

**NEW**  
Circular Connector  
**K Series**

CONNECTOR

MB-0219-2

March 2013

Socket Insert

**K-21C**

Pin Insert

**K-22C**

Straight Plug

**K-31S****K-32S**

Receptacle

## Accessories

Dust Cap



Barrel Adaptor

**Overview**

The K Series is a solder-type general purpose circular connector, compatible for use under normal environmental conditions. The outer shell is made from aluminum alloy so it is both light and robust. The special threading (square threads) of the coupling nut allow for easy mating and un-mating.

**Applications**

Broadcasting equipment, sound equipment, communication devices, etc.

## Features

### ■Specially threaded coupling lock for easy mating and un-mating

To mate connector, push in the plug then rotate and the fix coupling nut. The coupling nut utilizes special threads (square threads) so mating and un-mating can be done easily with just a slight rotation.

### ■Light and robust

Outer shell is made of light and robust aluminum alloy material. This product has excellent reliability, with development based on MIL-C-5015 (US military standard).

### ■Stable contact connection

Pin and socket contacts are made with precision from copper alloy with superior conductivity. For contact area of socket contact, beryllium copper with spring characteristics are wound around for a constantly stable pin and socket connection.

### ■Close-fit structure

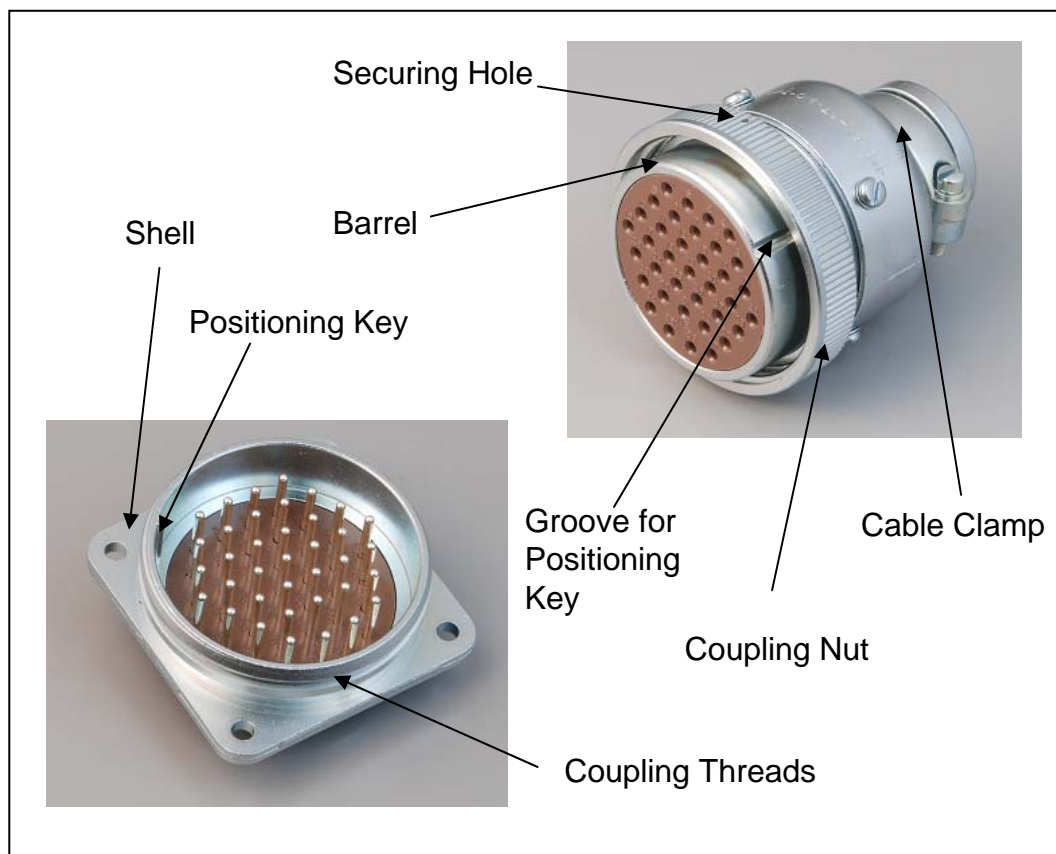
The opening for the socket insulator and the socket contact in which the pin contacts are inserted have a close-fit (perfectly cylindrical) structure. This keeps the socket contact in a constant excellent condition since there is no effect on the spring area. This is important for maintaining a good connection even if twisting occurs inside the socket contact, and also for preventing the insertion of parts, such as test terminals, with a diameter wider than the pin.

