High-Performance Compact Circular Connectors

HR22 Series

■Overview

The HR22 Series are 20-pin compact circular connectors developed as an interface between machine tool motors and operation panels, with a screw coupling type locking machanism to prevent unlocking due to motor vibration, and are available in either waterproof or non-waterproof types.

■Features

1. Availavle in waterproof and non-waterproof types.

Engaged waterproof type connectors are free from water penetration for 48 hours at a depth of 1.8 meters.

2. Anti-loosening locking mechanism.

The locking mechanism has an anti-loosening spring in a screw coupling.

3. Two types of termination

Available in two wiring styles for wider selection:Crimp type and soldering.

4. Easy receptacle mounting

A receptacle may be mounted quickly on a panel by tightening a nut.

5. Available with wire protection

This type of connector has a shell with a cordbushing for increased cable curvature and protection against wire breakage when bending the wire.

6. High-density design

The maximum plug dia. is 21mm for higher density of a 20-pin type connector.

■Materials

Part	Material	Finish
Shell	Zinc alloy and Brass	Nickel plating
Insulator	PBT	(Black)
Male terminal	Brass/Phosphor bronze	Silver plating
Female terminal	Beryllium copper / Phosphor bronze	Silver plating

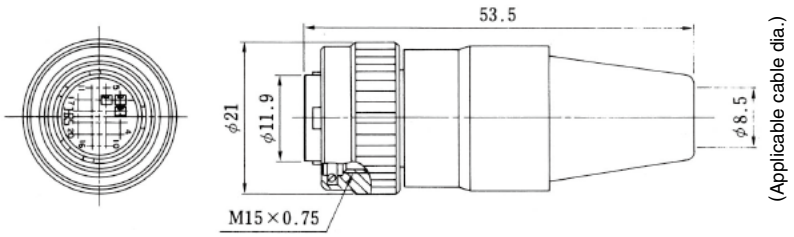
■Ordering information

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

❶ Series name: HR22	❺Shell type P: Plug J:Jack R:Receptacle	❼ Number of pins
❷ Shell size: This number indicates the outer dia. of the shell of the plug mating part.	❻ Shell shape Each time aleternation is made to the shell shape, the symbol changes such as A,B,C,D,E and so forth.Characters C,J,P and R are not used to avoid misunderstanding.	❽ Pin style P:Male pin PC: Crimp type male pin S:Female pin SC: Crimp type female pin
❸ W: Waterproof Blank: Non-waterproof		❾ Other specifications: 2 numerical digits will be added when there is a specifications change other than shown ❶ to ❽
❹ Locking mechanism T:Screw coupling type		

■Plug (Crimp type)

HR22-12TPD-20SC(73)

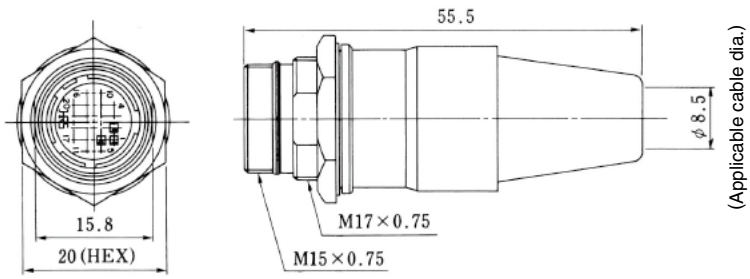


(An example in shape)

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

■Jack (Crimp type)

HR22-12TJD-20PC(73)

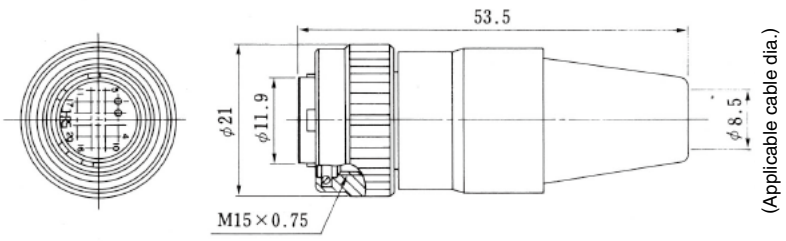


(An example in shape)

HRS No.	Part No.
122-0019-4-73	HR22-12TJD-20PC(73)

■Plug (Solder type)

HR22-12TPD-20S(73)

