KJ COMTECH

RF CONNECTOR & CABLE ASSEMBLY

- MMCX-50Ω
- MCX-50Ω
- MCX-75Ω
- SMA-50Ω
- SMB-50Ω
- SMZ-75Ω
- 1.0/2.3 DIN
- 1.6/5.6 DIN
- 41612 DIN 50Ω
- 41612 DIN 75Ω
- D-SUB
- BNC-50Ω
- BNC-75Ω
- TNC-50Ω
- TNC-75Ω
- TRUMPET 50Ω
- N-50Ω
- N-75Ω
- 7/16 DIN 50Ω
- F 75Ω
- POWER
- Adaptors
- Cable Assembly

Connector Code

CN 00 00 00 - 000

- Connector
- Connector Type
- Body Pattern
- Serial No.
- Cable Group

Connector Products Code

CN	XX	Connector Type	XX	Connector Type	XX	Body Patten	XX	Cble Group	XX	Cble Group
	11	MMCX50	43	POWER	15	45° P	000	NO CABLE	X08	RG58,400,142,223
	12	MCX50	44	26PKZ50	35	LP-H2	001	NO CABLE	X09	RG59
	13	MCX75	45	HLC50	36	LJ-2H	C05	1/4″F	X10	5C-2V
	14	MCF50	46	QMA50	37	LP-4H	C06	1/4″SF	X11	RG6
	15	SSMA50	47	GPO50	38	LJ-4H	C07	3/8″F	X13	S07262BD
	16	SMA50	48	TRU50	39	LP(reverse)	C08	3/8″SF	X14	RG8/U 9913
	17	SMA75	49	RCA	3A	LJ-4H-2R	C09	1/2″F	X15	RG213,214
	18	SSMB50			50	P-4R	C10	1/2″SF	X16	LMR400(LL213),HPF400
	19	SMB(MINI)50			54	LBJ-4R	C11	7/8″F	X17	RG393
	20	SMB50			55	LP-4R	C12	1+1/4″F	X18	RG11
	21	SMB75			56	P-4R(edge)	C13	1+5/8″F	X19	RG217
	22	SSMC50			57	J-4R(edge)	P01	5.5SQ	X20	LMR300
	23	SMC50			58	J-4R(edge reverse)	P02	5.0SQ	X21	SYV-75-3-2
	24	SMI50			59	P-2R(edge)	P03	3.5SQ	X22	BT3002
	25	SMF50			5A	J-2R(edge)	P04	2.8SQ	X23	LL393-2
	26	SMZ(SCREW)75			5B	J-2R(edge reverse)	P05	4.8SQ	X24	LL335
	27	SMZ(SNAP)75			5C	LJ-6R	P06	3.0SQ	X25	RX75S2(75•ÿ)
	28	BNC50			5D	J-2R	S01	34″	X26	5C-2W
	29	BNC75			60	J-2R(edge)	S02	47″	X27	7C-2V
	30	TNC50			62	LJ-4H-2R	S03	85″	X28	10C-2V
	31	TNC75			71	Attenuator(JP)	S04	141″	X29	2.5C-2V
	32	UHF(MINI)50			72	DC Block(JP)	S05	250″	X30	3C-2V
	33	UHF50			80	P-Dust Cap(Chain)	S06	85(75Ω)	X31	LL235
	34	N50			81	P-Dust Cap(No Chain)	S07	MF85(BLUE)	X32	LL142
	35	N75			82	J-Dust Cap(Chain)	S08	MF141(BLUE)	X33	RG8/U
	36	F75			83	J-Dust Cap(No Chain)	X00	NO CABLE	X34	5C-HFB
	37	7/16 DIN50			84	P-Dust Cap(Chain)	X01	RG178	X35	RG179DS
	38	1.0/2.3 DIN(Snap)75			91	P-Term(NO chain)	X02	RG174,188,316,LMR100A	X36	2.5CFA
	39	1.6/5.6 DIN75			92	P-Term(chain)	X03	RG316DS,1.5D-2V	X37	5CFA
	3A	1.0/2.3 DIN(Slide)75			93	P-Term(NO chain-Push)	X04	RG179		
	40	41612 DIN50			94	J-Term(NO chain)	X05	L910-39		
	41	41612 DIN75			95	P-DC/BLOCK+TERM	X06	LMR200,195		
	42	D/SUB50					X07	LMR240		

