



NBS株式会社は、多面接触コンタクトバンド(PSC・CSC)を用いて接触抵抗の軽減と確実な接続、標準品にはない形状のコネクタをお客様の仕様に合わせカスタム対応に答えるコネクタメーカーです。

これまでに制作したカスタムコネクタ数は6000種類を超えます。

多品種小ロットに対応、1個からの受注も承りますのでお気軽にご相談下さい。

NBS, Inc. Connection with contact resistance as positive using a multi contact band (PSC-CSC) as mitigation. It is a connector maker who unites with a customer specification the connector which is not in standard goods, and replies to custom-made correspondence. The number of custom-made connectors made so far exceeds 6000 kinds. Niche production with a wide variety is also possible. Since the order received from one piece is also heard, please do not hesitate to consult.



## ◆多面接触コンタクトバンドを使用したコネクタの特徴

(The feature of the connector which uses a multi contact band)

- ・小さなボディーで大電流を流すことができる。  
(Large current can be sent with a small body.)
- ・多面接触の為、接触抵抗が非常に小さく温度上昇を低く抑えられる。  
(For multi contact, Contact resistance can suppress a rise in heat low very small. )
- ・スライド接続、回転接続が可能。  
(Slide connection / rotation connection is possible.)
- ・形状の自由度が広い(丸、三角、四角、同軸、平面接続等)  
(The flexibility of form is large. That it is round, a triangle, a square, the same axle, plane connection, etc.)
- ・サイズの自由度が広い(ピン径Φ1～Φ160弊社実績)  
(The flexibility of size is large.  $\phi 1 \sim \phi 160$  (our track record))

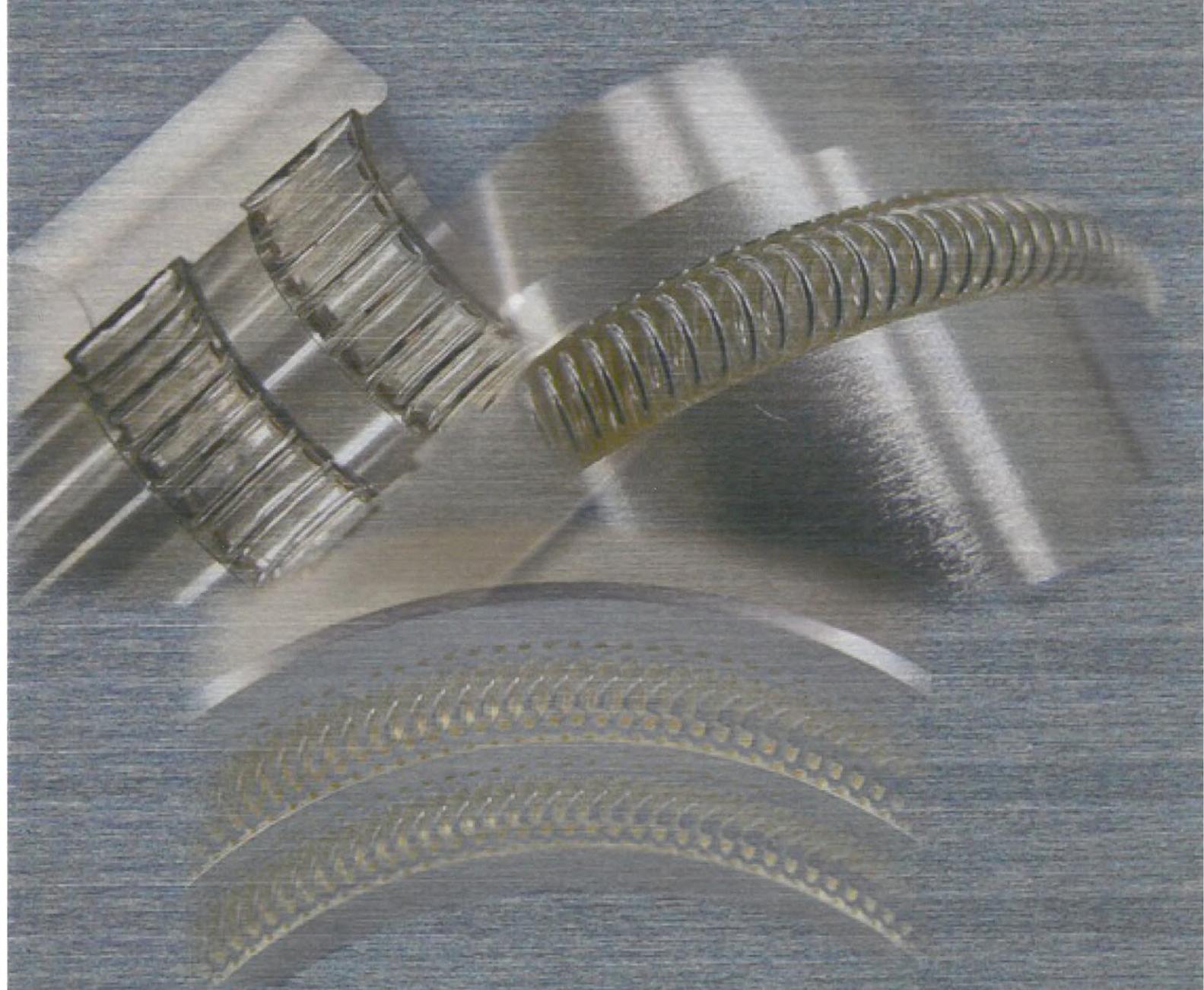
## ◆テクニカルサポート範囲 (scope of technical support)

