

N R W Series



Waterproof equivalent to IP-67

Safety standard certified products available

RoHS

Quick lock

Overview

- Made of resin and light weight. Quick lock system to make these connectors most suitable for portable equipment.
- Proven performance in outdoor measuring equipment, semiconductor equipment, temporary equipment for events, etc.

Feature

RoHS	RoHS Directive compliant
Waterproof	Waterproof connector 【 Waterproof function equivalent to IP-67 when coupled 】
Lock method	Quick lock
Features of mechanism/ material	<ul style="list-style-type: none"> ○ Shell made of weather-resistant, high-strength plastic. ○ Light weight and sturdy. ○ Installation in a small space enabled by use of the L za.
Standards	<ul style="list-style-type: none"> ○ UL • CSA standard certified connectors available. (UL : UL1977 CSA : C22.2 No.182.3) ○ Safety standard certified connectors available. (EN61984 compliant, TÜV certified) <p><small>Note: The specifications of safety standard certified products are slightly different from those of standard products. For the rated voltage, current and cable conductor cross sectional area, refer to A List of Standards Acquired (pp.128 and 130).</small></p>
Cable termination	Soldering

Characteristics

Insulation resistance , Withstand voltage , Contact resistance , Waterproof p.112

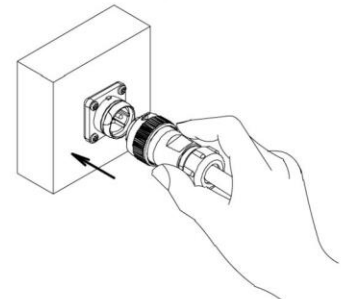


The pin contact type has an **exposed electrode**. If it is used on the [power supply] side, it may cause **electric shock** or **short-circuit accidents**. To prevent such accidents, use the socket contact type on the [power supply] side and the pin contact type on the [equipment] side.

Insertion

Align the plug and the guide of the mating connector (receptacle/adaptor) and push in straight.

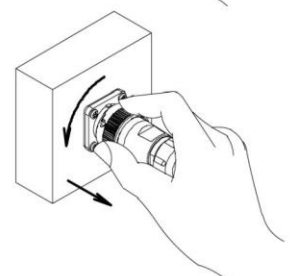
Caution: When inserting, do not turn the coupling nut.



Extraction

With the coupling nut turned CCW 45 degrees in the arrow direction, extract the connector.

Caution: When extracting, do not turn the end bell.



NRW Series

Product No. designation

NRW - 24 ■ - P M □

- ① Series designation
- ② Shell size
- ③ Number of contacts
- ④ Shell shape
- ⑤ Contact shape < Pin (male) contact : M , Socket (female) contact : F >
- ⑥ Guide position change symbol (X , Y , Z) 《 Required only when changing the guide position 》
- ⑦ Symbol indicating cable packing size. 《 Plug & adapter require symbol to be specified. 》
- ⑧ Safety standard specification (< UL • CSA > , < UL • CSA , TUV >)
《 Required only when safety standard is to be specified. 》 For applicable products, see pp.128 and 130.

《Option》

- When using a plural number of same products at the same time, the guide position can be changed in order to prevent mis-insertion.
(For applicable products, see below.)
- Product name example : NRW-2010-PFX
- Guide position change symbol (X , Y , Z) in the red character part.

Cable termination : Soldering

Material and Finish

	Material	Finish
Shell	Synthetic resin	—
Insulator		
Contact	Copper alloy	Silver plating Gold plating
Packing	Synthetic rubber	—

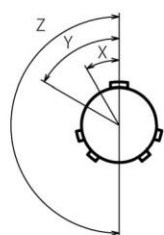
Operating temperature range

Shell size	Number of Contacts	Operating temperature range
20	2, 3, 4, 5, 7, 10, 12	-25°C to +85°C
24	2, 3, 4, 5, 10, 14, 16	
28	16, 24	
20	14	-25°C to +60°C
24	21, 24	
28	31, 37	

To change the guide position (Following number of contacts only)

Shell size	Number of Contacts	Guide Position Symbol		
		X	Y	Z
20	7	30°	-	-
	* 10	45°	90°	315°
	12		95°	190°
24	10	45°	90°	315°
	14			
	16			
28	* 16	45°	90°	315°
	* 24			

* UL • CSA products supported also.