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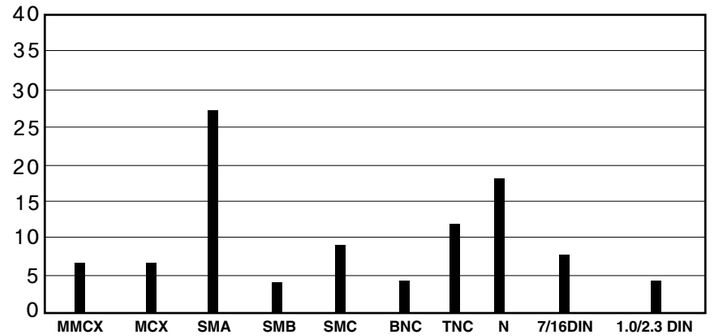
How to select the suitable coaxial connector series

Technical Elements

Frequency, cable type, impedance and coupling mechanism are key factors to consider in selecting a coaxial connector series.
Depending on the application, other factors such as sealing, temperature, working coltage, IM performance, vibration etc. also have to be taken into account.
Connectors must, at a minimum, provide the same level of performance as the cable or the application to which they are attached. This means, before selecting a connector series the cable type or the application has to be known.
Its structure, dimensions and frequency range restrain the connector series that can be used.
The table below shows the different cable structures and the suitable connector series.

Cable Structure	Suitable Connector Series
Coaxial Cable	BNC , 7/16 DIN , 1.0/2.3DIN , MCX , MMCX , N , SMA , SMB , SMC , TNC

Cut-off frequency as well as coupling mechanism of a connector series limit the frequency range that of connector can operate. The following table shows the frequency range of different connector series within this catalogue.



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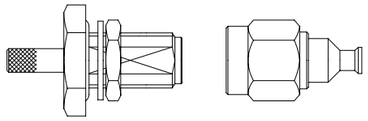
Coupling Mechanisms

Coupling mechanisms make it possible to mate connector pairs and also determine whether or not the mated pair can meet the specified mechanical and electrical characteristics, such as operating frequency.
The following four types of mechanisms are commonly used for the series described in this catalogue.

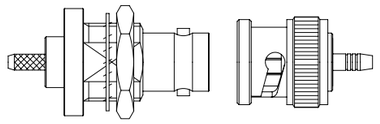
● Screwed coupling mechanism



The coupling mechanism consists of a thread and a coupling nut.
Special attention must be paid to the maximum torque permitted and the coupling nut captivation.

The screwed connection is used in series like SMC, SMA TNC,N, and 7/16 DIN because the mechanism quarantees the most solid, stationary coupling suited for e.g test and measurement, military and trlrcoms applications.

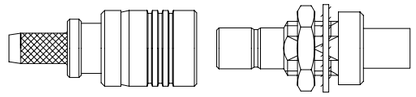
● Bayonet coupling mechanism



The bayonet coupling is a twist snap connection.
The coupling mechanism is best known through the BNC.

The bayonet connection often is chosen as coupling when it is important to have a sturdy mechanism and at the same time fast mating. Therefore, the mechanism is reliable for test and measurement applications as well as military systems.
Used in the series BNC.

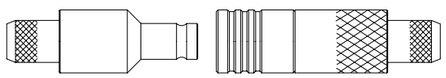
● Snap-on coupling mechanism



The snap mechanism is commonly used for connectors with small mechanical dimensions and high packing density Because this type of connection is easy to use, it is often designed into PCB applications.

The main frature of the snap-on mechanism is that the angagement and disengagement action can be complet-ed ectremely quickly. This mechanism is very reliable when used for small connectors such as MMCX,MCX and SMB series.

● Slide-on coupling mechanism



The slide mechanism is used extensively where a high packing density and easy handling is needed.
A typical application is the interconnection of daughter boards to mother boards.

This mechanism is oftem used for various DIN-multiport connectors and also with miniature connectors such as 1.0/2.3 DIN which are normally attached to PCBs.

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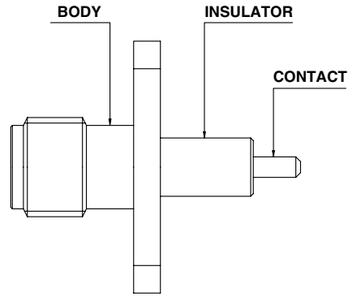
Contact Captivation

The captivation of componects within a coaxial connector should exist for all types of connectors, but especially those for stripline and micro-stripline applications where the solder tag must be captivated.

If uncaptivated, the insulator could be displaced and the solder joint could be damaged by mechanical forces. After such influences the connector should be stable to guarantee the mechanical and electrical specifications. This can be a difficult task, as the contact capture mechanism is usually obtained through geometrical changes of the optimized components. That is the components are normally designed with the purpose of reaching the bestpossible electrical and mechanical performance and trying to diminish any negative influence, such as discontinuities because of too many junctions.
The captivation design reduces axial, longitudinal, and or rotational movements. However, the captivation should not be exaggerated, preventing any movement at all. This situation could lead to problems when mounting the contacts in the connectors and maybe restrict any normal thermal expansion of the materials, causing overtight contact junctions.

