RANGE WIDTH	30 MHz (others on request)
INSERTION LOSS	≤ 0.8 dB, typ. 0.7 dB
ATTENUATION AROUND PASSBAND	± 35 MHz rel. fc: > 25 dB ± 80 MHz rel. fc: > 40 dB
ATTENUATION OUTSIDE PASS RANGE	0 - 4 GHz: See curves
IMPEDANCE	Nom. 50 Ω
SWR	< 1.3
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
FREQ. STABILITY	Approx. ±3.5 MHz drift
CONNECTORS	N-female
DIMENSIONS (L x W x H)	289 x 50 x 40 mm (without conn.)

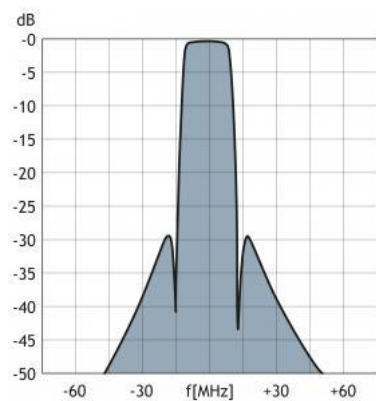
WEIGHT

Approx. 1.0 kg

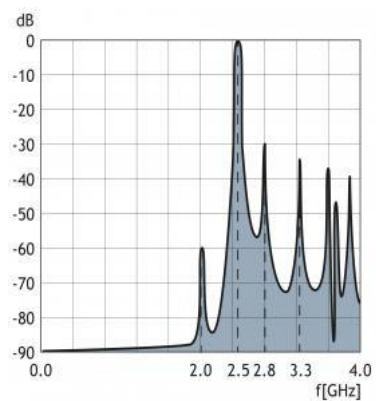
### TYPICAL CURVE FOR INSERTION LOSS



### TYPICAL RESPONSE CURVE



### TYPICAL CURVE FOR BPF-WiMAX 2.5/5-1x2





## PRO-DIPX 174/223-960-...

Diplexer for the 0 - 174 MHz and 223 - 960 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 174 MHz and 223 - 960 MHz.
- Excellent wide-band coverage.

### DESCRIPTION

- Very low ripple and insertion loss in the pass bands.
- Isolation better than 30 dB.
- Provided with N-connectors. (Other types on request)
- Aluminium profile box ensures extraordinary high mechanical strength.
- Black vinyl-coated to prevent corrosion.
- Provided with brackets for panel mounting.

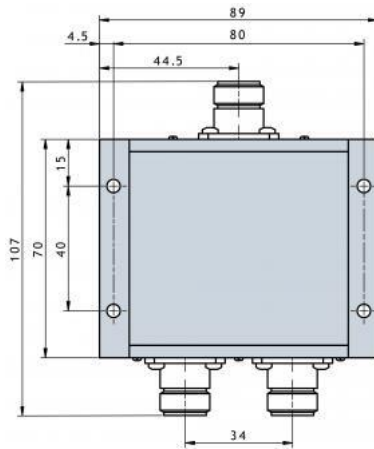
### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-DIPX 174/223-960-N	200001848

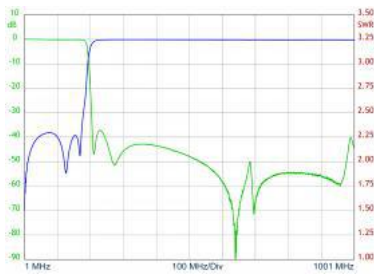
### SPECIFICATIONS

ELECTRICAL	
Type	Diplexer
MODEL	PRO-DIPX 174/223-960-...
FREQUENCY	Ant-low port : 0 - 174 MHz Ant-high port : 223 - 960 MHz
MAX. INPUT POWER	50 W each port
INSERTION LOSS	≤ 0.5 dB
ISOLATION	Low to high port: ≥ 30 dB
IMPEDANCE	50 Ω on all terminals
SWR	≤ 1.5 on all ports
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
CONNECTORS	N-Female
DIMENSIONS incl. connectors (L x W x H)	107 x 89 x 30 mm
WEIGHT	Approx. 350 g
MOUNTING	Ø4.3 mm (4 holes)

## MECHANICAL DIMENSIONS



## TYPICAL RESPONSE CURVE





## PRO-DIPX 174/200-...

100 W Diplexer for the 0 - 174 MHz and 200 - 960 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 174 MHz and 200 - 960 MHz.
- Chebychev design ensures very high isolation across the whole pass ranges.

### DESCRIPTION

- High power handling capability.
- Low insertion loss.
- Low weight.
- Wide temperature range.
- Milled aluminium box ensures extraordinarily high mechanical strength.
- Black vinyl-coated to prevent corrosion.
- N-connectors on all ports (standard).
- Also available with SMA-, TNC- or BNC- connector types.

### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-DIPX 174/200-N	200002252
PRO-DIPX 174/200-SMA	200002253
PRO-DIPX 174/200-TNC	200002254
PRO-DIPX 174/200-BNC	200002255

### SPECIFICATIONS

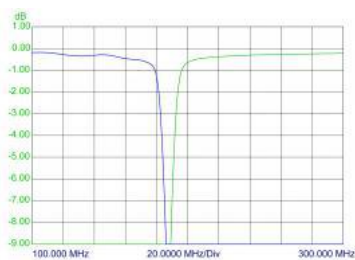
ELECTRICAL	
MODEL	PRO-DIPX 174/200-...
FREQUENCY	COM-LOW port: 0 - 174 MHz COM-HIGH port: 200 - 960 MHz
MAX. RF POWER	100W CW simultaneously on both HIGH and LOW port
INSERTION LOSS	0 - 174 MHz: $\leq 0.7$ dB 200 - 960 MHz: $\leq 0.7$ dB
ISOLATION	LOW to HIGH port: $\geq 40$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	Max. 1.5:1 on all ports
MECHANICAL	
TEMP. RANGE*	-40° C to +60° C
CONNECTORS	INPUT: N-female OUTPUT: N-female

	(Other types available on request)
IP RATING	IP62
DIMENSIONS (L x W x H)	133 x 80 x 31 mm / 5.24 x 3.15 / 1.22 in. (incl. connectors and flanges)
WEIGHT	Approx. 380 g / 0.84 lb.
MOUNTING	ø4.3 mm / ø0.17 in. (4 holes)

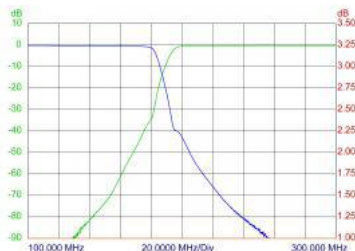
\* Temperature on box surface. Adequate cooling to keep max. temperature below +60° C must be provided.

## TYPICAL RESPONSE CURVES

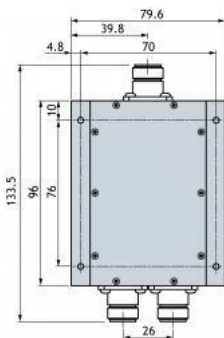
### INSERTION LOSS [dB]



### PORT ATTENUATION [dB]



## MOUNTING DETAILS



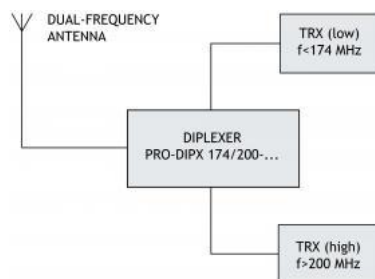
The PRO-DIPX 174/200-... makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure below. The antenna must be a dual-frequency antenna, i.e. it must be resonant on the actual frequencies in the two bands.

The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable

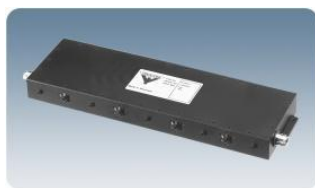
both for base station and mobile use.

The main tasks of the diplexer are to protect the individual receiver input from being destroyed by the transceiver in the contrary band and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 174 MHz and 200 - 960 MHz frequency bands.







## BPF 900/9

### Interdigital Band-Pass Filter for the 900 MHz Band

- The BPF 900/9 is a 9-resonator, interdigital band-pass filter for multichannel systems in the 900 MHz band.

## Description

- Using interdigital principles the following features are obtained at the same time:
  - Wide Pass Range
  - Low insertion loss and ripple inside pass range
  - Steep slopes immediately outside pass range
  - Heavy attenuation outside the pass range.
- The BPF 900/9 housing is made of silvered brass. Careful design and choice of materials ensure a long lifetime and reliable operation over a wide temperature range.
- The filter can be delivered with centre frequency between 880 and 960 MHz. The specifications and the curves below refer to a filter with 35 MHz port width, but interdigital filters with other port widths and filter characteristics may be quoted on request.

## ORDERING DESIGNATIONS

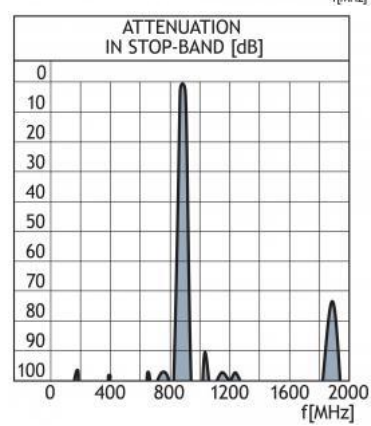
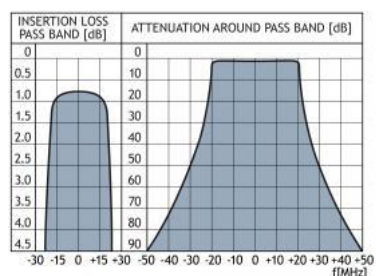
TYPE	PRODUCT NO.	TUNING RANG
BPF 900/9L	200000953	880 - 915 MHz
BPF 900/9H	200000952	925 - 960 MHz

## SPECIFICATIONS

ELECTRICAL	
FILTER TYPE	Interdigital band-pass filter
TUNING RANGE	To be stated within 880 - 960 MHz
MAX. INPUT POWER	100 W
INSERTION LOSS	$\leq 1.0$ dB
BANDWIDTH	35 MHz
ATTENUATION AROUND PASSBAND	$\pm 25$ MHz rel. $f_c$ : $> 30$ dB $\pm 45$ MHz rel. $f_c$ : $> 80$ dB
ATTENUATION OUTSIDE PASS-RANGE, 0-2 GHz	$> 73$ dB, typ. $> 100$ dB (see curves)
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	$-30^\circ\text{C} \rightarrow +60^\circ\text{C}$
FREQ. STABILITY	Approx. 8ppm/ $^\circ\text{C}$
CONNECTORS	N-female

DIMENSIONS (L x W x H)	332 x 110 x 30 mm
WEIGHT	Approx. 2.5 kg

## TYPICAL RESPONSE CURVES





## BPF 900/7...

### Interdigital Band-Pass Filter for the 900 MHz Band

- The BPF 900/7... is a 7-resonator, interdigital band-pass filter for multichannel systems in the 900 MHz band.

## Description

- Using interdigital principles the following features are obtained at the same time:
  - Wide Pass Range
  - Low insertion loss and ripple inside pass range
  - Steep slopes immediately outside pass range
  - Heavy attenuation outside the pass range.
- The BPF 900/7... housing is made of silvered brass. Careful design and choice of materials ensure a long lifetime and reliable operation over a wide temperature range.
- The filter can be delivered with centre frequency between 820 and 960 MHz.  
The specifications and the curves below refer to a filter with 25 MHz port width, but interdigital filters with other port widths and filter characteristics may be quoted on request.