An image of guide position change

< When viewed from the pin (male) contact side coupling face >

Upper limit of ambient temperature at rated current

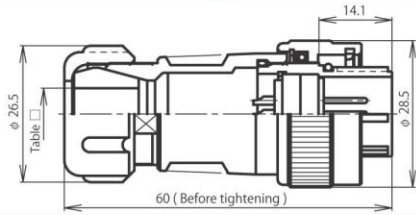
TÜV products only

Shell size	Number of Contacts			
	2	3	4	5
20	+77°C	+77°C	+77°C	+77°C
24	+67°C	+67°C	+77°C	+77°C

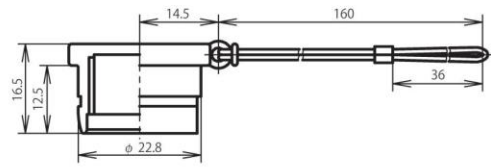
(Note) Max.ambient temp. at rated current
(Based on TÜV certification test results)

NRW Series Shell Size 20

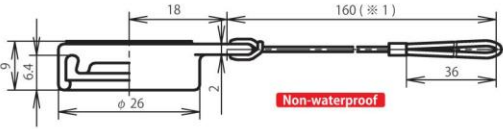
【 Power receiving side 】 < Pin (male) contact used >



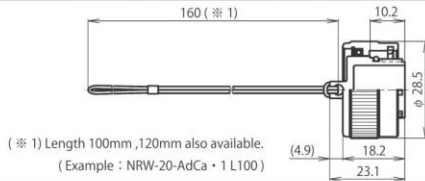
NRW-20 ■ -PM □



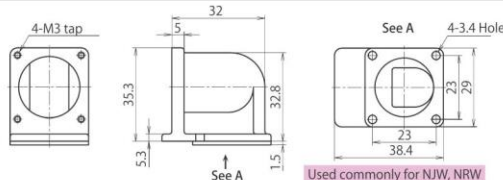
Plug waterproof cap : NRW-20-PCa • 1



Adapter rubber cap : NRW-20-AdCa



Adapter waterproof cap : NRW-20-AdCa • 1



NJW-20-L za

For the plug and adapter , be sure to select □ (cable packing symbol).

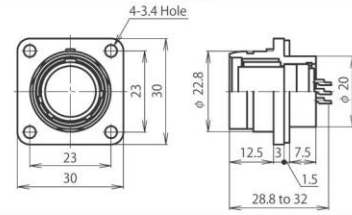
G Type

Plug

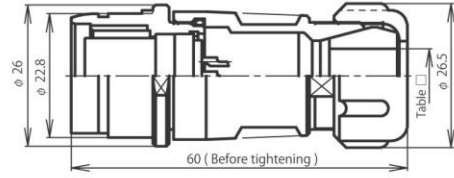


Receptacle

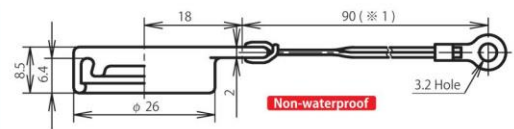
【 Power supply side 】 < Socket (female) contact used >



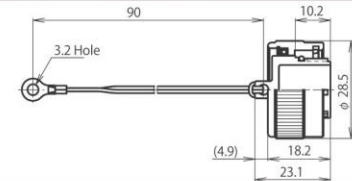
NRW-20 ■ -RF



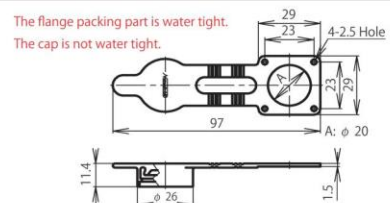
NRW-20 ■ -AdF □



Receptacle rubber cap : NRW-20-RCa



Receptacle waterproof cap : NRW-20-RCa • 1



Receptacle rubber cap : NRW-20-RCa • 2

Accessory

Accessory

Table □

In order to secure the intended waterproof function, a cable to be used for the plug/adapter should have an appropriate specification and structure.

Shell size	Symbol □	Outer diameter of cable used	Normal products	Safety standard	Symbol □	Outer diameter of cable used	Normal products	Safety standard
20	6	φ 5.5 to φ 6.3	●	—	10	φ 8.6 to φ 10.5	●	●
	8	φ 7.0 to φ 8.5	●	●	12	φ 10.6 to φ 12.5	●	●

