

# 2 x 2.2 mm Pitch, Wire-to-Wire Connectors for Small Spaces

## DF62 Series



### Compact shape due to 2 x 2.2 grid layout of pins

\*Both are 7 contacts with 3A current rating

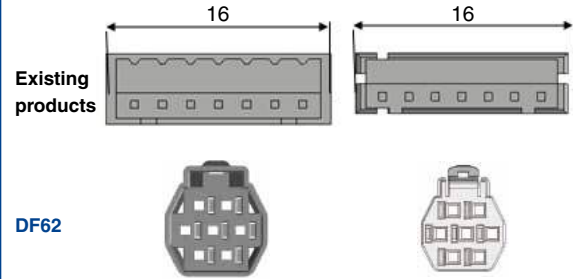


Fig.1

## ■ Features

### 1. The slim, sleek design and smooth contour combine to complete connections in tight spaces.

These connectors were designed to take full advantage of small/narrow spaces. The contacts are arranged in a grid pattern which shortens the diagonal distances and the body was slimmed down by creating smooth outer surfaces. This design helps to save precious space and makes these connectors virtually tangle free. There is no visible or exposed metal which would eliminate the possibility of electrical arcing between the connector and the inside of a metal conduit. (Please refer to Fig. 1 and 2)

### 2. Secure lock mechanism

The locking structure emits a clear tactile click upon lock completion. After completion, a second indicator can be utilized. The socket lock can be visually checked through the plug window after mating. These indicators function together to prevent incomplete mating. (Please refer to Fig. 3)

### 3. Reliable contact structure

The structure utilizes two contact points to provide a reliable contact that resists damage from vibration and rough operation.

### 4. Robust contact structure

The unique structure provides protection to the contacts and lance areas, it prevents any bending or deformity that might occur during mating, the assembly procedure or while in transportation. (Please refer to Fig. 4)

### 5. Multiple variations available

There are several different wire counts available, giving the designer the variety needed to complete the application. \*Waterproof type is currently under development, for any inquiries on this series please contact your local Hirose Sales Representative.

### 6. Applicator sharing

The applicators for the DF11 and DF59 series (existing products) can be adapted to accommodate the DF62 series applicators. \*Some modifications are required. Please contact Hirose for additional details.

Grid Arrangement    Smooth external shape    No exposed metal



Fig.2

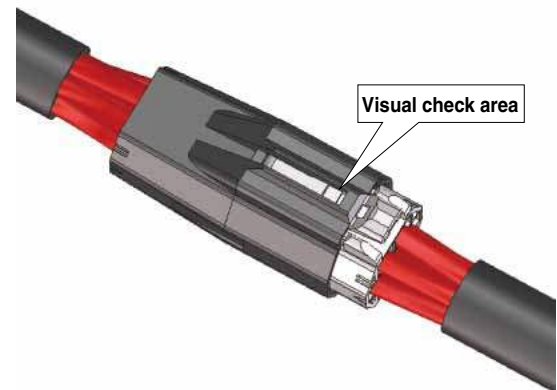


Fig.3

Contact appearance image

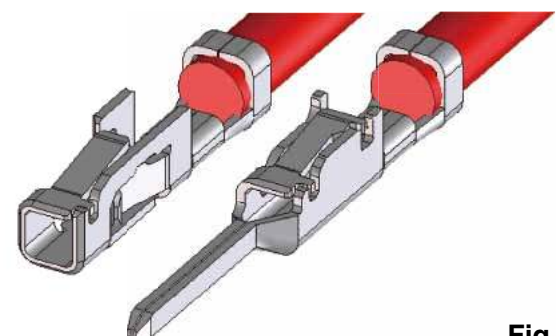


Fig.4

## ■ Product Specifications

Ratings	Current Rating (Note 1)	22 AWG: 4A/pin (2 pos.) 3A/pin (3 - 13 pos.) 2.5A/pin (24 pos.) 24 AWG: 2A/pin 26-30 AWG: 1A/pin	Operating Temperature Range Operating Humidity Range	-35 ~ 105°C (Note 2) 20 ~ 80% (Note 3)
	Voltage Rating	AC/DC 250V	Storage Temperature Range Storage Humidity Range	-10 ~ 60°C (Note 4) 40 ~ 70% (Note 4)