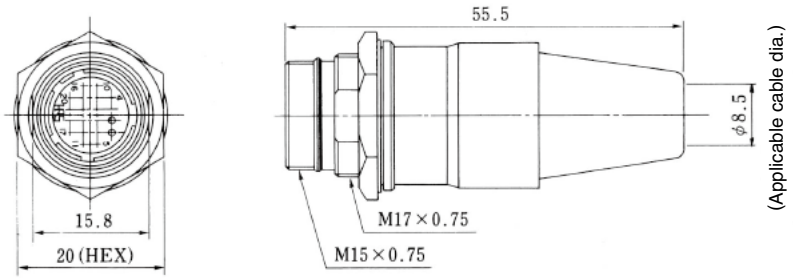


(An example in shape)

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

■Jack (Solder type)

HR22-12TJD-20P(73)



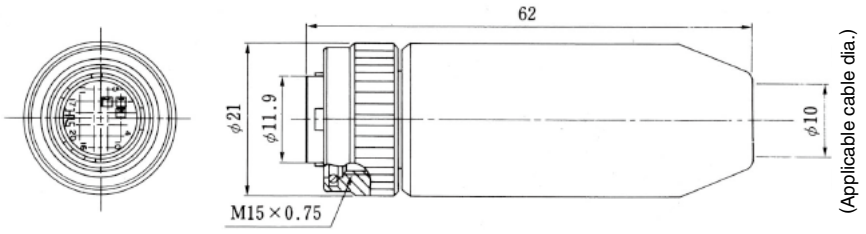
(An example in shape)

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

Waterproof type

■Plug (Crimp type)

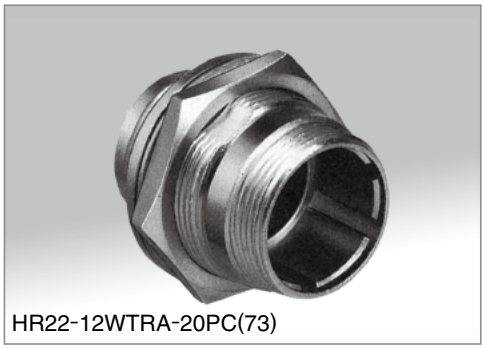
HR22-12WTPA-20SC(73)



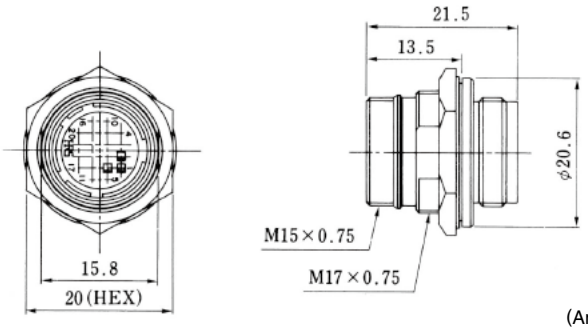
(An example in shape)

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

■Receptacle (Crimp type)



HR22-12WTRA-20PC(73)

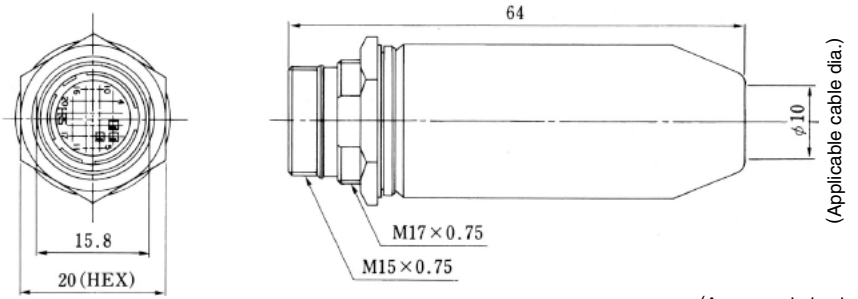


(An example in shape)

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

■Jack (Crimp type)

HR22-12WTJA-20PC(73)

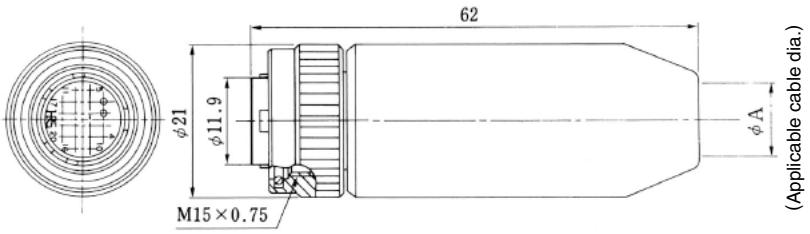


(An example in shape)