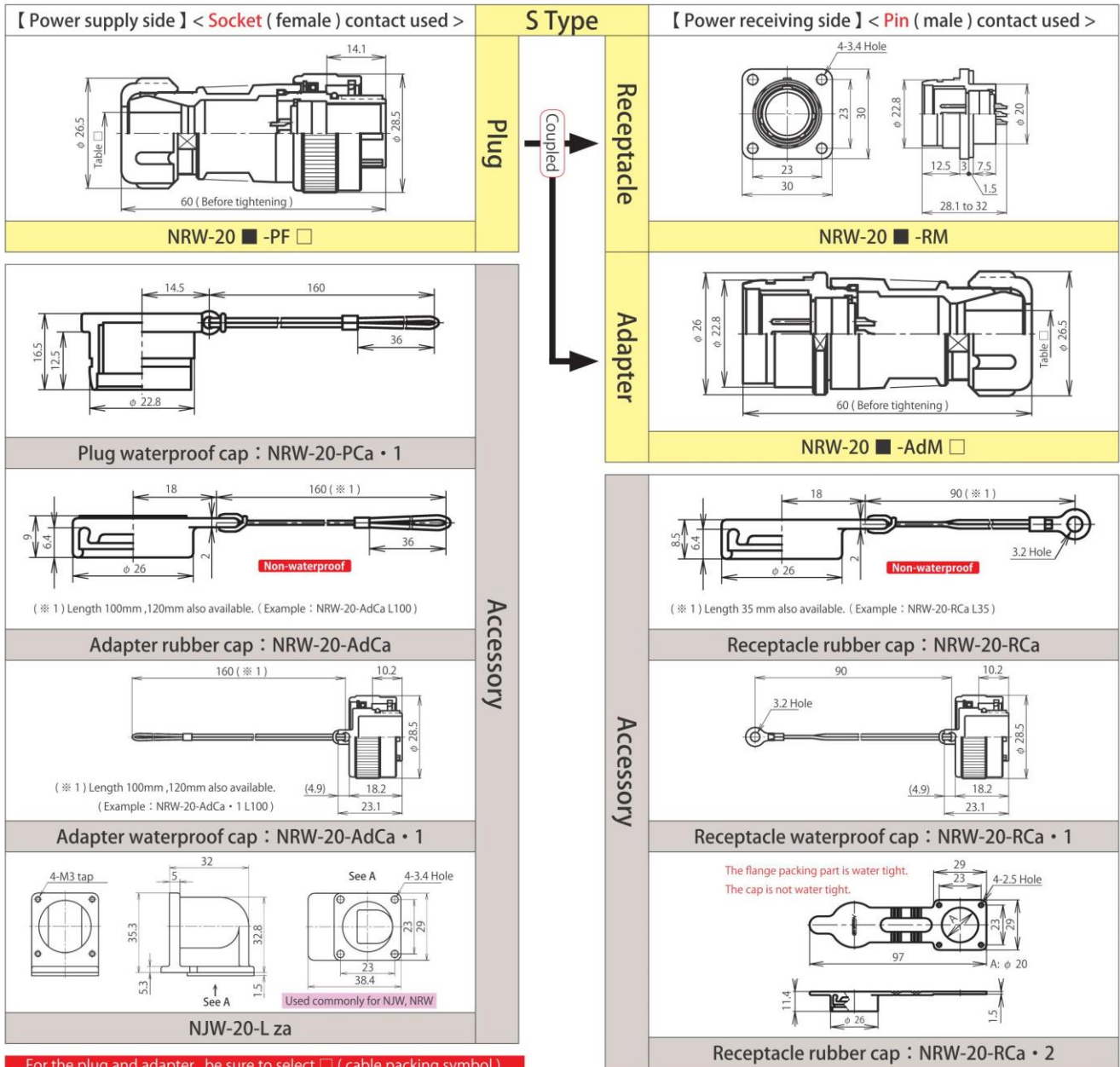
■ indicates the number of contacts.
The conductor cross sectional area is less than the following value. However, for safety standard certified products, use a cable having a value shown on pp.128 and 130.

Shell size	Number of Contacts	2	3	4	5	7	10	12	14	
20	Contact arrangement <When viewed from the pin (male) contact coupling side>									
	Safety standard (Note-1)	UL·CSA,TÜV					UL·CSA			—
	Rating (Allowable current for signals)	250V					5A			[3A]
	Withstand voltage (V _{r.m.s.})	1,500					1,000			500
	Wire size (mm ²)	2					1.25			0.5
	Remarks	—								For signals

[] : Gold plating contact

Note-1 : Specified separately. Selection of either "specified as a set of UL and CSA" or "UL , CSA and TÜV specified." For safety standards, see pp. 128 and 130.

NRW Series Shell Size 20



NRW

20

Table □

In order to secure the intended waterproof function, a cable to be used for the plug/adapter should have an appropriate specification and structure.

Shell size	Symbol □	Outer diameter of cable used	Normal products	Safety standard	Symbol □	Outer diameter of cable used	Normal products	Safety standard
20	6	φ 5.5 to φ 6.3	●	—	10	φ 8.6 to φ 10.5	●	●
	8	φ 7.0 to φ 8.5	●	●	12	φ 10.6 to φ 12.5	●	●

■ indicates the number of contacts. The conductor cross sectional area is less than the following value. However, for safety standard certified products, use a cable having a value shown on pp.128 and 130.

