

FV series circular electrical connectors

Product brief introduction

- Compliant with GJB598A(MIL-C-26482) I series
- Bayonet coupling
- 10 kinds of shell sizes from 06~24, various contact sizes
- Termination: soldering and PCB soldering
- High reliable hyperboloid socket
- Optional various plating with shielding or non-shielding function
- Straight and right angle back shells
- Applied enterprise standard: Q/21EJ203



Main performances

[Mechanical performances]

- vibration: frequency 10Hz-2000Hz, acceleration 196 m/s^2
- shock: acceleration 980 m/s^2
- endurance: 500 cycles (2000 cycles for connectors with 7 or less contacts)

[Environmental performances]

- operation temperature: $-55^\circ\text{C} \sim +125^\circ\text{C}$
- RH: temperature $40^\circ\text{C} \pm 2^\circ\text{C}$, 90%~95%
- operation atmosphere: 4.39 kPa~101.33 kPa
- salt spray: 48h (nickel and chrome plating); 96h (anodization)
500h (cadmium plating); 1000h (stainless steel)
- air leakage: receptacle: pressure difference $1.01 \times 10^5 \text{ Pa}$, no air leakage in 1min
After plug and receptacle mating: 2m water depth, no water immersion in 0.5h

[Electrical performances]

- Rated current and contact resistance:

Contact size	Mating end dia. (mm)	Contact resistance (mΩ)	Rated current (A)	Max dia. of cable core (mm)
22D	Φ0.76	12.5	3	Φ0.644
22#	Φ0.80	12.5	3	Φ0.644
20#	Φ1.02	5.0	7.5	Φ0.812
16#	Φ1.59	3.0	13	Φ1.291
	Φ1.50	3.0	13	Φ1.291
	Φ2.00	2.0	20	Φ1.628
12#	Φ2.39	2.0	25	Φ2.053
10#	Φ3.18	1.0	40	Φ2.588

—Operating voltage and withstanding voltage:

Altitude	Operating voltage V			Withstanding voltage (V)		
	Service level	Service level	Service level	Service level	Service level	Service level
	I	II	III	I	II	III
Sea level	600	1000	400	1500	2300	1300
21336m	300	450	200	375	500	250

—insulation resistance: normal \geq 5000M Ω ; elevated temperature \geq 500M Ω ; humidity \geq 100M Ω

Designation

		FVH	16	R	10	06	J	A	01	-	-1	(ϕ6)
Basic series	FVH—FV series cable soldering connectors FVB—FV series PCB soldering connectors									W		
Connector type	10/20—Square flange receptacle /shielding 14/24—Jam nut receptacle /shielding 16/26—Plug /shielding 18/28—Bulkhead Jam nut receptacle /shielding 19/29—Bulkhead Square flange receptacle /shielding											
Shell plating	Non-shielding plating (non-conductive shell): R—Black anodization W—Green anodization Y—Grey anodization Shielding plating (conductive shell): N —Electroless satin nickel plating Nb —Electroless bright nickel plating B— Olive green cadmium plating BW—Green drab cadmium plating BA— Olive drab cadmium plating H—Black chrome plating S—stainless steel passive											
Shell size	08, 10, 12, 14, 16, 18, 20, 22, 24											
Layout	See "Layout table"											
Contact type	J—pin K—socket S—bulkhead pin, For Bulkhead receptacle, sockets on the panel outside and pins on the inside S1—bulkhead pin, For Bulkhead receptacle, pins on the panel outside and sockets on the inside											

