

**Product Standard
For
RK Type Connector (Wire to Wire Type)**

Please note that this Product Standard is subject to change without notice.

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Feb. 7, 2018

1. Scope

This document specifies RK Type Connector, which is used for minute electric current circuit on vehicle.

2. Part type, part code, part number and applicable wire size

As per attached Part number list.

3. Definition

3-1) This is a sealed connector system the male terminal tab size of which is width 1.0mm and thickness 0.64 mm (040 size). Individual wire seal is used.

3-2) Refer to “Handling manual of RK Type Connector (YPES-15-296)” for the definition of terms.

4. Structure and Material

As per each part drawing.

5. Handling of parts

Refer to “Handling manual of RK Type Connector (YPES-15-296)”.

6. Quality and Performance

The part satisfies the requirements in Table-1 and 2 when tested to Section 8. Test environment is 20 +/-5°C and 65+/-20% RH unless otherwise specified.

<Basic performance>

Table-1

No	Test item	Requirement	Test method
6-1	Appearance	No harmful crack, rattling, flaw and deformation.	7-1
6-2	Voltage drop	Initial: 10 mV/A Max. After durability test: 30 mV/A Max.	7-2
6-3	Wire pull out force	Refer to Table-3	7-3
6-4	Insulation resistance	Initial: 250M ohm Min.	7-4
6-5	Withstand voltage	Terminal: No crack, breakage, bend, plating peeling off and rust. Housing: No crack, melt, rattling and part coming-off	7-5
6-6	Temperature rise	Initial: 25°C Max. After durability test: 30°C Max. Ambient temperature during operation: 80°C Max.	7-6
6-7	Connector mating/unmating force	Refer to Table-4	7-7
6-8	Lock strength	98 N Min.	7-8
6-9	Terminal holding force	98 N Min.	7-9
6-10	Panel lock strength	98 N Min.	7-10
6-11	Sealing ability	98 kPa Min.	7-11

<Durability environment performance>

Table-2

No	Test item	Requirement	Test method
6-12	Heat resistance	6-2, 6-6, 6-8, 6-9 and 6-11 are satisfied.	7-2,7-6, 7-8,7-9, 7-11,7-12

Table-3

Wire pull out force		
0.3mm ²	0.5mm ²	0.85mm ²
58.8 N Min.	88.2 N Min.	127 N Min.

Table-4

Connector	Insertion Force	Separation Force
2P	49N Max	The same as the insertion force.
3P	49N Max	The same as the insertion force.
6P	64N Max	The same as the insertion force.
8P	68N Max	The same as the insertion force.
10P	78N Max	The same as the insertion force.

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7. Test method

7-1) Appearance

Examine samples visually and tactually.

7-2) Voltage drop

Engage male and female connectors or terminals. Apply open-circuit voltage of 13_{-0}^{+1} V and short-circuit of 1A to connectors or terminals. Measure the voltage drop at the points 200mm behind each crimp (between Y and Y shown in Figure-1) after voltage drop reading is stabilized. Then, subtract the resistance of wire of 400mm in length to calculate the contact resistance.

Table-3 Wire size and electric resistance (m ohm/m)
(20°C, Wire: CAVS)