● Captivation = capture mechanism



Criteria, whether axial and/or rotational

Connection type (connection to external components, not cable)

Type of cable and cable entry

Avoiding axial and/or rotational movements is not always desirable, as it is dependent on the connector type the attachment to external and possibly non-stationary components.

With regard the following table, the various connection types and cable rntries require captivation in both or only one of the above-mentioned directions.

ATTACHMENT	EXAMPLES OF APPLICATION/USAGE	AXIAL CAPTIVATION	ROTATIONAL CAPTIVATION
Centre conductor - with solder tag - with slot - as pin contact - with tab contact	- PCB - Stripline - Microstrip - Bonded	**Important to avoid damage of** solder tag and dtress at the contact joints.	**Important avoid damage of** solder tag and stress at the contact joints
Centre conductor - with soldering bore - with small post	- Wire solderingStripline - Wire wrap	To avoid damage of the wire attachment	To avoid damage of the wire attachment
Centre conductor - with female contact type	- Field replaceable - Solderless connections - Plug-in connections	To guarantee the rlrctrical performance	-
Flexible cable attachment	- Flexible connections be tween components	Generally important be-cause of electrical and me-chanical influence	- Mechanical stress on cable
Semi-Rigidcable attachment	- Excellent electrical performance, hence low VSWR loss and negligible leakage	Important for short cable lengths, because the centre conductor of the cable could be displaced due to thermal or mechanical unfluence	- Not required because centre and outer contacts are normally soldered and/ or crimped
PCB attachment - SMD	**PCB** - Surface component parts	To avoid transmitting stress from the engagement and disengagement action to the soldered joint	- To avoid transmitting stress from the engagement and disengagement action to the solderd joint

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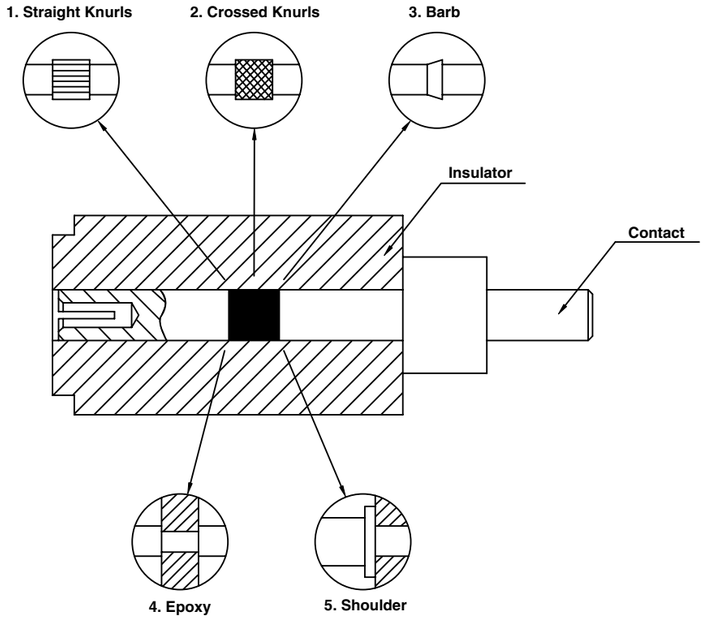
Centre conductor Captivation

The centre conductor must always be captivated in the axial(longitudinal) direction. The captivation technique also influences the dimensions of insulator. This leads to discontinuities, causing impedance change. Furthermore, these changes are the reasons why it can be difficult to define an exactimpedance magnitude for the connector.

The figures and table below show some of possible captivation designs. The designs are characterized without distinguishing between size and cable connectors, stripline and microstripline etc. The order of the axial and rotational capture, A and R respectively, depends on the most significant retaining direction according to the design.



CENTRE CONDUCTOR CAPTIVATION	AXIAL	ROTATIONAL
1. Straight knurls	+ +	+
2. Crossed knurls	+ +	+
3. Barb	+ +	-
4. Epoxy-captivation	+ +	+ +
5. Shoulder or step	+ +	-

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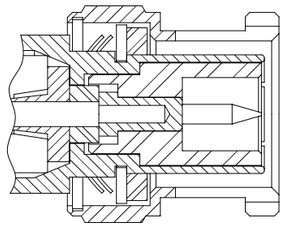
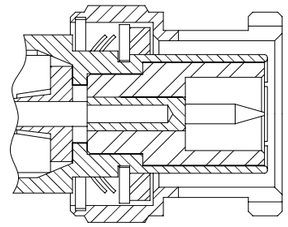
Centre Contacts

Non-captivated centre contacts show no diameter variations, which results in a low reflection coefficient . Captivated contacts on the other hand allow precise positioning which can withstand excessive mechanical and thermal cable stress. Connectors with captivated centre contacts have a dot "@" at the end of the type code within this catalogue.



