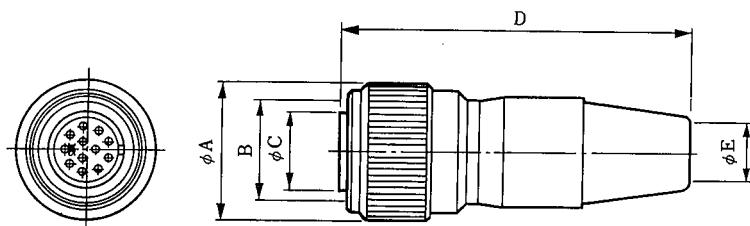
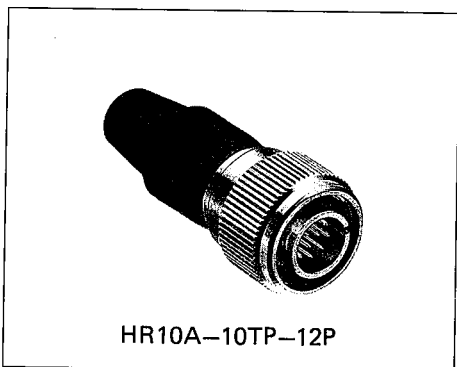


HR10A-[] T TYPE (Threaded Coupling Type)

Scope

HR10A-()T connector is a new product having a threaded coupling locking mechanism. Electric performance is same as HR10 and HR10A push-pull locking type connector.

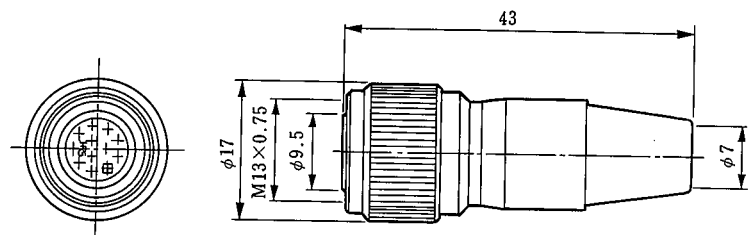
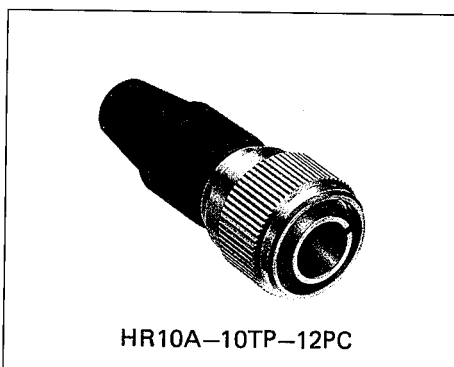
Plug (Solder Type)



(An example in shape)

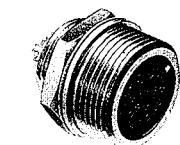
HRS No.	Part No.	No. of pins	φA	B	φC	D	φE	Remarks
110-0331-3	HR10A-7TP-6P	6	12	M10x0.75	7	35	5	
110-0331-3-01	HR10A-7TP-6P(01)	6	12	M10x0.75	7	35	5	Gold plated
110-0432-0	HR10A-10TP-12P	12	17	M13x0.75	9.5	43	7	
110-0446-5	HR10A-10TPA-12S	12	17	M13x0.75	9.5	43	7	
110-1101-9	HR10A-10WTP-12P	12	15	M12x0.75	9.5	45.8	6.5	
110-1106-2	HR10A-10WTP-12S	12	15	M12x0.75	9.5	45.8	6.5	
110-1015-9	HR10A-13TPD-20P	20	20	M17x1	13	56.5	7	

Plug (Crimp Type)

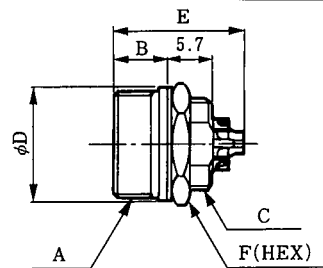
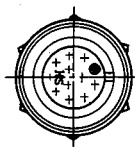