### ■Mis-mating countermeasure

Positioning guide key and key groove are on the metal shell connection area (barrel). The connector will always be mated correctly guided by this key.

### ■Securing wire holes to prevent un-mating

For circumstances when strong vibration and shock is applied to connector, wire can be passed through the hole on the coupling nut to fix and prevent loosening of the nut. Not needed for regular use.



## General Specifications

Item	Specification and Performance
Rated Current	10A per pos. (Note 1)
Contact Resistance (initial)	49mV max. (test current 13A)
Dielectric Withstanding Voltage	1300 VAC (per 1 minute)
Insulation Resistance	5000M $\Omega$ min. (DC500V energized)
Applicable Wire Size	16 AWG (1.25mm <sup>2</sup> ) max.
Mating Cycles	500 times
Specification	JACS-1009

Note1) Maximum current that can pass through connector is calculated using the Number of Contacts multiplied by the Reduction Rate from the chart below. However, individual contacts in insulator may not exceed per-contact rated current.

No. of Contacts	Reduction Rate (%)	No. of Contacts	Reduction Rate (%)	No. of Contacts	Reduction Rate (%)
1	100.0	6	71.4	11	42.9
2	94.3	7	65.7	12	37.1
3	88.6	8	60.0	13	31.4
4	82.9	9	54.3	14	25.7
5	77.1	10	48.6	15 +	20

Ex. For 27 position connector  
 27 pos. x 10A x 20%  
 = 54A

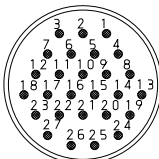
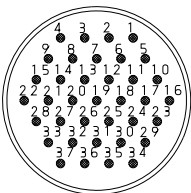
54A will be the total current amount that can be passed through connector.

Maximum current per contact is 10A.

## Materials and Finishes

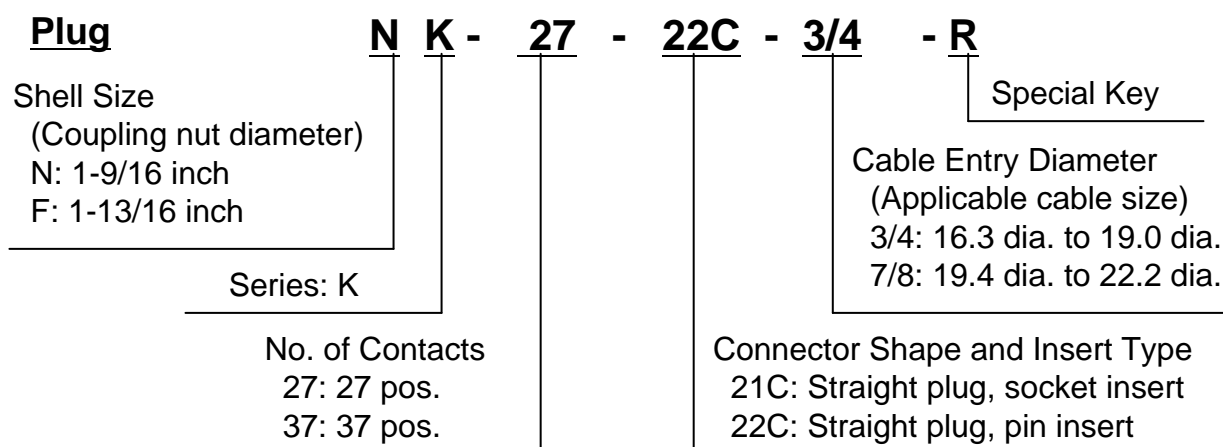
Component	Material	Finish
Contact	Copper alloy	Silver plating
Insulator	Synthetic resin	-
Outer Shell	Aluminum alloy	Zinc plating