Captivated



loose

Attachments

The connection between a connector and an external element is made by an attachment, either with a cable, soldering to a PCB, panel feed-through or with another connector, e.g. an adapter

In the following the attachment methods and their purposes and usefulness to the individual components will be descrided and illustrated

The most common attachment techniques for coaxial connectors are:

- Plugging
- Crimping
- Pressing
- Soldering
- Clamping
- Threaded

Usually connectors have to be designed to withstand severe fores such as those caused by the cable. Because the conductors should not be affected by these forces, the coupling mechanism itself has to be able to qithstand them. Not only the forces, but also the surroundings and environmental conditions can be criteria for the selection of the right attachment especially cable attachment.

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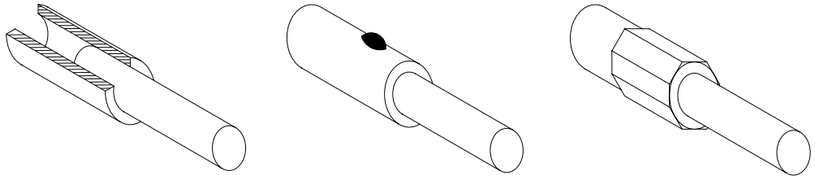
Attachment of Cable Centre conductor

The centre conductor of the cable has to have contact within the connector. This can be achieved by plugging the cable conductor directly into the connector centre contact. The connector contact acts as a jack and the cable conductor as a plug. The plugged type is a loose and quick attachment and suited for applications where a repeatable electrical performance (usually required for connectors in the GHz range) is required. The contact is not influenced by extreme temperatures and is less susceptible to movement when compared to the other methods.



Plugged **Soldered** **Crimped**

Soldering is an alternative technique commonly used for the attachment of semi-rigid cables and small flexible cables, where the attachment of the outer conductor is crimped, clamped or soldered. The advantages of this method are that the contact resistance is small and the solder joint at the centre conductor does not need to be soft annealed in advance. Although fairly reliable, soldering is a slow attachment technique, which must be carried out carefully. During soldering, the temperature influence on the cable dielectric is very high and additionally, too much solder flux can form small spheres at the surface. Proper cleaning is an essential part of the soldering process.

The crimp technique allows a fast and also reliable attachment, which does not require any special skills. With regards to the crimping process, the factors described have to be taken into account. There is no temperature influence, annealing of centre caontact is unnecessary.

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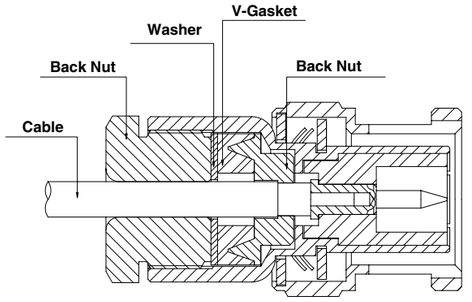
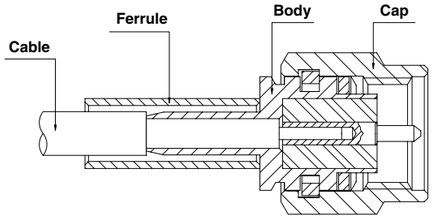
Attachment of Cable Outer conductor

The outer conductor can be attached to the cable in various ways. However an important parameter, which must not be ignored, is the cable size and the mandated cable retention forces. For optimal electrical performance the connector and the cable dielectric diameters and sizes should always correspond to each other, thereby minimizing changes in diameter in the transition between cable and connector.



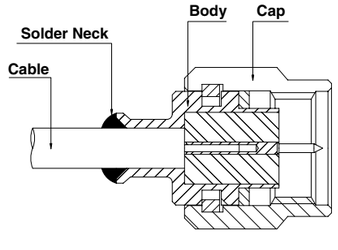
Clamp attachment (flexible cables)

Clamping refers to a back nut with a rubber gasket where the inner conductor is soldered. This method is very useful for weather-exposrd applications, because the rubber gasket protects against moisture. However clamping is a much slower attachment compared to crimping. This technique is also called solder-clamp.



