

Introduction

Purpose

- To Introduce the HR30 series connector.**

Objective

- To explain features and benefits.**

Content

- 13 pages**

Learning time

- 5 minutes**

Welcome to the introduction to the HR30 Circular Connectors Product Training Module (PTM). The purpose of this module is to introduce Hirose's Waterproof, Push and Pull HR30 connector series and to explain the features and benefits.

HR30 Series

Water Resistant Plastic Connector

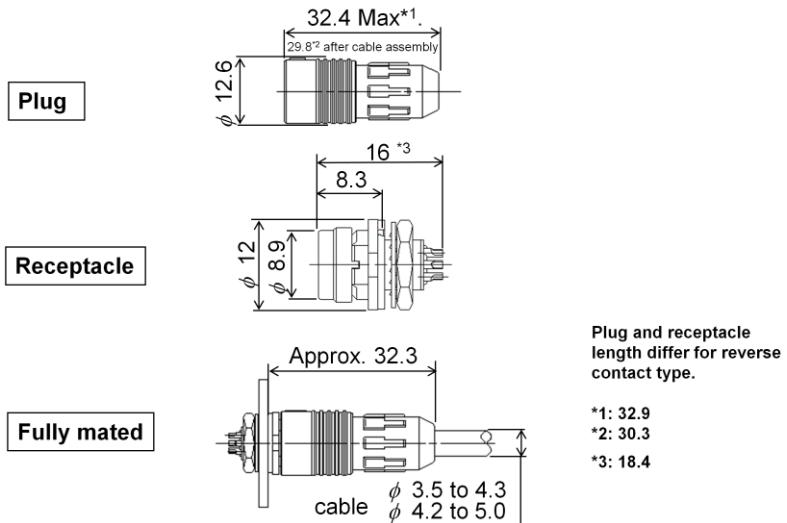


Features

- 1. Compact size**
- 2. Plastic shell light weight**
- 3. User-friendly Push-pull lock**
- 4. IP68 waterproof (during mating)**
- 5. Simple assembly without special tool**
- 6. Over-mold type now available**

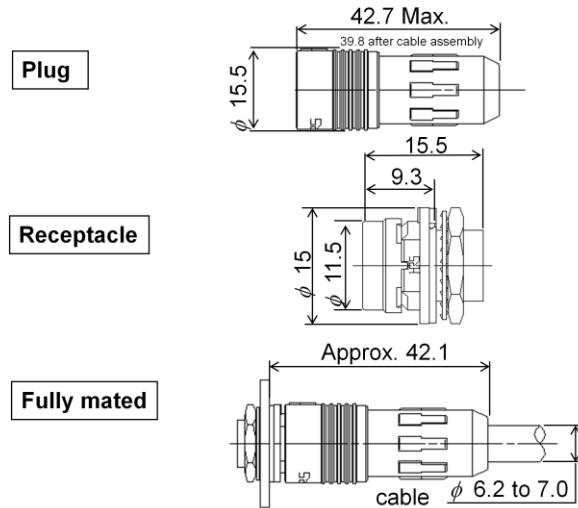
The HR30 series is a miniature waterproof plastic connector series. It features a user friendly push pull locking mechanism, and is IP68 rated when tested at a 2 meter depth for 14 days in the mated condition or used with the protective cap. This series now offers an over-mold version.

Small Size (3 and 6 pos.)



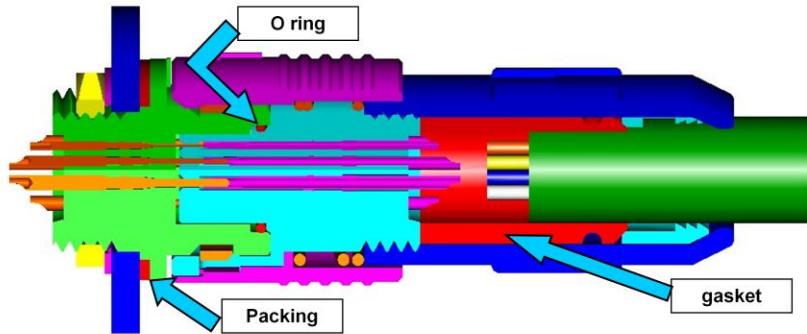
This slide illustrates the miniature size of the 3 and 6 position configurations. For the 3 and 6 position versions, the plug measures only 12.6 mm in diameter with a length of 32.4 mm. The mating receptacle is 16 mm in length and has a diameter of 12 mm. Mated together they only measure a total of 32.3 mm with an overall diameter of 12.6 mm.