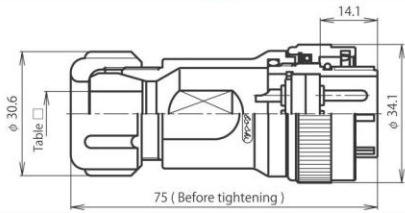
Shell size	Number of Contacts	2	3	4	5	7	10	12	14	
20	Contact arrangement <When viewed from the pin (male) contact coupling side>									
	Safety standard (Note-1)	UL·CSA,TÜV					UL·CSA			—
	Rating (Allowable current for signals)	15A					10A		5A	[3A]
	Withstand voltage (V r.m.s.)	1,500					1,000		500	
	Wire size (mm ²)	2					1.25		0.5	0.3
	Remarks	—								For signals

[] : Gold plating contact

Note-1 : Specified separately. Selection of either "specified as a set of UL and CSA" or "UL, CSA and TÜV specified." For safety standards, see pp. 128 and 130.

NRW Series Shell Size 24

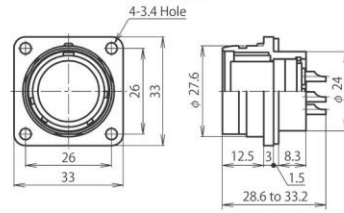
【 Power receiving side 】 < Pin (male) contact used >



NRW-24 ■ -PM □

G Type

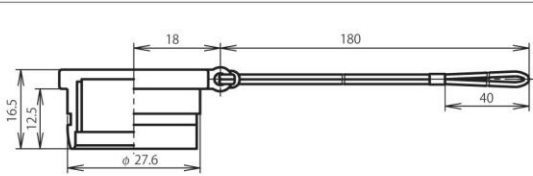
【 Power supply side 】 < Socket (female) contact used >



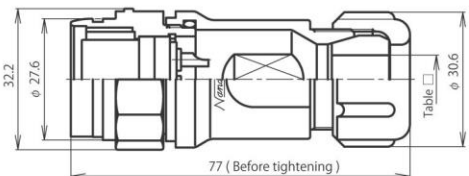
NRW-24 ■ -RF

Plug

Receptacle



Plug waterproof cap : NRW-24-PCa • 1



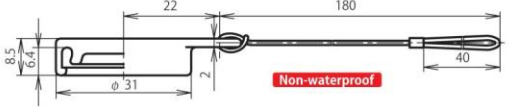
NRW-24 ■ -AdF □

Adapter

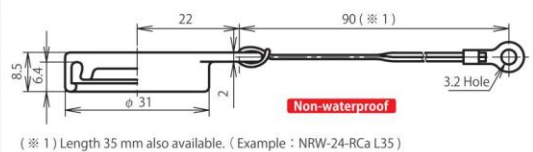
Adapter

NRW

24



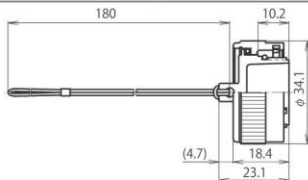
Adapter rubber cap : NRW-24-AdCa



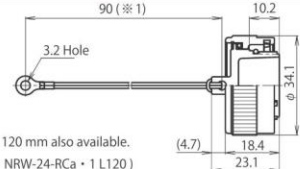
Receptacle rubber cap : NRW-24-RCa

Accessory

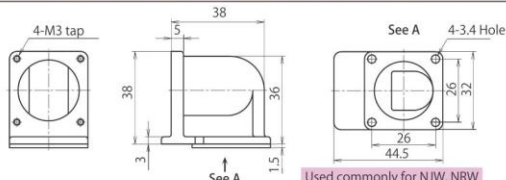
Accessory



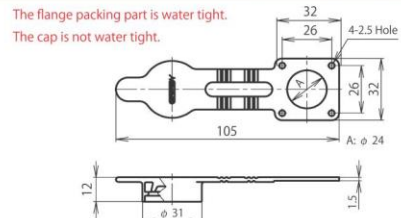
Adapter waterproof cap : NRW-24-AdCa • 1



Receptacle waterproof cap : NRW-24-RCa • 1



NJW-24-L za



Receptacle rubber cap : NRW-24-RCa • 2

For the plug and adapter , be sure to select □ (cable packing symbol) .

Table □

In order to secure the intended waterproof function, a cable to be used for the plug/adapter should have an appropriate specification and structure.

Shell size	Symbol □	Outer diameter of cable used	Normal products	Safety standard
24	8	φ 6.8 to φ 8.0	●	—
	11	φ 9.5 to φ 11.0	●	●
	13	φ 11.1 to φ 13.0	●	●
	15	φ 13.1 to φ 15.0	●	●

■ indicates the number of contacts.

The conductor cross sectional area is less than the following value. However, for safety standard certified products, use a cable having a value shown on pp.128 and 130.