## ORDERING DESIGNATIONS

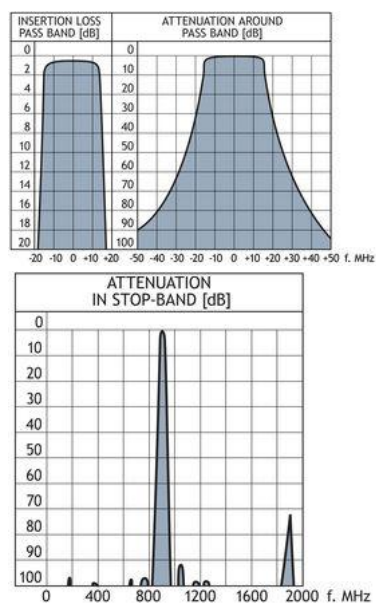
TYPE	PRODUCT NO.
BPF 900/7L	200000940
BPF 900/7H	200000941

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 900/7...
FILTER TYPE	Interdigital band-pass filter
FREQUENCY	BPF 900/7 L: 890 – 915 MHz BPF 900/7 H: 935 – 960 MHz BPF 900/7...: (25 MHz BW in range 820 - 960)
MAX. INPUT POWER	100 W
PASS RANGE WIDTH	25 MHz (others on request)
INSERTION LOSS	≤ 1.0 dB
ATTENUATION AROUND PASSBAND	± 20 MHz rel. $f_c$ : > 30 dB ± 40 MHz rel. $f_c$ : > 80 dB
ATTENUATION OUTSIDE PASS-RANGE, 0-2 GHz	> 73 dB, typ. > 100 dB (see curves)
IMPEDANCE	Nom. 50 Ω
SWR	≤ 1.5
MECHANICAL	
TEMP. RANGE	-30° C → +60° C

FREQ. STABILITY	Approx. 8 ppm/° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	285 x 110 x 31 mm
WEIGHT	Approx. 2.5 kg

## TYPICAL RESPONSE CURVES





## PRO-DIPX 130/150-...

100 W Diplexer for the 0 - 130 MHz and 150 - 960 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 130 MHz and 150 - 960 MHz.
- Chebychev design ensures very high isolation across the whole pass ranges.

### DESCRIPTION

- High power handling capability.
- Low insertion loss.
- Low weight.
- Wide temperature range.
- Milled aluminium box ensures extraordinarily high mechanical strength.
- Black vinyl-coated to prevent corrosion.
- N-connectors on all ports (standard).
- Also available with SMA-, TNC- or BNC- connector types.

### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-DIPX 130/150-N	200002227
PRO-DIPX 130/150-SMA	200002224
PRO-DIPX 130/150-TNC	200002257
PRO-DIPX 130/150-BNC	200002258

### SPECIFICATIONS

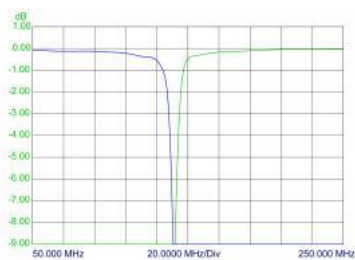
ELECTRICAL	
MODEL	PRO-DIPX 130/150-...
FREQUENCY	COM-LOW port: 0 - 130 MHz COM-HIGH port: 150 - 960 MHz
MAX. RF POWER	100W CW simultaneously on both HIGH and LOW port
INSERTION LOSS	0 - 130 MHz: $\leq 0.7$ dB 150 - 960 MHz: $\leq 0.7$ dB
ISOLATION	LOW to HIGH port: $\geq 40$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	Max. 1.5:1 on all ports
MECHANICAL	
TEMP.RANGE*	-40° C to +60° C
CONNECTORS	INPUT: N-female OUTPUT: N-female

	(Other types available on request)
IP RATING	IP62
DIMENSIONS (L x W x H)	133 x 80 x 31 mm / 5.24 x 3.15 / 1.22 in. (incl. connectors and flanges)
WEIGHT	Approx. 380 g / 0.84 lb.
MOUNTING	ø4.3 mm / ø0.17 in. (4 holes)

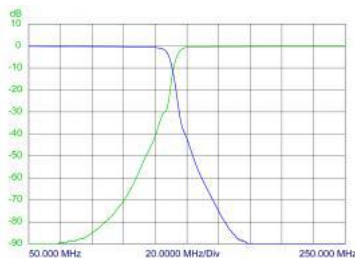
\* Temperature on box surface. Adequate cooling to keep max. temperature below +60° C must be provided.

## TYPICAL RESPONSE CURVES

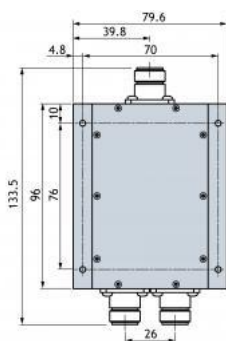
INSERTION LOSS [dB]



PORT ATTENUATION [dB]



## MOUNTING DETAILS



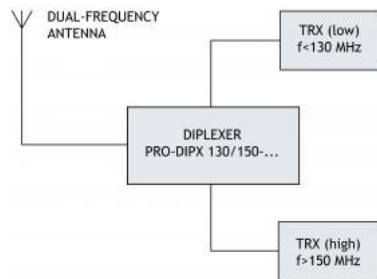
The PRO-DIPX 130/150-... makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure below. The antenna must be a dual-frequency antenna, i.e. it must be resonant on the actual frequencies in the two bands.

The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is

installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable both for base station and mobile use.

The main tasks of the diplexer are to protect the individual receiver input from being destroyed by the transceiver in the contrary band and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 130 MHz and 150 - 960 MHz frequency bands.





## BPF 900/4

### Band-Pass Filter for the 900 MHz Band

- The BPF 900/4 is a  $4\frac{1}{4}\lambda$  resonator band-pass filter with internal coupling between the resonators.

## Description

- This filter can be used as a preselector to protect a receiver against interference from transmissions out of the passband, or it can be used to reduce spurious output from a transmitter with up to 50 W output power.
- The filter can be tuned within the entire 820 - 960 MHz band. Careful design and choice of materials ensure reliable operation over a wide temperature range.
- The housing is made of extruded aluminium, the chassis of brass, and teflon insulation has been used in the coaxial cables and in the connectors.
- The filter is coated with black vinyl to prevent corrosion.

## ORDERING DESIGNATIONS

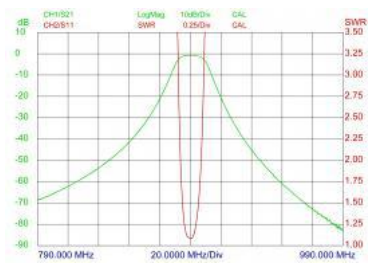
TYPE	PRODUCT NO.
BPF 900/4	200000980

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 900/4
FILTER TYPE	Band-pass filter
TUNING RANGE	820 - 960 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS	$\leq 1.4$ dB (typ.)
ATTENUATION AROUND PASSBAND	See curves
OUT OF BAND ATTENUATION	$F_c \pm 100$ MHz $\geq 65$ dB $F_c \pm 500$ MHz $\geq 100$ dB $F_c \pm 800$ MHz $\geq 85$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	$-30^\circ\text{C} \rightarrow +60^\circ\text{C}$
CONNECTORS	N-female (others on request)
DIMENSIONS (L x W x H)	152 x 115 x 33 mm
WEIGHT	Approx. 500 g



## TYPICAL RESPONSE CURVES





## PRO-DIPX 122/136-...

100 W Diplexer for the 0 - 122 MHz and 136 - 960 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 122 MHz and 136 - 960 MHz.
- Chebychev design ensures very high isolation across the whole pass ranges.

### DESCRIPTION

- High power handling capability.
- Low insertion loss.
- Low weight.
- Wide temperature range.
- Milled aluminium box ensures extraordinarily high mechanical strength.
- Black vinyl-coated to prevent corrosion.
- Available with N-, SMA-, TNC- or BNC-female connector types.

### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-DIPX 122/136-N(f)	200002442
PRO-DIPX 122/136-SMA(f)	200002415
PRO-DIPX 122/136-TNC(f)	200002443
PRO-DIPX 122/136-BNC(f)	200002444

### SPECIFICATIONS

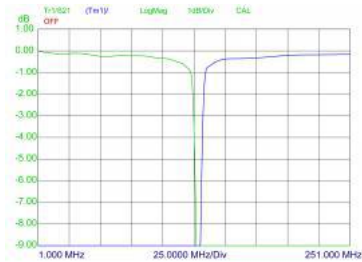
ELECTRICAL	
MODEL	PRO-DIPX 122/136-...
FREQUENCY	COM-LOW port: 0 - 122 MHz COM-HIGH port: 136 - 960 MHz
MAX. RF POWER	100W CW simultaneously on both HIGH and LOW port
INSERTION LOSS	0 - 122 MHz: $\leq 1.0$ dB 136 - 960 MHz: $\leq 1.0$ dB
ISOLATION	LOW to HIGH port: $\geq 40$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	Max. 1.5:1 on all ports
MECHANICAL	
TEMP. RANGE *	-40° C to +60° C
CONNECTORS	N-, SMA-, TNC- or BNC-female
IP RATING	IP62

DIMENSIONS (L x W x H)	133 x 80 x 31 mm / 5.24 x 3.15 / 1.22 in. (incl. connectors and flanges)
WEIGHT	Approx. 380 g / 0.84 lb.
MOUNTING	ø4.3 mm / ø0.17 in. (4 holes)

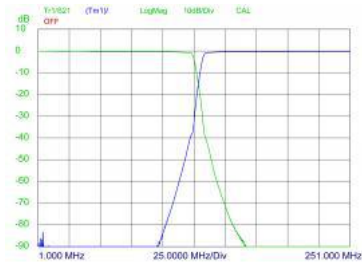
\*Temperature on box surface. Adequate cooling to keep max. temperature below +60° C must be provided.

## TYPICAL RESPONSE CURVES

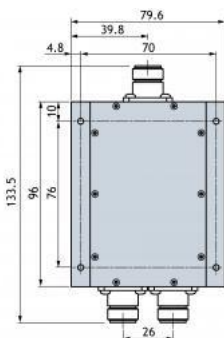
INSERTION LOSS [dB]



PORT ATTENUATION [dB]



## MOUNTING DETAILS



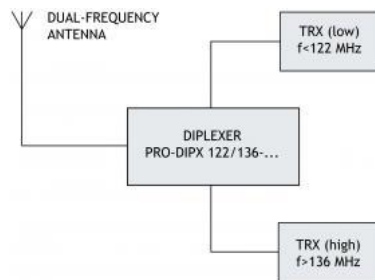
The PRO-DIPX 122/136-... makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure below. The antenna must be a dual-frequency antenna, i.e. it must be resonant on the actual frequencies in the two bands.

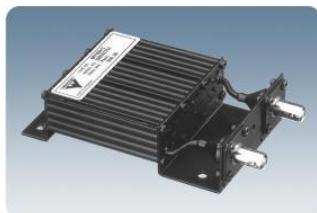
The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable both for base station and mobile use.

The main tasks of the diplexer are to protect the individual receiver input from being destroyed by the transceiver in the

contrary band and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 122 MHz and 136 - 960 MHz frequency bands.





## BPF 900/3

### Band-Pass Filter for the 900 MHz Band

- The BPF 900/3 is a 3-cavity band-pass filter using full-length quarter-wave resonators.
- This filter can be used as a preselector to protect a receiver against interference from transmissions out of the passband, or it can be used to reduce spurious output from a transmitter with up to 50 W output power.

## Description

- The filter can be tuned within the entire 820 - 960 MHz band. Careful design and choice of materials ensure reliable operation over a wide temperature range.
- The housing is made of extruded aluminium, the chassis of brass, and teflon insulation has been used in the coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.