## Contact Array

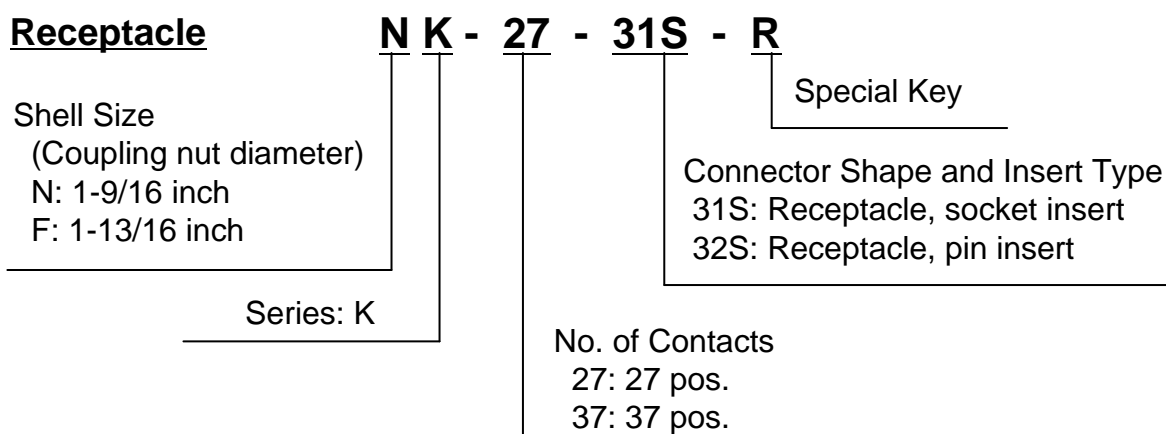
Array Type	NK-27	FK-37
No. of Contacts	27 pos.	37 pos.
Array Array of pin inserts viewed from mating side		
Contact Configuration	# 16 x 27	# 16 x 37