0.3mm ²	50.2
0.5mm ²	32.7
0.85mm ²	20.8

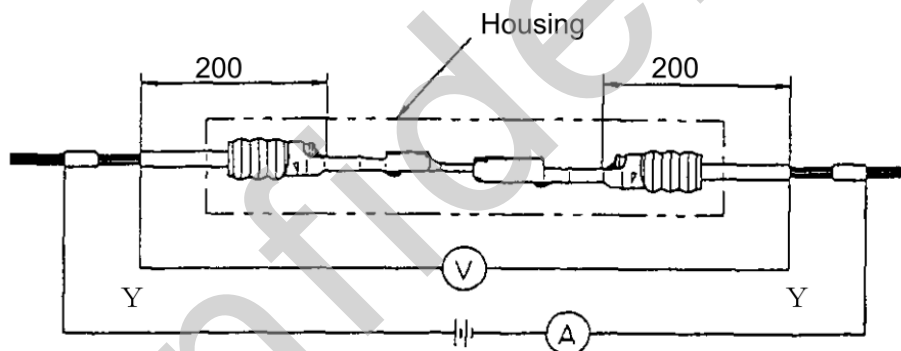


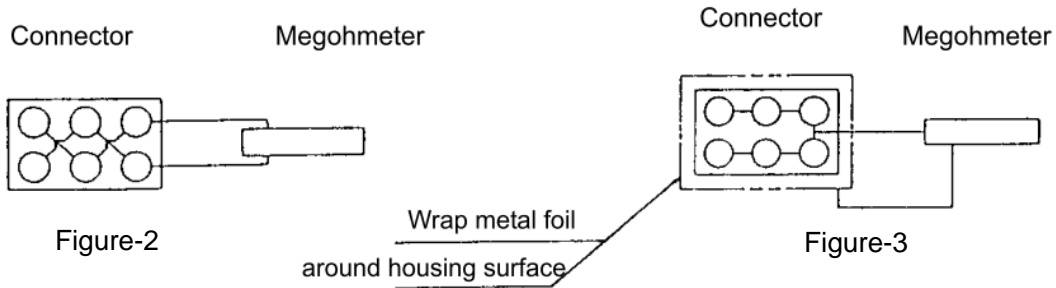
Figure-1

7-3) Wire pull out force

Secure a terminal crimped with a wire to a fixture. Pull the wire by gripping it at the point 50 to 100mm behind the crimped portion in the axial direction at a rate of 200mm/min. Measure the force required to break the wire or pull the wire out from the crimped portion.

7-4) Insulation resistance

Engage male and female connectors. Using a megohmmeter, set to 500V DC, measure the insulation resistance between adjacent terminals and between the terminals and housing surface.



7-5) Withstand voltage

Engage male and female connectors. Apply 1000V AC at the commercial frequency for 1 minute between adjacent terminals and between the terminals and housing surface.

7-6) Temperature rise

Connect half poles of the connector in series. Place connector samples in a draft free chamber. Apply 3A (CAVS 0.5) to samples and measure surface temperature of the terminal surface around the contact area after the temperature is saturated. Room temperature can be used as an ambient test temperature for this test.

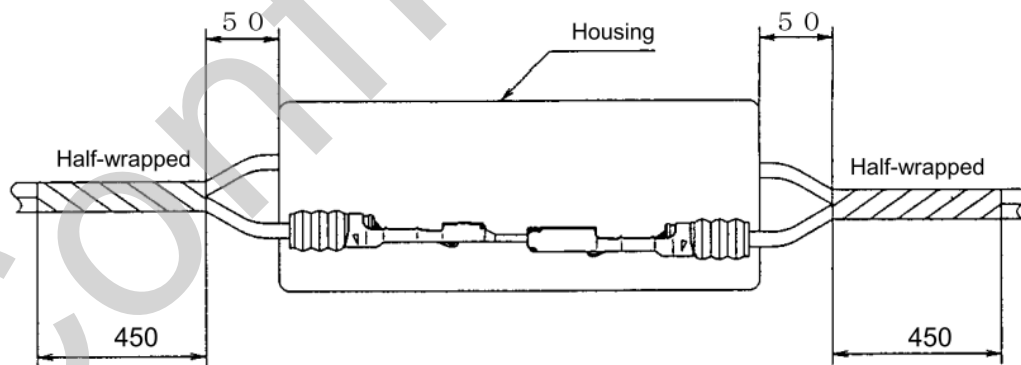
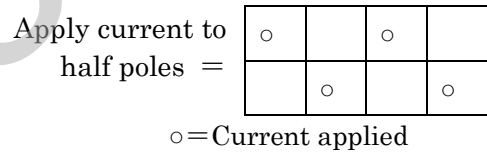


Figure-4

7-7) Connector mating/unmating force

Fully populate the male and female connectors. Mate/unmate the male and female connectors in the axial direction at a rate of approx. 20mm/min and measure the force required. Activate the lock mechanism when measuring mating force and deactivate it when measuring unmating force (packing is also used for testing).

Do not fix the connectors when measuring the mating force and freely insert it in an axial direction.

7-8) Lock strength

Engage male and female housings with housing lock activated. Fix one of the housings and pull the other in the axial direction at a rate of 20mm/min. Measure the force required to disengage them or break the lock.

7-9) Terminal holding force

Assemble a connector with wire-crimped terminals. Secure the connector in the test jig, and grip the wire 50 to 100mm behind the crimped portion to pull the wire to the terminal removal direction at a rate of 200mm/min. Measure the force required to disengage the terminal from the housing.