- ・通電電流 (Current capacity) : 5A～7500A (Per pole)
- ・使用電圧 (Working voltage) : MAX50kV
- ・使用温度範囲 (Category temperature range) : -273°C～680°C
- ・メカニカル (Mechanical) : 回転、スライド、防塵、防水、ロック機構

Rotation, a slide, protection against dust, waterproofing, a lock mechanism



# Multi Spec Connectors



N B S c o . , L t d

# Multi Spec Connectors

We will provide an electrical connection of infinite possibilities .  
Aiming for total cost down , we will respond to the request .

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## INFORMATION

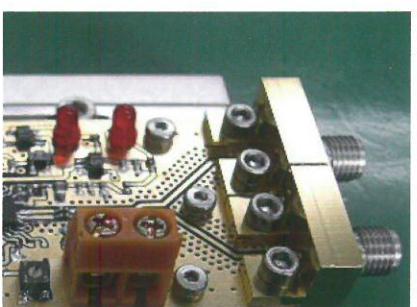
### Other connectors

- High-frequency coaxial connectors
- High voltage connector
- Slip Rings
- Contact Probe



### Other Products

- Non-ferrous metal and resin machining and Assembly.  
(This includes design work.)
- Assembly of the wire harness.
- High flexible cables.



## ●Preface · · · · ·

We buy the contact band of important parts from domestic production and an overseas partner factory. And a shape, surface treatment performs the design and fabrication of the connector with the specifications of the user.

We will design a custom -made connector be aware of the following item.

1. Production speed for the domestic production with the exception of some of the parts is a fast high quality .
2. We change surface treatment, structure and can improve performance than the connector of other companies.
3. A custom connector can be produced from one, so we can suppress a cost of an experimental production.
4. As we can produce a connector in each standard, the user can connect a cable with the tool of each standard.

## ●The need for contact band · · · · ·

To reduce the size of the connector , it is necessary to reduce the contact resistance between the conductors . And to reduce the contact resistance is necessary to increase contact points between the conductors . We can produce connectors for various applications such as large current and low contact pressure and environmental resistance.

## ●Characteristic of the connector which attached a contact band · · · · ·

1. As contact resistance is low and a temperature rise is suppressed, this can apply a high electric current at small size.
2. The advantage of many sides contact is effective for the connection of the high frequency power supply.
3. It can be connected to the sliding and rotation by adjusting the contact pressure .
4. A high degree of freedom in shape.For example, such as triangle, square, flat, coaxial...
5. A high degree of freedom in size.

## ●The range of the technical support · · · · ·

Electric current :	~ 7500A
Voltage :	MAX50kV/DC
Temperature :	-273°C~680°C
Mechanism :	Rotation·Sliding·Dust control Waterproof·Locking·Modular connector

## ●Used industry and example · · · · ·

<Machine>	MOCVD · CVD · Etching equipment · Sputtering equipment Induction hardening machine · Electric discharge machine
<Vehicle>	EV · PHV · Charger station · Unmanned transport vehicles Train · Linear motor car
<Facilities>	Secondary battery manufacturing · EV inverter tester · Electric furnace
<Electrical equipment>	Circuit Breaker · Switch · Voltage converter · Solar photovoltaics
<Communication and broadcast>	UPS · System power supply · power supply car

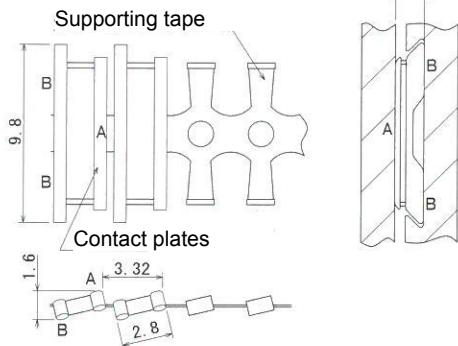
## ■ PSC008 Contact Band ( $\geq \phi 9$ )

The characteristic of this contact band can apply many electric currents in limited space.  
A current densities of 1 contact plate is dense. And the contact pressure is also suppressed very low.  
It's 2 piece structure and is special contact using its feature.  
A large current connector can be designed small.

