High Performance, Miniature Circular Connectors

HR22 Series



Features

·Both waterproof and non-waterproof types are available. (Waterproof and non-waterproof connectors can be mated with each other if needed, but will no longer result in a waterproof connection)

·Waterproof performance
The HR22 waterproof type is IP67 and IP68 rated when mated.
IP67 : Left at a water depth of 1 m for 30 minutes
IP68 : Left at a water depth of 2 m for 14 days

·Both crimp and solder type termination are available. Termination style can be chosen as required by your specific application.

·The receptacle features a jam nut configuration at the front, which allows for easy panel mounting.

·The jack connector can also be used as a panel jack.

Product specifications

Ratings	Rated current	2A	Operating temperature range	-25℃ to +85℃
	Rated voltage	100V AC, 140V DC	Storage temperature range	-10℃ to +60℃

Item	Specifications	Conditions
1. Contact resistance	20mΩ max.	Measured at DC 1A
2. Insulation resistance	1,000MΩ min.	Measured at DC 100V
3. Withstanding voltage	No flashover or dielectric breakdown.	Measured at AC 300V for 1 minute
4. Vibration resistance	There shall be no electrical No electrical discontinuity for 10μs or greater.	10 to 500Hz/cycle, amplitude : 0.75mm, acceleration- 98m/s^2 3 axis directions, 2 hours each
5. Shock resistance	No electrical discontinuity for 10μs or greater.	Acceleration : 490m/s^2, duration : 11ms, 3 axis directions, 3 times each
6. Mating cycles	Contact resistance : 20mΩ max.	100 times
7. Resistance to water pressure	No water penetration into the connector.	Mated connectors left in Water at a depth of 1.8m for 48 hours.

Materials / Finish

Items	Material	Finish	Remarks
Plated shell	Brass	Nickel plating	————
	Zinc alloy		
Insulator	PBT resin	Black	UL94V-0
Male contact	Brass (Soldering)	Silver plating	————
	Phosphor bronze (Crimping)		————
Female contact	Beryllium copper (Soldering)		————
	Phosphor bronze (Crimping)		————
Hood and bushing	Acrylonitrile-butadiene rubber	Black	

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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.

HR22 - 12 W T P A - 20 SC (**)
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Model name : HR22
❷ Shell size : The shell size is the outer diameter of the mating end of the plug.
❸ W : Waterproof Blank : Non-waterproof
❹ Locking mechanism T : Threaded coupling type
❺ Shell type P : Plug J : Jack R : Receptacle
❻ Shell variation : Variation of the same connector configuration is shown by A, B, C, D....
❼ Number of contacts
❽ Contact form P : Male pin PC : Crimp type male pin S : Female pin SC : Crimp type female pin
❾ Other specifications : A two-digit character is added to indicate other specifications as needed.

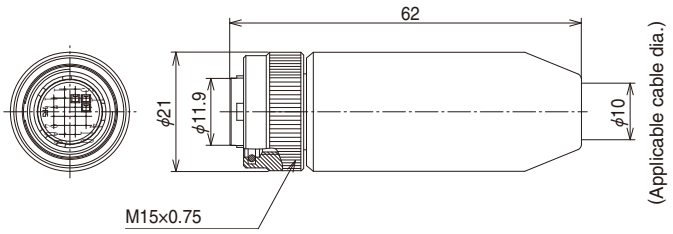
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■Plug

●Waterproof type



HR22-12WTPA-20SC(73)



(Representative example)

Crimp type

Part No.	HRS No.	RoHS
HR22-12WTPA-20SC(73)	122-0004-7 73	Yes

Solder type

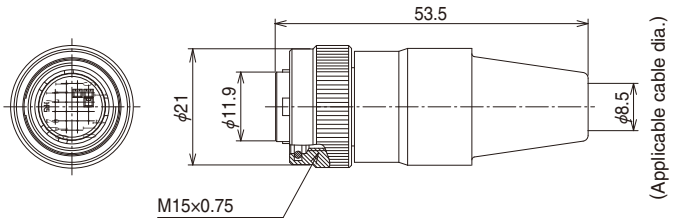
Part No.	HRS No.	RoHS
HR22-12WTPA-20S(73)	122-0015-3 73	Yes
HR22-12WTPA-20P(73)	122-0027-2 73	

Cable clamping force, rotation force, waterproof performance, and other types of performance may differ depending on the cable type used. Please make sure to verify the suitability of the cable assembly before use or production.

●Non-waterproof type



HR22-12TPD-20SC(73)



(Representative example)

Crimp type

Part No.	HRS No.	RoHS
HR22-12TPD-20SC(73)	122-0010-0 73	Yes
HR22-12TPD-20PC(73)	122-0018-1 73	

Solder type

Part No.	HRS No.	RoHS
HR22-12TPD-20S(73)	122-0011-2 73	Yes
HR22-12TPD-20P(73)	122-0012-5 73	

Cable clamping force, rotation force, waterproof performance, and other types of performance may differ depending on the cable type used. Please make sure to verify the suitability of the cable assembly before use or production.