Crimp attachment (flexible cables)

Crimping is used whenever a quick and easy 3-piece attachment is eruired. For a crimp joint a crimp ferrule is necessary. The braid of the cable is positioned between the connector body on the inside and crimp sleeve(ferrule) on the outside and crimp tool then secures the connection. Normally moisture protection is not guaranteed by crimping, but if this is required, a heatshrink tube with hot malt adhesive can be mounted to cover possible gaps between ferrule and connector.
The crimp ferrule has to be made out of a soft material (i.e copper with SUCO PLATE or gold plated) allowing the crimp die to remould but not damage the shape. Crimping is a "squeezing" or a cold welding of the ferrule onto the pre-assembled connector.



Soldering attachment (semi-rigid cables)

Another method is that of soldering the outer conductor to the cable. This can be used for semi-rigid cable attachments. A low temperature solder is employed to ensure a good mechanical and electrical connection. To quarantee a good solder joint it is important to control the process with special tooling

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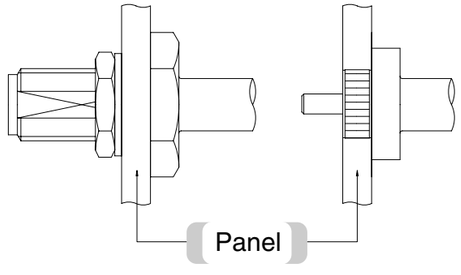
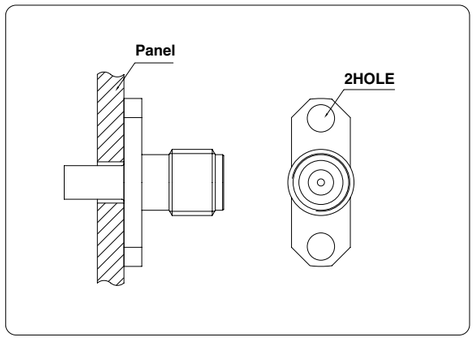
Attachment to panel

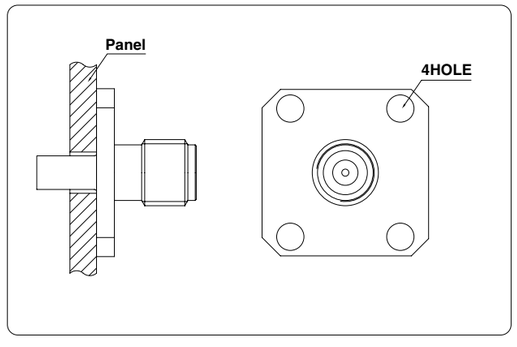
Whenever a connection from or to an instrument/chassis is needed, the attachment of the connector adapter or cable assembly is made to the panel. Therefore, these of attachments are called panel mounts. In this chapter, we have chosen to describe four commonly used fixation techniques to panels bulkhead(threaded), flange, hermetically sealed and field replaceable.



Bulkhead mounted

The bulkhead version is used for panel mounting through(metal) wall of e.g ar instrumentation box (also called feed through). To prevent angular displace ment, the through-hole is D-shaped. Be cause the connector is threaded and provided with a fastening nut, it is possible to mount the connector faster than a 4-hole flange connector. However, this mounting method also requires that you can reach the connec-tor on both sides of the panel Usually, this technique is used when the a tachment has to withstand some vibrantions. The advantages of a bulkhead mount are that it is a fairly cheap mounting technique and that te connectors is replaceable.



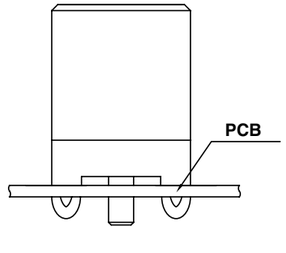


2-Hole and 4-Hole flange mount

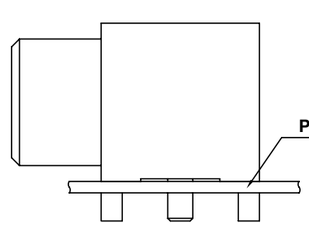
The two flange types shown above are applicable when the attachment can only be made on one side of the panel. The main hole in the panel for the inner conductor/housing is a normal through-hole, non-threaded, while the bores for the screws are threaded. However, as with the bulkhead, this attachment also allows a replaceable connector.

Attachment to print Board

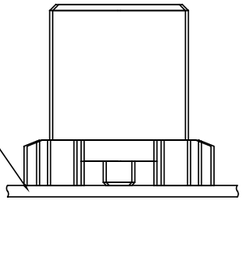
When mounting a connector, typically an MCX or an MMCX, it is important to be aware of the influence on the attachment from forces such as engagement, disengagement and mounting process forces such as pressing or soldering.
These three mounting methods are frequently used in PCB applications. The so-called press-in method(see fig. below, left) means that the PCB connector with press-in legs(compliant pins) is inserted into the defined though plated holes on the print board. Compared to the more traditional PCB type with soldering attachment (see fig. below,centre), the press-in mounting guarantees the same electrical and mechanical performance, but makes a more secure contact and is easier to assemble than soldering.