Material	: Copper alloy(Supporting tape)
Postprocessing	: Silver plated(Contact plates)
Band thickness	: 0.20mm(Supporting tape)
Contact force	: 8N
Sliding force	: 2.8N
Working range(hn)	: 1.05~1.45mm
Temperatures	: -270°C~180°C max
Contact resistance	: 300μΩ
Current rating	: 60A max
Short circuit current	: 1500A / 1sec : 1000A / 3sec
Surge current	: 3500A

※The numerical value mentioned above is time of hn=1.1mm

※The temperature that inserting and removing it is available for is -150°C~180°C.



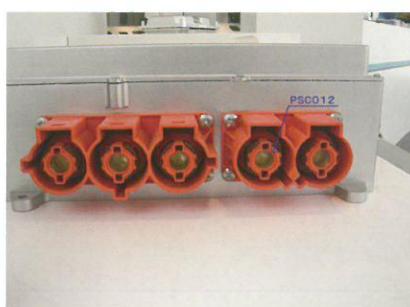
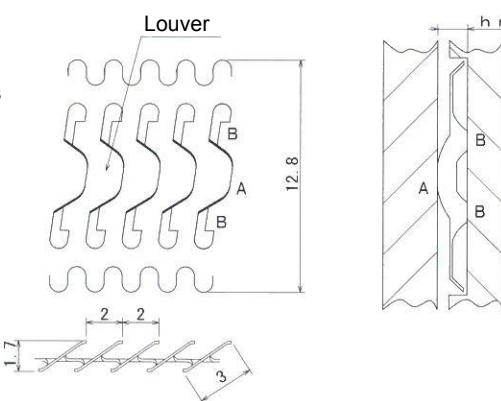
## ■ PSC012 Contact Band ( $\geq \phi 8$ )

Because this contact band is one piece structure, cost is held down, but can apply many electric currents.  
The movable scope of the contact band is big for a special production technique.  
Moreover the life expectancy of the connector can be put off for the structure which reduces abrasion.

Material	: Copper alloy
Postprocessing	: Silver plated
Custom-made plating	: Au, Pt, Rh and others
Band thickness	: 0.15mm
Contact force	: 4N
Sliding force	: 1.4N
Working range(hn)	: 1.0~1.4mm
Temperatures	: -270°C~180°C max
Contact resistance	: 800μΩ
Current rating	: 25A max
Short circuit current	: 850A / 1sec : 550A / 3sec
Surge current	: 2000A

※The numerical value mentioned above is time of hn=1.0mm

※The temperature that inserting and removing it is available for is -150°C~180°C.

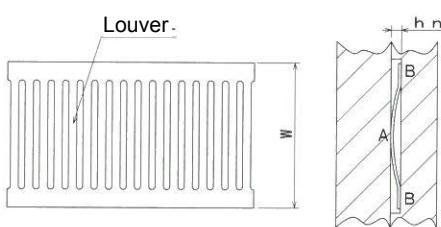


# ■PSC004 Series Contact Band ( $\leq \phi 6$ )

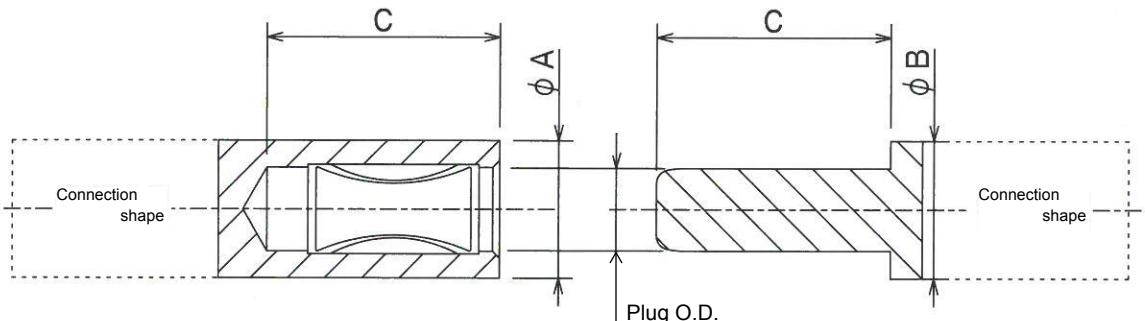
Material	: Copper alloy
Postprocessing	: Gold plated
Custom-made plating	: Ag, Pt, Rh and others
Band thickness	: 0.15mm
Temperatures	: -270°C~180°Cmax
Current rating	: $\phi 4$ 50A $\phi 6$ 70A

※Temperature rises are less than 40°C.