Special contact code	A, B, C...(use special contact sequence number, omitted when no special contact)
Back shell code	(Only for Plug, ordered separately, see "Back shell"; omitted when ordered separately) 01*/21—Straight cable sealing /shielding 02/22/32—Straight cable clamp back shell/shielding/sealing and shielding 03/23—rubber end cap sealing /shielding 04/24—Right angle cable anti-rotation sealing /shielding 05/25—Right angle cable clamp back shell/shielding
Insert polarization	Relative position of insert and shell master keyway: N, W, X, Y, Z (N is omitted)
Jam nut receptacle type code	1, 2 (Only for Jam nut receptacle, basic type is omitted, see "Jam nut receptacle type code cross reference table")
Cable diameter	Back shell applicable cable diameter (Only for Plug, omitted when back shell ordered separately)

Note: Shell size is 08 or 10; Straight cable sealing back shell identification is "11"

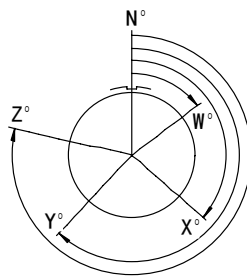
[Jam nut receptacle type and code cross reference table]

Jam nut receptacle has 3 kinds of mounting types. Basic type for each shell size is different. When select basic type, do not mark this on the part number. And when select other 2 modifications, mark this on the part number. See the table below:

Shell size	basic type	type code1	type code2	Shell size	basic type	type code1	type code2
06	type II	type I	type III	16	type III	type I	type II
08	type II	type I	type III	18	type III	type I	type II
10	type I	type II	type III	20	type III	type I	type II
12	type III	type I	type II	22	type III	type I	type II
14	type III	type I	type II	24	type III	type I	type II

Layout table

In order to avoid mismatching of plug and receptacle with the same insert arrangement and used in the same equipment but with different transmitting signals, we add keys of various angles on the insert out periphery and can rotate and mount products according to user's requirements. See the figure below:

































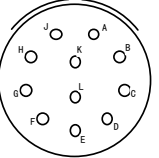
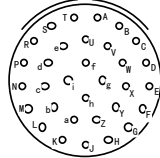
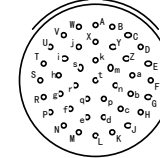
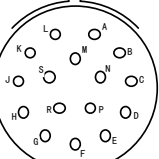
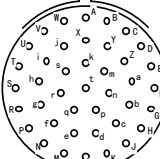
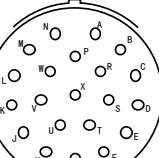
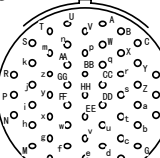
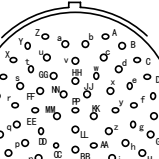
Shell size	Insert arrangement	Angle					Service level I (withstanding voltage1500V)	Service level II (withstanding voltage2300V)	Service level III (withstanding voltage1300V)
		N	W	X	Y	Z			
08	0802	0	--	--	--	--	✓		
	0802a	0	58	122	--	--	✓		
	0803	0	--	--	--	--	✓		
	0803a	0	--	--	--	--	✓		
	0833	0	90	--	--	--	✓		
	0804	0	45	--	--	--	✓		
	0804b	0	45	--	--	--	✓		
	0805	0	--	--	--	--			✓
	0807	0	90	--	--	--			✓
0809	0	--	--	--	--			✓*	
10	1006	0	90	--	--	--	✓		
	1098	0	90	180	240	270	✓		
	1010	0	--	--	--	--			✓
	1010a	0	--	--	--	--			✓
	1013	0	--	--	--	--			✓
12	1203a	0	--	--	180	--		✓	
	1208	0	90	112	203	292	✓		
	1210	0	60	155	270	295	✓		
	1219	0	--	--	--	--			✓
	1222	0	--	--	--	--			✓
14	1404	0	--	--	--	--		✓	

	1404a	0	45	--	--	--		✓	
	1405	0	40	92	184	273		✓	
	1412	0	43	90	--	--	✓		
	1415	0	17	110	155	234	✓		
	1426	0	30	165	315	--	✓		
16	1606	0	--	--	--	--		✓	
	1606a	0	--	--	--	--		✓	
	1608	0	54	152	180	331		✓	
	1626	0	60	--	275	338	✓		
18	1811	0	62	119	241	340		✓	
	1832	0	85	138	222	265	✓		
	1841	0	--	--	--	--			✓
20	2016	0	238	318	333	347		✓	
	2041	0	45	126	225	--	✓		
22	2221	0	16	135	175	349		✓	
	2255	0	30	142	226	314	✓		
24	2461	0	90	180	270	324	✓		

Note: operating voltage for 0809 is 400V and withstanding voltage 1000V.