Shell size	Number of Contacts	2	3	4	5	10	14	16	21	24	
24	Contact arrangement <When viewed from the pin (male) contact coupling side>										
	Safety standard (Note-1)	UL·CSA,TÜV					UL·CSA				—
	Rating (Allowable current for signals)	250V					20A				15A
	Withstand voltage (V r.m.s.)	1,500					1,000				500
	Wire size (mm ²)	3.5					2				1.25
Remarks	—					3pcs=6A [18pcs=3A]				[3A]	For signals

[] : Gold plating contact

Note-1 : Specified separately. Selection of either "specified as a set of UL and CSA" or "UL , CSA and TÜV specified." For safety standards, see pp. 128 and 130.

NRW Series Shell Size 24

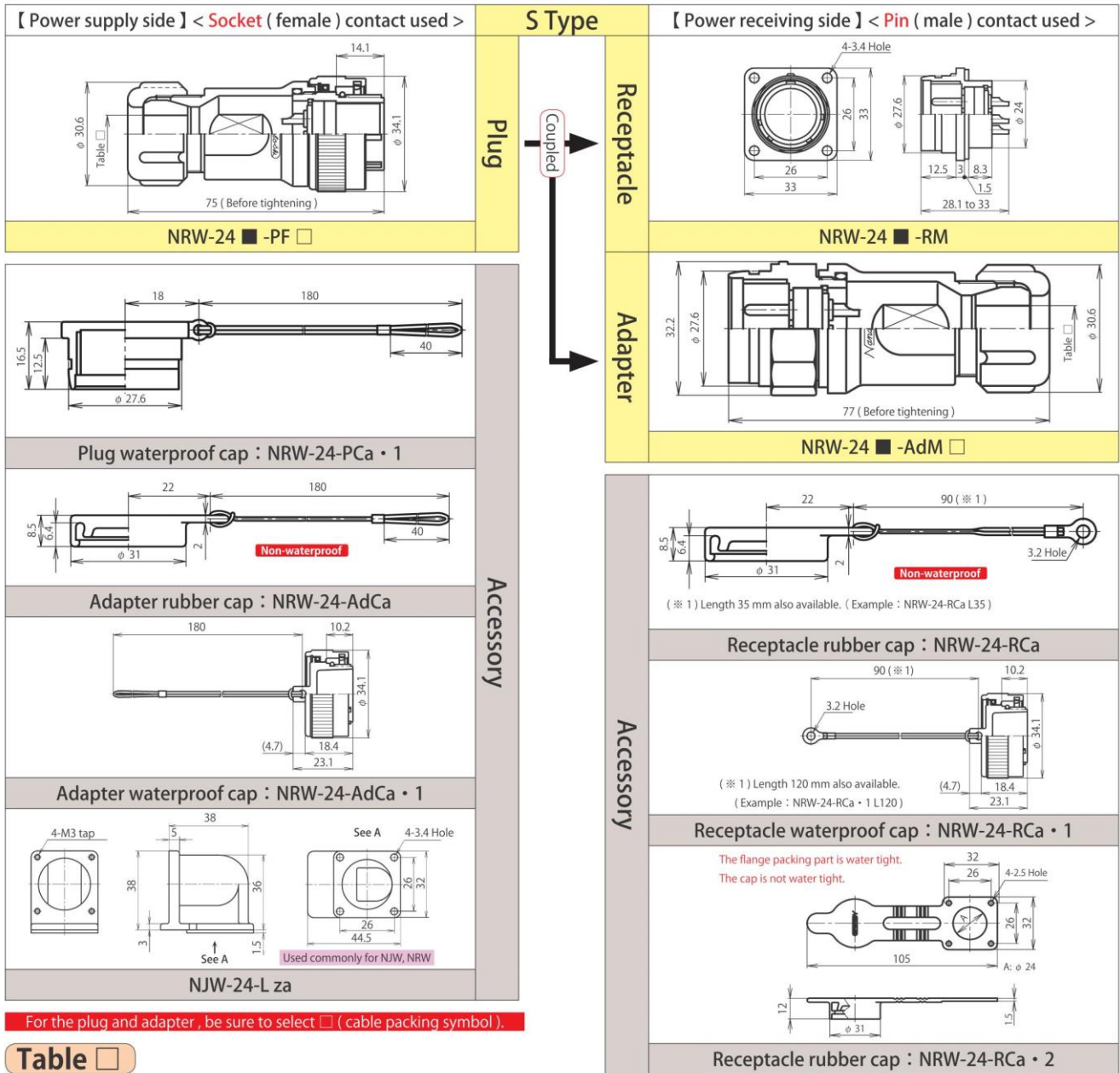


Table □

In order to secure the intended waterproof function, a cable to be used for the plug/adapter should have an appropriate specification and structure.

