PRODUCT CATALOG

HIROSE ELECTRIC CO.,LTD.

DF63W Series

3.96mm Pitch Compact Waterproof Connectors for Internal Power Supplies

EnerBee™

Power Supply

Waterproof

Slim In-Line

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Product page
https://www.hirose.com/en/product/series/DF63W

Jun. 2025

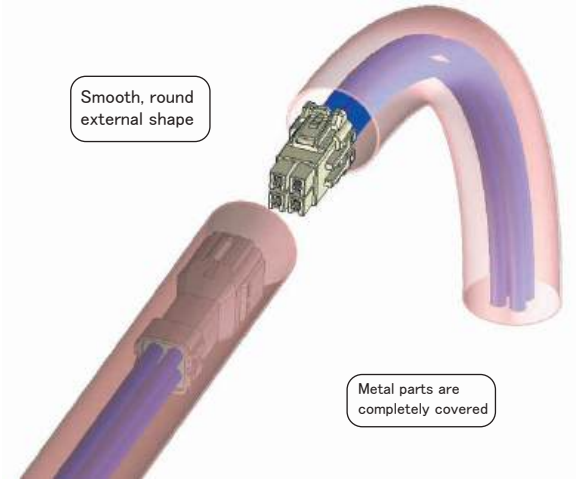
Features

1. 14A Max. current

This compact connector is rated up to 14A in the 2pos. version, using 16 AWG wire.

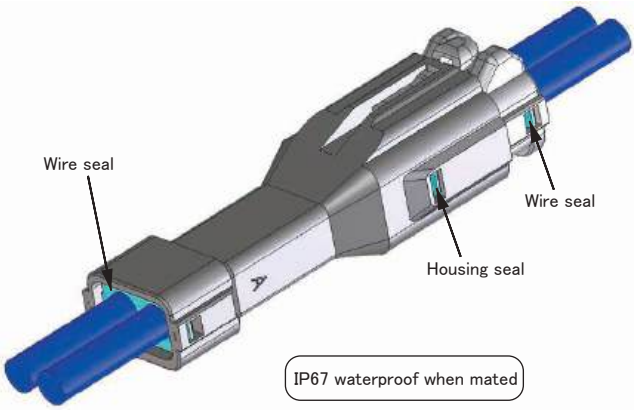
2. Compact shape designed for wiring through narrow areas

The design is optimized for wiring inside conduits and small structures, with a smooth, rounded contour that reduces the chance of snagging or catching inside the conduit or other objects.
A plastic housing covers the connector, so no metal is exposed to the conduit, preventing accidental shorting.



3. IP67 rated

IP67 water resistant when mated.



4. Simplified wire insertion

Wire and housing seals are pre-installed to provide water proofing. A simple insertion of the crimped contact into the housing completes the assembly.
Contacts and housing are designed to prevent damaging the seals when inserting the contacts.

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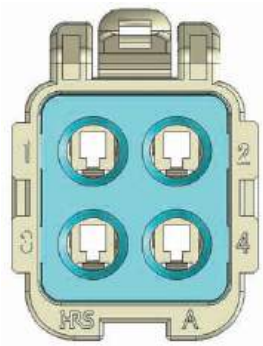
5. Positive lock structure

A robust locking structure provides a tactile click when mating to prevent incomplete mating and disconnection during wiring.

6. Compatible with a wide variety of cables

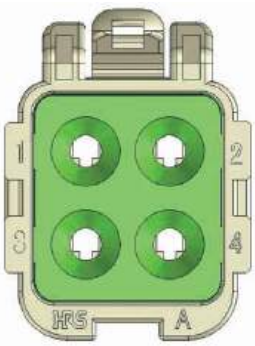
Two versions are available with different waterproof wire seal diameters. This variation helps to support the use of a wide array of cable sizes.

<DF63W>



Recommended insulation outer diameter Ø2.8 to 3.2

<DF63WA>



Recommended insulation outer diameter Ø1.7 to 2.4

7. Mis-mating prevention with color and guide key options

Two housings are available each with different colors and guide keys. This helps to prevent incorrect mating when multiple connectors are used on the same design with the same pin count.