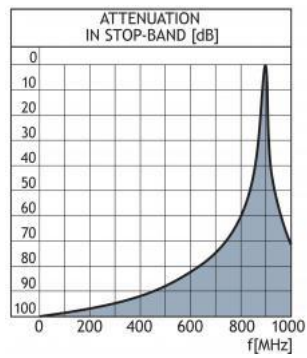
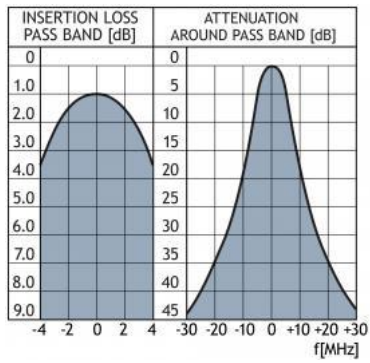
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 900/3	200000935

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 900/3
FILTER TYPE	Band-pass filter
TUNING RANGE	820 - 960 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS	$\leq 1.2$ dB
ATTENUATION AROUND PASSBAND	See curves
ATTENUATION 0-790 MHz	$> 45$ dB, see curves
IMPEDANCE	Nom. 50 $\Omega$
SWR	$\leq 1.5$
MECHANICAL	
TEMP. RANGE	$-30^{\circ}\text{C} \rightarrow +60^{\circ}\text{C}$
FREQ. STABILITY	Approx. 10 ppm/ $^{\circ}\text{C}$
CONNECTORS	N-female
DIMENSIONS (L x W x H)	153 x 77 x 33 mm
WEIGHT	Approx. 350 g

## TYPICAL RESPONSE CURVES





## BPF 900/...-200

### Band-Pass Filters for the 900 MHz Band

- High power base station band-pass filters for the 890 - 960 MHz range.
- The use of large  $\varnothing 200$  mm cavities means a high Q, resulting in a very narrow passband.

## Description

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 7000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 900/1-200	210001055
BPF 900/2-200	210001056
BPF 900/3-200	210001057

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPF 900/1-200	BPF 900/2-200	BPF 900/3-200
FREQ. RANGE	890 - 960 MHz	890 - 960 MHz	890 - 960 MHz
MAX. INPUT POWER	350 W @ 0.5 dB IL 150 W @ 2.0 dB IL	350 W @ 1.0 dB IL 150 W @ 4.0 dB IL	350 W @ 1.5 dB IL 150 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.4 - 2.0 dB	Adjustable 0.8 - 4.0 dB	Adjustable 1.2 - 6.0 dB
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 200$ x	L:200 x W:400 x	L:200 x W:600 x

	200 mm	H:200 mm	H:200 mm
WEIGHT	Approx. 0.9 kg	Approx. 2 kg	Approx. 3.3 kg





## BPF 900/...-125

### Band-Pass Filters for the 900 MHz Band

- High power base station band-pass filters for the 800 - 960 MHz range.
- The use of large  $\varnothing 125$  mm cavities means a high Q, resulting in a very narrow passband.

### Description

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 4500.
- High frequency stability on temperature and power.
- Mounted on 19" brackets. \*\*

### ORDERING DESIGNATIONS

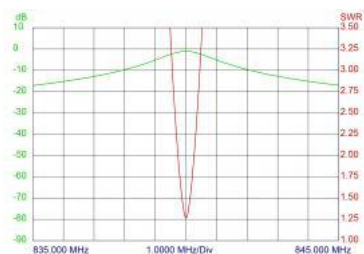
TYPE	PRODUCT NO.
BPF 900/1-125	200001070
BPF 900/2-125	210001053
BPF 900/3-125	210001054

### SPECIFICATIONS

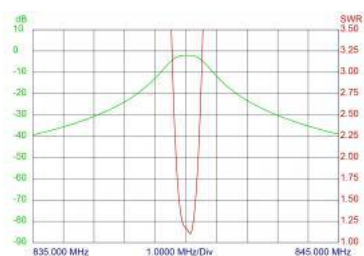
ELECTRICAL			
MODEL	BPF 900/1-125	BPF 900/2-125	BPF 900/3-125
FREQ. RANGE	800 - 960 MHz	800 - 960 MHz	800 - 960 MHz
MAX. INPUT POWER	300 W @ 0.5 dB IL 125 W @ 2.0 dB IL	300 W @ 1.0 dB IL 125 W @ 4.0 dB IL	300 W @ 1.5 dB IL 125 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.4 - 2.0 dB	Adjustable 0.8 - 4.0 dB	Adjustable 1.2 - 6.0 dB
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
MAX. RPM	200 (On tuning rod)		
CONNECTORS	N-female	N-female	N-female

DIMENSIONS	ø125 x 150 mm	L:125 x W:250 x H:150 mm	L:125 x W:375 x H:150 mm
WEIGHT	Approx. 0.7 kg	Approx. 1.5 kg	Approx. 2.5 kg

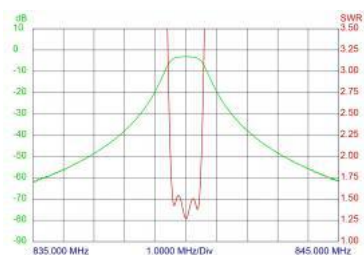
### BPF 900/1-125



### BPF 900/2-125



### BPF 900/3-125





## PRO-DIPX 1000/1550-...XS

Diplexer for the 0 - 1000 MHz and 1550 - 2500 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 1000 MHz and 1550 - 2500 MHz.

### DESCRIPTION

- Excellent wide-band coverage.
- N-connections on all terminals.

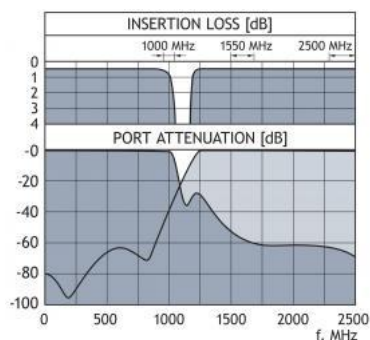
### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-DIPX 1000/1550-DC-L XS	200001622
PRO-DIPX 1000/1550-DC-H XS	200001998
PRO-DIPX 1000/1550-DC-LH XS	200001999
PRO-DIPX 1000/1550-NO-DC XS	200002000

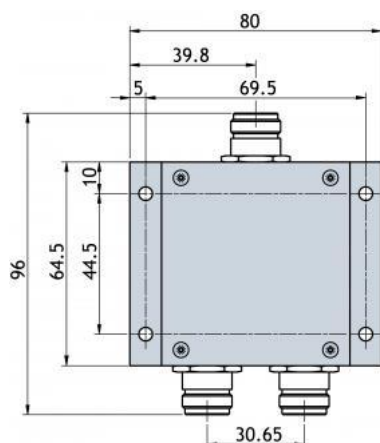
### SPECIFICATIONS

ELECTRICAL	
MODEL	PRO-DIPX 1000/1550-... XS
FREQUENCY	Low port : 0 - 1000 MHz High port : 1550 - 2500 MHz
MAX. INPUT POWER	35 W each port
INSERTION LOSS	0 - 1000 MHz : $\leq 0.8$ dB typ. $\leq 0.6$ dB 1550 - 2500 MHz: $\leq 1.0$ dB typ. $\leq 0.8$ dB
ISOLATION	Low to high port: $\geq 45$ dB typical 50 dB
IMPEDANCE	50 $\Omega$ on all terminals
SWR	$\leq 1.5$ on all ports
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +70° C
CONNECTORS	Low : N High : N Antenna: N
DIMENSIONS (W x H x D)	96 x 32 x 80 mm
WEIGHT	Approx. 350 g
MOUNTING	$\varnothing 4.3$ mm (4 holes)

## TYPICAL RESPONSE CURVES



## MOUNTING DETAILS

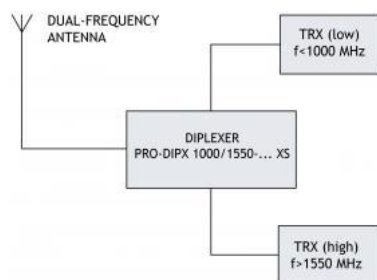


The PRO-DIPX 1000/1550 XS makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure below. The antenna must be a dual-frequency antenna, i.e. it must be resonant on the actual frequencies in the two bands. The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable both for base station and mobile use.

The main tasks of the diplexer are to protect the individual receiver input from being destroyed by the transceiver in the contrary band and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 1000 MHz and 1550 - 2500 MHz frequency bands.

Dual-frequency antennas are available for both mobile and base station applications.





## BPF 800-1000

### Band-Pass Filter for 800 1000 MHz

- BPF 800-1000 is an LC band-pass filter.
- Allows the whole 800 – 1000 MHz band to pass.

## DESCRIPTION

- Can be used as a preselector to protect a receiver against interferences from transmitters normally being outside the band-pass range.
- BPF 800-1000 can be mounted as a preselector directly inside the PRO-AR4G-N, PRO-AR8G-N and the PRO-AR16G-N receiver multicouplers.
- Very small dimensions, mounted in a 50 x 21 x 48 mm case.
- FME connectors for easy and handy coupling to the surroundings.
- BPF 800-1000 is lacquered with black vinyl enamel to avoid corrosion.

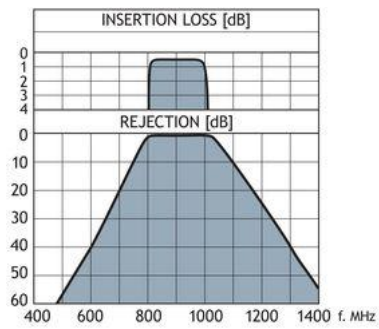
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 800-1000	200000898

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 800-1000
PASS RANGE	800 - 1000 MHz
MAX. INPUT POWER	15 W (25W @ 50% duty cycle)
INSERTION LOSS	$\leq 1.5$ dB typically $\leq 1.2$ dB
SWR	$\leq 1.5$
OUT OF BAND ATTENUATION	See curve (typically)
IMPEDANCE	Nom. 50 $\Omega$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	FME-male (others on request)
DIMENSIONS (W x H x D)	50 x 21 x 48 mm
WEIGHT	Approx. 60 g

## TYPICAL RESPONSE CURVES





## BPF 66-88

### Band-Pass Filter for 66 - 88 MHz

- BPF 66-88 is an LC band-pass filter.
- Allows the whole 66 – 88 MHz band to pass.

## DESCRIPTION

- Can be used as a preselector to protect a receiver against interferences from transmitters normally being outside the band-pass range.
- BPF 66-88 can be mounted as a preselector directly inside the PRO-AR4G-N, PRO-AR8G-N and the PRO-AR16G-N receiver multicouplers.
- Very small dimensions, mounted in a 45 x 50 mm case.
- FME-connectors for easy and handy interconnections.
- BPF 66-88 is coated with black vinyl to prevent corrosion.

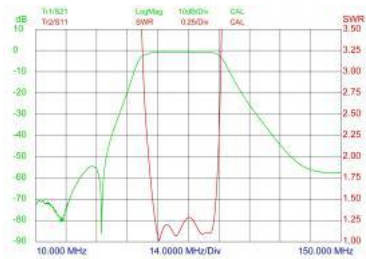
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 66-88	200000972

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 66-88
PASS RANGE	66 - 88 MHz
MAX. INPUT POWER	35 W
INSERTION LOSS	$\leq 0.9$ dB typically $\leq 0.8$ dB
SWR	$\leq 1.4$
OUT OF BAND ATTENUATION	See curve (typically)
IMPEDANCE	Nom. 50 $\Omega$
MECHANICAL	
CONNECTORS	FME-male (others on request)
DIMENSIONS (W x H x D)	50 x 21 x 50 mm (incl. connectors) / 1.97 x 0.83 x 1.97 in.
WEIGHT	Approx. 60 g / 0.13 lb.
ENVIRONMENTAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C

## TYPICAL RESPONSE CURVES







## BPF 300 - 500

### Band-Pass Filter for 300 - 500 MHz

- BPF 300-500 is an LC band-pass filter.
- Allows the whole 300 – 500 MHz band to pass.