Shell size	Symbol □	Outer diameter of cable used	Normal products	Safety standard
24	8	φ 6.8 to φ 8.0	●	—
	11	φ 9.5 to φ 11.0	●	●
	13	φ 11.1 to φ 13.0	●	●
	15	φ 13.1 to φ 15.0	●	●

■ indicates the number of contacts. The conductor cross sectional area is less than the following value. However, for safety standard certified products, use a cable having a value shown on pp.128 and 130.

Shell size	Number of Contacts	2	3	4	5	10	14	16	21	24	
24	Contact arrangement <When viewed from the pin (male) contact coupling side>										
	Safety standard (Note-1)	UL·CSA,TÜV					UL·CSA				—
	Rating (Allowable current for signals)	250V									
	Withstand voltage (V r.m.s.)	1,500					1,000				500
	Wire size (mm ²)	3.5		2		1.25		0.5		3pcs=0.75 18pcs=0.3	
	Remarks	—								For signals	

Note-1 : Specified separately. Selection of either "specified as a set of UL and CSA" or "UL, CSA and TÜV specified." For safety standards, see pp. 128 and 130.

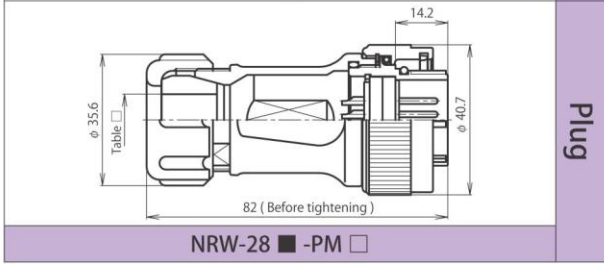


NRW Series Shell Size 28

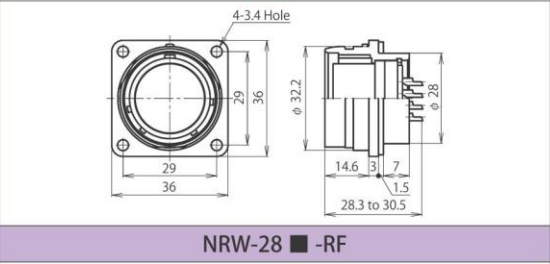
【 Power receiving side 】 < Pin (male) contact used >

G Type

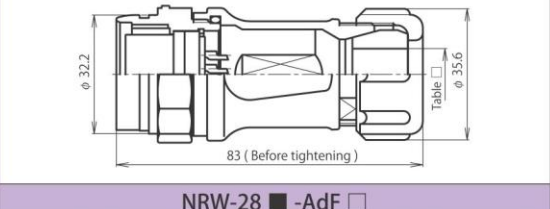
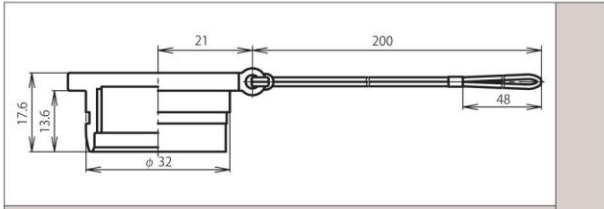
【 Power supply side 】 < Socket (female) contact used >



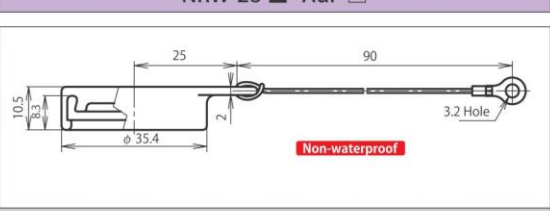
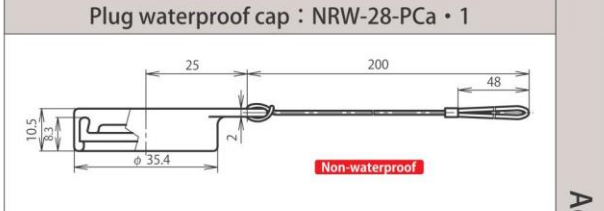
Plug