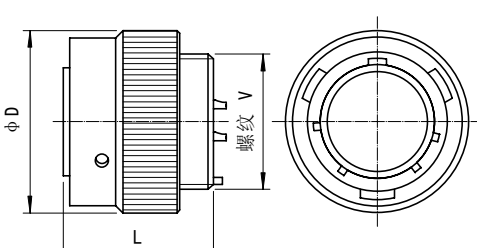
Insert arrangement (front face of pin inserts illustrated)

壳体号	02	02a	03	03a	33
	 2-Φ 1.5	 2-20#	 3-20#	 3-Φ 1.5	 3-20#
08	04	04b	05	07	09
	 4-20#	 4-20#	 2-Φ 2 3-22D	 7-22#	 9-22D
10	06	98	10	10a	13
	 6-20#	 6-20#	 10-22#	 10-22#	 13-22#
12	03a	08	10	19	22
	 3-16#	 8-20#	 10-20#	 19-22#	 22-22D
14	04	04a	05	12	15
	 4-Φ 2	 4-12#	 5-16#	 8-20# 4-16#	 14-20# 1-16#
	26				
	 26-22#				
16	06	06a	08	26	
	 6-10#	 6-12#	 8-16#	 26-20#	

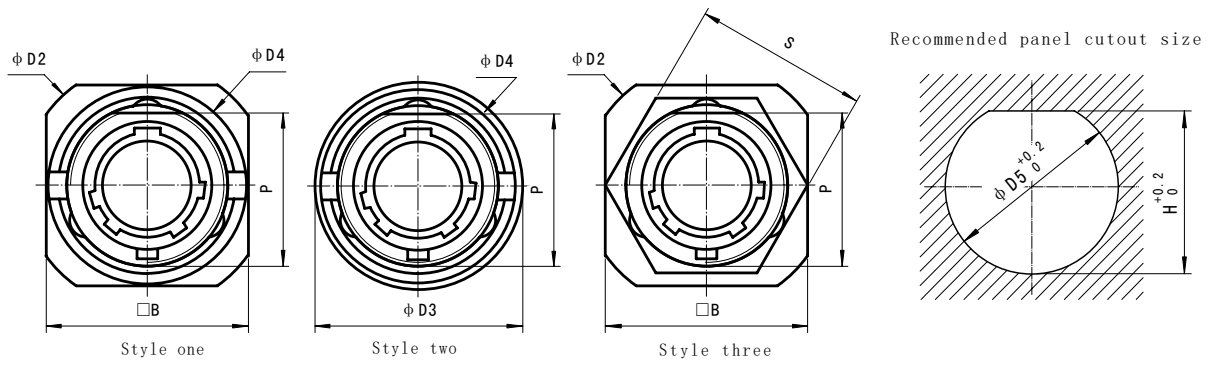
18	11	32	41		
					
	11-16#	32-20#	41-22#		
	16	41			
20					
	16-16#	41-20#			
22	21	55			
					
	21-16#	55-20#			
24	61				
					
	61-20#				

Outline dimensions

[Plug FVH16/26]

	Shell size	D	L (for reference)	Thread V
	06	15.5	22.0	M10×0.75 (左)
	08	20.0	22.0	M14×1.0 (左)
	10	22.4	22.2	M16×1.0 (左)
	12	26.5	22.5	M20×1.0 (左)
	14	31.0	24.6	M24×1.0 (左)
	16	32.0	24.5	M24×1.0 (左)
	18	35.0	23.0	M27×1.0 (左)
	20	40.0	26.0	M32×1.0 (左)
	22	42.2	26.0	M33×1.0 (左)
24	47.6	25.1	M36×1.0 (左)	

