

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°C to +85°C |
| | Rated voltage | 100V AC, 140V DC | Storage temperature range | -10°C to +60°C |

| 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 | |

■ 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.

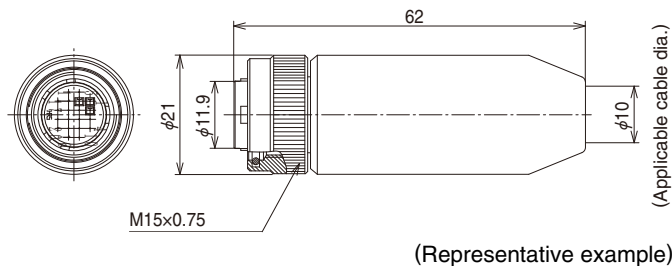
HR22 - 12 W T P A - 20 SC (**)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

| | |
|---|--|
| ① | Model name : HR22 |
| ② | Shell size : The shell size is the outer diameter of the mating end of the plug. |
| ③ | W : Waterproof Blank : Non-waterproof |
| ④ | Locking mechanism T : Threaded coupling type |
| ⑤ | Shell type P : Plug J : Jack R : Receptacle |
| ⑥ | Shell variation : Variation of the same connector configuration is shown by A, B, C, D.... |
| ⑦ | Number of contacts |
| ⑧ | Contact form P : Male pin PC : Crimp type male pin S : Female pin SC : Crimp type female pin |
| ⑨ | Other specifications : A two-digit character is added to indicate other specifications as needed. |

■ Plug

● Waterproof type



Crimp type

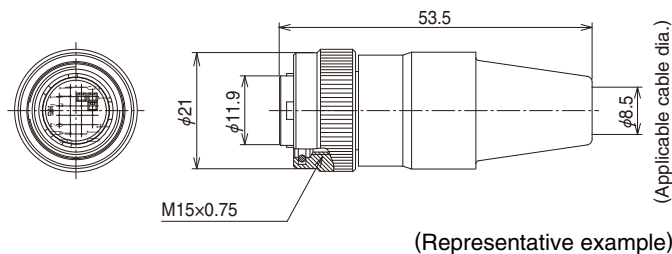
| Part No. | HRS No. | RoHS |
|----------------------|---------------|------|
| HR22-12WTPA-20SC(73) | 122-0004-7 73 | Yes |
| HR22-12WTPA-20PC(73) | 122-0024-4 73 | |

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



Crimp type

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

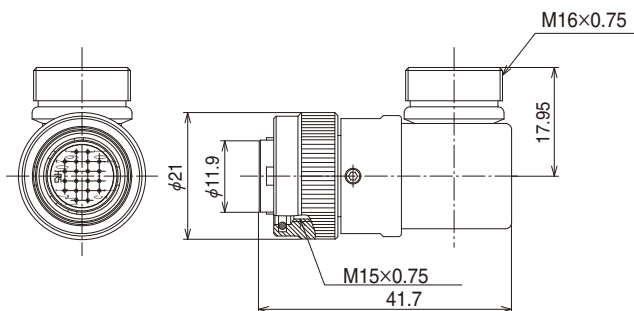
Solder type

| 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.

■ Right angle plug

● Waterproof type



(Representative example)

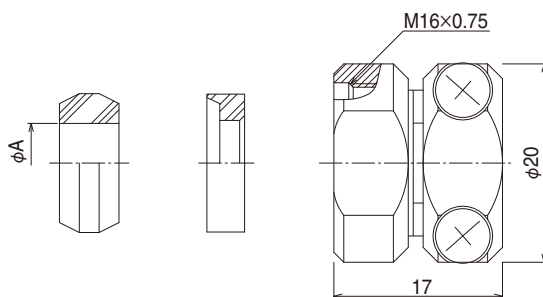
Crimp type

| 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



(Representative example)

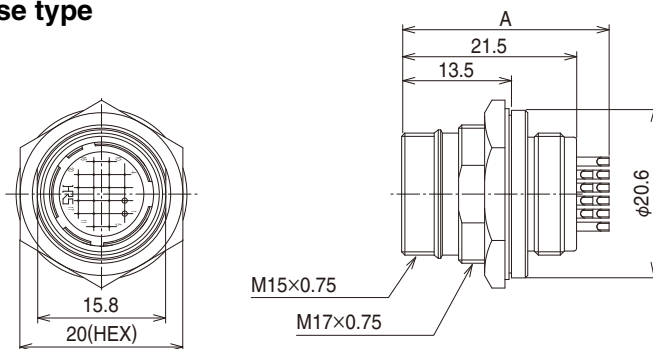
| Part No. | HRS No. | A | RoHS |
|---------------|---------------|---|------|
| JR13WCC-4(72) | 114-2045-0 72 | 4 | Yes |
| JR13WCC-5(72) | 114-2046-3 72 | 5 | |
| JR13WCC-6(72) | 114-2047-6 72 | 6 | |

| 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



(Representative example)