## Ordering Information

### Plug



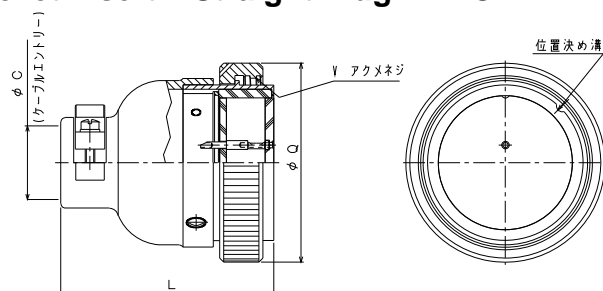
### Receptacle



## Part Number List

	No. of Contacts	Type	Part Number	SJ Drawing	Shape
NK-27	27	Receptacle	NK-27-31S-R	SJ104838	Socket Insert
			NK-27-32S-R	SJ104839	Pin Insert
		Straight Plug	NK-27-22C-3/4-R	SJ104833	Pin Insert: Cable entry diameter 16.3 dia. to 19.0 dia.
			NK-27-22C-7/8-R	SJ104833	Pin Insert: Cable entry diameter 19.4 dia. to 22.2 dia.
			NK-27-21C-3/4-R	SJ104841	Socket Insert: Cable entry diameter 16.3 dia. to 19.0 dia.
			NK-27-21C-7/8-R	SJ104841	Socket Insert: Cable entry diameter 19.4 dia. to 22.2 dia.
	Barrel Adapter		NK-AD1-R	SJ104851	
	Dust Cap		NK-60A-2-R	SJ104848	For Socket Insert
			NK-59A-2-R	SJ104837	For Pin Insert
FK-37	37	Receptacle	FK-37-31S-R	SJ104838	Socket Insert
			FK-37-32S-R	SJ104839	Pin Insert
		Straight Plug	FK-37-22C-7/8-R	SJ104833	Pin Insert: Cable entry diameter 19.4 dia. to 22.2 dia.
			FK-37-21C-7/8-R	SJ104841	Socket Insert: Cable entry diameter 19.4 dia. to 22.2 dia.
	Barrel Adapter		FK-AD2-R	SJ104849	
	Dust Cap		FK-60A-2-R	SJ104848	For Socket Insert
			FK-59A-2-R	SJ104837	For Pin Insert

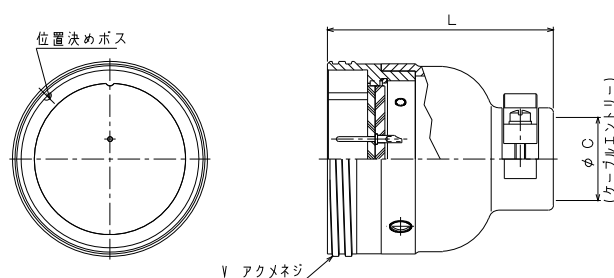
## ■Socket Insert Straight Plug K-21C



Straight plug with socket insert.  
Mated with (pin insert): K-32S

Part Number	L ± 1.2	Dia. Q ± 0.8	Screw Thread (V)	Dia. C ± 0.4	Applicable Cable Size	
					MAX	MIN
NK-27-21C-3/4-R	54.8	44.1	1-9/16-6	19.8	19.0	16.3
NK-27-21C-7/8-R	54.8	44.1	1-9/16-6	23.0	22.2	19.4
FK-37-21C-7/8-R	58.7	51.2	1-13/16-6	23.0	22.2	19.4

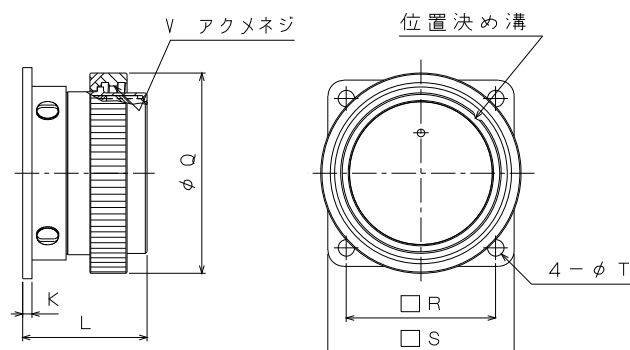
## ■Pin Insert Straight Plug K-22C



Straight plug with pin insert.  
Mated with (socket insert): K-31S

Part Number	L ± 1.2	Dia. C ± 0.4	Screw Thread (V)	Applicable Cable Size	
				MAX	MIN
NK-27-22C-3/4-R	50.0	19.8	1-9/16-6	19.0	16.3
NK-27-22C-7/8-R	50.0	23.0	1-9/16-6	22.2	19.4
FK-37-22C-7/8-R	54.8	23.0	1-13/16-6	22.2	19.4

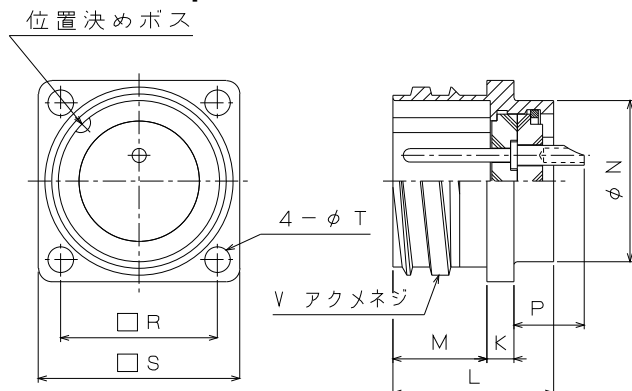
## ■Socket Insert Receptacle K-31S



Box shaped receptacle with socket insert.  
Used by attaching to panel or main case  
Mated with (pin insert): K-22C