Optional mounting style:



Shell size	L	L1	L2	D1	D2	D3	D4	B	P	S	Thread V	D5	H
06	35.0	17.5	2.5	10.6	20.0	17.0	17.0	17.0	11.3	17.0	M12×1	12.2	11.4
08	35.0	17.5	2.5	12.0	22.0	19.0	18.0	19.0	13.0	19.4	M14×1	14.2	13.2
10	35.0	18.5	2.5	15.0	30.8	23.5	21.7	25.0	16.9	21.7	M18×1	18.2	17.2
12	35.0	18.5	2.5	19.0	34.5	30.0	26.5	32.0	20.7	27.0	M22×1	22.2	21.0
14	35.0	18.5	2.5	22.2	40.0	34.3	32.0	35.0	23.8	30.0	M25×1.5	25.2	24.0
16	35.0	18.5	2.5	25.4	42.0	38.0	34.0	38.1	27.1	33.0	M28×1	28.2	27.3
18	35.0	18.5	2.5	28.6	46.5	41.0	37.0	41.5	30.3	37.0	M32×1	32.2	30.5
20	35.5	22.5	3.0	31.7	50.2	46.0	42.0	46.0	35.0	40.0	M36×1	36.2	35.2
22	35.5	22.5	3.0	34.9	52.2	49.0	44.0	49.0	37.0	43.0	M38×1	38.2	37.2
24	35.5	22.5	3.0	38.1	56.0	52.0	48.0	52.0	39.8	48.0	M42×1.5	42.2	40.0

Back shell

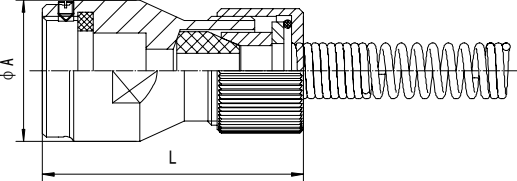
Designation

Basic series		FV	-10	R	-01	-6
Shell size	08, 10, 12, 14, 16, 18, 20, 22, 24					
Shell plating	Non-shielding plating (non-conductive shell): R—Black anodization W—Green anodization Shielding plating (conductive shell): N—Electroless satin nickel plating Nb—Electroless bright nickel plating B—Olive green cadmium plating BW—Green drab cadmium plating BA—Olive drab cadmium plating H—Black chrome plating S—stainless steel passive					
	Back shell code	01*/21—Straight cable sealing /shielding 02/22/32—Straight cable clamp back shell/shielding /sealing and shielding 03/23—rubber end cap sealing /shielding 04/24—Right angle cable anti-rotation sealing /shielding 05/25—Right angle cable clamp back shell/shielding				
Cable diameter	Cable diameter					

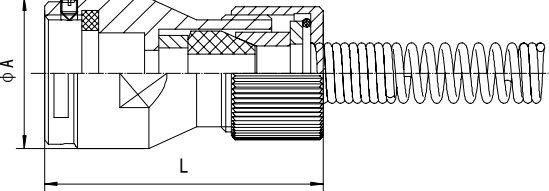
Note: Shell size is 08 or 10. Straight cable sealing back shell identification is "11", other shell size is "01"

Outline dimensions

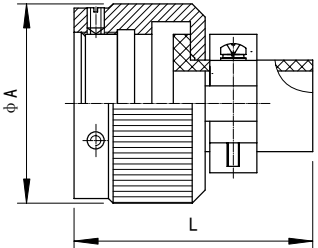
[Straight cable sealing back shell FV-...-01-...]