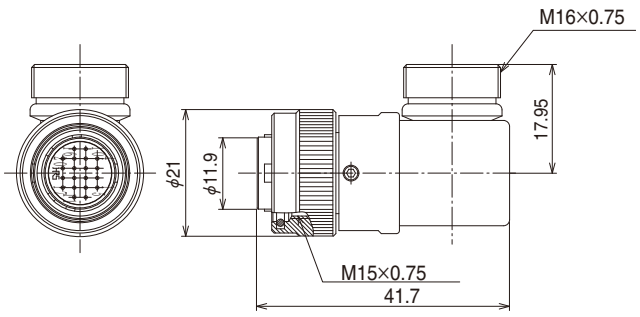
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■Right angle plug

●Waterproof type



HR22-12WTLP-20P(31)



(Representative example)

Crimp type

Part No.	HRS No.	RoHS
HR22-12WTLP-20PC(31)	122-0064-9 31	Yes

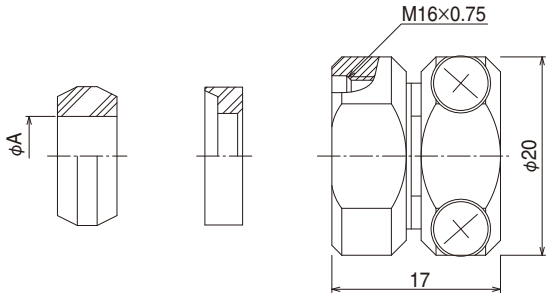
Solder type

Part No.	HRS No.	RoHS
HR22-12WTLP-20P(31)	122-0054-5 31	Yes

■Cord clamp for use on right-angled plugs



JR13WCC-10(72)



(Representative example)

Part No.	HRS No.	A	RoHS
JR13WCC-4(72)	114-2045-0 72	4	Yes
JR13WCC-5(72)	114-2046-3 72	5	
JR13WCC-6(72)	114-2047-6 72	6	

Part No.	HRS No.	A	RoHS
JR13WCC-7(72)	114-2048-9 72	7	Yes
JR13WCC-8(72)	114-2049-1 72	8	
JR13WCC-9(72)	114-2050-0 72	9	
JR13WCC-10(72)	114-2051-3 72	10	

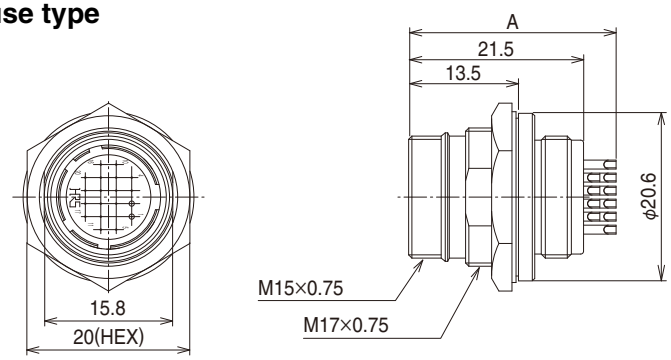
Cable clamping force, rotation force, waterproof performance, and other types of performance may differ depending on the cable type used. Please make sure to verify the suitability of the cable assembly before use or production.

■Receptacle

●Waterproof / Non-waterproof combined use type



HR22-12WTRA-20P(73)



(Representative example)

Crimp type

Part No.	HRS No.	RoHS
HR22-12WTRA-20SC(73)	122-0021-6 73	Yes
HR22-12WTRA-20PC(73)	122-0005-0 73	

Solder type

Part No.	HRS No.	A	RoHS
HR22-12WTRA-20S(73)	122-0014-0 73	24	Yes
HR22-12WTRA-20P(73)	122-0013-8 73	25.5	

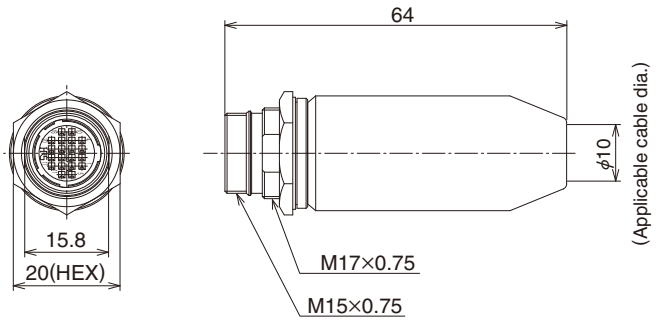
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■Jack

●Waterproof type



HR22-12WTJA-20PC(73)



(Representative example)

Crimp type

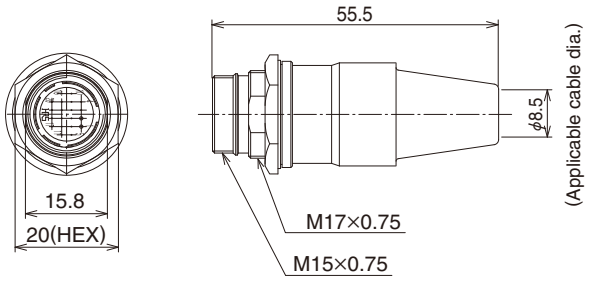
Part No.	HRS No.	RoHS
HR22-12WTJA-20PC(73)	122-0006-2 73	Yes

Cable clamping force, rotation force, waterproof performance, and other types of performance may differ depending on the cable type used. Please make sure to verify the suitability of the cable assembly before use or production.