Part Number	L ± 1.2	Dia. Q ± 0.8	S ± 0.8	R ± 0.13	K ± 0.4	Dia. T ± 0.13	Screw Thread (V)
NK-27-31S-R	31.0	44.1	41.3	31.98	2.4	4.29	1-9/16-6
FK-37-31S-R	31.8	51.2	47.6	38.15	2.4	4.29	1-13/16-6

## ■Pin Insert Receptacle K-32S

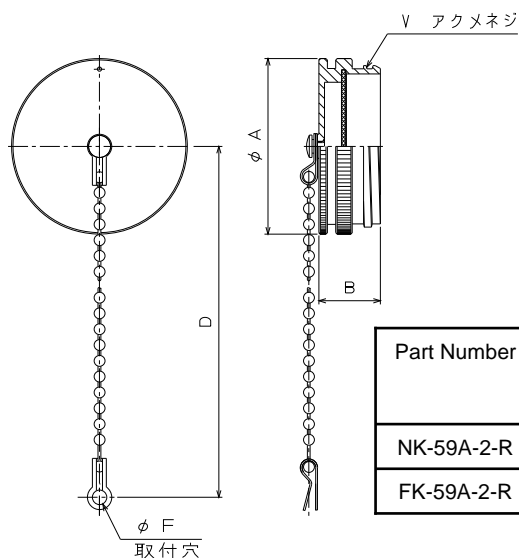


Box shaped receptacle with pin insert.  
Used by attaching to panel or main case  
Mated with (socket insert): K-21C

Part Number	L ± 0.4	M ± 0.4	Dia. N ± 0.4	S ± 0.8	R ± 0.13	Dia. T ± 0.13	K	P max.	Screw Thread (V)
NK-27-32S-R	19	11.1	34.9	41.3	31.98	3.66	3.2	11.1	1-9/16-6
FK-37-32S-R	19	11.1	41.3	47.6	38.18	3.66	3.2	11.1	1-13/16-6

## ■ Dust Cap

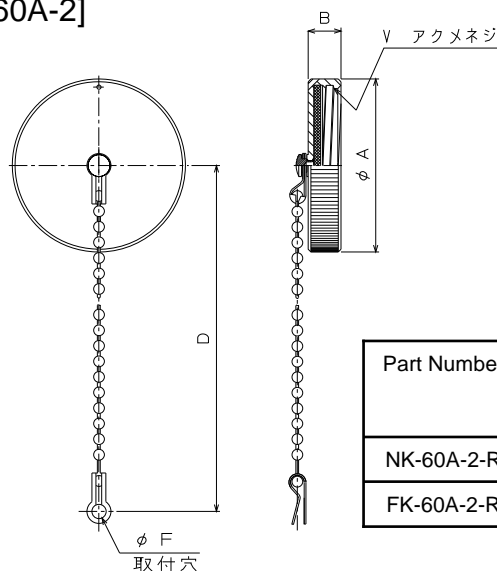
[K-59A-2]



Used to protect mating surface, keeping out dust and other foreign substance, and to prevent danger caused by electrical circuit of disengaged connector mating surface.