	Shell size	A	L (for reference)	Cable diameter
	08	18.5	33	5, 6, 7
	10	20.5	35	5, 6, 7, 8
	12	23.0	38	7, 8, 9, 10
	14	26.5	42	8, 9, 10, 11, 12
	16	26.5	42	8, 9, 10, 11, 12
	18	32.0	42	10, 12, 13, 15
	20	35.5	42	11, 12, 13, 15
	22	39.0	52	13, 15, 17
	24	40.0	58	13, 15, 17

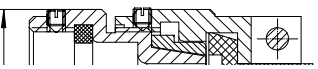
[Straight shielding cable sealing back shell FV-...-21-...]

	Shell size	A	L (for reference)	Cable diameter
	08	19.0	40	5, 6, 7
	10	20.5	41	5, 6, 7, 8
	12	24.0	42	7, 8, 9, 10
	14	28.0	43	8, 9, 10, 11, 12
	16	28.0	43	8, 9, 10, 11, 12
	18	32.0	43	10, 12, 13, 15
	20	35.5	44	11, 12, 13, 15
	22	39.0	57	13, 15, 17
	24	39.0	58	13, 15, 17

[Straight cable clamp back shell FV-...-02-...]

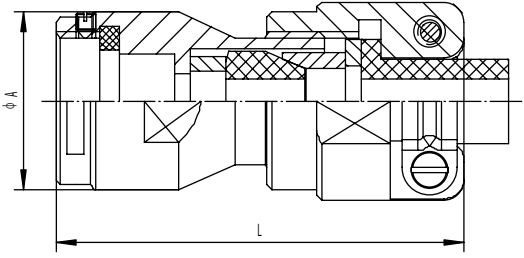
	Shell size	A	L (for reference)	Cable diameter
	08	18.5	22	5, 6, 7
	10	20.5	22	5, 6, 7, 8
	12	22.6	22	7, 8, 9, 10
	14	27.0	23	8, 9, 10, 11, 12
	16	27.0	23	8, 9, 10, 11, 12
	18	31.0	32	10, 12, 13, 15
	20	35.5	32	11, 12, 13, 15
	22	38.0	42	13, 15, 17
	24	40.5	42	13, 15, 17

[Straight shielding cable clamp back shell FV-...-22-...]

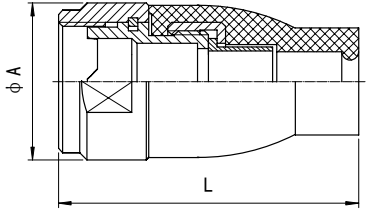
	Shell size	A	L (for reference)	Cable diameter
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	08	20.0	42	5, 6, 7
	10	20.0	42	5, 6, 7, 8
	12	24.0	42	7, 8, 9, 10
	14	30.0	40	8, 9, 10, 11, 12
	16	30.0	40	8, 9, 10, 11, 12
	18	32.0	42	10, 12, 13, 15
	20	35.5	44	11, 12, 13, 15
	22	39.0	51	13, 15, 17
	24	39.0	53	13, 15, 17

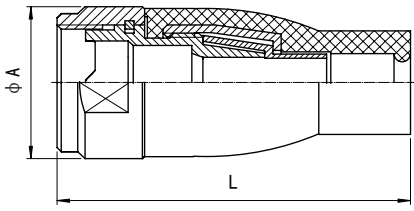
[Straight shielding cable sealing clamp back shell FV-...-32-...]

	Shell size	A	L (for reference)	Cable diameter
	08	20.0	40	5, 6, 7
10	20.5	41	5, 6, 7, 8	
12	24.0	45	7, 8, 9, 10	
14	28.0	45	8, 9, 10, 11, 12	
16	28.0	45	8, 9, 10, 11, 12	
18	32.0	45	10, 12, 13, 15	
20	35.5	52	11, 12, 13, 15	
22	39.0	55	13, 15, 17	
24	39.0	55	13, 15, 17	

[Rubber end cap sealing back shell FV-...-03-...]