## DESCRIPTION

- Can be used as a preselector to protect a receiver against interferences from transmitters normally being outside the band-pass range.
- BPF 300-500 can be mounted as a preselector directly inside the PRO-AR4G-N, PRO-AR8G-N and the PRO-AR16G-N receiver multicouplers.
- Very small dimensions, mounted in a 45 x 50 mm case.
- FME-connectors for easy and handy interconnections.
- Also available with SMA, TNC or BNC connectors.
- BPF 300-500 is coated with black vinyl to prevent corrosion.

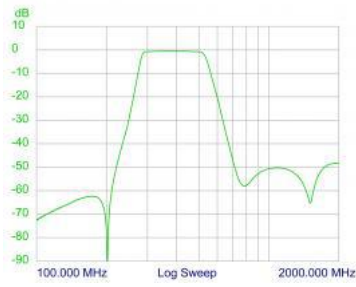
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 300-500	200000897

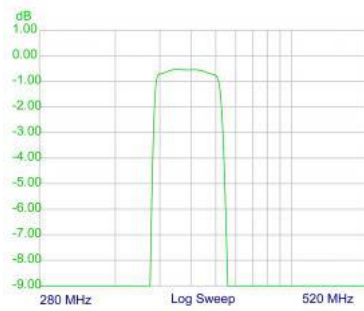
## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 300-500
PASS RANGE	300 - 500 MHz
MAX. INPUT POWER	35 W
INSERTION LOSS	$\leq 1.0$ dB typically $\leq 0.7$ dB
SWR	$\leq 1.5$
OUT OF BAND ATTENUATION	See curve (typically)
IMPEDANCE	Nom. 50 $\Omega$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	FME-male (others on request)
DIMENSIONS (W x H x D)	50 x 21 x 50 mm (incl. connector) 1.97 x 0.83 x 1.97 in. (incl. connector)
WEIGHT	Approx. 60 g / 0.13 lb.

## TYPICAL RESPONSE CURVES



## TYPICAL RESPONSE CURVES (1 dB)





## BPF 3/4

### Band-Pass Filter for the 112 - 136 MHz Band

- The BPF 3/4 is a 4-helical resonator band-pass filter with aperture-coupling between the resonators.

## DESCRIPTION

- The BPF 3/4 is a 4-helical resonator band-pass filter with aperture-coupling between the resonators.
- This filter can be used as a preselector to protect a receiver against interference from transmissions out of the passband, or it can be used to reduce spurious output from a transmitter with up to 50 W output power.
- The filter can be tuned within the entire 112 - 136 MHz band. It has very small dimensions owing to the use of helical resonators. Careful design and choice of materials ensure reliable operation over a wide temperature range.
- The housing is made of extruded aluminium, the chassis of steel, and teflon insulation has been used in the coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.

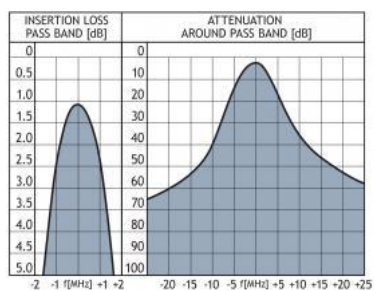
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 3/4	200000856

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 3/4
FILTER TYPE	Band-pass filter
TUNING RANGE	112 - 136 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS	≤ 1.2 dB (typ.)
ATTENUATION AROUND PASS-BAND	See curves
OUT OF BAND ATTENUATION	See curves
IMPEDANCE	Nom. 50 Ω
SWR	≤ 1.5
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
CONNECTORS	BNC-female (others on request)
DIMENSIONS (L x W x H)	160 x 77 x 33 mm
WEIGHT	Approx 500 g

## TYPICAL RESPONSE CURVES





## BPF 3/3

### Band-Pass Filter for the 112 - 136 MHz Band

- The BPF 3/3 is a 3-helical resonator band-pass filter with aperture-coupling between the resonators.

## DESCRIPTION

- This filter can be used as a preselector to protect a receiver against interference from transmissions out of the passband, or it can be used to reduce spurious output from a transmitter with up to 50 W output power.
- The filter can be tuned within the entire 112 - 136 MHz band. It has very small dimensions owing to the use of helical resonators. Careful design and choice of materials ensure reliable operation over a wide temperature range.
- The housing is made of extruded aluminium, the chassis of steel, and teflon insulation has been used in the coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.

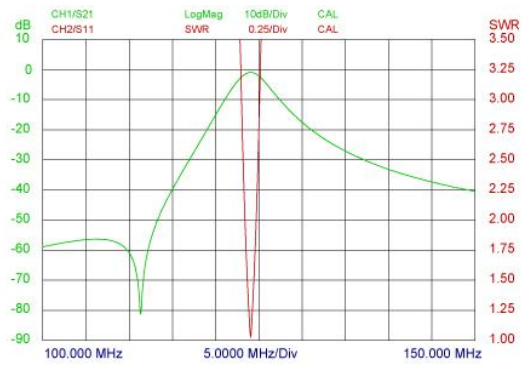
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 3/3	200000854

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 3/3
FILTER TYPE	Band-pass filter
TUNING RANGE	112 - 136 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS	≤ 1.0 dB (typ.)
ATTENUATION AROUND PASS-BAND	See curves
OUT OF BAND ATTENUATION	See curves
IMPEDANCE	Nom. 50 Ω
SWR	≤ 1.5
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
CONNECTORS	BNC-female (others on request)
DIMENSIONS (L x W x H)	160 x 77 x 33 mm
WEIGHT	Approx 420 g

## TYPICAL RESPONSE CURVES





## BPF 3/...-200Q-SHT

### Band-Pass Filter for the 130 MHz Band

- High-power base station shortened band-pass filter for the 118 - 136 MHz range.
- During trimming, the threaded rod will externally remain at the same position - especially beneficial when the cavity is fitted in tight locations (e.g. in racks).

- Due to the use of large  $\varnothing 200$  mm cavities a high Q is achieved, resulting in a very narrow passband.
- The large dimensions also mean a high power rating.
- The SHT-version has only 600 mm cavity length.
- Unloaded Q of a single cavity is approx. 3000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 3/1-200Q-SHT	200002079
BPF 3/2-200Q-SHT	200002170
BPF 3/3-200Q-SHT	200002171

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPF 3/1-200Q-SHT	BPF 3/2-200Q-SHT	BPF 3/3-200Q-SHT
FREQ. RANGE	118 - 136 MHz	118 - 136 MHz	118 - 136 MHz
MAX. INPUT POWER	350 W @ 0.6 dB IL 150 W @ 2.0 dB IL	350 W @ 1.2 dB IL 150 W @ 4.0 dB IL	350 W @ 1.8 dB IL 150 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.6 - 2.0 dB	Adjustable 1.2 - 4.0 dB	Adjustable 1.8 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-10° C → +30° C	-10° C → +30° C	-10° C → +30° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 200 \times 600$ mm	L:200 x W:400 x H:600 mm	L:200 x W:600 x H:600 mm

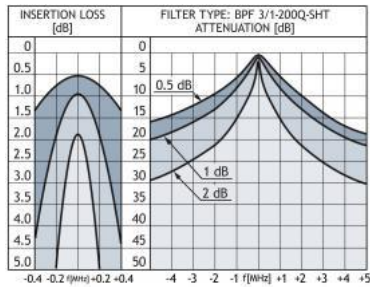
WEIGHT

Approx. 5.1 kg

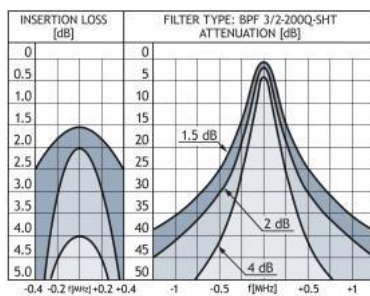
Approx. 10.5 kg

Approx. 15.0 kg

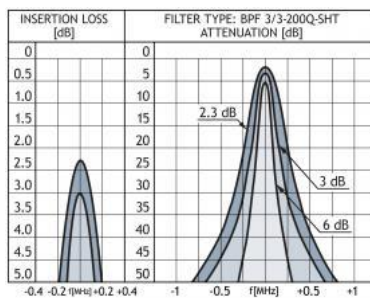
## TYPICAL RESPONSE CURVES



## TYPICAL RESPONSE CURVES



## TYPICAL RESPONSE CURVES







## BPF 3/...-200-SHT

### Band-Pass Filter for the 130 MHz Band

- High power base station shortened band-pass filter for the 116 - 146 MHz range.
- Due to the use of large  $\varnothing 200$  mm cavities a high Q is achieved, resulting in a very narrow passband.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- The SHT-version has only 600 mm cavity length.
- Unloaded Q of a single cavity is approx. 3000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

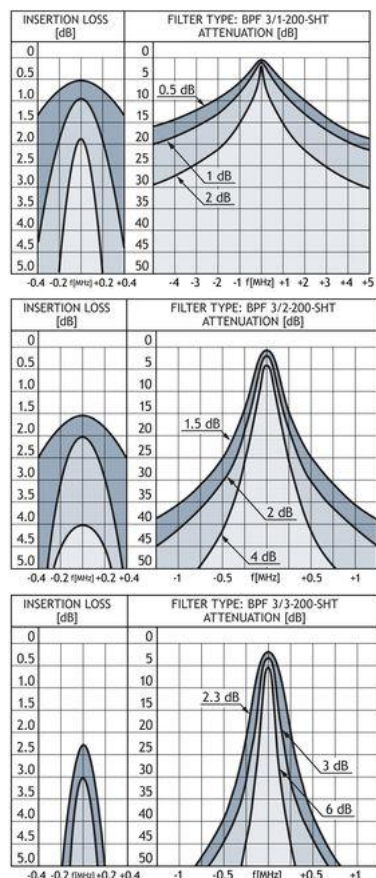
TYPE	PRODUCT NO.
BPF 3/1-200-SHT	200000983
BPF 3/2-200-SHT	200001163
BPF 3/3-200-SHT	200001890

## SPECIFICATIONS

ELECTRICAL			
MODEL	BPF 3/1-200-SHT	BPF 3/2-200-SHT	BPF 3/3-200-SHT
FREQ. RANGE	116 - 146 MHz	116 - 146 MHz	116 - 146 MHz
MAX. INPUT POWER	350 W @ 0.5 dB IL 150 W @ 2.0 dB IL	350 W @ 1.0 dB IL 150 W @ 4.0 dB IL	350 W @ 1.5 dB IL 150 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.5 - 2.0 dB	Adjustable 1.0 - 4.0 dB	Adjustable 1.5 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR (at resonance)	< 1.5	< 1.5	< 1.5
MECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 200$ x 600 mm	L:200 x W:400 x H:600 mm	L:200 x W:600 x H:600 mm

WEIGHT	Approx. 4.6 kg	Approx. 10 kg	Approx. 14.5 kg
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## TYPICAL RESPONSE CURVES





## BPF 3/...-125

### Band-Pass Filters for the 130 MHz Band

- High power base station band-pass filters for the 116 - 146 MHz range.
- The use of large  $\varnothing 125$  mm cavities gives a high Q, resulting in a very narrow passband.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 4500.
- High frequency stability on temperature and power.
- Mounted on 19" brackets.\*\*

## ORDERING DESIGNATIONS

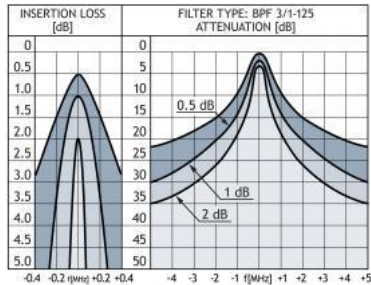
TYPE	PRODUCT NO.
BPF 3/1-125	200000974
BPF 3/2-125	200000968
BPF 3/3-125	200000596