HRS No.	Part No.	No. of pins
110-0455-6	HR10A-10TP-12PC	12

Receptacle (Solder Type)



HR10A-10TR-12S

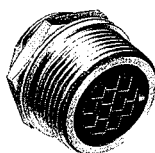


(An example in shape)

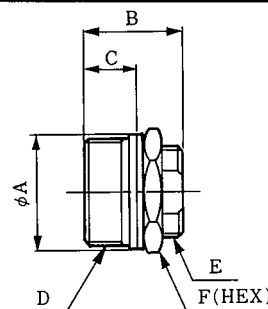
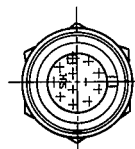
HRS No.	Part No.	No. of pins	A	B	C	φD	E	F	Remarks
110-0089-0	HR10-7TR-6S	6	M10x0.75	6.3	M8x0.5	11	14	10	Gold plated
110-0453-0	HR10A-10TR-12S	12	M13x0.75	6.3	M11x0.75	14	16	13	
110-1104-7	HR10A-10WTR-12S	12	M12x0.75	6.8	M10.5x0.75	14	16	13	

Remark: For the mounting holes, see page 79. However, 7TR size shall be referred to page 85 on the shell size 7.

Receptacle (Crimp Type)



HR10A-10TR-12SC

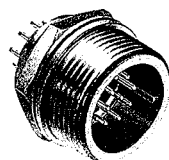


(An example in shape)

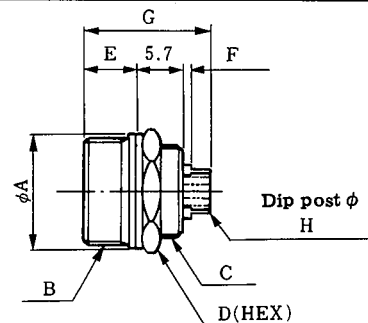
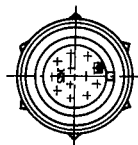
HRS No.	Part No.	No. of pins	φA	B	C	D	E	F
110-0456-9	HR10A-10TR-12SC	12	14	12	6.3	M13x0.75	M11x0.75	13
110-1002-7	HR10A-13TR-20SC	20	18	15	9.3	M17x1	M14x0.75	17

Remark: For the mounting holes, see page 79.

Receptacle (Dip Type)



HR10A-10TR-12PB

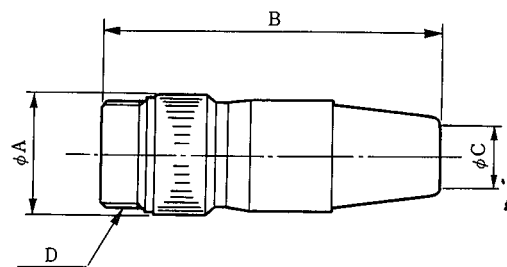
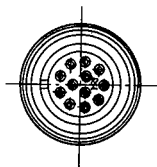
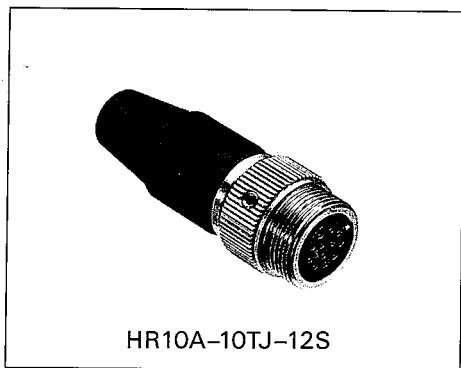


(An example in shape)