Items	Specifications	Conditions
1. Insulation Resistance	Minimum of 1,000 MΩ	Measured with DC 500 V
2. Withstanding Voltage	No flashover or breakdown	Apply AC 650 V for 1 minute
3. Contact Resistance	Maximum of 30 mΩ	Measured at a maximum of 20 mV and 100 mA (DC or 1000 Hz)
4. Vibration Resistance	No electrical discontinuity of 1μs or greater	10 cycles in each of three directions at frequency 10-55 Hz, half amplitude 0.75 mm
5. Shock Resistance	No electrical discontinuity of 1μs or greater	Acceleration: 490 m/s <sup>2</sup> , 11 ms, Semi-sinusoidal 3 axle direction 3 times each.
6. Humidity Resistance	Contact Resistance Maximum of 30 mΩ Insulation Resistance: Minimum of 1,000 MΩ	Left at temperature 40 ±2°C, humidity 90 to 95%, 96 hours
7. Temperature Cycles	Contact Resistance: Maximum of 30 mΩ Insulation Resistance: Minimum of 1,000 MΩ	-55°C: 30 minutes → 5 ~ 35°C: 2 ~ 3 minutes → 85°C: 30 minutes → 5 ~ 35°C: 2 ~ 3 minutes, 5 cycles
8. Durability	Contact Resistance: Maximum of 30 mΩ	Mating/unmating: 30 mating cycles

(Note 1) This is the maximum current rating while all pins are powered or used as all power lines. When isolating power lines into multiple circuits, current ratings may go above the stated current ratings. Please consult Hirose for specific details before doing this.

(Note 2) Includes the temperature rise of power lines

(Note 3) The connector should be completely dry (no condensation present)

(Note 4) The term “storage” refers to the long-term storage condition of unused products before PCB mounting.

The operating temperature and humidity ranges are applied while in a non-energized state, while in transport or after PCB mounting.

## ■ Materials

Item	Component	Material	Finish	UL Flammability rating
Socket crimping contact	Contact	Phosphorous bronze	Gold plating or tin plating	-
Plug crimping contact	Contact	Phosphorous bronze	Gold plating or tin plating	-
Crimping socket	Insulator	PBT resin	White	UL94V-0
Crimping plug	Insulator	PBT resin	Black	UL94V-0

## ■ Product Number Structure

Refer to the charts below for determining specific part number characteristics.

Please select connectors listed in this catalog when placing orders and be sure to check the latest delivery specifications at the time of ordering the product.

### ● Connector

#### DF 62B - \* S - 2.2 C (00)

①   ②   ③   ④   ⑤   ⑥   ⑦

① Series Name : DF	⑤ Contact pitch: 2.2 mm
② Series No.: 62B (regular type) 62C (Protected lock type ) 62P (Panel mount type )	⑥ Connection part shape C: Crimping housing
③ No. of Contacts: 2, 3, 4, 5, 6, 7, 13, 24	⑦ Color Socket 00: White   Extension plug 00: Black 11: Black                          10: White
④ Connector type S: Socket, EP: Extension plug	

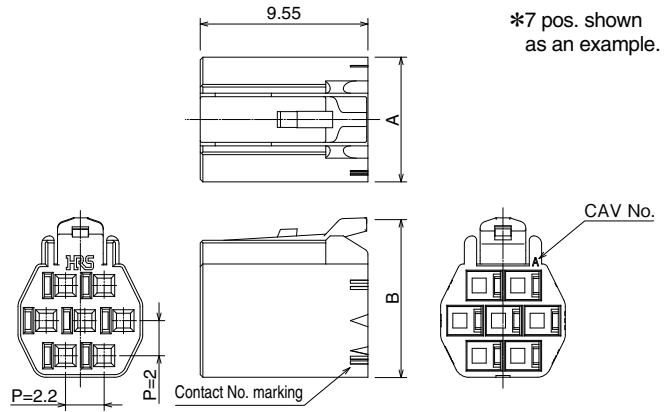
### ● Contact

#### DF 62 - EP 2428 PCF A

①   ②   ③   ④   ⑤   ⑥

① Series Name : DF	⑤ Contact type /packaging type SCF: Socket crimping contact, reel SC Socket crimping contact, pieces PCF: Plug crimping contact, reel PC: Plug crimping contact, pieces
② Series No.: 62	
③ Terminal type EP: Extension plug	
④ Applicable wire size 22 : AWG#22 2428 : AWG#24~28 30 : AWG#30	⑥ Plating type A: Gold plating None: Tin plating