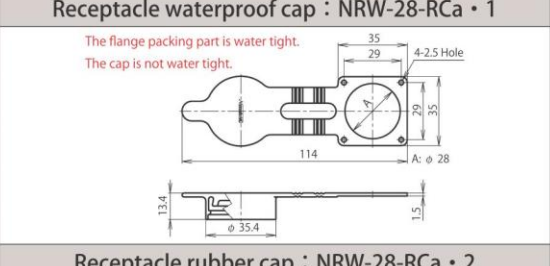
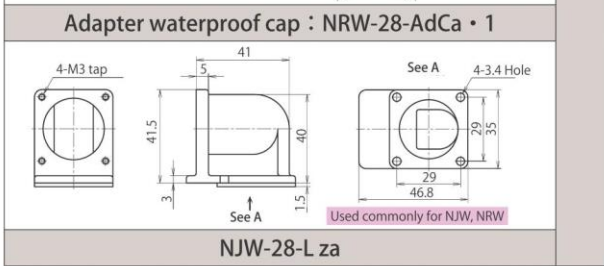
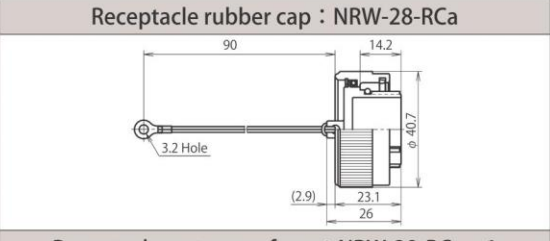
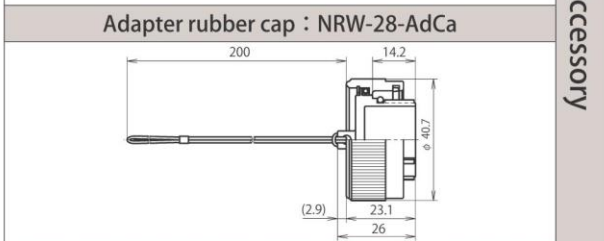
Receptacle



Adapter



Accessory



For the plug and adapter, be sure to select □ (cable packing symbol).

Table □

In order to secure the intended waterproof function, a cable to be used for the plug/adapter should have an appropriate specification and structure.

Shell size	Symbol □	Outer diameter of cable used	Normal products	Safety standard	Symbol □	Outer diameter of cable used	Normal products	Safety standard
28	10	φ 9.0 to φ 10.9	●	●	16	φ 14.1 to φ 16.0	●	●
	12	φ 11.0 to φ 12.4	●	●	18	φ 16.1 to φ 18.0	●	●
	14	φ 12.5 to φ 14.0	●	●				

■ indicates the number of contacts.

The conductor cross sectional area is less than the following value. However, for safety standard certified products, use a cable having a value shown on p.128.

Shell size	Number of Contacts	16	24	31	37
28	Contact arrangement <When viewed from the pin (male) contact coupling side>				
	Safety standard (Note-1)	UL · CSA		—	
	Rating (Allowable current for signals)	10A	5A	3pcs=6A [28pcs=3A]	[3A]
	Withstand voltage (V.r.m.s)	1,000		500	
	Wire size (mm ²)	1.25	0.5	3pcs=0.75 28pcs=0.3	0.3
	Remarks	—		For signals	