HRS No.	Part No.	No. of pins	φA	B	C	D	E	F	G	H	Remarks
110-0330-0	HR10A-7TR-6SA	6	11	M10x0.75	M8x0.5	10	6.3	0.5	15.5	0.55φ	
110-0433-3	HR10A-10TR-12SB	12	14	M13x0.75	M11x0.75	13	6.3	0.5	15.5	0.2x0.5	
110-0457-1	HR10A-10TR-12PB	12	14	M13x0.75	M11x0.75	13	6.3	0.5	15.5	0.2x0.5	
110-0445-2	HR10A-10TR-12PE	12	14	M13x0.75	M11x0.75	13	6.3	0.5	14	0.2x0.5	
110-1102-1	HR10A-10WTR-12SB	12	14	M12x0.75	M10.5x0.75	13	6.8	0	15.5	0.2x0.5	
110-1013-3	HR10A-13TR-20PB	20	18	M17x1	M14x0.75	17	9.3	0	17.8	0.2x0.5	
110-1014-6	HR10A-13TR-20SB	20	18	M17x1	M14x0.75	17	9.3	0	17.8	0.2x0.5	

Remarks: 1. For the mounting holes, see page 79. However, 7TR size shall be referred to page 85 on the shell size 7.
 2. For dip post arrangement, see page 80.

Jack (Solder Type)

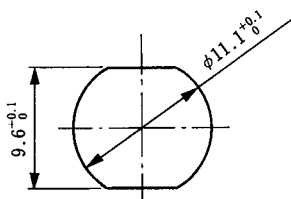


(An example in shape)

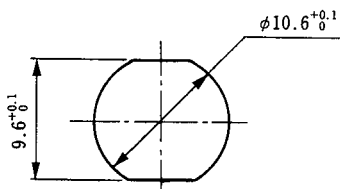
HRS No.	part No.	No. of pins	φA	B	φC	D	Remarks
110-0436-1	HR10A-10TJ-12S	12	14.7	41.3	7	M13x0.75	
110-0459-7	HR10A-10TJ-12P	12	14.7	41.3	7	M13x0.75	
110-1103-4	HR10A-10WTJ-12S	12	14	46.5	6.5	M12x0.75	

Panel mounting hole dimensions(screw coupling)

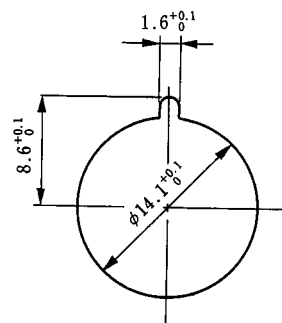
The mounting hole dimensions shown below are for connectors to be tightened by a hexagonal nut from the back of the panel. The dimensions below apply only to the HR10A-[]T and not the 7TR. For the dimensions of connectors of other types, see page 85.



Type HR10A-10TR
(Panel thickness 1 to 2mm)



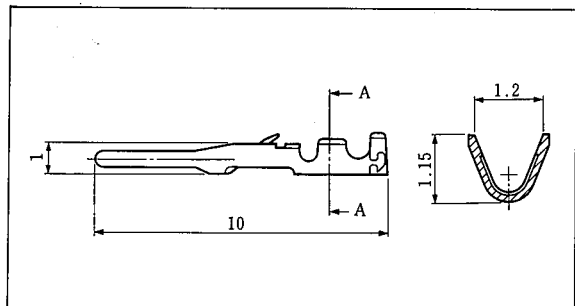
Type HR10A-10WTR
(Panel thickness 1 to 2mm)



Type HR10A-13TR
(Panel thickness 1 to 1.5mm)

Contact

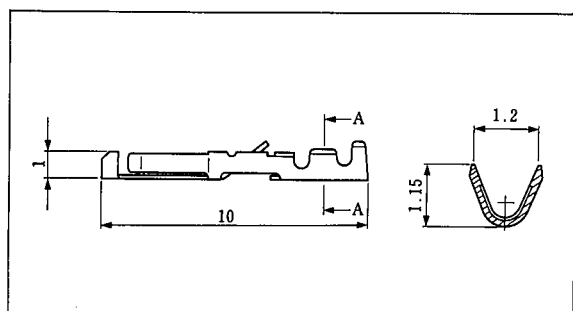
Male Pin



Type	HRS No.	Part No.	Type of plating	Applicable wire
Loose contact	110-0515-6	HR10-PC-111	Partial gold plating	AWG#26~#30
	110-0513-0	HR10-PC-112	Silver plating	AWG#26~#30
Chain contact	110-0516-9	HR10-PC-211	Partial gold plating	AWG#26~#30
	110-0514-3	HR10-PC-212	Silver plating	AWG#26~#30

Remarks: 1. Use cables with a coating outside diameter of 1mm or less.
 2. Loose-piece terminal are available in packs. Each pack contains 100 terminals. Strip terminals are available in reels. Each reel contains 10,000 terminals.