Small Size (10 and 12 pos.)



This slide shows the slightly larger size of the 10 and 12 position configurations. For the 10 and 12 position versions, the plug has a diameter of 15.5 mm with an overall length of 42.7. Its mating receptacle is 15.5 mm in length with a diameter of 15 mm. Mated together, their total length is 42.1 mm in length and 15.5 mm in diameter.

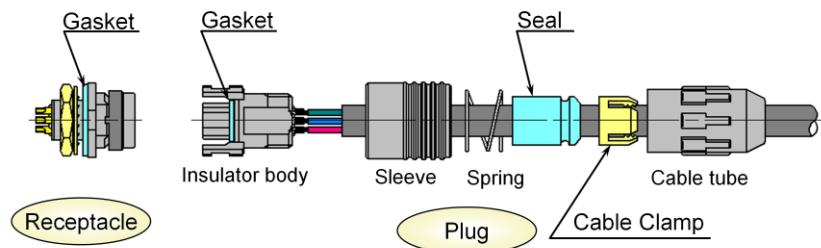
IP67 waterproof structure



Each gasket is effective to keep stable waterproof condition

The HR30 series has a unique construction utilizing an o-ring and gasket, that offers complete protection against dust and water intrusion per IP68.

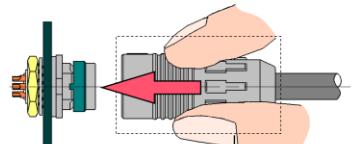
HR30 components construction



Simple structured components help to reduce the assembly cost

As shown in this diagram, the connector clamps around the cable and automatically seals the rear housing during the assembly process.

User Friendly Push & Pull Lock



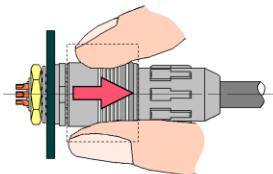
◆ Mating

Push the plug holding the shell



Can be held in any area.

Mating marks (white)
contrasting colors.



◆ Unmating

Slide the coupling sleeve
and pull the plug.

Hirose's push pull locking feature is easy to operate, simply push the plug on to the receptacle and it locks in place. To un-mate the parts, pull the coupling sleeve back and remove the plug. Five guide keys and a white mark at the mating position assures quick insertion and extraction.

Over-mold Type

- Fully Customizable Design of the Over-mold
 - Shape, Flexibility, Cable Angle, Over-mold Color
- Inter-mates with all standard HR30 types
- Over-mold adds to retention strength when applied



Hirose now offers a HR30 version that allows for a custom over-mold to be applied to the connector. The design engineer has the opportunity to customize the over-mold to their specific project needs.

Application Example

Mobile terminal



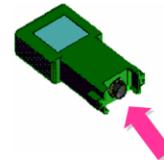
Mobile GPS



Marine GPS



Portable analyzer



HR30 is suitable for portable and mobile terminals with waterproof.

The HR30 series is designed for applications that are exposed to water spray or moisture such as Marine, industrial, medical, and recreational equipment.