※The temperature that inserting and removing it is available for is -150°C~180°C.

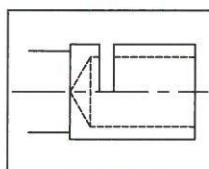


## ● Reference dimensions of a plug and the socket

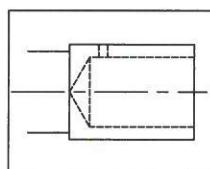


Plug O.D.	$\phi$ A	$\phi$ B	C	Current rating(A)
4	7	5	19.5	50
6	10	6	19.5	90
8	14	8	24(21)	125
10	16	10	24(21)	180
12	18	12	24(21)	230
14	20	14	24(21)	280
16	22	16	24(21)	340
18	25	18	24(21)	400
20	28	20	24(21)	460
25	38	25	25(22)	620
30	42	30	25(22)	800
35	48	35	25(22)	1000
40	52	40	25(22)	1200

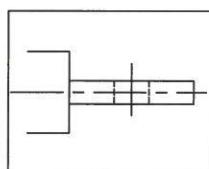
Example of the connection shape



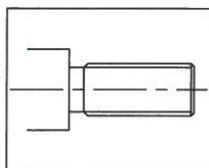
Crimp



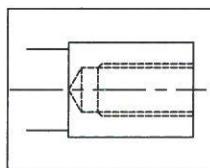
Compression



Flat



Male screw



Female screw

( ) In the case of PSC008 Unit : mm

※ Please set the total temperature to less than 100 °C to get the long-term reliability.

※ Conductive performance of when the material is plated with silver to C3604.

※ Temperature rise value is 40 °C or less.

# ■ CSC Series (Coil Spring Contact)

This contact band is the special coil shape.

This shape makes it possible to apply a high electric current and plays a big role by press contact, slide contact.

You can change the material, size, depending on the use environment and intended use.

## ● Operating temperature range and characteristics.

Material	Temperature (°C)	IACS (%)	Characteristic
Beryllium copper	-273 ~ 180	14	High current
SUS302	-273 ~ 370	2.3	High temperature
SUS316	-273 ~ 340	2.3	Corrosion resistance High temperature
Titanium Grade2	-273 ~ 315	1	Corrosion resistance High temperature
Hastelloy C-276	-273 ~ 480	1.4	Corrosion resistance Heat resistance
Inconel X-750	-273 ~ 680	1.4	Heat resistance

## ● Characteristic

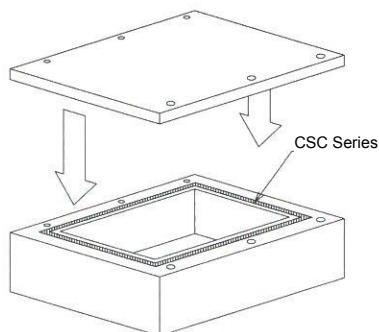
1. It's possible to control the plugging power because there are a lot of kinds of sizes.
2. Because there are much contact points; of the electricity loss can decrease.
3. By using the contact band of small size can be manufactured a short connector .
4. By using the long type can be used as EMI gasket.



● Radial type



● Axial type (Surface contact)