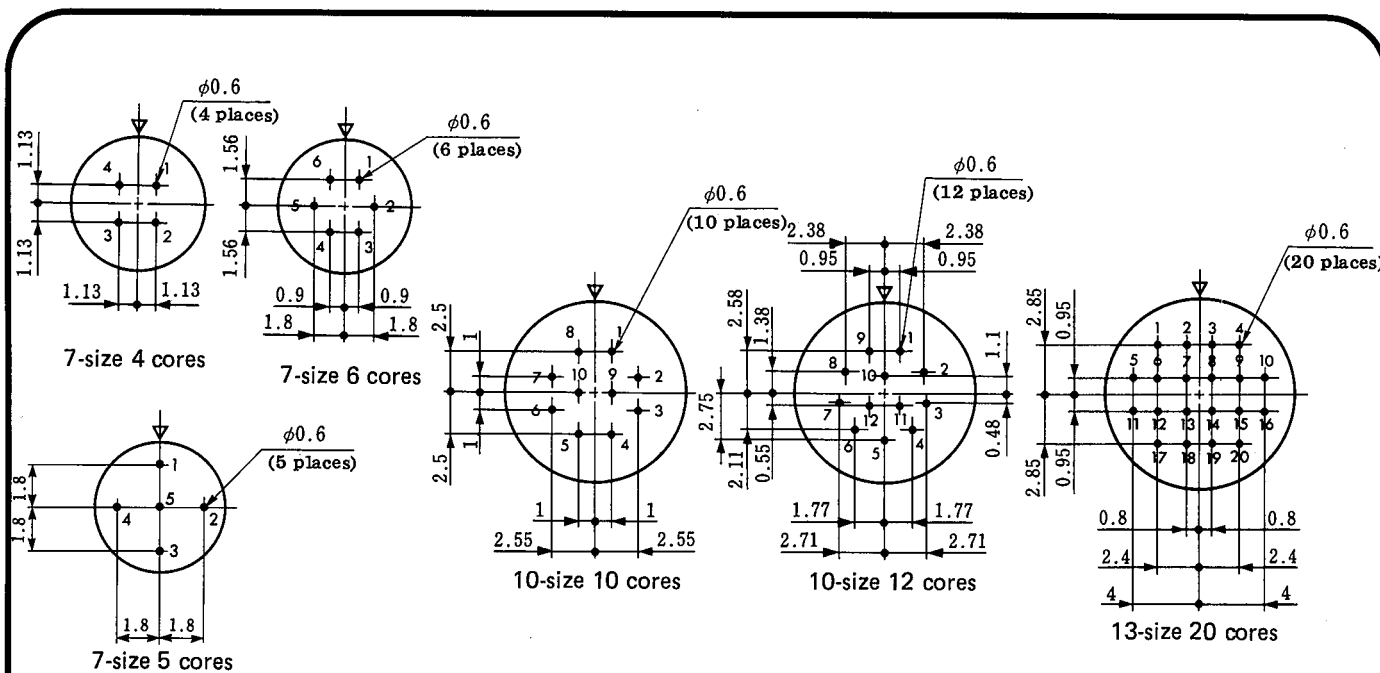
Female Pin



Type	HRS No.	Part No.	Type of plating	Applicable wire
Loose contact	112-0410-0	HR12-SC-111	Partial gold plating	AWG#26~#30
	112-0411-3	HR12-SC-112	Silver plating	AWG#26~#30
Chain contact	112-0407-6	HR12-SC-211	Partial gold plating	AWG#26~#30
	112-0408-9	HR12-SC-212	Silver plating	AWG#26~#30

Remarks: 1. Use cables with a coating outside diameter of 1mm or less.
 2. Loose-piece terminal are available in packs. Each pack contains 100 terminals. Strip terminals are available in reels. Each reel contains 10,000 terminals.