## SPECIFICATIONS

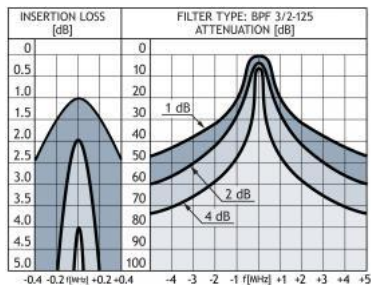
ELECTRICAL			
MODEL	BPF 3/1-125	BPF 3/2-125	BPF 3/3-125
FREQ. RANGE	116 - 146 MHz		
MAX. INPUT POWER	350 W @ 0.5 dB IL 125 W @ 2.0 dB IL	350 W @ 1.0 dB IL 125 W @ 4.0 dB IL	350 W @ 1.5 dB IL 125 W @ 6.0 dB IL
INSERTION LOSS	Adjustable 0.4 - 2.0 dB	Adjustable 0.8 - 4.0 dB	Adjustable 1.2 - 6.0 dB
ATTENUATION	See figure 1	See figure 2	See figure 3
IMPEDANCE	Nom. 50 Ω		
SWR (at resonance)	< 1.5		
ECHANICAL			
TEMP. RANGE RH 0-90% non-condensing	-30° C → +60° C		
FREQ. STABILITY	Approx. 1.5 ppm/° C		
CONNECTORS	N-female		
DIMENSIONS	ø125 x 765 mm	L:125 x W:285 x H:765 mm	L:125 x W:425 x H:765 mm

WEIGHT	Approx. 3.4 kg	Approx. 7.0 kg	Approx. 10.5 kg
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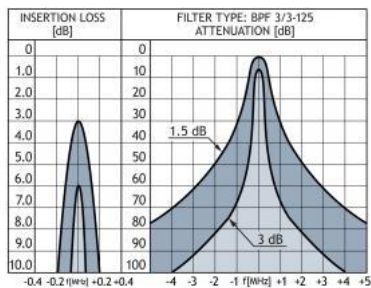
## TYPICAL RESPONSE CURVES



## TYPICAL RESPONSE CURVES



## TYPICAL RESPONSE CURVES





## BPF 24G/7

### Interdigital Band-Pass Filter for the 24 GHz Band

- The BPF 24G/7 is a 7-resonator, interdigital band-pass filter for multichannel systems in the 24 GHz band.

## DESCRIPTION

- Using interdigital principles the following features are obtained at the same time:
  - Wide Pass Range
  - Low insertion loss and ripple inside pass range
  - Steep slopes immediately outside pass range
  - Heavy attenuation outside the pass range.
- The BPF 24G/7 housing is made of silvered brass. Careful design and choice of materials ensure a long lifetime and reliable operation over a wide temperature range.
- The filter can be delivered with centre frequency between 20 and 25 GHz. The specifications and the curves below refer to a filter with 1 GHz port width, but interdigital filters with other port widths and filter characteristics may be quoted on request.

## ORDERING DESIGNATIONS

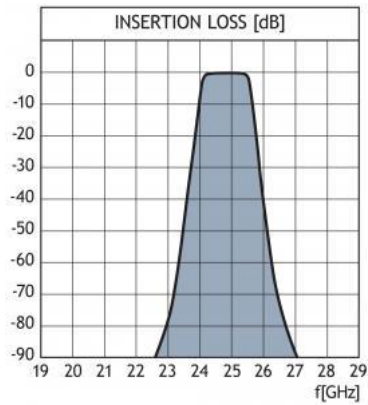
TYPE	PRODUCT NO.
BPF 24G/7	200000801

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 24G/7
FILTER TYPE	Interdigital band-pass filter
CENTRE FREQUENCY	To be stated within 20 and 25 GHz
MAX. INPUT POWER	10 W
PASS RANGE WIDTH	1 GHz
INSERTION LOSS	
ATTENUATION AROUND PASSBAND	± 1 GHz rel. fc: approx. 30 dB ± 2 GHz rel. fc: approx. 60 dB
ATTENUATION OUTSIDE PASS-RANGE	> 70 dB, typ. > 75 - 80 dB
IMPEDANCE	Nom. 50 Ω
SWR	< 1.5
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
FREQ. STABILITY	Approx. 8 ppm/° C
CONNECTORS	SMA-female
DIMENSIONS (L x W x H)	65 x 6.8 x approx. 18 mm incl. conn.

WEIGHT	Approx. 60 g
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## TYPICAL RESPONSIVE CURVES





## BPF 225-400-...

### Band-Pass Filter for 225 400 MHz

- Miniature LC band-pass filter.
- Allows the whole 225 - 400 MHz band to pass.

## DESCRIPTION

- Can be used as a preselector to protect a receiver against interferences from transmitters normally being outside the band-pass range.
- BPF 225-400-... can be mounted as a preselector directly inside the PRO-AR4G-N, PRO-AR8G-N and the PRO-AR16G-N receiver multicouplers.
- Very small dimensions, mounted in a 45 x 50 mm / 1.77 x 1.97 in case.
- FME connectors for easy and handy coupling to the surroundings.
- Also available with SMA, TNC or BNC connector types.
- BPF 225-400-... is lacquered with black vinyl enamel to avoid corrosion.

## ORDERING DESIGNATIONS

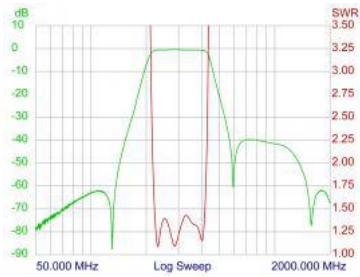
TYPE	PRODUCT NO.
BPF 225-400-FME	200002369
BPF 225-400-BNC	200001150
BPF 225-400-TNC	200002370
BPF 225-400-SMA	200002371

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 225-400-...
PASS RANGE	225 - 400 MHz
MAX. INPUT POWER	35 W
INSERTION LOSS	≤ 1.0 dB typically ≤ 0.7 dB
SWR	≤ 1.5
OUT OF BAND ATTENUATION	See curve (typically)
IMPEDANCE	Nom. 50 Ω
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
CONNECTORS	FME-male (others on request)
DIMENSIONS (W x H x D)	50 x 21 x 50 mm (incl. connectors) / 1.97 x 0.83 x 1.97 in

WEIGHT	Approx. 60 g / 0.13 lb
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## TYPICAL RESPONSE CURVES







## BPF 2.5G/7

### Interdigital Band-Pass Filter for the 2.5 GHz Band

- 7-resonator, interdigital band-pass filter.
- Especially suitable for multichannel systems in the 2.5 GHz band.

## DESCRIPTION

- Wide pass range of approx. 100 MHz.
- Low insertion loss and low ripple inside pass range.
- Steep slopes immediately outside the pass range.
- Heavy attenuation outside the pass range.
- Housing made of silvered brass.
- Terminated with SMA-female connectors.

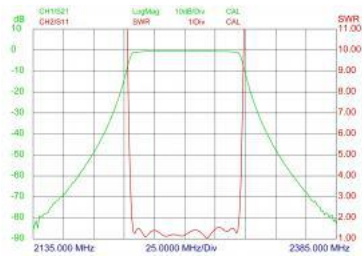
## ORDERING DESIGNATIONS

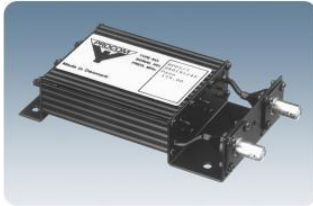
TYPE	PRODUCT NO.
BPF 2.5G/7-...	200000803

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 2.5G/7-...
FILTER TYPE	Interdigital band-pass filter
CENTRE FREQUENCY	To be stated within 2250 and 2850 MHz
PASS RANGE WIDTH	Approx. 100 MHz
INSERTION LOSS	
ATTENUATION AROUND PASSBAND	$\pm 120$ MHz rel. fc: $> 60$ dB
IMPEDANCE	Nom. $50 \Omega$
SWR	$\leq 2.0$
MAX. POWER	10 W
MECHANICAL	
TEMP. RANGE	$-30^{\circ} \text{C} \rightarrow +60^{\circ} \text{C}$
CONNECTORS	SMA-female
MATERIALS	Housing: Silvered brass Connectors: Goldplated CuBe
DIMENSIONS (L x W x H)	215 x 30 x 30 mm / 8.5 x 1.1 x 1.1 in. (230 x 55 x 30 mm incl. connectors, adjustment screws and mounting brackets)
WEIGHT	Approx. 430 g / 0.9 lb

## TYPICAL RESPONSE CURVES





## BPF 2/3

### Band-Pass Filter for the 160 MHz Band

- The BPF 2/3 is a 3-helical resonator band-pass filter with aperture-coupling between the resonators.

## DESCRIPTION

- This filter can be used as a preselector to protect a receiver against interference from transmissions out of the passband, or it can be used to reduce spurious output from a transmitter with up to 50 W output power.
- The filter can be tuned within the entire 144 - 175 MHz band. It has very small dimensions owing to the use of helical resonators. Careful design and choice of materials ensure reliable operation over a wide temperature range.
- The housing is made of extruded aluminium, the chassis of steel, and teflon insulation has been used in the coaxial cables and in the connectors.
- The filter is black vinyl coated to prevent corrosion.

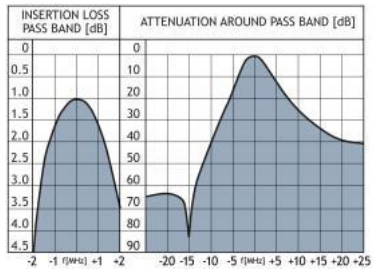
## ORDERING DESIGNATIONS

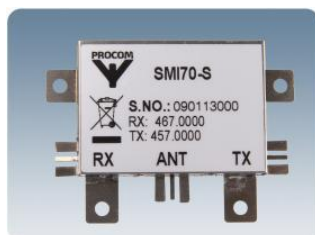
TYPE	PRODUCT NO.
BPF 2/3	200000808

## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 2/3
FILTER TYPE	Band-pass filter
TUNING RANGE	144 - 175 MHz
MAX. INPUT POWER	50 W
INSERTION LOSS	≤ 1.0 dB (typ.)
ATTENUATION AROUND PASS-BAND	See curves
OUT OF BAND ATTENUATION	See curves
IMPEDANCE	Nom. 50 Ω
SWR	≤ 1.5
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
CONNECTORS	BNC-female (others on request)
DIMENSIONS (L x W x H)	160 x 77 x 33 mm
WEIGHT	Approx. 420 g

## TYPICAL RESPONSE CURVES





## SMI 70-S

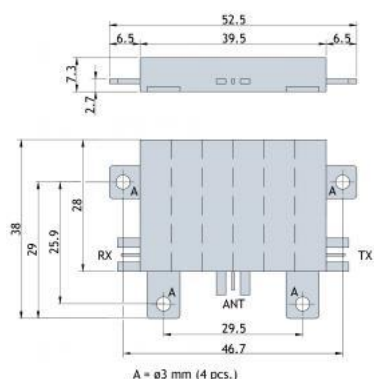
## 450 MHz Ceramic Microplexer

- Extremely small and lightweight ceramic duplexer (Extremely small: only 8 cm<sup>3</sup>!).
- Ideal for integration in portable 450 MHz cellular radio telephones.

## DESCRIPTION

- Low insertion loss by use of high-performance ceramic materials and computer optimized interconnection networks.
- Rugged mechanical design and low temperature drift.
- High power handling – handles 30 W at 85° C when mounted on a 25 cm<sup>2</sup> heatsink!
- Designed for direct drop-in on microstrip PCB.
- Coplanar terminals save space and provide ease-of-manufacturing and a non-discontinuity interface to the PCB.
- Environment proof.