## ■ Socket (standard type)



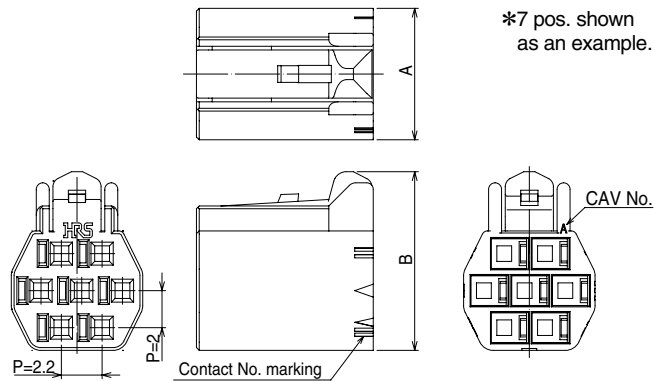
Unit:mm

Part No.	HRS No.	No. of Contacts	A	B
DF62B- 2S-2.2C(**)	CL544-0551-0-**-	2	4.9	5.08
DF62B- 3S-2.2C(**)	CL544-0552-2-**-	3	4.9	7.08
DF62B- 4S-2.2C(**)	CL544-0553-5-**-	4	4.9	7.08
DF62B- 5S-2.2C(**)	CL544-0554-8-**-	5	7.1	7.08
DF62B- 6S-2.2C(**)	CL544-0555-0-**-	6	7.1	7.08
DF62B- 7S-2.2C(**)	CL544-0556-3-**-	7	7.1	9.08
DF62B-13S-2.2C(**)	CL544-0557-6-**-	13	9.3	11.08
DF62B-24S-2.2C(**)	CL544-0539-4-**-	24	12.3	13.08

[Specification No.] \*\*  
 (00) : White  
 (11) : Black

(Note 1) This product is sold per pack (100 pieces per pack), please place orders in full pack increments.

## ■ Socket (Protected lock type)



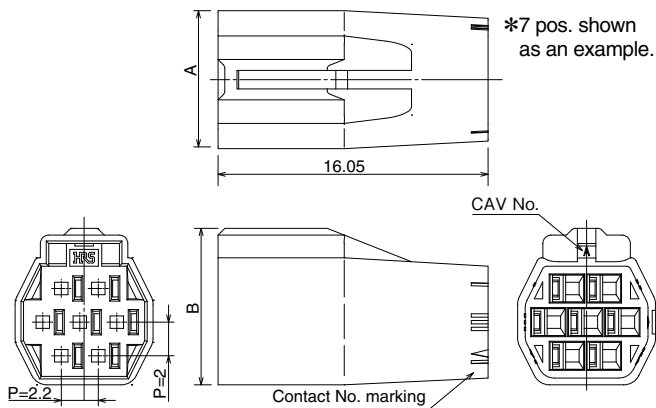
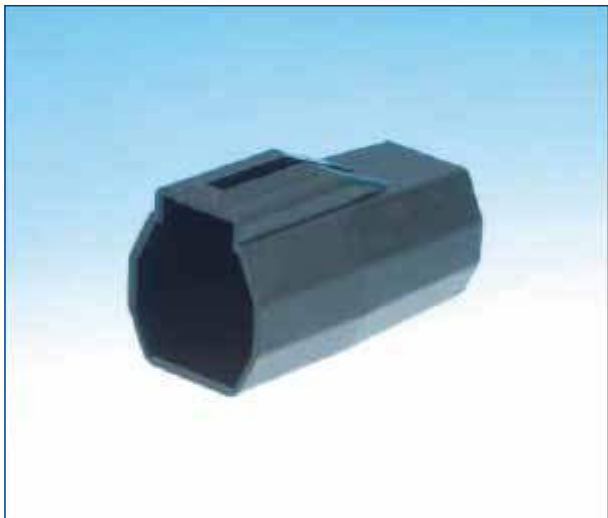
Unit:mm