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Product Specifications

Rated Current (Note 1)	No of Pos.	16 AWG	18 AWG	20 AWG	22 AWG	Operating Temperature (Note 2)	-40 to +105℃
	2	14A	11A	9A	8A	Storage Temperature (Note 3)	-10 to +60℃
	3	13A	10A	8A	7A	Operating Humidity Range	20 to 80%
	4	12A	9A	7A	6A	Storage Humidity Range (Note 3)	40 to 70%
Rated Voltage	630V AC/DC						

Items	Specifications	Conditions
Insulation Resistance	1,000MΩ Min.	500V DC
Withstanding Voltage	No flashover or insulation breakdown	1,500V AC for 1 min.
Contact Resistance	10mΩ Max.	20mV Max., 100mA (DC or 1,000Hz)
Vibration Resistance	No electrical discontinuity of 1μs.	10 cycles in each of three directions at frequency 10 to 55Hz, half amplitude 0.75mm
Shock Resistance	No electrical discontinuity of 1μs.	Accelerated velocity490m/s^2, 11ms, half-sine wave in 3 directions, 3 times for each direction
Humidity Resistance	Contact Resistance: 20mΩ Max. Insulation Resistance: 500MΩ Min.	96 hours at temperature of +40± 2℃ and humidity of 90 to 95%
Temperature Cycles	Contact Resistance: 20mΩ Max. Insulation Resistance: 1,000MΩ Min.	-55℃ : 30 minutes → +5 to +35℃ : 2 to 3 minutes → +105℃ : 30 minutes → +5 to +35℃ : 2 to 3 minutes, 5 cycles
Mating Durability	Contact Resistance: 20mΩ Max.	30 times

Note 1: Indicates the allowable current when the maximum current is applied to all pins. Please note that a current could exceed the rated value when a higher current is applied through multiple circuits in a branched configuration.
Note 2: Includes temperature rise due to current flow.
Note 3: The term "storage" refers to the long-term storage condition of unused products before PCB mounting. Operating temperature/humidity range refers to the non powered state after PCB mounting, and temporary storage during transportation.

Materials / Finish

Item	Component	Material	Color/Finish	UL Flame Retardant Grade	RoHS2
Plug Crimp Contact	Contact	Copper Alloy	Tin Plating	-	Yes
Socket Crimp Contact	Contact	Copper Alloy	Tin Plating	-	
Crimp Plug	Housing	PBT	Black	UL94V-0	
	Seal	Silicone Rubber	Blue or Green	-	
Crimp Socket	Housing	PBT	Black	UL94V-0	
	Seal	Silicone Rubber	Blue or Green	-	

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Product Number Structure

Refer to the chart below when determining the product specifications from the product number.
Please select from the product numbers listed in this catalog when placing orders.

■ Connector

DF 63W - # S - 3.96 C
❶ ❷ ❸ ❹ ❺ ❻ ❼

❶ Series Name	DF	❺ Connector Type	S: Socket EP: Plug
❷ Series No.	63W	❻ Contact Pitch	3.96mm
❸ Wire Insulation Diameter	None: ϕ 2.8mm to ϕ 3.2mm A: ϕ 1.7mm to ϕ 2.4mm	❼ Termination Type	C: Crimp Case
❹ No. of Pos.	2, 3, 4		

■ Contact

DF 63W - 1618 PCF
❶ ❷ ❸ ❹

❶ Series Name	DF	❹ Contact Type / Packaging Type	SCF: Socket Crimp Contact, Reel SC: Socket Crimp Contact, Pieces PCF: Plug Crimp Contact, Reel PC: Plug Crimp Contact, Pieces
❷ Series No.	63(W)		
❸ Applicable Wire Size	1618: 16 to 18 AWG 2022: 20 to 22 AWG		

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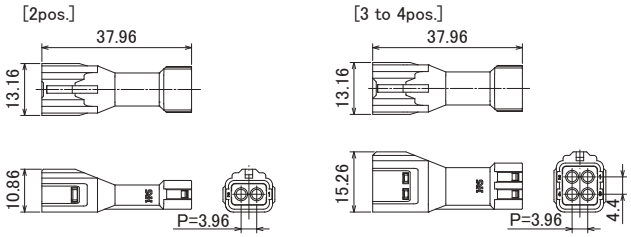
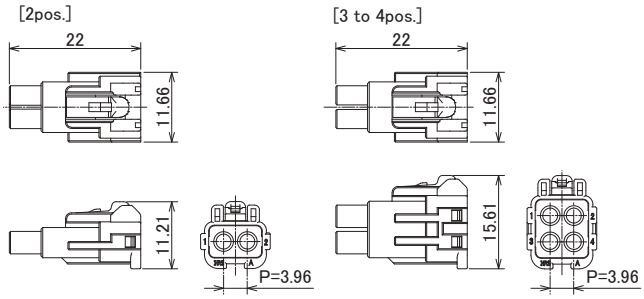
Plug