## FUNCTIONAL DIMENSIONS



Detailed installation drawing available upon request.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
SMI 70-S	200000643

## COMMON SPECIFICATIONS

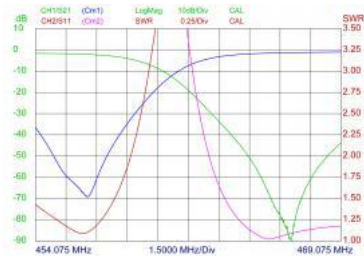
ELECTRICAL	
MODEL	SMI 70-S
FREQUENCY RANGE	400 - 475 MHz
MAX. INPUT POWER	6 W without heatsink 30 W with heatsink
IMPEDANCE	Nom. 50 Ω
MECHANICAL	
TEMP. RANGE	-30° C → +85° C
CONNECTIONS	Drop-in, coplanar

TOTAL DIMENSIONS (L x W x H)	52.5 x 38 x 7.3 mm
HOUSING ONLY (L x W x H)	39.5 x 28 x 7.3 mm
WEIGHT	Approx. 35 g

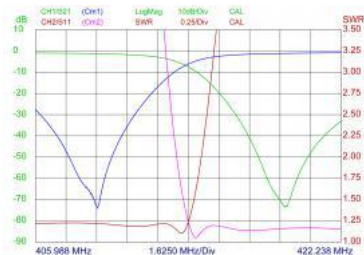
## SPECIFICATIONS

DUPLEX SPACING TX-RX	10 MHz	
PORT WIDTH	Single frequency	
BRANCH	TX → Ant.	Ant. → RX
INSERTION LOSS IN PASSBAND	≤ 1.4 dB	≤ 2.2 dB
ATTENUATION IN STOPBAND	> 60 dB	> 70 dB
SWR	≤ 1.3	
DUPLEX SPACING TX-RX	10 MHz	
PORT WIDTH	1 MHz	
BRANCH	TX → Ant.	Ant. → RX
INSERTION LOSS IN PASSBAND	≤ 1.5 dB	≤ 2.4 dB
ATTENUATION IN STOPBAND	> 55 dB	> 60 dB
SWR	≤ 1.4	

## TYPICAL RESPONSE CURVES @ 10 MHz DUPLEX SPACING (Single channel)



## TYPICAL RESPONSE CURVES @ 10 MHz DUPLEX SPACING 1 MHz BW





## BRF 4/...-200

### Band-Reject Filters for the 80 MHz Band

- High power base station band-reject filters for the 66 – 88 MHz range.
- The use of large  $\varnothing 200$  mm cavities means a high Q, resulting in a very narrow notch bandwidth.

## DESCRIPTION

- The large dimensions also mean a high power rating.
- Unloaded Q of a single cavity is approx. 7000.
- High frequency stability on temperature and power.
- 19" mounting brackets are available as an option.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BRF 4/1-200	200001920
BRF 4/2-200	200001921
BRF 4/3-200	200001922

## SPECIFICATIONS

ELECTRICAL			
MODEL	BRF 4/1-200	BRF 4/2-200	BRF 4/3-200
FREQ. RANGE	66 - 88 MHz	66 - 88 MHz	66 - 88 MHz
MAX.INPUT POWER	350 W @ 0.5 dB IL 200 W @ 1.0 dB IL	350 W @ 1.0 dB IL 200 W @ 2.0 dB IL	350 W @ 1.5 dB IL 200 W @ 3.0 dB IL
1 dB NOTCH BANDWIDTH	1 ‰ of $f_c$	1 ‰ of $f_c$	1 ‰ of $f_c$
IMPEDANCE	Nom. 50 $\Omega$	Nom. 50 $\Omega$	Nom. 50 $\Omega$
SWR	$\leq 1.5$	$\leq 1.5$	$\leq 1.5$
MECHANICAL			
TEMP.RANGE RH 0-90% non-condensing	-30° C → +60° C	-30° C → +60° C	-30° C → +60° C
FREQ. STABILITY	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C	Approx. 1.5 ppm/° C
CONNECTORS	N-female	N-female	N-female
DIMENSIONS	$\varnothing 200$ x 1200 mm	L:200 x W:400 x H:1200 mm	L:200 x W:600 x H:1200 mm
WEIGHT	Approx.	Approx.	Approx.



	6.7 kg	13.7 kg	20.9 kg
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## BPF 146-174

### Band-Pass Filter for 146 - 174 MHz

- BPF 146-174 is an Miniature LC band-pass filter.
- Allows the whole 146 - 174 MHz band to pass.

## DESCRIPTION

- Can be used as a preselector to protect a receiver against interferences from transmitters normally being outside the band-pass range.
- BPF 146-174 can be mounted as a preselector directly inside the PRO-AR4G-N, PRO-AR8G-N and the PRO-AR16G-N receiver multicouplers.
- Very small dimensions, mounted in a 45 x 50 mm case.
- FME-connectors for easy and handy interconnections.
- Also available with SMA, TNC or BNC connectors.
- BPF 146-174 is coated with black vinyl to prevent corrosion.

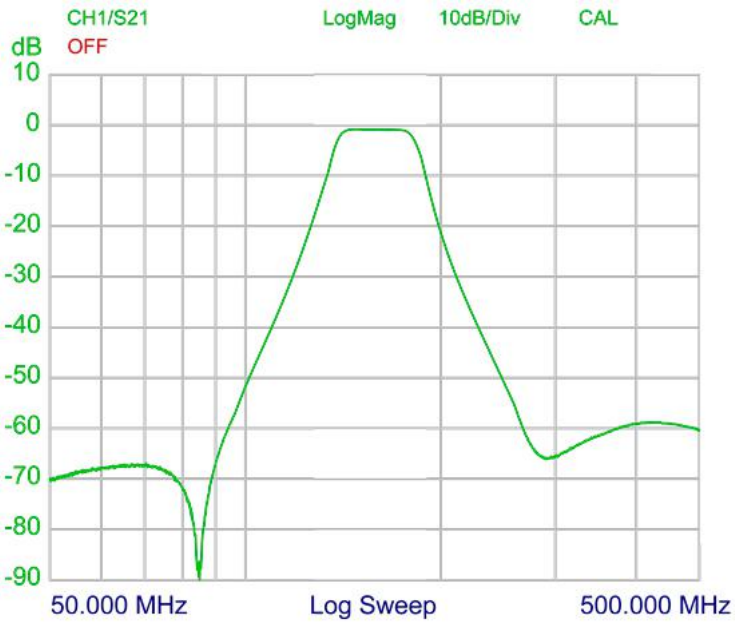
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 146-174	200002601

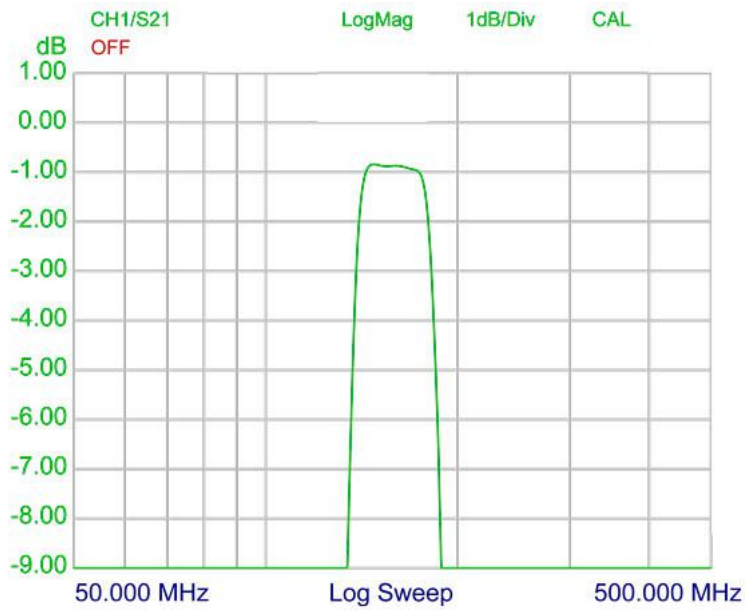
## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 146-174
PASS RANGE	146 - 174 MHz
MAX. INPUT POWER	25 W
INSERTION LOSS	$\leq 1.2$ dB typically $\leq 1.0$ dB
SWR	$\leq 1.5$
OUT OF BAND ATTENUATION	See curve (typically)
IMPEDANCE	Nom. 50 $\Omega$
MECHANICAL	
TEMP. RANGE	-30° C $\rightarrow$ +60° C
CONNECTORS	FME-male (others on request)
DIMENSIONS (W x H x D)	50 x 21 x 50 mm (incl. connector) 1.97 x 0.83 x 1.97 in. (incl. connector)
WEIGHT	Approx. 60 g / 0.13 lb.

## TYPICAL RESPONSE CURVES



#### TYPICAL RESPONSE CURVES (1 dB)





## PRO-TRI 174/350-520/760

60 W Triplexer for the 0 - 174 MHz, 350 - 520 MHz and 760 - 2200 MHz Ranges Tanges

- Triplexer for combining or splitting the three ranges:  
VHF, 0 - 174 MHz  
UHF, 350 - 520 MHz  
LTE800, GSM900, GSM1800, UMTS, 760 - 2200 MHz.
- Chebychev design ensures very high isolation across the entire pass ranges.
- High power handling capability.

### DESCRIPTION

- Low insertion loss.
- Low weight.
- Wide temperature range.
- Milled aluminium box ensures extraordinarily high mechanical strength.
- Coated with 2-component lacquer for maximum weather protection.
- N-connectors on all ports.

### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-TRI 174/350-520/760-N(f)	200002563

### SPECIFICATIONS

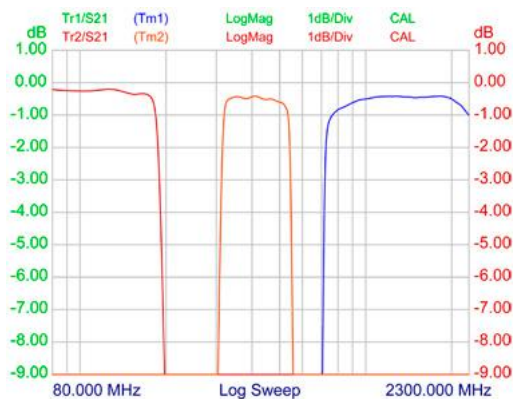
ELECTRICAL			
MODEL	PRO-TRI 174/350-520/760		
FREQUENCY	COM-LOW port: 0 - 174 MHz COM-MID port: 350 - 520 MHz COM-HIGH port: 760 - 2200 MHz		
MAX. RF POWER	60W CW simultaneously on both HIGH, MID and LOW port		
INSERTION LOSS	0 - 174 MHz: $\leq 0.5$ dB 350 - 520 MHz: $\leq 0.8$ dB 760 - 2200 MHz: $\leq 1.1$ dB		
ISOLATION BETWEEN LOW, MEDIUM and HIGH ports	$\geq 70$ dB		
IMPEDANCE	Nom. 50 $\Omega$		
SWR	LOW port:	Max. 1.5:1	
	MID port:	Max. 1.5:1	
	HIGH port:	760 - 2000 MHz:	Max. 1.5:1
		2000 - 2200 MHz:	Max. 2.0:1

MECHANICAL	
CONNECTORS	N-female
DIMENSIONS (L x W x H)	127 x 100 x 30 mm / 5.0 x 3.94 x 1.18 in. (incl. connectors)
WEIGHT	Approx. 600 g / 1.32 lb.
MOUNTING	ø4.1 mm / ø0.16 in. (4 holes)
ENVIRONMENTAL	
TEMP.RANGE*	-40° C to +80° C
IP-RATING	IP65

\* Temperature on box surface. Adequate cooling to keep max. temperature below +80° C must be provided.