Crimp type

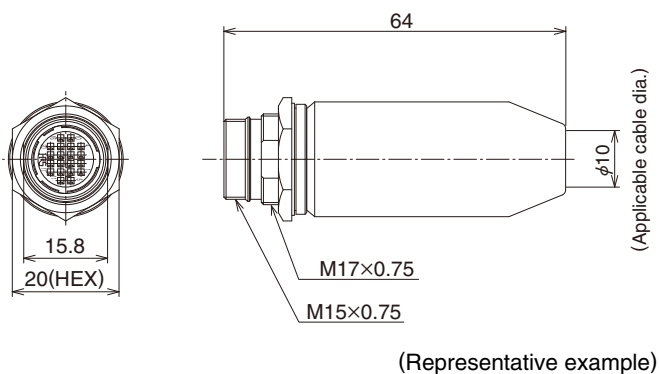
| Part No. | HRS No. | RoHS |
|----------------------|---------------|------|
| HR22-12WTRA-20SC(73) | 122-0021-6 73 | Yes |
| HR22-12WTRA-20PC(73) | 122-0005-0 73 | |

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 | |

■ Jack

● Waterproof type

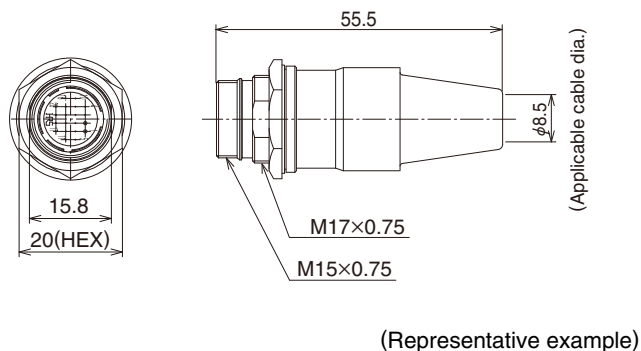


Crimp type

| Part No. | HRS No. | RoHS |
|----------------------|---------------|------|
| HR22-12WTJA-20SC(73) | 122-0025-7 73 | Yes |
| HR22-12WTJA-20PC(73) | 122-0006-2 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



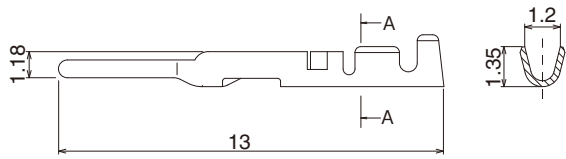
Solder type

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

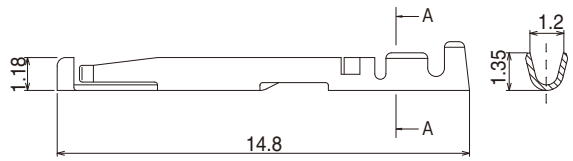
Cable clamping force, rotation force, waterproof performance, and other types of performance may differ depending on the cable type used. Please make sure to verify the suitability of the cable assembly before use or production.

◆ Contact

● Male contact



● Female contact



Male contact

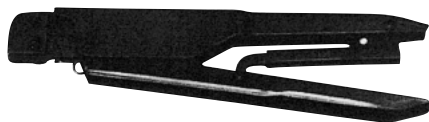
| Item | Part No. | HRS No. | Applicable cable | Packaging | RoHS |
|---------------|-------------|------------|---|-----------------|------|
| Loose contact | HR22-PC-122 | 122-0017-9 | 24 to 28 AWG Insulation diameter φ1.15MAX | 100 pcs/pack | Yes |
| Reel contact | HR22-PC-222 | 122-0009-0 | | 10,000 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 | ———— | ———— |
| | Applicator | AP105-HR22-2 | 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



Cable crimping tool

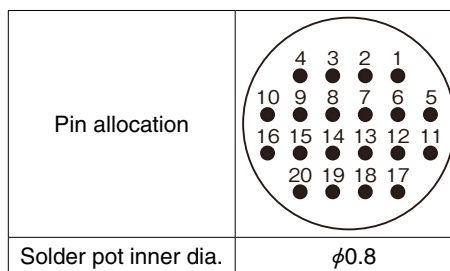
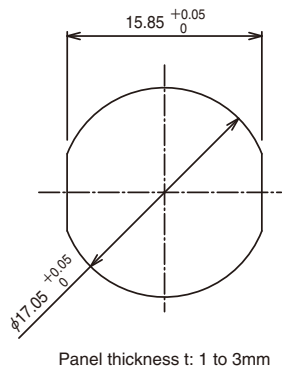


HR22-12P-T01



Automatic crimping machine
CM-105C

◆ Panel mounting dimensions



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°C, 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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