	Shell size	A	L (for reference)	Cable diameter
	08	18.5	40	5, 6, 7
10	20.5	41	5, 6, 7, 8	
12	25.5	42	7, 8, 9, 10	
14	30.5	48	8, 9, 10, 11, 12	
16	30.5	48	8, 9, 10, 11, 12	
18	34.0	65	10, 12, 13, 15	
20	39.5	70	11, 12, 13, 15	
22	39.0	70	13, 15, 17	
24	39.0	70	13, 15, 17	

[Shielding rubber end cap sealing back shell FV-...-23-...]

	Shell size	A	L (for reference)	Cable diameter
	08	19.5	57	5, 6, 7
10	22.0	58	5, 6, 7, 8	
12	26.0	62	7, 8, 9, 10	
14	30.5	67	8, 9, 10, 11, 12	
16	30.5	67	8, 9, 10, 11, 12	
18	34.0	75	10, 12, 13, 15	
20	39.5	80	11, 12, 13, 15	
22	39.0	80	13, 15, 17	
24	39.0	80	13, 15, 17	

[Right angle cable back shell FV-...-04-...]

Shell size	A	L (for reference)	Cable diameter
08	18.0	28	5, 6, 7
10	20.5	28	5, 6, 7, 8
12	24.0	35	7, 8, 9, 10
14	29.0	48	8, 9, 10, 11, 12
16	29.0	48	8, 9, 10, 11, 12
18	31.0	48	10, 12, 13, 15
20	35.5	55	11, 12, 13, 15
22	39.0	55	13, 15, 17
24	39.0	65	13, 15, 17

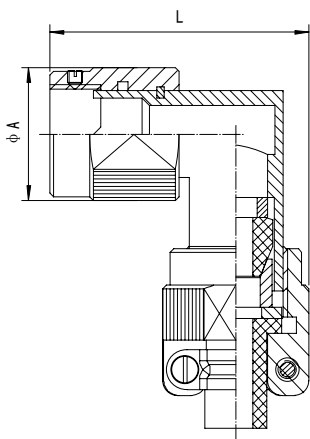
[Right angle shielding FV-...-24-...]

Shell size	A	L (for reference)	Cable diameter
08	19.0	33	5, 6, 7
10	20.5	35	5, 6, 7, 8
12	24.0	48	7, 8, 9, 10
14	28.0	48	8, 9, 10, 11, 12
16	28.0	48	8, 9, 10, 11, 12
18	32.0	48	10, 12, 13, 15
20	35.5	55	11, 12, 13, 15
22	39.0	55	13, 15, 17
24	39.0	65	13, 15, 17

[Right angle cable clamp back shell FV-...-05-...]

Shell size	A	L (for reference)	Cable diameter
08	19.0	30	5, 6, 7
10	20.5	35	5, 6, 7, 8
12	24.0	38	7, 8, 9, 10
14	28.0	45	8, 9, 10, 11, 12
16	28.0	45	8, 9, 10, 11, 12
18	32.0	48	10, 12, 13, 15
20	35.5	55	11, 12, 13, 15
22	39.0	55	13, 15, 17
24	39.0	65	13, 15, 17

[Right angle shielding cable clamp back shell FV-...-25-...]