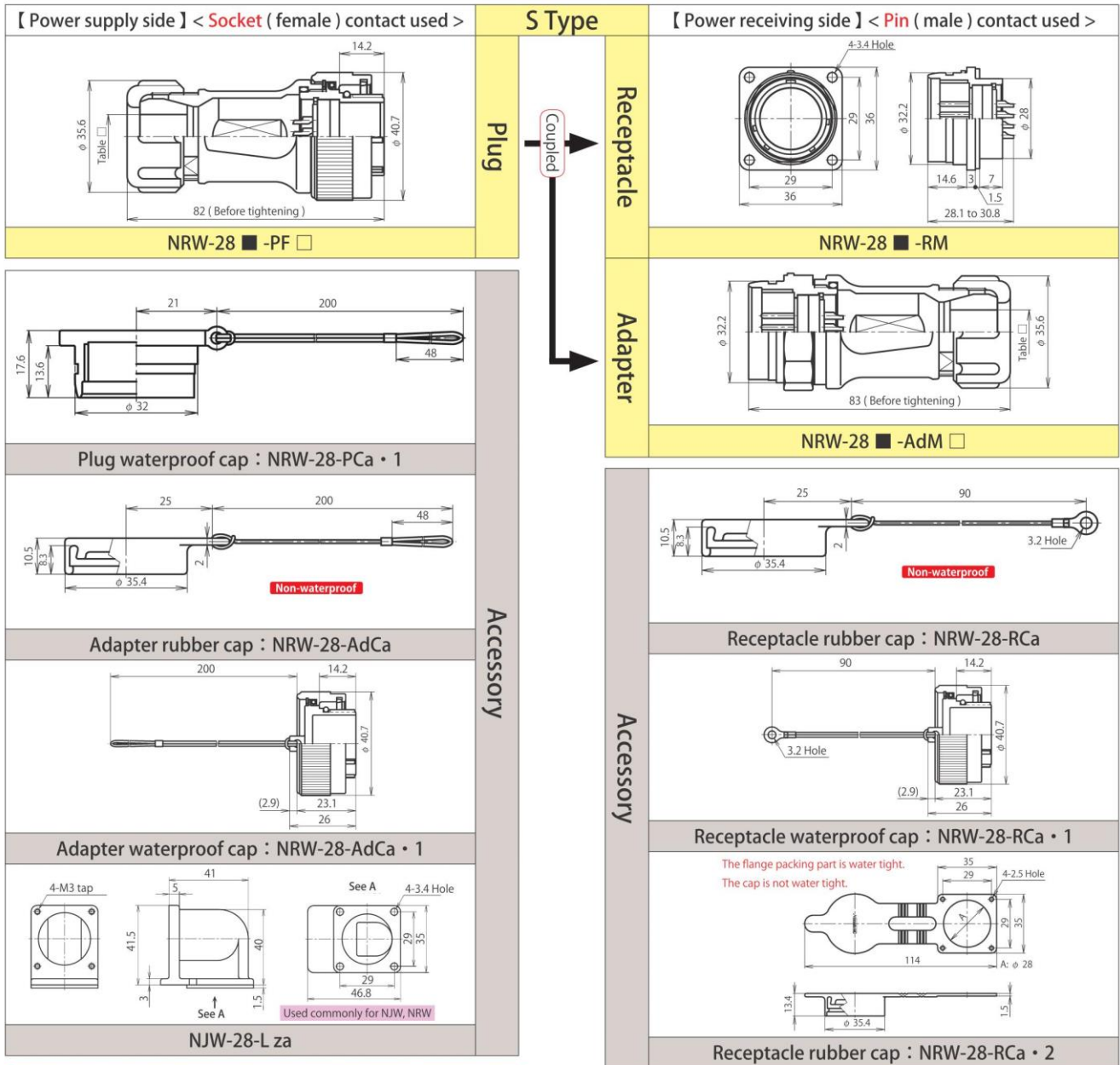
[] : Gold plating contact

Note-1 : Specified separately. "Specified as a set of UL and CSA". For safety standards, see p.128.

NRW

28

NRW Series Shell Size 28



NRW

28

For the plug and adapter, be sure to select (cable packing symbol).

Table In order to secure the intended waterproof function, a cable to be used for the plug/adapter should have an appropriate specification and structure.

Shell size	Symbol <input type="checkbox"/>	Outer diameter of cable used	Normal products	Safety standard	Symbol <input type="checkbox"/>	Outer diameter of cable used	Normal products	Safety standard
28	10	φ 9.0 to φ 10.9	●	●	16	φ 14.1 to φ 16.0	●	●
	12	φ 11.0 to φ 12.4	●	●	18	φ 16.1 to φ 18.0	●	●
	14	φ 12.5 to φ 14.0	●	●				

■ indicates the number of contacts.
The conductor cross sectional area is less than the following value. However, for safety standard certified products, use a cable having a value shown on p.128.

Shell size	Number of Contacts	16	24	31	37
28	Contact arrangement <When viewed from the pin (male) contact coupling side>				
	Safety standard (Note-1)	UL·CSA		—	
	Rating (Allowable current for signals)	250V		—	
	Withstand voltage (V r.m.s.)	10A	5A	3pcs=6A [28pcs=3A]	[3A]
	Wire size (mm ²)	1.25	0.5	3pcs=0.75 28pcs=0.3	0.3
	Remarks	—		For signals	

[] : Gold plating contact

Note-1 : Specified separately. "Specified as a set of UL and CSA". For safety standards, see p.128.

NRW Series Characteristics

NRW

Number of contacts

Shell size	Contact	Insulation resistance (M Ω)			Contact resistance (m Ω)			Withstand voltage (V r.m.s.)		
		Normal products	Safety standard		Normal products	Safety standard		Normal products	Safety standard	
			UL • CSA	UL • CSA , TÜV		UL • CSA	UL • CSA , TÜV		UL • CSA	UL • CSA , TÜV
20	2	DC 500V 2,000 min.	—	DC 500V 2,000 min.	3 max.	—	3 max.	1,500	—	1,500
	3									
	4									
	5									
	7	DC 500V 2,000 min.	—	—	3 max.	—	—	1,000	—	
	10	DC 500V 1,000 min.			5 max.					
	12									
14	DC 250V 1,000 min.	—	—	5 max.	—	—	500	—		
24	2	DC 500V 2,000 min.	—	DC 500V 2,000 min.	3 max.	—	3 max.	1,500	—	1,500
	3									
	4									
	5									
	10	DC 500V 2,000 min.	—	—	3 max.	—	—	1,000	—	
	14	DC 500V 1,000 min.			5 max.					
	16									
21	DC 250V	—	—	5 max.	—	—	500	—		
24	1,000 min.									
28	16	DC 500V 2,000 min.	—	—	3 max.	—	—	1,000	—	
	24	DC 500V 1,000 min.			5 max.					
	31	DC 250V	—	—	5 max.	—	—	500	—	
	37	1,000 min.								

(Waterproof) No trace of water exposure after being kept at a water pressure of 40 kPa for 24 hours in the coupled state in its normal state of use.