

# Series 700 High Performance Filtered Connectors

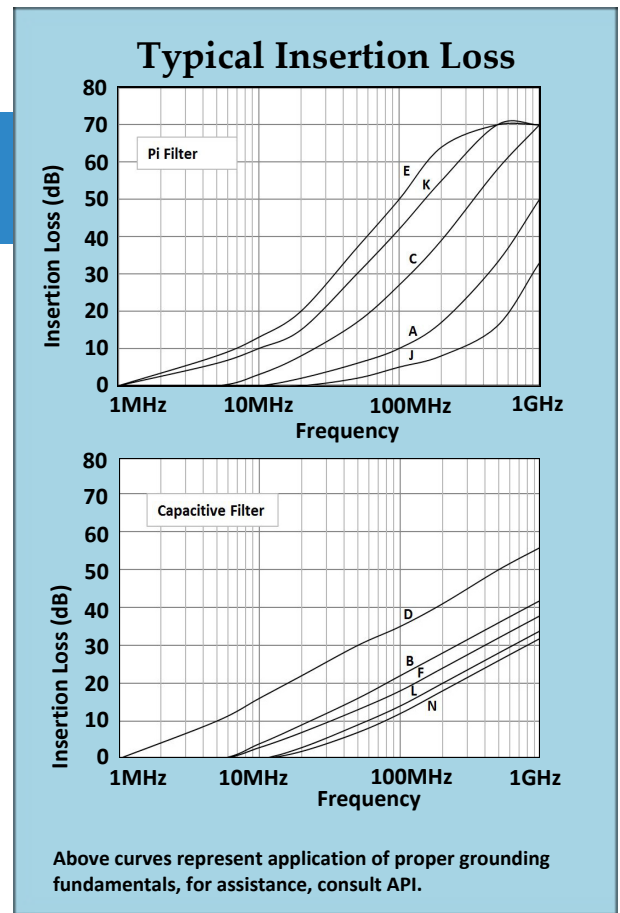
## Filter Selection

API's Spectrum Control brand of Series 700 connectors offer the highest performance filtering for all types of professional applications.

## Features

- Available in 9, 15, 25, 37 and 50 shell sizes
- Variety of termination configurations including right angle and straight PCB for both pin and socket contact and as an adapter
- Capacitive and Pi type filters in a full range of capacitance values

The catalog data for this series is presented in order of shell size, and grouped by pin and socket contacts. Part numbers must be selected from the tables within the series section.



Insertion loss measured per MIL-STD-220, no load, 50ohm source and load.

## Electrical Specifications: High Performance Connectors

Filter Designations	Filter Circuits	Capacitance		3 dB Cut-off Frequency Max. (MHz)	Dielectric With-standing Voltage	Working Voltage DC -55°C to +125°C	Minimum Insertion Loss - Decibels (dB)									
		Value	Tol.				5 MHz	10 MHz	20 MHz	50 MHz	100 MHz	200 MHz	500 MHz	1 GHz		
J	Pi	100 pF	+100 -0%	32	300V	100V	—	—	—	2	5	8	16	33		
A		310 pF	±20%	17	300V	100V	—	—	2	6	10	17	33	50		
C		1000 pF	+150 -0%	3.2	300V	100V	—	3	8	17	27	39	58	70		
K		2500 pF	+100 -0%	1.3	150V	50V	6	10	15	30	42	55	70	70		
E		4000 pF	+100 -0%	0.8	150V	50V	8	13	20	37	50	64	70	70		
N	C	375 pF	±20%	14	600V	200V	—	—	2	7	12	18	26	32		
L		500 pF	±20%	10.6	600V	200V	—	—	3	9	14	20	28	34		
F		830 pF	±20%	6.4	600V	200V	—	3	7	13	18	24	32	38		
B		1000 pF	+100 -0%	3.2	600V	200V	—	4	9	16	22	28	36	42		
D		5000 pF	+100 -0%	0.64	300V	100V	10	16	22	30	35	41	50	56		

Filter designation "G" for grounded contacts, "I" for insulated (not filtered) contacts.  
Filter designation "O" for omitted contact and no hole in ground plane.