▪ Pressing (solderless)



▪ Soldering (perforation)



▪ Surface-mount (soldered)

The soldering method is used for three different types of connectors, the print socket with solder leags, the surface mount and the edge mount connector with solder leads. The peint socket perforates the print board with the legs similar to the press-in type, whereby the surface-mount or edge-mount are, as is suggested by the name, soldered on the surface of the print (see fir above, right).

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Plating Information

KJ-COMTECH specializes in this technology and therefors is a competent partner for developing and applying proper coatings for specific uses and conditions. This section will confine itself to the metallic plating used for the different connectors, as this metallic plating has to

- Add conductive material to supply sufficient current carrying capacity.
- Diminish or eliminate surface oxidation and provide protective coating over conductors and resist crackling/ spalling.
- Provide good contact between conductors.
- Achieve a good solder or weld attachment surface.
- Obtain a better wear resistance (abrasion resistance and hardness)
- Provide interconnections from one conductive layer to another

Gold

Gold over Nickel according to MIL-G-45204C Type

Attributes : Excellent wettability / solderability
Excellent peotection against corrosion
Low contact resistance
Good wear resistance
The plating is magnetic

Colour : Gold coloured

SUCO PLATE

SUCO PLATE is a copper alloy composed of the three components: copper, tin and zinc. Being non-magnetic and non-allergic (nickel free), SUCO PLATE is an attractive for nickel plating.
It has a good electrical performance and corrosion resistance. The non-magnetic property in the contact area is also important for obtaining neglible passive intermodulation products (PIM) in communication systems such as base transceiver stations. SUCO PLATE performs just as well as silver, that it has a PIM level of less than 155 dBc.

Attributes : High corrosion resistance
Tarnish resistant
Good wear resistance
Excellent adhesion and ductility
Low contact resistance
Non-magnetic
Nickel-free plating

Colour : Similar to stainless steel

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SUCOPRO

SUCOPRO is a thin (0.2㎛) gold plating with a non-magnetic nickel-phosphorus (13% phosphorus) layer (2㎛).
The plating is non-magnetic (above 10.5% phosphorus, the nickel changes form ferro-magnetic tc non-magnetic) as well as non-magnetisable, which is why no intermodulation products are created.
The gold later protects the nickel-phosphorus layer against oxidation and thus allows for good wetting while soldering. It provides stable, low contact resistance and improved protection agginst oxidation and corrosion.
Because it contains a thin layer of gold, the solder joints will not become brittle.

Attributes : Excellent wear resistance, for more than 1000 mating cycles
(depending on the interface)
Non-magnetic
Excellent corrosion resistance
Excellent wettability / solderability
Ver high strength of soldered joints without embrittlement
Low contact resistance

Colour : Gold coloured

Silver

Silver is often used for the plating of coins. It is a little harder but also somewhat cheaper than gold. Its excellent electrical and thermal conductivity makes it very suitable for surface plating. Silver is used in RF applications for making solder, brazing and sliding contacts. Having the best conductivity of all metals also means that this metal can carry a high current load with the least loss. This characteristics is particularly advantageous when a low passive intermodulation product is desired.
The other features of silver are that it is easily shaped, has a very good conductivity of hrat, good corrosion resistance in air and water and in addition the liwest contact resistance.
A disadvantage is that silver tarnishes (creates an oxide film on the surface) when exposed to ozone, hydrogen sulphide and sulphur. Tarnishing can be slowed down by passivation.

Attributes : Excellent wear electrical conductivity
Good corrosion resistance
Low contact resistance
Good solderability
Tarnish non-resistant

Colour : Silver coloured

Nickel

Nickel is harder than gold, malleable, ductile and a fair conductor of heat and electricity. In RF applications, nickel is often applied as a coating material, but it is also widely used as an alloying constituent in stainless steel, other corrosion-resistant alloys and in coinage. Commonly, nickel is used as underplate with top coatings of gold or other noble metals. Nickel is typically deposited in layers owing to its crystal structure, which makes it suitable as a barrier to copper diffusion through gold. Such a barrier prevents the migration of base material atoms to the top plating layer. Therefore, oxidation is effectively eliminated.

Attributes : Excellent wear resistance
Good protection against corrosion
Diffusion barrier
The plating magnetic

Colour : Similar to stainless steel

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Packing Information

KJ-COMTECH attaches great importance to high quality, economic packing. This section will give you an overview of the types and packing materials used. All our packings have to fulfill the following functions :

- Protection of the connectors against mechanical stress, humidity and dust during storage, transport and usage.
- Ldentification and information about the product.
- Easy handling for production.
- Economic and useful recycling after use.