●Non-waterproof type



HR22-12TJD-20P(73)



(Representative example)

Solder type

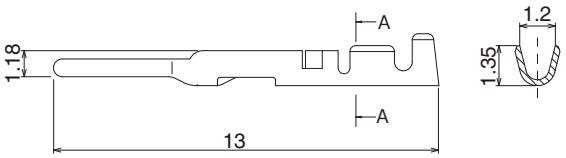
Part No.	HRS No.	RoHS
HR22-12TJD-20S(73)	122-0023-1 73	Yes
HR22-12TJD-20P(73)	122-0022-9 73	

Cable clamping force, rotation force, waterproof performance, and other types of performance may differ depending on the cable type used. Please make sure to verify the suitability of the cable assembly before use or production.

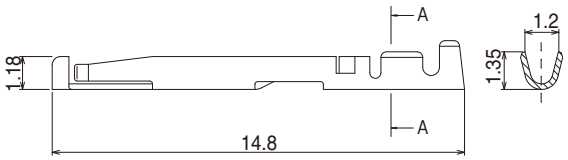
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Contact

●Male contact



●Female contact



Male contact

Item	Part No.	HRS No.	Applicable cable	Packaging	RoHS
Loose contact	HR22-PC-122	122-0017-9	24 to 28 AWG Insulation diameter ϕ1.15MAX	100 pcs/pack	Yes
Reel contact	HR22-PC-222	122-0009-0		10,000 pcs/reel	

Female contact

Item	Part No.	HRS No.	Applicable cable	Packaging	RoHS
Loose contact	HR22-SC-122	122-0016-6	24 to 28 AWG Insulation diameter ϕ1.15MAX	100 pcs/pack	Yes
Reel contact	HR22-SC-222	122-0008-8		10,000 pcs/reel	

Applicable tools

Item		Part No.	HRS No.	Applicable terminal	Applicable wire
Manual crimping tool		HR22-TA2428HC	150-0200-4	HR22-PC-122 HR22-SC-122	24 to 28 AWG Insulation diameter ϕ1.15MAX
Automatic crimping tool	Machine body	CM-105C	901-0001-0	————	————
	Applicator	AP105-HR22-2	901-2023-7	HR22-PC-222 HR22-SC-222	24 to 28 AWG Insulation diameter ϕ1.15MAX
Cable crimping tool		HR10A-TC-04	150-0058-5	————	ϕ8.5
Extractor		RP6-SC-TP	150-0039-0	————	————
Cable termination tool		HR22-12P-T01	150-0075-4	————	Plug connector use



Manual crimping tool



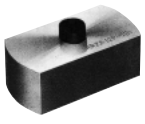
Extractor



Automatic crimping machine
CM-105C



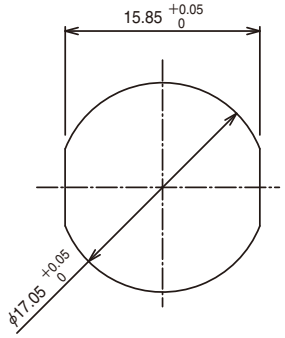
Cable crimping tool



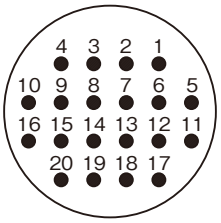
HR22-12P-T01

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Panel mounting dimensions



Panel thickness t: 1 to 3mm

Pin allocation	
Solder pot inner dia.	ϕ0.8

Notes: The above figure shows the pin allocation viewed from the engagement side.

Precautions

1. Switch off the power of the circuit before disconnecting or plugging-in the connectors.
2. Use connectors with socket contacts at the power side of the circuit.
3. Make sure that the coupling is in completely cocked position.
4. The cable pull and twisting strength and other characteristics may differ, depending on the cable structure. Please confirm before the use.
5. This product uses silver plated contacts. Please be aware that silver easily reacts to sulfur gases, causing discoloration or degradation when exposed to certain environmental conditions as shown below. These conditions include areas with:

   ・Dusty site

   ・Area or location with a high density of sulfur dioxide gas, hydrogen sulfide gas, nitrogen dioxide gas, or other gas (Emission gases from vehicles and factories, etc.)

   ・Highly fluctuating temperatures, such as close to a heating apparatus.

   In addition, it is recommended to store the products in their original packaging or similar state in order to prevent discoloration.

   ・Temperature : -10 to +60℃, relative humidity : 80% or lower (An environment where temperature and relative humidity are constant and there is little temperature variation.)

   Please use the products within six months after delivery. (If the storage period has expired, please examine the connectors and solder cups for corrosion and/or tarnish.)

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