Unit : mm

Part No.	HRS No.	No. of Pos.	Applicable Jacket Outer Diameter	Purchase Unit
DF63W-2EP-3.96C	CL0680-0605-9-00	2	ϕ 2.8 to 3.2mm	100pcs per bag
DF63W-3EP-3.96C	CL0680-0606-1-00	3		
DF63W-4EP-3.96C	CL0680-0607-4-00	4		
DF63WA-2EP-3.96C	CL0680-0609-0-00	2	ϕ 1.7 to 2.4mm	
DF63WA-3EP-3.96C	CL0680-0610-9-00	3		
DF63WA-4EP-3.96C	CL0680-0611-1-00	4		

Socket



Unit : mm

Part No.	HRS No.	No. of Pos.	Applicable Jacket Outer Diameter	Purchase Unit
DF63W-2S-3.96C	CL0680-0613-7-00	2	ϕ 2.8 to 3.2mm	100pcs per bag
DF63W-3S-3.96C	CL0680-0614-0-00	3		
DF63W-4S-3.96C	CL0680-0615-2-00	4		
DF63WA-2S-3.96C	CL0680-0617-8-00	2	ϕ 1.7 to 2.4mm	
DF63WA-3S-3.96C	CL0680-0618-0-00	3		
DF63WA-4S-3.96C	CL0680-0619-3-00	4		

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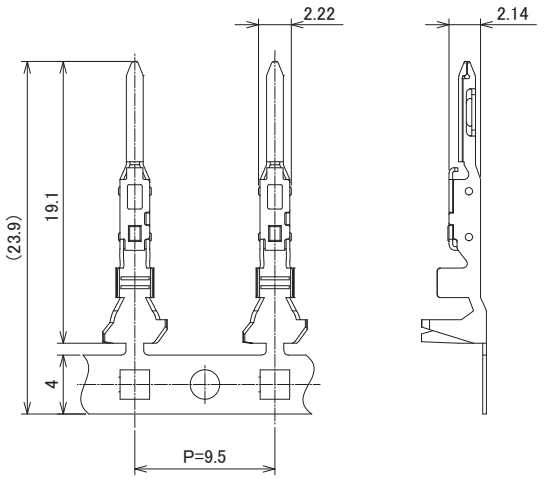
Plug Crimp Contact



Part No.	HRS No.	Finish	Type	Purchase Unit
DF63-1618PCF	CL0680-0529-2-00	Tin Plating	Reel Contacts	4,000pcs per reel
DF63-1618PC	CL0680-0536-8-00		Loose Piece Contacts	100pcs per bag
DF63-2022PCF	CL0680-0538-3-00		Reel Contacts	4,000pcs per reel
DF63-2022PC	CL0680-0539-6-00		Loose Piece Contacts	100pcs per bag

Applicable Wire (Tinned Annealed Copper Wire)

Conductor Size(Stranded Wire Structure)	Jacket Diameter
16 AWG (26/ ϕ 0.254mm)	UL1007 (ϕ 2.4mm) UL1015 (ϕ 3.2mm)
18 AWG (34/ ϕ 0.18mm)	UL1007 (ϕ 2.1mm) UL1015 (ϕ 2.9mm)
20 AWG (21/ ϕ 0.18mm)	UL1007 (ϕ 1.9mm)
22 AWG (17/ ϕ 0.16mm)	UL1430 (ϕ 1.7mm)

Note 1: For applicable cable other than those listed above, refer to Crimp Condition Table. Crimp Condition Table is available from Part No. link.
(If you are using a cable that is not listed in Crimp Condition Table, please contact a Hirose sales representative.)
Note 2: In case of hard to insert crimped contact to plug socket as like using low stiffness wire which consists of thinner stranded conductor or insulation with soft material, please contact to Hirose representative.