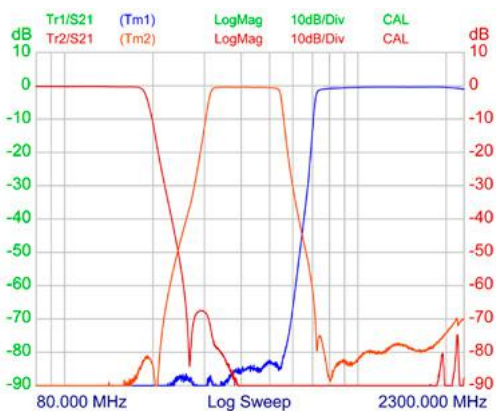
## TYPICAL RESPONSE CURVES

INSERTION LOSS [dB]

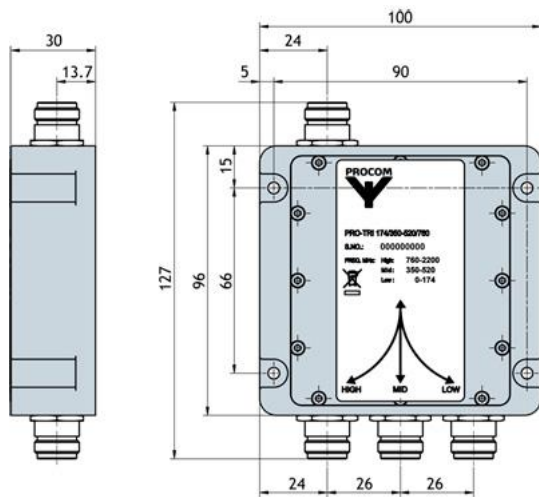


## TYPICAL RESPONSE CURVES

PORT ATTENUATION [dB]



## MOUNTING DETAILS



## PRO-DIPX 520/790-2700-LP

100 W Low PIM Diplexer for the 80 - 520 MHz and 790 - 2700 MHz ranges



- Diplexer for combining or splitting the two ranges 80 – 520 MHz and 790 – 2700 MHz.
- IP67 rated for both indoor and outdoor use.
- Superior PIM performance.

### DESCRIPTION

- Low PIM
- Very low insertion loss.
- Wide temperature range.
- N-female or 7/16 DIN-female connectors on all ports.
- Coated with 2-component lacquer for maximum weather protection.

### ORDERING DESIGNATIONS

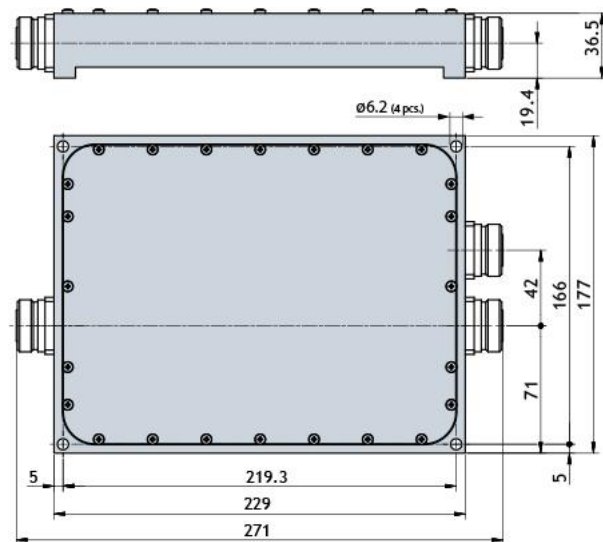
TYPE	PRODUCT NO.
PRO-DIPX 520/790-2700-LP-N(f)	200002618
PRO-DIPX 520/790-2700-LP-7/16(f)	200002619

### SPECIFICATIONS

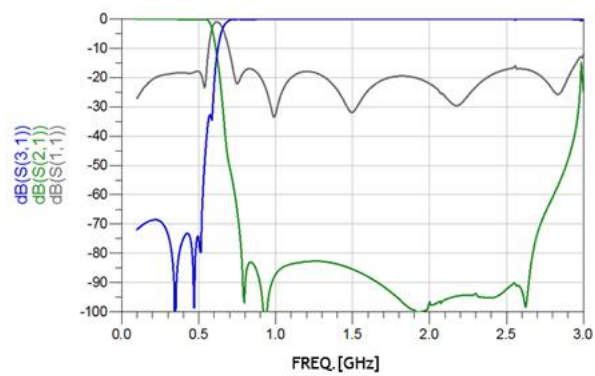
ELECTRICAL	
MODEL	PRO-DIPX 520/790-2700-LP
FREQUENCY	COM-LOW port : 80 - 520 MHz COM-HIGH port : 790 - 2700 MHz
MAX. RF POWER	100 W CW simultaneously on both LOW and HIGH port
INSERTION LOSS	80 - 520 MHz : $\leq 0.4$ dB, typ. $< 0.2$ dB 790-2700 MHz : $\leq 0.4$ dB, typ. $< 0.2$ dB
ISOLATION LOW to HIGH port	80 - 520 MHz : $\geq 50$ dB, typ. 65 dB 790 - 2700 MHz : $\geq 50$ dB, typ. 75 dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	LOW - COM port (80 - 520 MHz) : $\leq 1.5:1$ (RL $> 14$ dB) HIGH - COM port (790 - 2700 MHz) : $\leq 1.5:1$ (RL $> 14$ dB)
PIM	$< -150$ dBc @ 2 x 43 dBm
MECHANICAL	
CONNECTORS	7/16 DIN-female or N-female
DIMENSIONS (L x W x H)	273.3 x 177 x 36 mm / 10.76 x 6.97 x 1.42 in. (incl. connectors and flanges)
WEIGHT	Approx. 800 g / 1.76 lb.

MOUNTING	ø6.2 mm / ø0.236 in. (4 holes)
ENVIRONMENTAL	
TEMP. RANGE	-30° C → +60° C
IP rating	IP67

## MOUNTING DETAILS



## TYPICAL RESPONSE CURVES







## 19 Duplexer Mounting kit

19 rack mounting kit for MPX 2/6... ,MPX 70/6... ,DPF 2/6... and DPF 70/6 duplex filters.

- For future solutions, integrating duplex filter with repeater.
- Delivered unassembled and without filter (to be ordered seperately).

### DESCRIPTION

- The 19" Duplexer mounting kit with the Procom duplex filter MPX 2/6... , MPX 70/6... , DPF 2/6... and DPF 70/6 duplex filters are easily rack mounted.
- The mounting kit is one unit (1 HU) high and compatible with both types of Procom duplex filters, one for MPX filter and one for DPF filter.

### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.	DESCRIPTION
19" MPX Mounting kit	210002291	MPX filter
19" DPF Mounting kit	210002327	DPF filter
ACCESSORIES		
Cables for Motorola SLR 5500	210002305	Can also be used with Motorola DR3000
Cables for ICOM IC-FR5000 and IC-FR6000	210002351	
Cables for HYTERA RD 98x and 98xS	210002352	

### SPECIFICATIONS

MODEL	19" Duplexer Mounting kit
CONSISTS OF	1 HU Frontplate 1 Mounting plate 2 black M5x6 mm screw 4 M4x6 mm screw
To be ordered seperately: Cables for Motorola SLR 5500	500 mm RG 400 cable 50 Ohm N straight /N angle 500 mm RG 400 cable 50 Ohm N straight / BNC angle
To be ordered seperately: Cables for ICOM IC- FR5000 and FR6000	500 mm RG 400 cable 50 Ohm N straight / N angle 500 mm RG 400 cable 50 Ohm N straight / N angle
To be ordered seperately: Cables for HYTERA RD98x and RD98xS	500 mm RG 400 cable 50 Ohm N straight / N angle 500 mm RG 400 cable 50 Ohm N straight / N angle
MECHANICAL	

DIMENSIONS (W x H x D)	19" x 1 HU x D. (483 x 43 x 220 mm (DPF)) (483 x 43 x 130 mm (MPX))
WEIGHT: DPF	600 g.
WEIGHT: MPX	500 g.

MPX Mounting kit



DPF Mounting kit



**Filter not included.**



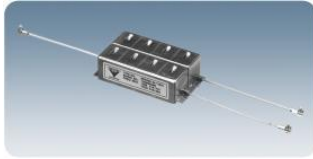
**Can be placed above or below the repeater.**



**TX and RX cables can be switched to high or low on the filter.**



**Cables can be switched from the front**



## MIX 300-44-T(XX)

### Ultra-Compact Build-in type Duplexer for the 300 MHz Band

- Miniaturized, light-weight, component-sized duplexer.
- Ideal for integration in compact radio telephones.
- Connection: Flying leads with MCX-connectors.

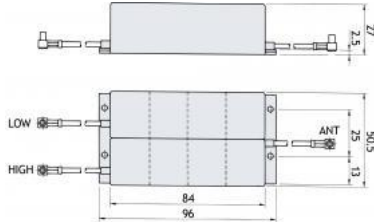
## DESCRIPTION

- Low insertion loss and temperature drift.
- Rugged mechanical design.
- Bandpass/Bandreject-response on both ports.
- Fully environmentally tested.
- Please request quotation regarding versions for networks other than mentioned below or for versions with a special connection layout.

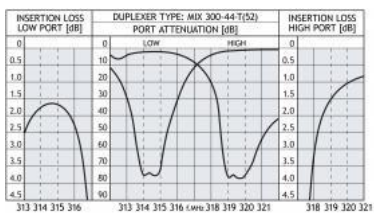
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
MIX 300-44-T(XX)	Contact us for info on availability

## FUNCTIONAL DIMENSIONS



## TYPICAL RESPONSE CURVE





## LH 108/136-2G-3FME

Diplexer for Mobile Telephone (136 - 2300 MHz) and Car Radio (0 - 108 MHz)

- Diplexer for simultaneous operation of mobile telephone and car radio on a common mobile telephone antenna.
- Excellent wide-band coverage – LH 108/136-2G-3FME is applicable for all the communications bands: 160, 450, 900, 1800 and 2100 MHz.

### DESCRIPTION

- Extremely small dimensions.
- Quick installation using dual-adhesive pad provided.
- FME-connections on antenna transceiver terminals and car radio terminals.

### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
LH 108/136-2G-3FME	200001709

### SPECIFICATIONS

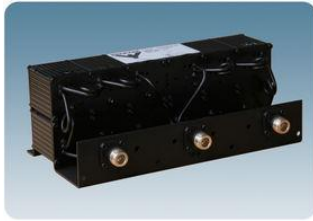
ELECTRICAL	
MODEL	LH 108/136-2G-3FME
FREQUENCY	Mobile telephone: 136 – 2300 MHz Car radio : 0 - 108 MHz
MAX. INPUT POWER	35 W ≤ 500 MHz 15 W ≤ 1500 MHz 10 W ≤ 2300 MHz
INSERTION LOSS	0 - 108 MHz : ≤ 0.8 dB 136 - 144 MHz : ≤ 0.8 dB 144 - 2300 MHz : ≤ 0.7 dB
ISOLATION	≥ 40 dB typ. ≥ 45 dB

RADIO to COM	> 38 dB at 108 and 136 MHz
IMPEDANCE	COM : 50 $\Omega$ , SWR < 1.5 Radio : 50 $\Omega$ , SWR < 1.5
MECHANICAL	
TEMP. RANGE	-30° C → +70° C
CONNECTORS	Antenna : FME COM : FME Radio : FME
DIMENSIONS (W x H x D)	50 x 21 x 60 mm
WEIGHT	Approx. 68 g

## TYPICAL RESPONSE CURVES

## INSTALLATION NOTES

- 1.The 50  $\Omega$  cable between antenna and diplexer should be kept as short as possible (preferably not over 1 m).
- 2.Some communication antennas have insufficient height to ensure satisfactory broadcast reception. Only antenna whips with a height of at least 25 cm are acceptable.
- 3.Tuning: The antenna is tuned for best SWR at the operating frequency as usual. The filter is factory-tuned and ready for installation. The car radio is tuned for optimum reception on the MW-band by means of the antenna tuning screw (if present).