Part No.	HRS No.	No. of Contacts	A	B
DF62C- 2S-2.2C(**)	CL544-0565-4-**-	2	4.9	5.65
DF62C- 3S-2.2C(**)	CL544-0566-7-**-	3	4.9	7.65
DF62C- 4S-2.2C(**)	CL544-0567-0-**-	4	4.9	7.65
DF62C- 5S-2.2C(**)	CL544-0568-2-**-	5	7.1	7.65
DF62C- 6S-2.2C(**)	CL544-0569-5-**-	6	7.1	7.65
DF62C- 7S-2.2C(**)	CL544-0570-4-**-	7	7.1	9.65
DF62C-13S-2.2C(**)	CL544-0571-7-**-	13	9.3	11.65
DF62C-24S-2.2C(**)	CL544-0541-6-**-	24	12.3	13.65

[Specification No.] \*\*  
 (00) : White  
 (11) : Black

(Note 1) This product is sold per pack (100 pieces per pack), please place orders in full pack increments.

### ■ Plug (standard type)



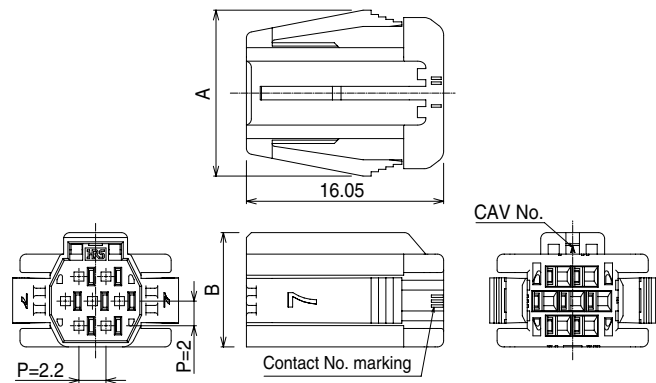
Unit : mm

Part No.	HRS No.	No. of Contacts	A	B
DF62B- 2EP-2.2C(**)	CL544-0558-9-**-	2	6.0	5.3
DF62B- 3EP-2.2C(**)	CL544-0559-1-**-	3	6.0	7.3
DF62B- 4EP-2.2C(**)	CL544-0560-0-**-	4	6.0	7.3
DF62B- 5EP-2.2C(**)	CL544-0561-3-**-	5	8.2	7.3
DF62B- 6EP-2.2C(**)	CL544-0562-6-**-	6	8.2	7.3
DF62B- 7EP-2.2C(**)	CL544-0563-9-**-	7	8.2	9.3
DF62B-13EP-2.2C(**)	CL544-0564-1-**-	13	10.4	11.3
DF62B-24EP-2.2C(**)	CL544-0540-3-**-	24	13.4	13.3

[Specification No.] \*\*  
 (00) : Black  
 (10) : White

(Note 1) This product is sold per pack (100 pieces per pack), please place orders in full pack increments.