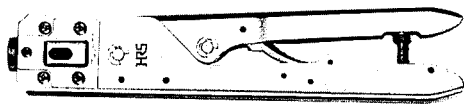
Receptacle dip post arrangement dimensions



Remarks: 1. The above figures are views of receptacle-socket inserts from the mating side and plug-pin inserts from the wiring-connection side.
 2. Dimensional tolerance of ± 0.05 is recommended for the board arrangement.

Tools

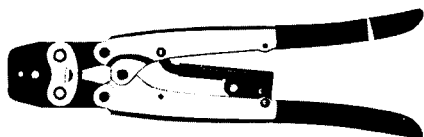
Type	Item	HRS No.	Part No.	Applicable terminal	Applicable wire and Applicable Cable diameter
Manual	Manual crimping tool	150-0052-9	HR12-SC-TC	HR10-PC-112	AWG # 26~ # 30
				HR12-SC-112	
Automatic	Automatic crimping machine body	901-0005-4	CM-105	—	—
	Applicator	901-2015-9	AP105-HR12-1	HR10-PC-211 212 213	AWG # 26~ # 30
				HR12-SC-211 212 213	
Cable crimping tool		150-0036-2	HR10-TC-01	—	(HR10B-2.5CP, HR10B-2.5CJ)
		150-0041-2	HR10A-TC-02		$\phi 7, \phi 5$
		150-0055-7	HR10D-TC-02		$\phi 9.5$
Extractor	150-0050-3	HR12-SC-TP	HR12-SC-112	—	
			HR12-SC-212		
	150-0039-0	RP6-SC-TP	HR10-PC-112		
			HR10-PC-212		
	150-0061-0	HR10B-TP	HR10B-2.5CP		
			HR10B-2.5CJ		



(HR12-SC-TC)
Hand Crimp Tool



(HR12-SC-TP)

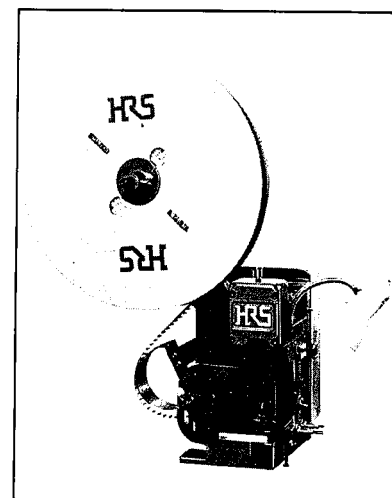


(HR10A-TC-02)
Hand Cable Crimp Tool

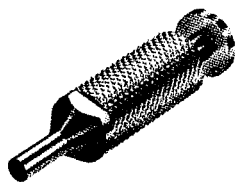


(RP6-SC-TP)

Extraction Tool



Auto Crimp Tool CM-105

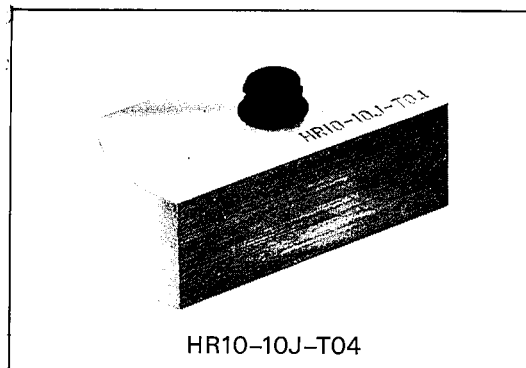
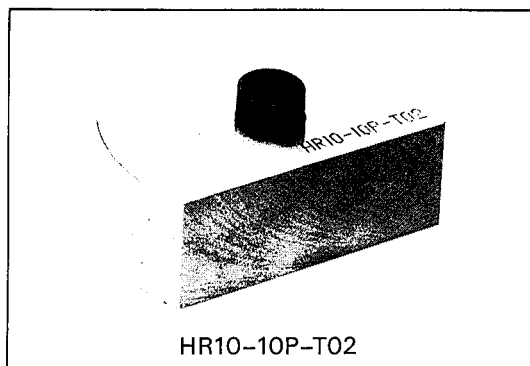