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

■Plug (Solder type)

HR22-12WTPA-20S(73)



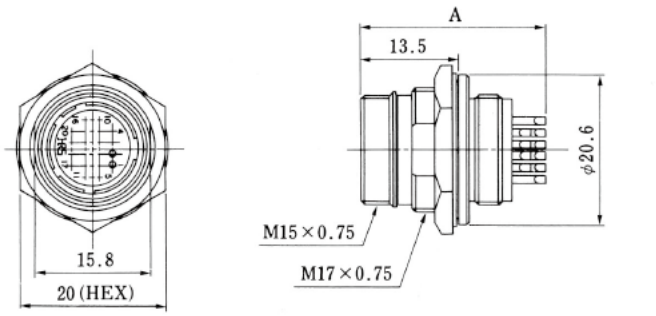
(An example in shape)

Unit : mm

HRS No.	Part No.	φA
122-0015-3-73	HR22-12WTPA-20S(73)	φ10
122-0026-0-73	HR22-12WTPE-20S(73)	φ9.2

■Receptacle (Solder type)

HR22-12WTRA-20P(73)



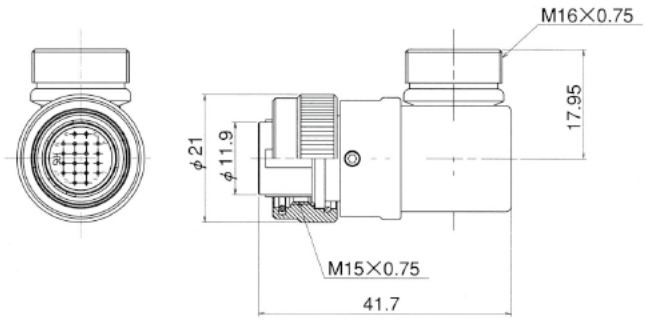
(An example in shape)

Unit : mm

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

■Right angle plug (Solder type)


HR22-12WTLP-20P(73)

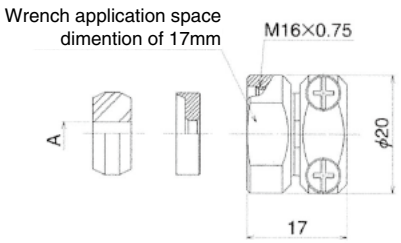


HRS No.	Part No.	Weight
122-0054-5-73	HR22-12WTLP-20P(73)	55g

■Cable clamp

●Screw tightening type


JR13WCC-10(72)



Shown one type

Unit : mm

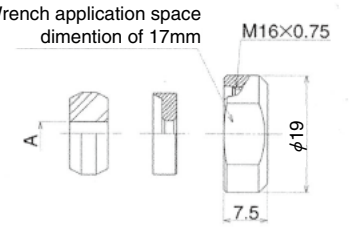
HRS No.	Part No.	A	Weight
114-2045-0-72	JR13WCC-4(72)	4	17g
114-2046-3-72	JR13WCC-5(72)	5	17g
114-2047-6-72	JR13WCC-6(72)	6	17g

Unit : mm

HRS No.	Part No.	A	Weight
114-2048-9-72	JR13WCC-7(72)	4	17g
114-2049-1-72	JR13WCC-8(72)	5	17g
114-2050-0-72	JR13WCC-9(72)	6	17g
114-2051-3-72	JR13WCC-10(72)	6	17g

●Without screw type


JR13WCC-10(72)



Shown one type

Unit : mm

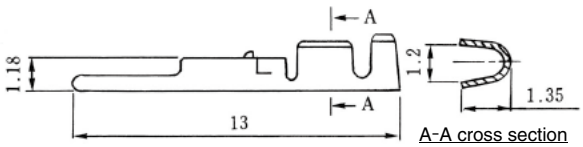
HRS No.	Part No.	A	Weight
114-2069-9-72	JR13WCCA-4(72)	4	12g
114-2070-8-72	JR13WCCA-5(72)	5	12g
114-2071-0-72	JR13WCCA-6(72)	6	12g