7-10) Panel lock strength

Engage male and female housings with terminals inserted to all poles. Fix them to a designated bracket. Pull the wire in the axial direction and with angle of 90deg at a rate of 20mm/min. Measure the force required to disengage or break the connector. Measure the weakest direction..

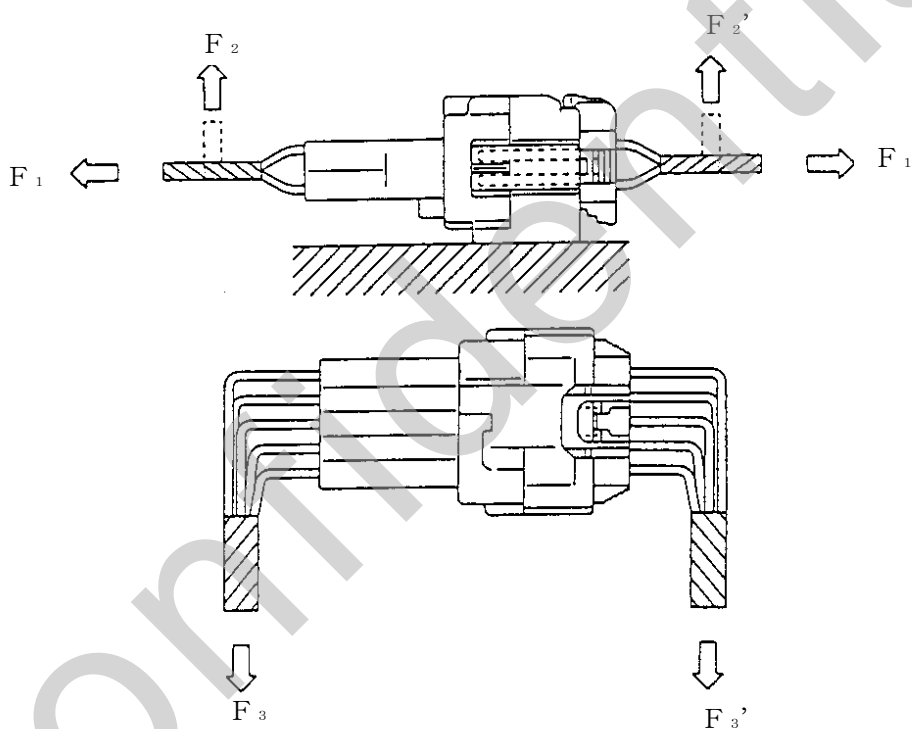


Figure-5

7-11) Sealing ability

Drill a hole in the sealing connector or pass a pipe through one of the connector cavities. Immerse the connector in the water to approx. 100mm depth from the surface and send compressed air of 9.8kPa through the hole or the pipe. Observe the connector for 30 seconds and verify there are no air bubbles. Increase the pressure in increment of 9.8kPa if there are no bubbles. (Refer to Figure-6)

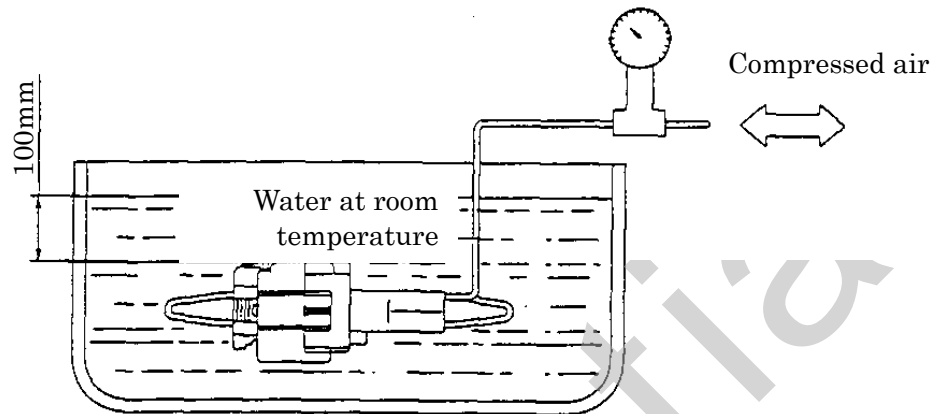


Figure-6

7-12) Heat resistance

With a pair of connectors engaged, place them in a chamber, set to 140°C, for 120 hours. Then, remove them from the chamber and allow them to cool to room temperature.