### ■ Plug (Panel mount type)



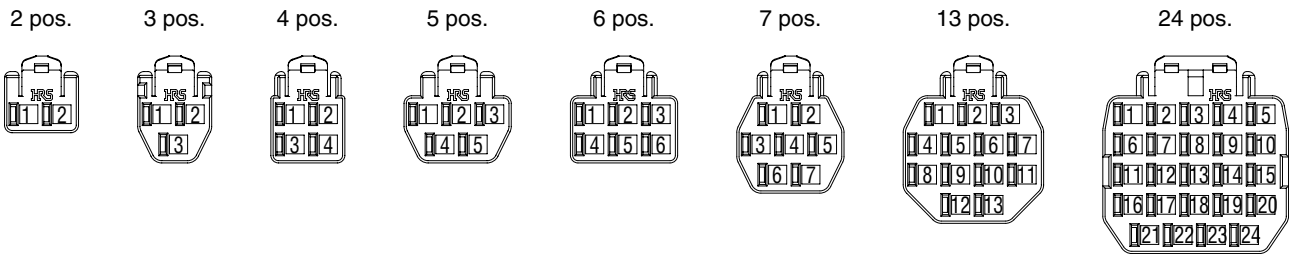
Unit : mm

Part No.	HRS No.	No. of Contacts	A	B
DF62P- 2EP-2.2C(**)	CL544-0543-1-**-	2	11.3	5.3
DF62P- 3EP-2.2C(**)	CL544-0544-4-**-	3	11.3	7.3
DF62P- 4EP-2.2C(**)	CL544-0545-7-**-	4	11.3	7.3
DF62P- 5EP-2.2C(**)	CL544-0546-0-**-	5	13.5	7.3
DF62P- 6EP-2.2C(**)	CL544-0547-2-**-	6	13.5	7.3
DF62P- 7EP-2.2C(**)	CL544-0548-5-**-	7	13.5	9.3
DF62P-13EP-2.2C(**)	CL544-0549-8-**-	13	15.7	11.3
DF62P-24EP-2.2C(**)	CL544-0550-7-**-	24	18.7	13.3

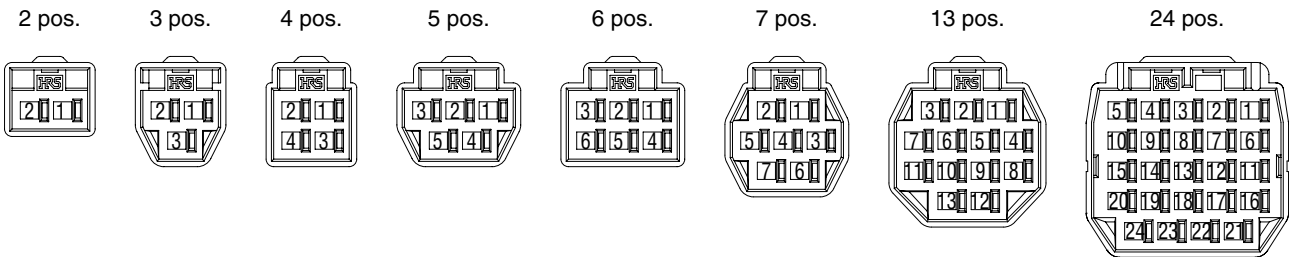
[Specification No.] \*\*  
 (00) : Black  
 (10) : White

(Note 1) This product is sold per pack (100 pieces per pack), please place orders in full pack increments.

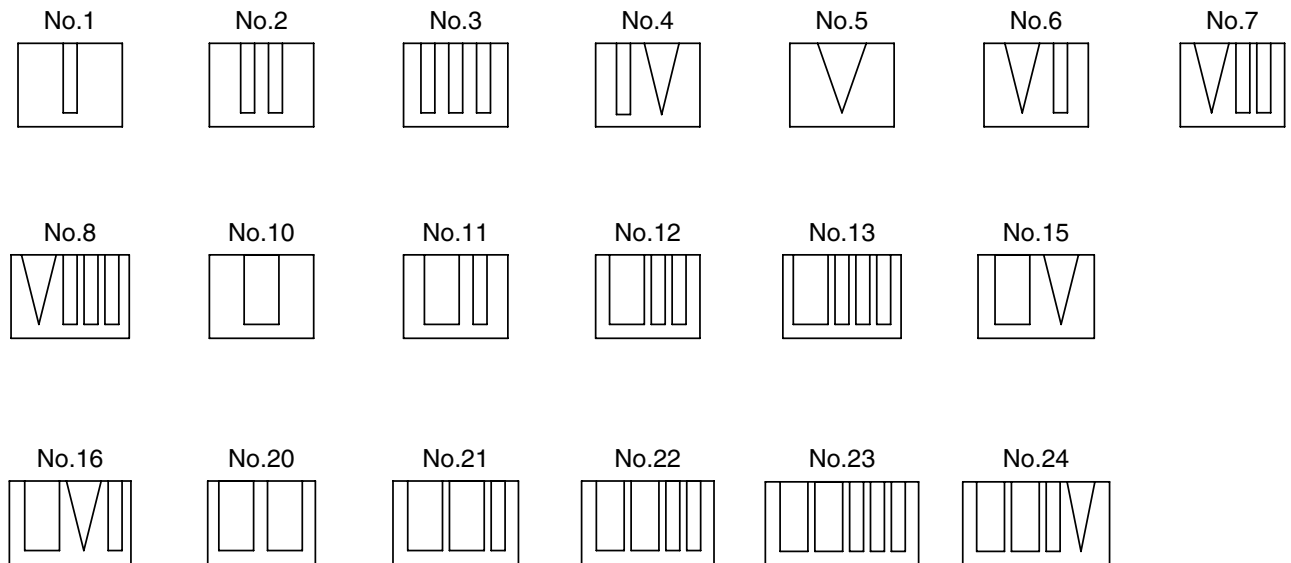
### ◆ Socket contact No. Summary diagram (from the mating section side)