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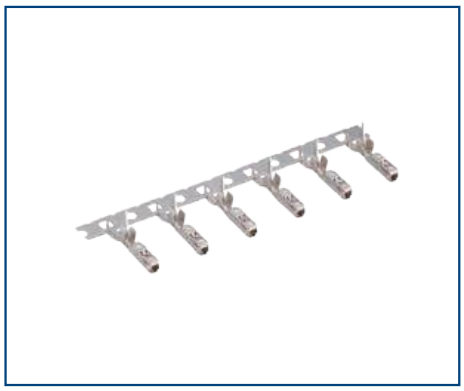
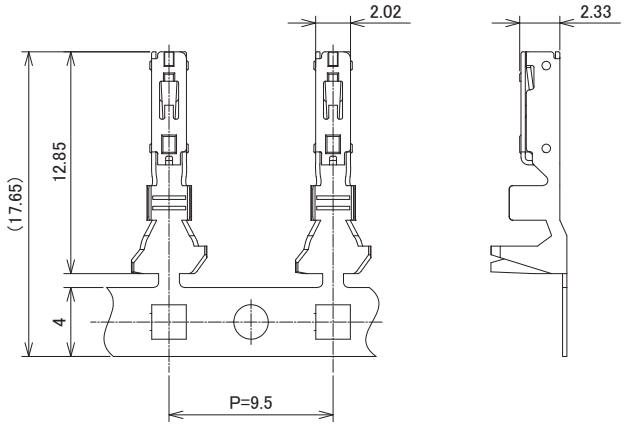
Socket Crimp Contact





Part No.	HRS No.	Finish	Type	Purchase Unit
DF63W-1618SCF	CL0680-0600-5-00	Tin Plating	Reel Contacts	4,000pcs per reel
DF63W-1618SC	CL0680-0601-8-00		Loose Piece Contacts	100pcs per bag
DF63W-2022SCF	CL0680-0602-0-00		Reel Contacts	4,000pcs per reel
DF63W-2022SC	CL0680-0603-3-00		Loose Piece Contacts	100pcs per bag

Applicable Wire (Tinned Annealed Copper Wire)

Conductor Size(Stranded Wire Structure)	Jacket Diameter
16 AWG (26/ ϕ 0.254mm)	UL1007 (ϕ 2.4mm) UL1015 (ϕ 3.2mm)
18 AWG (34/ ϕ 0.18mm)	UL1007 (ϕ 2.1mm) UL1015 (ϕ 2.9mm)
20 AWG (21/ ϕ 0.18mm)	UL1007 (ϕ 1.9mm)
22 AWG (17/ ϕ 0.16mm)	UL1430 (ϕ 1.7mm)

Note 1: For applicable cable other than those listed above, refer to Crimp Condition Table. Crimp Condition Table is available from Part No. link.
(If you are using a cable that is not listed in Crimp Condition Table, please contact a Hirose sales representative.)
Note 2: In case of hard to insert crimped contact to plug socket as like using low stiffness wire which consists of thinner stranded conductor or insulation with soft material, please contact to Hirose representative.

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Applicable Crimping Tool

Tool	Part No.	HRS No.	Applicable Wire	Applicable Contact
Applicator	AP105-DF63-1618-3	CL0901-4642-0-00	UL1007 (Note 3)	DF63-1618PCF DF63W-1618SCF
	AP105-DF63-1618-4	CL0901-4643-2-00	UL1015 (Note 3)	
	CHS893500H-UP (Note 6)	-	UL1015	
	AP105-DF63-2022-3	CL0901-4646-0-00	UL1007	DF63-2022PCF
			20AWG: UL1007 22AWG: UL1430	DF63W-2022SCF

Tool	Part No.	HRS No.	Compatible Wire (Note 5)	Applicable Contact
Hand Tool (Note 4)	HT802/DF63-1618P-1	CL0550-0423-1-00	16, 18AWG: UL1007	DF63-1618PC
	HT802/DF63-1618P-2	CL0550-0424-4-00	16, 18AWG: UL1015	
	HT802/DF63-2022P-1	CL0550-0433-0-00	20, 22AWG: UL1007	DF63-2022PC
	HT802/DF63W-1618S-1	CL0550-0425-7-00	16, 18AWG: UL1007	DF63W-1618SC
	HT802/DF63W-1618S-2	CL0550-0426-0-00	16, 18AWG: UL1015	
	HT802/DF63W-2022S-1A	CL0550-0441-0-00	20AWG: UL1007 22AWG: UL1430	DF63W-2022SC