RK Connector Part Number List

<Housing, Frontholder>

Classification	Housing Part No.	Name	Color	Front Holder Part No.	
HSG (M)	2P	7282-7770-40	RK TYPE HOUSING 2PM(GY) SUB ASSEMBLY	LIGHT GRAY	7158-4880
		7282-7398-90	RK TYPE HOUSING 2PM(L, B) SUB ASSEMBLY	BLUE	
		7282-7398-30		BLACK	
	3P	7282-7771-80	RK TYPE HOUSING 3PM(BR, DY) SUB ASSEMBLY	DARK BROWN	7158-4882
		7282-7771-10		DARK GRAY	
		7182-7874-30	RK TYPE 3PM (B) HOUSING	BLACK	
	6P	7182-7773-40	RK TYPE CONNECTOR 6PM (GY)	LIGHT GRAY	7158-4884
	8P	7182-7775-40	RK TYPE CONNECTOR 8PM (GY)	LIGHT GRAY	7158-4886
		7182-7777-80	RK TYPE CONNECTOR 8PM (BR, DY)	DARK BROWN	
		7182-7777-10		DARK GRAY	
		7182-7876-30	RK TYPE 8PM (B) HOUSING	BLACK	7158-4897
		7182-7878-60	RK TYPE 8PM (G, LY) HOUSING	GREEN	
	7182-7878-40	LIGHT GRAY			
	10P	7182-7779-40	RK TYPE CONNECTOR 10PM (GY)	LIGHT GRAY	7158-4888
		7182-7972-60	RK TYPE 10PM (G, LY) HOUSING	GREEN	7158-4895
7182-7972-10		LIGHT GRAY			
HSG (F)	2P	7183-7770-40	RK TYPE 2PF (GY) HOUSING	LIGHT GRAY	7158-4881
		7183-7398-90	RK TYPE 2PF (L, B) HOUSING	BLUE	
		7183-7398-30		BLACK	
	3P	7183-7771-80	RK TYPE 3PF (BR, DY) HOUSING	DARK BROWN	7158-4883
		7183-7771-10		DARK GRAY	
		7183-7874-30	RK TYPE CONNECTOR 3PF (B)	BLACK	7158-4892
		7289-4696-30	RK TYPE 3P HOUSING FEMALE SUB ASSEMBLY	BLACK	
	6P	7183-7773-40	RK TYPE 6PF (GY) HOUSING	LIGHT GRAY	7158-4885
	8P	7183-7775-40	RK TYPE 8PF (GY) HOUSING	LIGHT GRAY	7158-4887
		7183-7777-80	RK TYPE 8PF (BR, DY) HOUSING	DARK BROWN	
		7183-7777-10		DARK GRAY	
		7183-7876-30	RK TYPE CONNECTOR 8PF (B)	BLACK	7158-4893
		7183-7878-60	RK TYPE CONNECTOR 8PF (G, LY)	GREEN	
	7183-7878-40	LIGHT GRAY			
	10P	7183-7779-40	RK TYPE 10PF (GY) HOUSING	LIGHT GRAY	7158-4889
7183-7972-60		RK TYPE HOUSING 10P FEMALE	GREEN	7158-4894	
7183-7972-10			LIGHT GRAY		

<Terminal, Wire Seal and Cavity Plug>

Classification	Part No.	Applicable wire size	Remarks
Male terminal	7114-1466-02	CAVS, CAVUS 0.3~0.5	(TIN PLATING)
	7114-1469-02	CAVS, CAVUS 0.85	
	7114-1466-08	CAVS, CAVUS 0.3~0.5	(GOLD PLATING)
	7114-1469-08	CAVS, CAVUS 0.85	
Female terminal	7116-1466-02	CAVS, CAVUS 0.3~0.5	(TIN PLATING)
	7116-1469-02	CAVS, CAVUS 0.85	(GOLD PLATING)
	7116-1466-08	CAVS, CAVUS 0.3~0.5	
	7116-1469-02	CAVS, CAVUS 0.85	
Wire seal	7158-3120-90	CAVS 0.3 CAVUS 0.3~0.5	(BLUE)
	7158-3121-80	CAVS 0.5~0.85 CAVUS 0.85	(BROWN)
Cavity plug	7157-3992-90	-	(LIGHT BLUE)