Above data represents guaranteed minimum.

# Series 700 Specifications and Connector Ordering

## Mechanical Specifications

Shell . . . . .	Zinc or aluminum diecast, nickel plated 150 $\mu$ inches (3.81 $\mu$ m) min.
Insulators . . . . .	Glass-filled polyester, flammability UL94V-0
Pin Contacts . . . . .	Copper alloy, 15 $\mu$ inches (0.38 $\mu$ m) gold plated * over nickel
Socket Contacts . . . . .	Copper alloy, 30 $\mu$ inches (0.76 $\mu$ m) gold plated * over nickel  * Heavier gold plating available upon request. See pg. FC43: Connector Options
Terminations . . . . .	Gold flash for PCB mount and solder cups. Solder dipped also available.
Ground Plane . . . . .	Brass, solder plated
Grounding Springs . . . . .	Beryllium copper
Operating Temperature . . . . .	-55°C to +125°C
Capacitors . . . . .	Proprietary barium titanate ceramic formulations

## Electrical Specifications

Current Rating . . . . .	5 Amps
R.F. Current Rating . . . . .	0.3 Amps
Contact Resistance . . . . .	10 milliohms maximum
UL Recognized . . . . .	Under category of communication circuit accessories, File #E149046
Inductance on PI Filters . . . . .	~ 860 nH between 100 kHz and 1 MHz

Solder cups accept up to a 20 gauge wire.

**Note:**  
 For additional mechanical, electrical, and  
 environmental specifications, refer to page FC79.

## Ordering Your Connector

### STEP 1: SELECTING THE FILTER

- Using the insert loss graphs on page FC20 determine which filters provide the required attenuation at the troublesome frequency, while not affecting the signal frequency by more than 3 to 6 dB.
- Choose the filter type, either feed-through capacitor or Pi. The Pi is generally considered better due to its superior high frequency performance and steeper curve. The feed-through capacitor is lower cost.
- Select capacitance value.
- Note the Spectrum letter designation for the filter chosen from the table on page FC20.

### STEP 2: SELECTING THE CONNECTOR

- Turn to the appropriate size section. (9, 15, 25, 37, 50)
- Choose either pin contacts (plug) or socket contacts (receptacle).
- Choose the required termination type.
- From the table on the appropriate connector page, using the filter letter designation chosen in step 1 above, select the part number.

### STEP 3: SPECIFYING OPTIONS

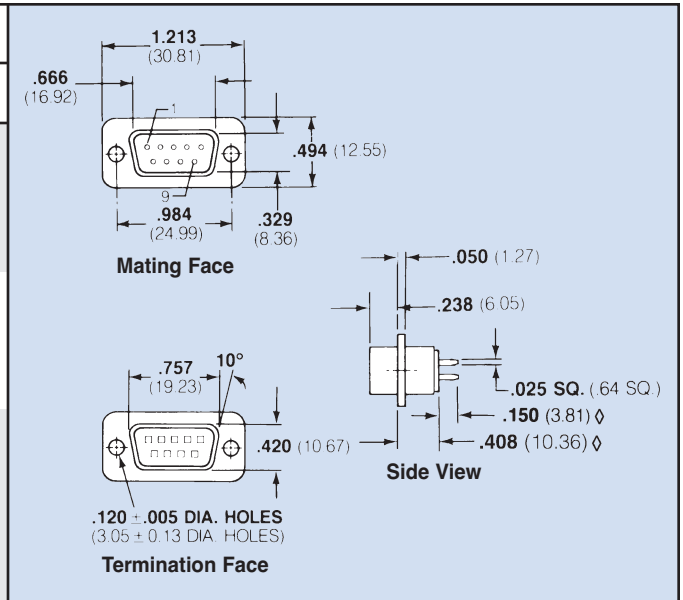
- Refer to page FC43 for special options including heavy gold plating, 4-40 mounting threads, grounding brackets, hardware, and others.
- Most options are available within the standard lead times.
- Some options require a part number suffix, while other combinations may require factory assistance for part number assignment. If a suffix is shown, add it to your selected part number. If more than one option is needed, consult with factory for part number assignment.