Note 1: Please conduct crimping work according to the "Crimping Quality Standards" and "Crimp Condition".
Note 2: Any problems that occur from using tools other than those specified by Hirose, are not covered by warranty.
Note 3: Applicator components (sold separately) can be changed out to accommodate different wire sizes.
Note 4: Hand tool dies cannot be changed out for different wire sizes.
Note 5: Please only use the recommended wires shown in the table.
Note 6: Applicator manufactured by JAPAN AUTOMATIC MACHINE(J.A.M.). Please access to HP of J.A.M., if you make inquiries about the applicator or crimp defect. (URL : http://www.jam-net.co.jp)

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Crimping Precautions

Items required prior to start crimping

The work-related documents shown below are required before starting the harness connections.
(The ● mark shows the document required.)
When the documents shown below are not available, ask our sales personnel to provide them.

Document Title	Description	Automatic Crimping Machine	Hand Crimping Tool	Remarks
① Main Unit of Crimping Machine Instruction Manual	Explanation of main press machine unit	●	-	Bundled with the purchase of the main press machine unit.
② Applicator Spare Parts Identification	Explanation for Applicator installation	●	-	Bundled with the purchase of applicator.
③ Crimp Conditions	Standard values of: Crimp height, tensile strength	●	-	
④ Crimp Quality Standard	Various standards for crimping conditions	●	-	
⑤ Operating Instructions for Hand Tool	Inspection items of: Crimp height, tensile strength, other	-	●	Bundled with the purchase of hand tool.
⑥ Cable Assembly Instruction	Cable assembly procedure	●	●	Please refer to HRS website.

Tools

When crimping work is applied to our contacts, the tool designated by Hirose should be used.
・Crimping work by using tools other than as designated must not be done because it may result in contact failure, disconnection of cable, etc.
・The operating instructions manual is available for the crimping machine and the applicator. Be sure to carefully read the operating instructions manual before implementing the work.

Applicable electric wires

Check that the electric wire to be used is in the range of application.
When using a cable other than the applicable cable, refer to Crimp Condition Table. Crimp Condition Table is available from Part No. link.
(If you are using a cable that is not listed in Crimp Condition Table, please contact a Hirose sales representative.)
[Precautions]
・Electric wires that are applicable for crimping connectors shall, principally, be the tin-plated stranded soft-copper wire.
・Crimping of electric wires wherein single wires, polyester yarns, etc., exist and crimping of tin-coated wires should be avoided.
・Avoid crimping two electric wires together.
・The setting values of crimp height (Note 1) may vary between tin-plated and gold-plated terminals even if the same electric wires are used.
・The setting values of crimp height (Note 1) may vary depending on the difference in the core wire configuration even if the computed cross-sectional area is the same.

Note 1: The crimp height is an important item that determines crimping quality. We execute crimping tests for each electric wire to ensure the optimal value for the crimp height with high precision, thereby ensuring optimal setup values.

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Precautions

1. Forcibly removing a connector may damage it. If it is stuck, first push it in slightly and then release the lock to remove.
2. Please use care when connecting a short, thick wire so as not to twist it. If twisted, damage to the contact may occur.
3. Be sure to turn the power off before mating/unmating the connector.
4. To avoid electrical shock, do not touch the powered contacts.
5. Please refer to the following documents.
 ・Product Guidelines (Board-to-Wire Connector Guidelines)
 ・Product Guidelines (Mating/Unmating Operation Instruction Manual)
 ・Cable Assembly Instruction
 ・Crimp Condition
 ・Crimp Quality Standard

About Rated Current

Do not use connectors with currents and voltages that exceed their ratings.
Do not mate/unmate powered contacts (Note 1).
Note 1: "Live" contacts refer to the contacts that are in a powered or energized state. Mating or unmating "live" contacts can result in electrical shock and injury.

About Operating Environments

Please contact us if you wish to use the connectors in an environment with repeated temperature fluctuations.

While Taking into Consideration

Specifications mentioned in this catalog are review values.
When considering to order or use this product, please review the Drawing and Product Specifications sheets.
Use an appropriate cable when using the connector in combination with cables.
If considering usage of a non-specified cable, please contact your sales representative.
If assembly process is done by jigs & tools which are not identified by Hirose, the warranty of the product may be affected.
If considering usage for below mentioned applications, please contact your sales representative.
In cases where the application will demand a high level of reliability, such as automotive, medical instruments, public infrastructure, aerospace/ defense etc. Hirose must review before assurance of reliability can be given.

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