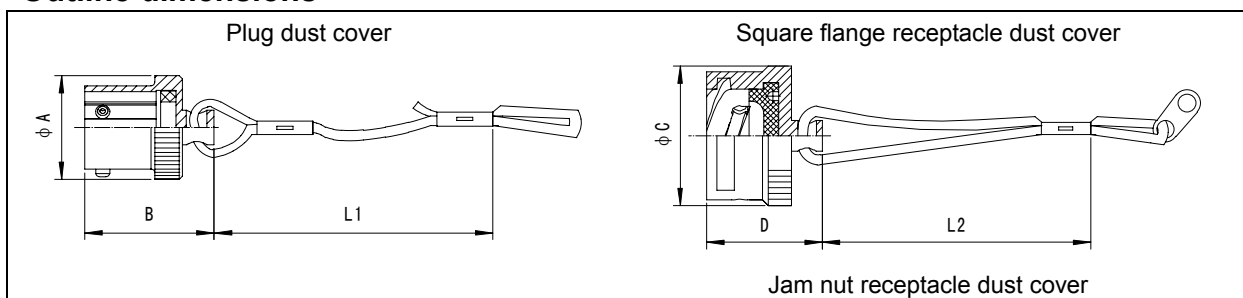
	Shell size	A	L (for reference)	Cable diameter
	08	19.0	40	5, 6, 7
	10	20.5	41	5, 6, 7, 8
	12	24.0	42	7, 8, 9, 10
	14	28.0	45	8, 9, 10, 11, 12
	16	28.0	45	8, 9, 10, 11, 12
	18	32.0	48	10, 12, 13, 15
	20	35.5	55	11, 12, 13, 15
	22	39.0	57	13, 15, 17
24	39.0	65	13, 15, 17	

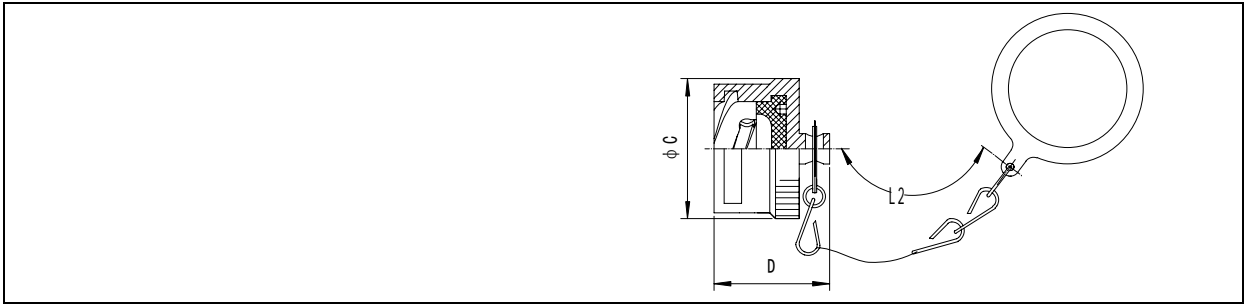
Metallic dust cover

Designation

Basic series	FV	-3181	-08	N	-L	-O
dust cover type	3181—receptacle dust cover					
	3180—Plug dust cover					
Shell size	08, 10, 12, 14, 16, 18, 20, 22, 24					
Surface treatment	Non-shielding plating (non-conductive shell):					
	R—Black anodization W—Green anodization Y—Grey anodization					
Surface treatment	Shielding plating (conductive shell):					
	N—Electroless satin nickel plating					
	Nb—Electroless bright nickel plating					
	B—Olive green cadmium plating					
	BW—Green drab cadmium plating					
	BA—Olive drab cadmium plating					
	H—Black chrome plating					
	S—stainless steel passive					
Chain type	L—Metallic chain, only for receptacle; Blank—nylon chain					
Applicable receptacle	(Only For receptacle dust cover) O-For Square flange receptacle; Blank-For Jam nut receptacle					

Outline dimensions





Shell size	A	B	L1	C	D	L2
08	20.0	18.5	100	19.0	18.5	100
10	22.2	18.5	100	22.4	18.5	100
12	26.0	18.5	100	25.0	18.5	100
14	29.0	18.5	100	30.0	18.5	100
16	32.0	18.5	100	32.0	18.5	100
18	34.5	18.5	100	35.0	18.5	100
20	38.5	19.0	100	40.0	18.5	100
22	41.0	18.5	100	43.0	18.5	100
24	44.0	20.0	100	45.4	18.5	100