(HR10B-TP)
Coaxial Contact Removal Tool

How to use a Connector

	1. Inserting	2. Withdrawing
HR10 TYPE		
HR10A TYPE		
	<p>Hold the plug at point A, align the plug guide with the receptacle guide, and push the plug straight. The plug will mate with the receptacle smoothly.</p>	<p>Hold the plug connection sleeve B and pull the sleeve straight. The plug will come off easily.</p>

Wiring Tool



HRS No.	Part No.	Applicable connector
150-0009-0	HR10-7P-T01	HR10-7P
150-0010-9	HR10-10P-T02	HR10-10P
150-0011-1	HR10-7J-T03	HR10-7J
150-0012-4	HR10-10J-T04	HR10-10J
150-0059-8	HR10-13P-T05	HR10-13P
150-0060-7	HR10-13J-T06	HR10-13J
150-0056-0	HR10D-13P-T	HR10D-13P

◆ Connection work procedure(plug side)

- This applies also to the jack side connection work.
- No special connection work procedure is given here for the receptacle side because no special procedure is necessary.

HR10 Type

HR10A Type

Size	HR10	HR10A
Size 7	8	7.5
Size 10	11	9.5
Size 13	—	13

Size	Dimension C for HR10	Dimension D for HR10A	
		Solder type	Crimp type
Size 7	5.5 or less	10	15 - 20
Size 10	7 or less	16	15 - 20
Size 13	—	26	26

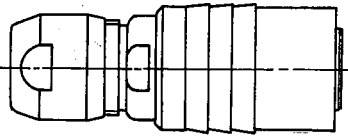
Size	Tightening force
Size 7	1.5N·m (15kg-cm)
Size 10	2N·m (20kg-cm)
Size 13	2N·m (20kg-cm)

	HR10 Type	HR10A Type
1	Use cables with a nominal sectional area of 0.129 mm ² (AWG#26) at the finish outside diameters applicable for each size.	
2	After processing the cable ends according to the dimensions in the above drawings, fit the parts to the cable as shown in the drawings. Fit the parts to the cable in the following order: tightener, clamp washer, and plug body.	Fit the parts to the cable in the following order: Cord bushing, and plug body.
3	(Solder type) Insert the P shell unit into the assembly jig stand and solder it. (Solder type) After crimping the appropriate crimp terminal to the cable core, insert the crimp terminal into the terminal hole in the P shell unit.	
4	Assemble the connector in the following steps. ① Screw the plug body into the thread in the P shell unit with the tightening force shown in Table 1 using a torque wrench with a fixed torque. Before tightening the plug body, slacken part C so that no load is applied to the soldered wires. ② Apply the clamp washer to the bifurcated part of the plug body, and then tighten the tightener until surface B touches the plug body surface A.	① Fix by caulking the clamp accompanying the cable with the cable crimping tool (HR10A-TC-02). ② Screw the plug body into the thread in the P shell unit with a tightening force shown in Table 1 using a torque wrench with a fixed torque. Before tightening the plug body, slacken the part D so that no load is applied to the soldered wires. ③ Tighten the set screw so that the tip of the screw presses one of the two bosses on the clamp. Fix the set screw with a tightening torque of 0.3N (3kg-cm). ④ Attach the cord bushing to the plug body.
5	This completes the work.	

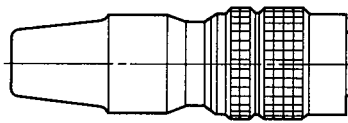
For any question on using the plugs, contact our sales or engineering department.