**9** Series 700  
Shell Size Pin Contact



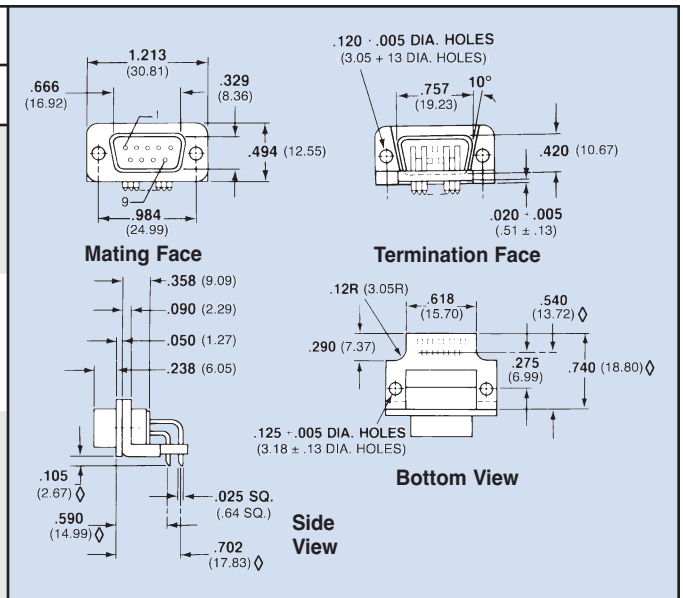
**Printed Circuit Board Mount**

Spectrum Part Number	EMI Filter	
	Filter Designation**	Cap. Value
56-701-001	A	310 pF Pi
56-701-002	B	1000 pF C
56-701-003	C	1000 pF Pi
56-701-004	D	5000 pF C
56-701-005	E	4000 pF Pi
56-701-028	F	830 pF C
56-701-029	J	100 pF Pi
56-701-030	K	2500 pF Pi
56-701-047	N	375 pF C
56-701-086	L	500 pF C



**Printed Circuit Board Right Angle Mount**

Spectrum Part Number	EMI Filter	
	Filter Designation**	Cap. Value
* 56-702-001	A	310 pF Pi
56-702-002	B	1000 pF C
* 56-702-003	C	1000 pF Pi
56-702-004	D	5000 pF C
* 56-702-005	E	4000 pF Pi
56-702-007	F	830 pF C
56-702-008	J	100 pF Pi
56-702-009	K	2500 pF Pi
56-702-013	N	375 pF C
* 56-702-033	L	500 pF C



\* May be available from distributor stock.  
\*\* See page FC20 for filter performance.  
Standard Tolerance = ±.005 except where noted, ◊ = ±.015

Dimensions in inches (mm)

# 9 Series 700 Shell Size Pin Contact



## Solderless Wire Wrap

Spectrum Part Number <i>Select one</i>	EMI Filter				
	L .500	L .375	L .250	Filter Desig.**	Cap. Value
56-701 -006 -022 -017				A	310 pF Pi
56-701 -007 -023 -018				B	1000 pF C
56-701 -008 -024 -019				C	1000 pF Pi
56-701 -009 -025 -020				D	5000 pF C
56-701 -010 -026 -021				E	4000 pF Pi
56-701 -037 -034 -031				F	830 pF C
56-701 -038 -035 -032				J	100 pF Pi
56-701 -039 -036 -033				K	2500 pF Pi
56-701 -050 -049 -048				N	375 pF C

## Solder Cup Termination

Spectrum Part Number	EMI Filter	
	Filter Designation**	Cap. Value
* 56-701-011	A	310 pF Pi
* 56-701-012	B	1000 pF C
* 56-701-013	C	1000 pF Pi
* 56-701-014	D	5000 pF C
* 56-701-015	E	4000 pF Pi
* 56-701-040	F	830 pF C
56-701-041	J	100 pF Pi
56-701-042	K	2500 pF Pi
56-701-081	N	375 pF C
56-701-087	L	500 pF C

\* May be available from distributor stock.  
 \*\* See page FC20 for filter performance.  
 Standard Tolerance = ±.005 except where noted, ∅ = ±.015

Dimensions in inches (mm)