## DPF 70/66-HX-150

### 12-cavity Mobile or Base Station Duplexer for the 430 - 470 MHz Band

- The DPF 70/66-HX-150 is a 12-cavity high-power mobile or base station duplexer for the 430 - 470 MHz band.
- This type of filter uses 12 large 40 x 40 mm cavities, all equipped with 3.5 mm silver-plated helical resonators, diameter 19 mm.

## DESCRIPTION

- The use of large cavities and resonators means higher Q, resulting in smaller duplex spacing with lower loss.
- The larger dimensions extend power rating to 100 W continuously.
- The DPF 70/66-HX-150 is designed for multi-channel equipment.
- The cavities are made of extruded aluminium, the chassis of passivated steel. All coaxial cables are of the semi-rigid type and teflon has been used in all connectors and cables.
- The filter is black vinyl coated to prevent corrosion.
- Please specify the frequencies for TX and RX when ordering as all filters are made individually.

## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
DPF 70/66-HX-150	200000441

## SPECIFICATIONS

ELECTRICAL	
MODEL	DPF 70/66-HX-150
TX/RX FREQUENCY	430 - 470 MHz
MAX. INPUT POWER	100 W @ 1 dB insertion loss
MIN. DUPLEX SPACING	10 MHz
TYPICAL INSERTION LOSS	≤1.2 dB (typ. 1 dB)
TX NOISE SUPPRESSION ON RX-FREQUENCY AND RX ISOLATION ON TX-FREQUENCY	≥90 dB
IMPEDANCE	Nom. 50 Ω
SWR	≤ 1.5
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
FREQ. STABILITY	Approx. 8 ppm/° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	185 x 250 x 100 mm
WEIGHT	Approx. 4 kg

## TYPICAL RESPONSE CURVE





## BPF 2G/7

### Interdigital Band-Pass Filter for the 2 GHz Band

- 7-resonator, interdigital band-pass filter.
- Especially suitable for multichannel systems in the 2 GHz band.

## DESCRIPTION

- Wide pass range of approx. 80 MHz.
- Low insertion loss and low ripple inside pass range.
- Steep slopes immediately outside the pass range.
- Heavy attenuation outside the pass range.
- Housing made of silvered brass.
- Terminated with SMA-female connectors.

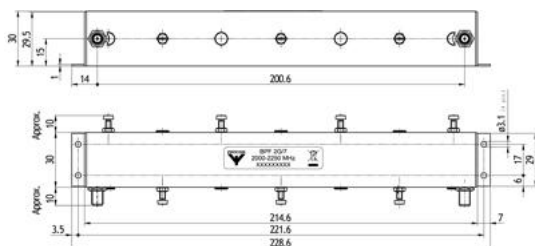
## ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
BPF 2G/7	200002586

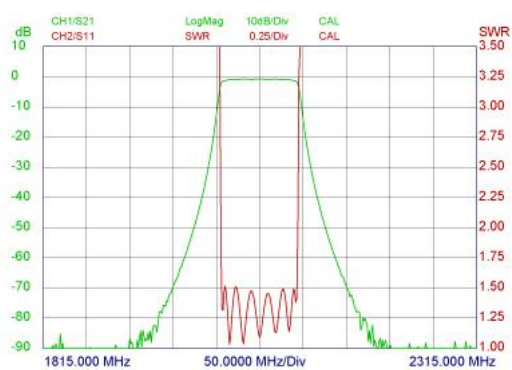
## SPECIFICATIONS

ELECTRICAL	
MODEL	BPF 2G/7
FILTER TYPE	Interdigital band-pass filter
CENTRE FREQUENCY	To be stated within 2000 and 2250 MHz
PASS RANGE WIDTH	Approx. 80 MHz
INSERTION LOSS	< 1.5 dB, typ. 0.8 dB
ATTENUATION AROUND PASSBAND	± 86 MHz rel. fc: > 60 dB
IMPEDANCE	Nom. 50 Ω
SWR	≤ 2.0
MAX. POWER	10 W
MECHANICAL	
TEMP. RANGE	-30° C → +60° C
CONNECTORS	SMA-female
MATERIALS	Housing: Silvered brass Connectors: Goldplated CuBe
DIMENSIONS (L x W x H)	215 x 30 x 30 mm / 8.5 x 1.1 x 1.1 in. (230 x 55 x 30 mm incl. connectors, adjustment screws and mounting brackets)
WEIGHT	Approx. 450 g / 1.0 lb

## MOUNTING DETAILS



## TYPICAL RESPONSE CURVES





## LPZ 470

### Coaxial Low-Pass Filter for the 450 MHz Band.

- Passes all signals in or below the 450 MHz Band.
- Rejects signals above this range.

## DESCRIPTION

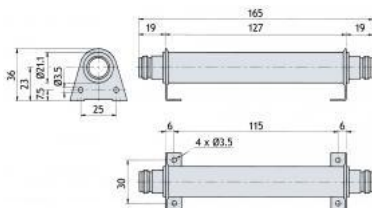
- Absolute stop band from 1640 MHz to 6 GHz  
- no degradation at harmonics (Zolotarev-characteristic).
- Attenuation in stop band better than 60 dB.
- Insertion loss in pass range less than 0.4 dB.
- Provided with brackets for panel mounting.

## ORDERING DESIGNATIONS

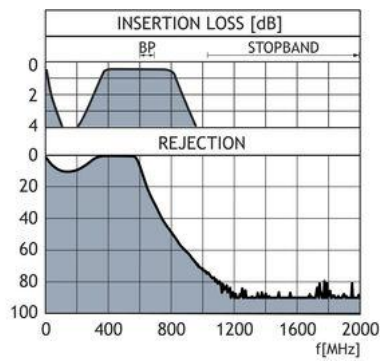
TYPE	PRODUCT NO.
LPZ 470	200001289

## SPECIFICATIONS

ELECTRICAL	
MODEL	LPZ 470
FILTER TYPE	Low-pass filter for the 450 MHz band
FREQUENCY	Pass band: 380 - 470 MHz Stop band: 760 MHz - 6 GHz
MAX. INPUT POWER	150 W
INSERTION LOSS (PASS BAND)	≤ 0.4 dB
1 dB CUT-OFF FREQUENCY	> 480 MHz
ATTENUATION (STOP BAND)	> 48 dB
MECHANICAL	
TEMP. RANGE	-30° C → +80° C
CONNECTORS	N-female
DIMENSIONS (L x W x H)	165 x 40 x 36 mm
WEIGHT	Approx. 240 g



## TYPICAL RESPONSE CURVES



The LPZ 470 is used to prevent RFI (Radio Frequency Interference) caused by excessive harmonic-generation from transmitters operating in the 450 MHz band. By rejection, the filter reduces the amplitude of the harmonics and prevents them from being radiated by the antenna.

The filter is normally used in connection with base station transmitters, but as it is mechanically very ruggedly designed, it is perfectly suited for mobile and marine applications as well.



## PRO-DIPX 270/300-...

50 W Diplexer for the 0 - 270 MHz and 300 - 512 MHz Ranges

- Diplexer for combining or splitting the two ranges 0 - 270 MHz and 300 - 512 MHz.
- Elliptical filter design.

### DESCRIPTION

- Diplexer for combining or splitting the two ranges 0 - 270 MHz and 300 - 512 MHz.
- Elliptical filter design.
- Low insertion loss in spite of very narrow guard band.
- High power handling capability.
- High isolation.
- Low weight.
- Wide temperature range.
- Milled aluminium box ensures extraordinarily high mechanical strength.
- Black vinyl-coated to prevent corrosion.
- N-connectors on all ports (standard).
- Also available with SMA-, TNC- or BNC- connector types.

### ORDERING DESIGNATIONS

TYPE	PRODUCT NO.
PRO-DIPX 270/300-N	200002274
PRO-DIPX 270/300-SMA	200002225
PRO-DIPX 270/300-TNC	200002275
PRO-DIPX 270/300-BNC	200002276

### SPECIFICATIONS

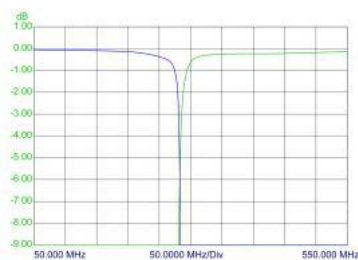
ELECTRICAL	
MODEL	PRO-DIPX 270/300-...
FREQUENCY	COM-LOW port: 0 - 270 MHz COM-HIGH port: 300 - 512 MHz
MAX. RF POWER	50W CW simultaneously on both HIGH and LOW port
INSERTION LOSS	0 - 270 MHz: $\leq 0.7$ dB 300 - 512 MHz: $\leq 0.7$ dB
ISOLATION	LOW to HIGH port: $\geq 40$ dB
IMPEDANCE	Nom. 50 $\Omega$
SWR	Max. 1.5:1 on all ports
MECHANICAL	
TEMP.RANGE*	-40° C to +60° C
CONNECTORS	INPUT: N-female OUTPUT: N-female

	(Other types available on request)
IP RATING	IP62
DIMENSIONS (L x W x H)	103 x 80 x 31 mm / 4.06 x 3.15 / 1.22 in. (incl. connectors and flanges)
WEIGHT	Approx. 270 g / 0.60 lb.
MOUNTING	ø4.3 mm / ø0.17 in. (4 holes)

\* Temperature on box surface. Adequate cooling to keep max. temperature below +60° C must be provided.

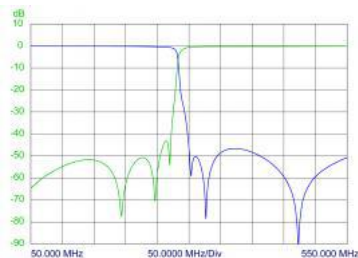
## TYPICAL RESPONSE CURVES

INSERTION LOSS [dB]

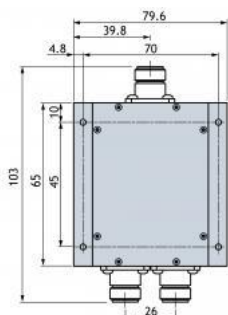


## TYPICAL RESPONSE CURVES

PORT ATTENUATION [dB]



## MOUNTING DETAILS

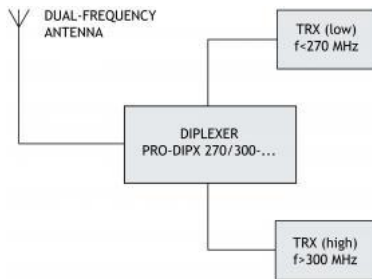


The PRO-DIPX 270/300-... makes it possible to use only one antenna for the operation of two transceivers (one in each range). See the figure below. The antenna must be a dual-frequency antenna, i.e. it must be resonant on the actual frequencies in the two bands.

The transceivers may be used independently and will have no degrading influence on each other. Typically, the diplexer is installed next to the transceivers and only one cable is used between the diplexer and the antenna. The diplexer is suitable both for base station and mobile use.

The main tasks of the diplexer are to protect the individual receiver input from being destroyed by the transceiver in the contrary band and to ensure a low-loss path between the transceiver and the antenna which is not loaded by the other branch.

The diplexer can be operated together with any set of transceivers operating within the 0 - 270 MHz and 300 - 512 MHz frequency bands.





# PROCOM A/S

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Smedetoften 12, 3600  
Frederikssund, Denmark