Unit : mm

HRS No.	Part No.	A	Weight
114-2072-3-72	JR13WCCA-7(72)	7	12g
114-2073-6-72	JR13WCCA-8(72)	8	12g
114-2074-9-72	JR13WCCA-9(72)	9	12g
114-2075-1-72	JR13WCCA-10(72)	10	12g

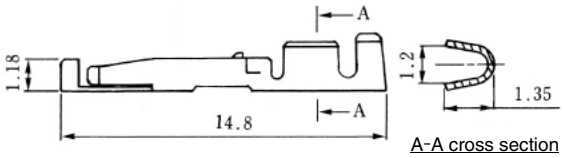
■Contact

(Male pin)



HRS No.	Part No.	Packaging	Applicable cable
122-0017-9-00	HR22-PC-122	100 pcs. per bag	AWG#24 ～ 28
122-0009-0-00	HR22-PC-222	10,000 pcs. per reel	AWG#24 ～ 28

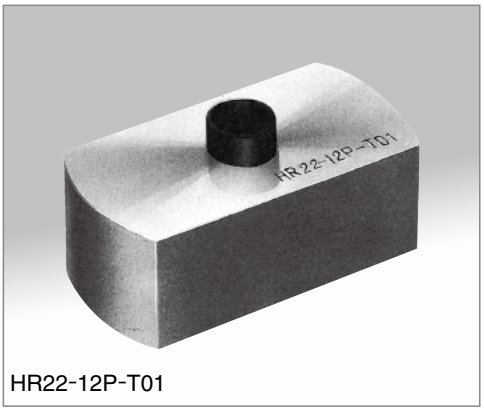
(Female pin)



HRS No.	Part No.	Packaging	Applicable cable
122-0016-6-00	HR22-SC-122	100 pcs. per bag	AWG#24 ～ 28
122-0008-8-00	HR22-SC-222	10,000 pcs. per reel	AWG#24 ～ 28

Notes 1: Use a cable having a insulator outer dia.of 1.15 mm or less.

■Wiring tool



HR22-12P-T01

A connector may be assembled and disassembled easily using the assembly tool shown left .

HRS No.	Part No.	Applicable connector
150-0075-4-00	HR22-12P-T01	HR22-12WTPA HR22-12TPD

■Applicable tools

Unit : mm

Type	Item	HRS No.	Part No.	Applicable terminal	Applicable wire
Manual	Manual crimping tool	150-0200-4-00	HR22-TA2428HC	HR22-PC-122 HR22-SC-122	AWG#24～28
Aoutomatic	Automatic crimping machine body	901-0005-4	CM-105	—	—
	Applicator	901-2023-7	AP105-HR22-2	HR22-PC-122 HR22-SC-122	AWG#24～28
Cable crimping tool		150-0058-5-00	HR10A-TC-04	—	ϕ8.5(Note)
Extractor		150-0039-0-00	RP6-SC-TP	—	—

Note: Cable crimping tools are not used for connecting waterproof connectors.

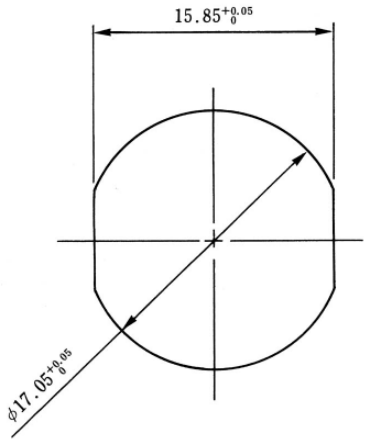
Manual crimping tool

Pull-out tool

Automatic crimping machine CM-105

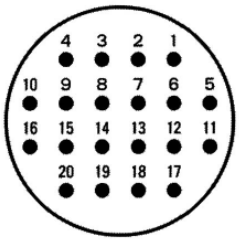
Cable crimping tool

■Panel mounting dimensions



Panel thickness t : 1 to 3mm

■Pin allocation and major functions

Pin allocation	
Number of pins	20
Withstand voltage	AC300V for 1 minute
Current capacity	2A
Insulation resistance	1000MΩ or more at DC100V
Contact resistance	20mΩ or less
Solder pot inner dia.	ϕ0.8

Notes:
1.The above figure shows the pin allocation viewed from the engagement side.
2.The above withstand voltage shows the test voltage.
3.The above current capacity shows value per pin.
4.The above contact resistance shows value measured at 1A DC.

■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.