Specifications

Material and Finish

CONNECTOR	COMPONENT	MATERIAL	FINISH / REFERENCE
Receptacle	Insulator, Latch	PPS	Black 94V-0
	Gasket	Synthetic rubber	Black
	Male Contacts	Brass	
	Female Contacts	Phosphor bronze	Gold plated
	Hex nut	Zinc alloy	Chromate treatment
	Washer	Phosphor bronze	Nickel plated
Plug	Insulator	PPS	Black 94V-0
	Sleeve	PBT	Black 94V-0
	Rear Housing	PBT (3 and 6pos.) PPS (10 and 12pos.)	Black 94V-0
	Cable clamp	Polyacetal	Natural
	Seal	Synthetic rubber	Black, Red
	Male Contacts	Brass	
	Female Contacts	Phosphor bronze	Gold plated
	Spring	Stainless Steel	—
Crimp Contact (10 and 12pos.)	Male Contacts Female Contacts	Phosphor bronze	Selective gold plated

	3pos.	6pos.	10pos.	12pos.
Contact Resistance	5mΩ max. (1A DC)		15mΩ max. (1A DC)	
Current Capacity	5A		2A	
Rated Voltage	100V AC, 140V DC		30V AC, 42V DC	
Applicable Cable Diameter	φ3.5 to 4.3mm φ4.2 to 5.0mm		φ6.2 to 7.0mm	
Insulation Resistance	1000MΩ Min. (100V DC)			
Withstanding Voltage	300V AC, 1 minute			
Applicable Conductor Size	26 AWG Max. (AWG26-30 φ1.0 max. insulation outer dia. for crimp contact)			
Pull Force	30N Max.			

Specifications herein are subject to change without notice.
Contact Hirose for latest specifications, drawings, or availabilities.

This table illustrates the electrical ratings and materials used in construction of the connector.

Applicable cable

INTERNAL WIRING OF ELECTRONIC EQUIPMENT AND HEAT-RESISTANT PVC INSULATED, SHIELDED CABLE				
NUMBER OF CORES	3	6	10	12
DIMENSIONS OF CABLE				
CONDUCTOR	TIN-COATED ANNEALED COPPER STRANDS			
SIZE (AWG)	22	20	26	
CONSTRUCTION	17/0.16mm	26/0.16mm	7/0.16mm	
OUTSIDE DIAMETER (mm)	0.76	0.94	0.48	
INSULATION	HEAT-RESISTANT PVC			
THE STANDARD THICKNESS (mm)	0.22	0.25	0.2	0.23
OUTSIDE DIAMETER (mm)	1.2	1.44	0.88	0.95
COLOR	REFER TO THE FIGURE AND THE TABLE FOR DISCERNMENT OF CORES			
CABLING	OUTSIDE DIAMETER (mm)	2.6	3.1	2.6
	THICKNESS OF PAPER TAPE WRAPPING (mm)	0.05	2.9	3.8
SHIELD	TIN-COATED ANNEALED COPPER			
SHIELD FORM	BRAIDED			
THICKNESS (mm)	0.2			
SHIEATH	HEAT-RESISTANT PVC			
THE STANDARD THICKNESS (mm)	0.4	0.5	0.4	0.6
OUTSIDE DIAMETER (mm)	3.9±0.15	4.6±0.2	3.9±0.15	4.6±0.2
COLOR	BLACK			
ELECTRICAL CHARACTERISTICS				
CONDUCTOR RESISTANCE(20°C) (Ω/km MAX.)	55.8	35.1	147	
INSULATION RESISTANCE(20°C) (MΩ·km MIN.)	5			
DIELECTRIC STRENGTH(1000V)	(V/min.)	500		

[FIGURE]

[TABLE]

CORE No.	COLOR
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	BLUE
7	VIOLET
8	GRAY
9	WHITE
10	BLACK
11	SKY BLUE
12	PINK

This slide shows the recommended cable specifications for this series. The number of conductors, wire gauge, cable diameter, and shielding should all be taken into consideration when making a selection.

Module Summary



Hirose's HR30 series offer:

- Small size
- Light Weight
- User-friendly push-pull lock
- IP68 waterproof structure
- Over-mold style available
- Simple assembly

In summary, the Hirose HR30 series offers miniature size, easy assembly, and a user friendly push pull locking mechanism. Also, its IP68 rating protects it against particulate contamination and water immersion.