Part Number	Applicable Size	Dia. A ± 0.4	B ± 0.4	D ± 6.4	Screw Thread (V)	Dia. F ± 0.13
NK-59A-2-R	NK	42.9	17.5	100.0	1-9/16-6	4.2
FK-59A-2-R	FK	50.0	17.5	120.0	1-13/16-6	4.2

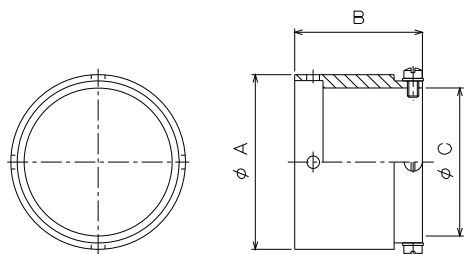
[K-60A-2]



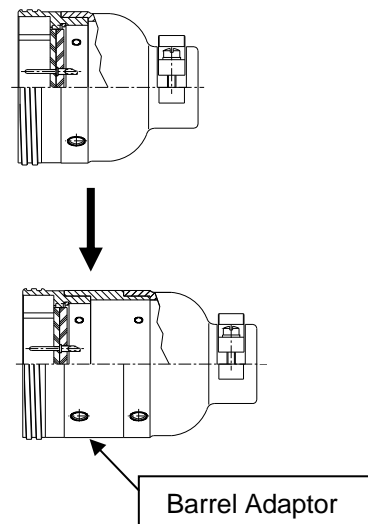
Part Number	Applicable Size	Dia. A ± 0.4	B ± 0.4	D ± 6.4	Screw Thread (V)	Dia. F ± 0.13
NK-60A-2-R	NK	42.9	9.5	90.0	1-9/16-6	4.2
FK-60A-2-R	FK	50.0	9.5	120.0	1-13/16-6	4.2

## ■ Barrel Adaptor K-AD\*

Barrel adaptor is a part to enlarge terminal area space of plug contact.  
Assembled between endbell of plug and barrel and fixed with screw.  
This product is not usually needed but is useful when there is difficulty in termination.

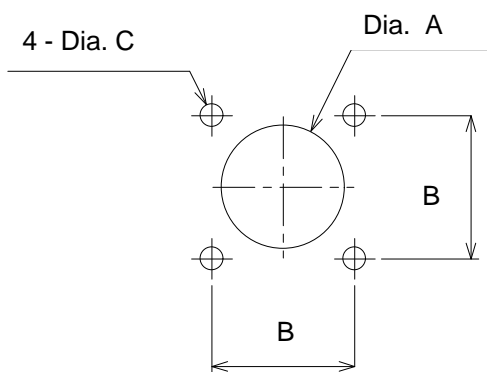


Part Number	Applicable Size	Dia. A $\pm 0.8$	B+0.8	Dia. C $\pm 0.8$
NK-AD1-R	NK	38.1	34.1	31.8
FK-AD2-R	FK	44.3	32.5	38.0



## ■ Panel mounting hole patterns (for reference)

For front mounting (when attaching receptacle on the front side of the panel or main body)



Part Number	Dia. A $\pm 0.5$	B $\pm 0.13$	Dia. C $\pm 0.13$
NK-27-31S-R	36.9	31.98	4.4
FK-37-31S-R	43.3	38.15	4.4
NK-27-32S-R	36.9	31.98	3.8
FK-37-32S-R	43.3	38.18	3.8

**Notice:** Products shown in this brochure are made for the applications listed below. However, if the above-mentioned products are to be used in aerospace devices, marine cable-connection devices, atomic power control systems, medical equipment for life-support systems, or any other specific application requiring extremely high reliability, please contact JAE for further information.  
Recommended applications: Computers, Office machines, Measuring devices, Telecommunication devices (Terminals, Mobile devices), AV devices, Household applications, FA devices, etc.

## Japan Aviation Electronics Industry, Limited

Product Marketing Division  
Aobadai Building, 3-1-19, Aobadai, Meguro-ku, Tokyo 153-8539  
Phone: +81-3-3780-2882 FAX: +81-3-3780-2946

\* The specifications in this brochure are subject to change without notice. Please contact JAE for information.

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