All packings fulfill the specification according to ISO 14000. For further information please contact your local KJ-COMTECH representative.

Single and Bulk packing

Plastic bags from KJ-COMTECH are sealed by welding or provided with a Mini-Grip closure(bulk only) for reclosing after use. Tyey are easy to handle and are marked for recycling with the material recycling symbol according to the recommended international DIN standard. For product identification and retraceability, they are labelled with type version and the order, batch and assembly instruction numbers.

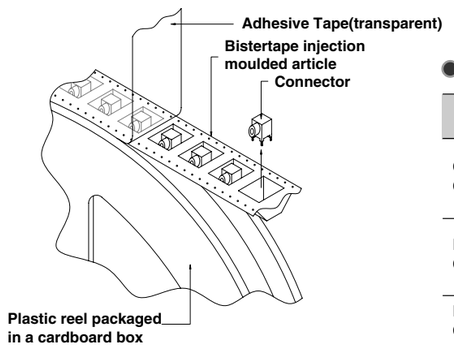
Material : LDPE or PP, transparent

Attributes : Electrostatically conductive,
External resistance 10^{8} ~ $10^{10}\Omega$
Air-tight
Chemically resistant
Chlorine-free
Halogen-free

Tape+Reel Packing

The main benefit of T+R packing is the customer preference for automating connector assembly in the production process using existing assembly machines. This in turn enables them to reduce the cost of the whole manugac-turing prcess. In addition to that the connentors are protected during transportation and procession and pro-cessing. Our Tape + Reel packing meets the international standards EIA 481 and DIN IEC 286-3.
The fully automated packing machine provides perfect packing quality.

Material :	Reel	Polystyrene (PS)	(anti-static)
	Carrier Tape	Polystyrene (PS) or Polycabonate (PC)	(anti-static)
	Carrier Tape	Polystyrene (PS) or Polyethylene Terephthalate (PET)	(anti-static)
	Box	Cardboard	



Summary

Type	Bulk	Single	Tape Rell	Tray	Note
Cable Connector	X				– Standard for high voumes
		X			– Standard depending on connentor size
				X	– Criticai design or parts to avoid damage during transport, storage, etc
Flange Connector	X				– Standard for high voumes
		X			– Standard depending on connentor size
				X	– Criticai design or parts to avoid damage during transport, storage, etc
PCB Connector	X				– Small quantities
			X		– Standard for high voumes with automatic processing
Adaptor		X			– Standard
					– Other packaging on reguest

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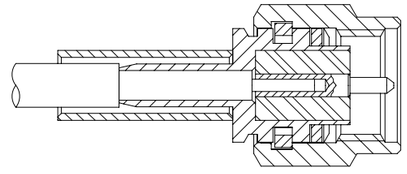
Cable Entry Variants

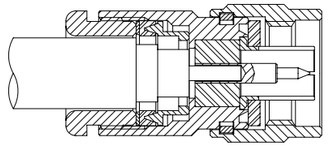
Cable Entries for Flexible Cable

• Cable Entry Crimp



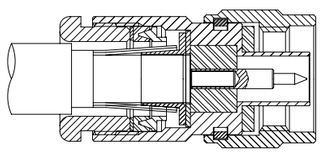
The centre contact is soldered and the cable braid is crimped to the connector body. The centre contact can be loose or captivated. The crimp technique enables an economic assembling of high reliability. Suitable taper sleeves are available.

• Cable Entry Clamp



The clamp type cable entry is recom-mended for weather-exposed applications.
The cable jacket is secured by a rubber gasket and the cable screen by an axially tightened press ring.

• Cable Entry Clamp



Clamp type cable entry with an additional sleeve which is placed under the braid-screen of the cable and thus eliminates the pressure from the gadket on the dielectric

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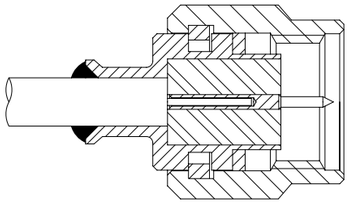
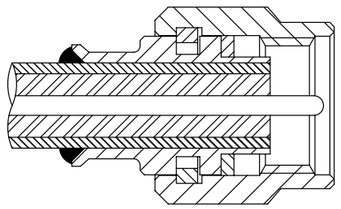
Cable Entries for Semi-Rigid Cable

• Soldered, with pin and insulator



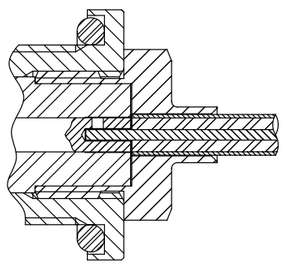
Centre contacr and body of the connector are solder onto the centre or outer conductor of the cable

• Soldered, with pin and insulator (SMA)



Pin and insulator are formed directly by the cable. The body is soldered to the copper jacket. This design features a very low cost and ease of assembly. Recommended for connections which must not be undone frequently, moisture sealed.