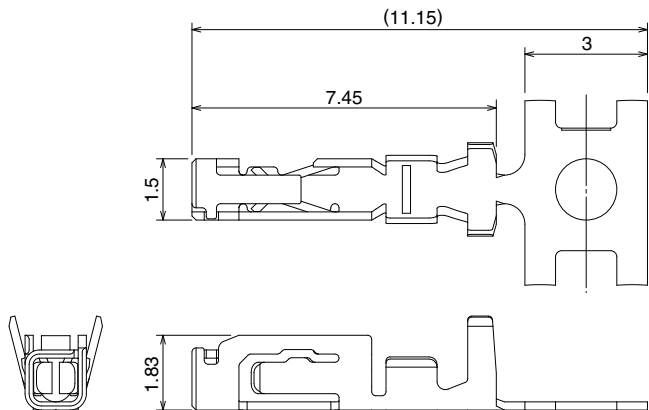
### ◆ Plug contact No. Summary diagram (from the mating section side)



### ◆ Contact No. diagram



## ■ Socket crimping contact



Part No.	HRS No.	Packaging type	Quantity	Finish
DF62-22SCFA	CL544-0506-5-00	Reel contact (Note 1)	1 reel = 15,000 pieces	Selective gold plating
DF62-2428SCFA	CL544-0500-9-00			
DF62-30SCFA	CL544-0508-0-00			
DF62-22SCA	CL544-0526-2-00	Loose piece (Note 2)	1 pack = 100 pieces	
DF62-2428SCA	CL544-0527-5-00			
DF62-30SCA	CL544-0528-8-00			
DF62-22SCF	CL544-0520-6-00	Reel contact (Note 1)	1 reel = 15,000 pieces	Tin plating
DF62-2428SCF	CL544-0521-9-00			
DF62-30SCF	CL544-0522-1-00			
DF62-22SC	CL544-0572-0-00	Loose piece (Note 2)	1 pack = 100 pieces	
DF62-2428SC	CL544-0573-2-00			
DF62-30SC	CL544-0574-5-00			

(Note 1) This product is sold in full reel quantities (15,000 pieces per reel), please place orders in full reel increments.

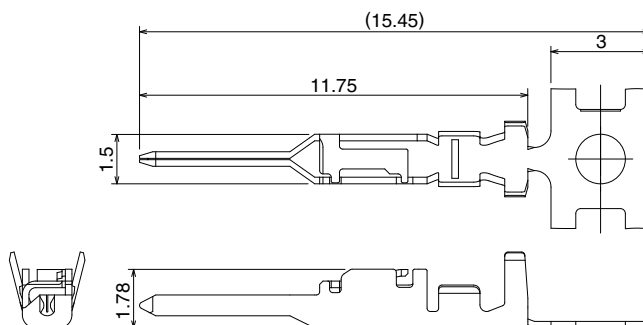
(Note 2) This product is sold per pack (100 pieces per pack), please place orders in full pack increments.