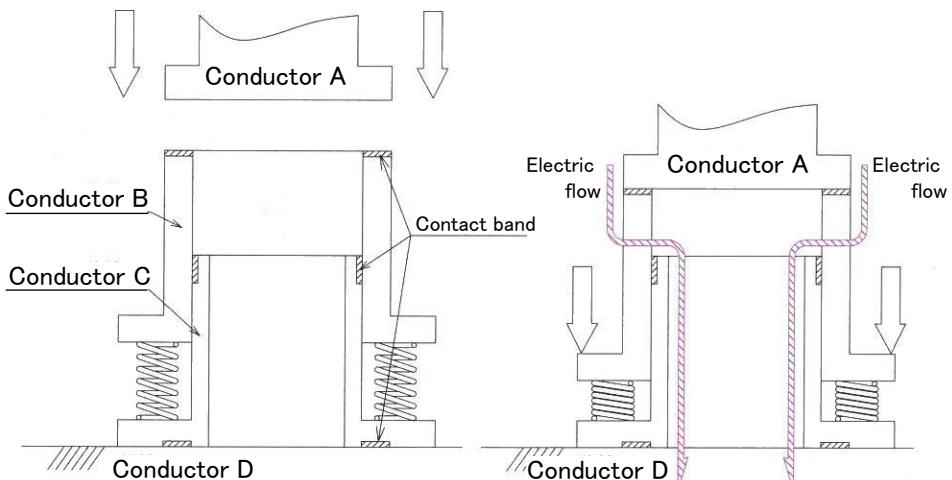


## ■ Example of the connector using the contact band

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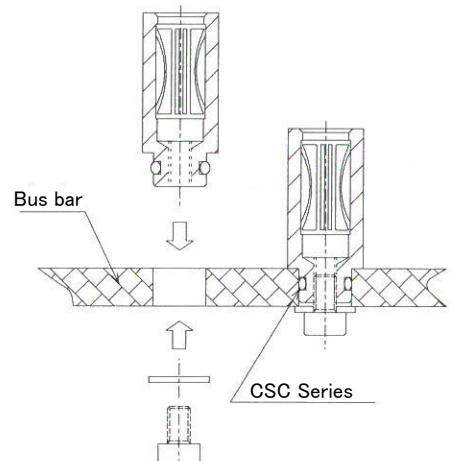
Slide pressure connector



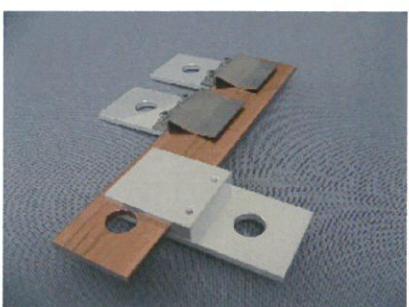
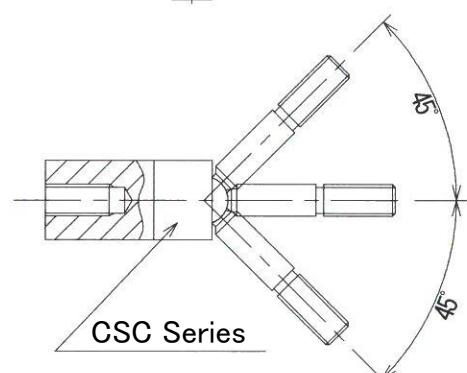
Conductor A moves downward and brings it into surface contact with conductor B.  
Even if conductor B slides, it contacts conductor C.  
And electricity flows to conductor D from the conductor A.



Perpendicular connector for bus bars



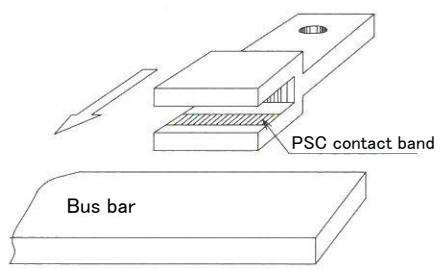
360° Rotary joint



Fork type connector



Flat plug



■ Two plugs are mounted on an insulator



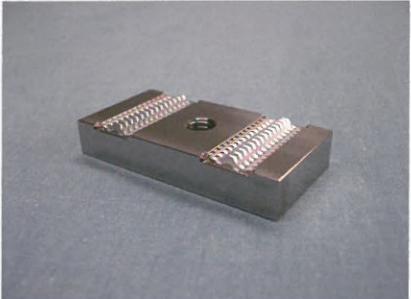
■ Fork connector  
(Type to fasten the terminal with a screw)



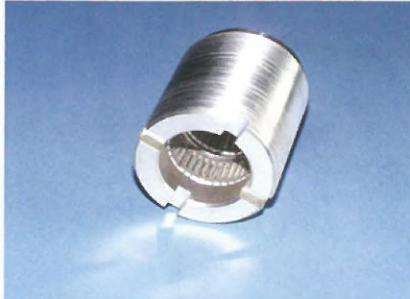
■ Fork connector  
(Crimp terminal type)



■ Jumper connector  
(Surface contact types)



■ Screw-type connectors



■ High-temperature plug with cable



■ Bipolar high-voltage connector



■ Coaxial connector of face contact



■ Relay connector with the insulator



■ Large-capacity  
high frequency connector of 27Mhz



■ The connector which remodeled  
the marketing product



■ Water-cooled surface contact connector



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\* Drawings of correspondence is the only two-dimensional .

\* The specifications listed in this catalogue may vary according to a condition of the use.

\* The information in this catalog is subject to change without prior notice for product improvement .

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