◆ Connector

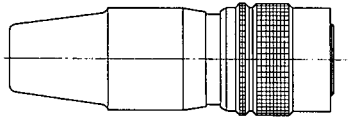
Male Pin side



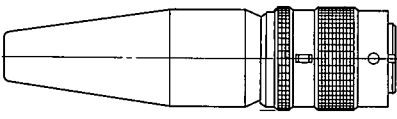
(HR10 type plug)



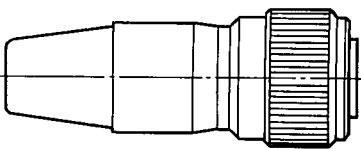
(HR10A Type Plug)



(HR10B Type Plug)

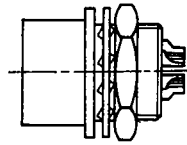


(HR10D Type Plug)

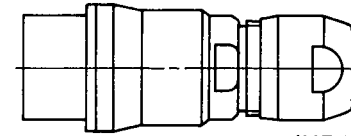


(HR10A-[] T Type Plug)

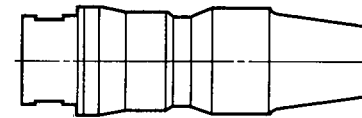
Female Pin side



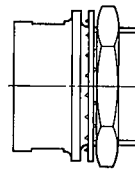
(HR10·HR10A
HR10G type Receptacle)



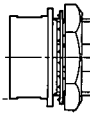
(HR10 Type Jack)



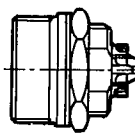
(HR10A Type Jack)



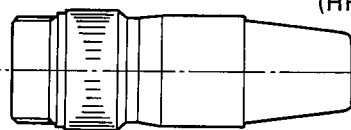
(HR10B Type Receptacle)



(HR10D Type Receptacle)



(HR10A-[] T Type Receptacle)



(HR10A-[] T Type Jack)

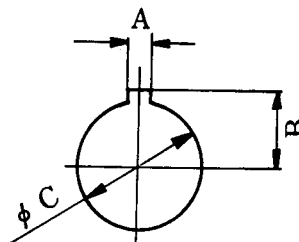
Notes

- 1: When using a plug with male terminal, be sure to use a receptacle or jack fitted with female terminal.
- 2: Standard finish of the terminal is gold plating for the HR10, and silver plating for the HR10A and HR10G.
Be sure to use male and female connectors of the same plating.

Recommended Mounting Hole

Mounting hole dimension shown here is tight by hexagon nut from back side.

Map mark \ Shell size	7 size	10 size	13 size
A	$1.6^{+0.1}_0$	$2.6^{+0.1}_0$	$2.6^{+0.1}_0$
B	$5.1^{+0.1}_0$	$6.6^{+0.1}_0$	$8.6^{+0.1}_0$
ϕC	$8.1^{+0.1}_0$	$11.1^{+0.1}_0$	$14.1^{+0.1}_0$
Panel thickness	0.7 ~ 2	0.7 ~ 2	0.8 ~ 1.5



Contact Arrangement

Shell size	7 size			10 size	
Contact arrangement					
No. of pins	4	5	6	10	12
Withstanding voltage	AC500V for a minute	AC300V for a minute			AC300V for a minute
Current rating	2A	2A			2A
Insulation resistance	MIN 1,000 MΩ	MIN 1,000 MΩ			MIN 1,000 MΩ
Contact resistance	MAX 10 mΩ	MAX 10 mΩ			MAX 10 mΩ
Solder pot inside dia.	$\phi 0.8$	$\phi 0.8$			$\phi 0.8$

Shell size	10 size	13 size
Contact arrangement		
No. of pins	10 + Coaxial contact	20
Withstanding voltage	AC300V for a minute	AC300V for a minute
Current rating	2A	2A
Insulation resistance	MIN 1,000 MΩ	MIN 1,000 MΩ
Contact resistance	MAX 10 mΩ	MAX 10 mΩ
Solder pot inside dia.	-	$\phi 0.8$

- Note
1. The contact arrangement shown here is the mating surface of socket insert assembled in a receptacle.
 2. The withstanding voltage shown here is test voltage value.
 3. The insulation resistance value is measured at DC100V.
 4. The contact resistance value is measured at DC1A.

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