### ●Applicable wire (tin plating soft copper wire)

Conductor size (pos. line structure)	Insulation diameter	Recommended UL wire spec.	Strip length
22 AWG (17/φ 0.16 mm)	φ1.2 ~ φ1.45mm	UL1061	1.7 ~ 2.3mm
24 AWG (11/φ 0.16 mm)	φ0.9 ~ φ1.45mm	UL1007	
26 AWG (7/φ 0.16 mm)			
28 AWG (7/φ 0.127 mm)			
30 AWG (7/φ 0.1 mm)	φ0.75 ~ φ1.2mm	UL1061	

Note: When using wires that are not recommended by Hirose, please contact one of our sales representatives for clarification.

## ■ Plug crimping contact



Product No.	HRS No.	Packaging type	Quantity	Finish
DF62-EP22PCFA	CL544-0507-8-00	Reel contact (Note 1)	1 reel = 15,000 pieces	Selective gold plating
DF62-EP2428PCFA	CL544-0501-1-00			
DF62-EP30PCFA	CL544-0509-3-00			
DF62-EP22PCA	CL544-0529-0-00	Single contact (Note 2)	1 pack = 100 pieces	
DF62-EP2428PCA	CL544-0530-0-00			
DF62-EP30PCA	CL544-0531-2-00			
DF62-EP22PCF	CL544-0523-4-00	Reel contact (Note 1)	1 reel = 15,000 pieces	Tin plating
DF62-EP2428PCF	CL544-0524-7-00			
DF62-EP30PCF	CL544-0525-0-00			
DF62-EP22PC	CL544-0575-8-00	Single piece (Note 2)	1 pack = 100 pieces	
DF62-EP2428PC	CL544-0576-0-00			
DF62-EP30PC	CL544-0577-3-00			

(Note 1) This product is sold in full reel quantities (15,000 pieces per reel), please place orders in full reel increments.

(Note 2) This product is sold per pack (100 pieces per pack), please place orders in full pack increments.

## ● Applicable wire (tin plating soft copper wire)

Conductor size (pos. line structure)	Cover outer diameter	Recommended wires	Strip length
22 AWG (17/φ 0.16 mm)	φ1.2 ~ φ1.45mm	UL1061	1.7 ~ 2.3mm
24 AWG (11/φ 0.16 mm)	φ0.9 ~ φ1.45mm	UL1007	
26 AWG (7/φ 0.16 mm)			
28 AWG (7/φ 0.127 mm)			
30 AWG (7/φ 0.1 mm)	φ0.75 ~ φ1.2mm	UL1061	

Note: When using wires that are not recommended by Hirose, please contact one of our sales representatives for clarification.

## ◆ Applicable Crimping Tool

Type	Part No.	HRS No.	Applicable Contact
Applicator	AP105-DF62-22	CL901-4626-3-00	DF62-22SCFA/SCF DF62-EP22PCFA/PCF
	AP105-DF62-2428	CL901-4625-0-00	DF62-2428SCFA/SCF DF62-EP2428PCFA/PCF
	AP105-DF62-30	CL901-4627-6-00	DF62-30SCFA/SCF DF62-EP30PCFA/PCF
Press body	CM-105	CL901-0005-4-00	–
Hand tool	HT801/DF62-22(10)	CL550-0401-9-10	DF62-22SCA/SC DF62-EP22PCA/PC *UL1061 22 AWG only
	HT801/DF62-2428(10)	CL550-0400-6-10	DF62-2428SCA/SC DF62-EP2428PCA/PC *UL1007 24, 26, 28 AWG only
		CL550-0402-1-10	DF62-30SCA/SC DF62-EP30PCA/PC *UL1061 30 AWG only
Extraction tool	DF62/RE-MD	CL902-4645-4-00	DF62-***SCFA/SCF/SCA/SC DF62-EP***PCFA/PCF/PCA/PC

Note: Hirose does not warranty problems that arise from the use of unapproved tools on Hirose products.

## ◆ Operating Precautions

- Do not tilt the plug while it is being inserted into the plug, this can lead to damage of the contacts and will downgrade its performance.  
For precautions when handling the harness, please refer to the "DF62 Series Inserting/Extracting Procedures".
- The color of the resin on these connectors may vary depending on the manufacturing lot. This variance will not affect the connector's performance.
- For precautions relating to insertion and extraction of this connector, please refer to the "DF62 Series Inserting/Extracting Procedures".



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