• Solderless Cable Entry, Clamp Cone



Specially for assembly of large size semi-rigid cables. The copper jacket of the cable is held by a clamp cone.

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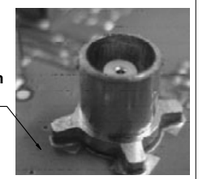
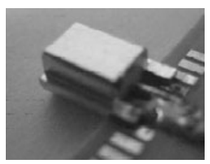
● Soldering

The following information and notes are based on the current state of the art. As many other things, also the soldering process is subject to changes over time so that certain adjustments will take place in the future also in this area.
Soldering is an important technique in the assembly of electronic products. It is the process of joining two metals by the use of a solder alloy, and it is one of the oldest known joining techniques.
Good soldering quality as a prerequisite for reliable joints can be achieved only through a soldering process in which a great many variables both with respect to materiald and to techniques have been optimised in a integrated system.
The various mass-soldering processes all have their own particular characteristics. They differ in the way in which the solder flux and the solder alloy are applied to the parts to be joined and in the manner by which the heat is supplied.
The following information describes the soldering methods, temperature and dwell time. This information should be considered as a recommendation. Depending on the specific application, it is up to the user to select the most suitable method.

Item to be soldered		Usual methods
Centre connector of coaxial cable		· Solder iron · Resistance heating
Outer conductor of semi-rigid cable		· Inductive(RF) · Soldering iron · Resistance heating
Connector for printed circuit board throgh-hole version		· Wave soldering · Reflow soldering · Soldering iron
Connector with solder tab		· Reflow soldering · Soldering iron

In addition to the soldering method, temperature and dwell time, parameters such as the flux, surgace material and geometry of the parts to be soldered must be taken into account.

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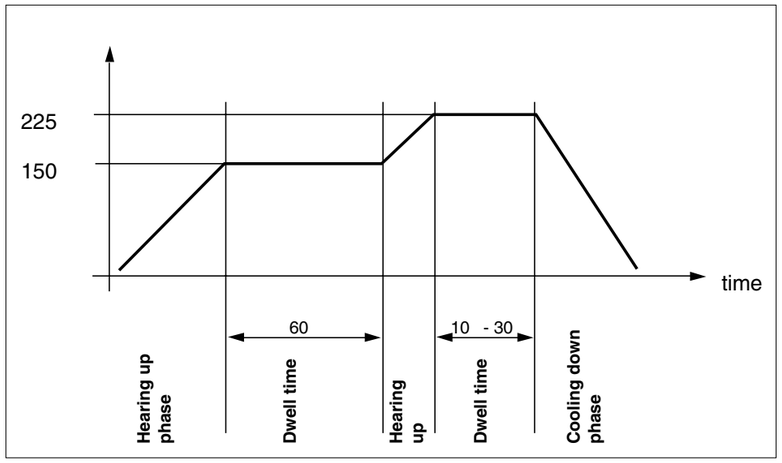
Soldering temperature and dwell time

	TEMPERATURE	DWELL TIME
Wave soldering – single wave – Double wave	max. 260˚ / 550℉ max. 260˚ / 550℉	approx. 3 sec. approx. 5 sec.
Reflow soldering – Infared – Heating plate	temperature profile depending on component (typical profile see below)	
Condensation	215˚ / 419℉	10 - 30 sec
Other methods – Iron soldering	variable	approx. 2 sec.

Typical profile for reflow soldering



Commonly used solder

Depending on the components, soldering temperature etc. the following solders are used :

- SnPb 63/37
- SnPb 60/40
- SnPbAg 62/36/2

Although not established at present, environmentally and lead-fess solders will be increasingly applied in the future.

How do you judge the quality of a solder joint?

A good (reliable) solder joint will, during the lifetime of the equipment in which the joint is situated, perform its mechanical and electrical functical functions without failures. Visual aspects of good soldered joints are :

1. Good wetting
2. Correct amount of solder
3. Sound and smooth surface

All soldered joints on a printed board should give a unitorm impression regardless of their location on the printed board. Solder should flow evenly over the surtaces to be soldered and run out thinly towards the edges of the joint. The contact angle should be well under 30¢™ if the surgaces are sufficiently large. Good wetting of both the component and the correct amount of solder is so important that this is the major criterion in the assessment of soldered joints. The solder should wet the emtire periphery should increase uniformly up to the termination.

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RF COAXIAL CONNECTOR PRODUCTS

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