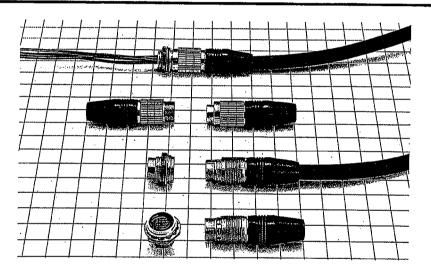
# HRS HR25 Series

# World's Smallest Round Type Multiple Contact Connectors

#### GENERAL

The HR25 Series is the world's smallest high-density round type connector. It was developed using Hirose Electric's long experience with miniaturization technology in answer to the continuing need for the ever greater miniaturization and high-density construction of a wide variety of electronic equipment.



#### FEATURES

(1) The HR25 is the world's smallest high-density connector.

These connectors fit a maximum of 20 contacts into a maximum outside diameter of 12.5 mm.

The lock mechanism is available in a screw lock type and a push-pull lock type.

(2) The structure is such that the pins will not become misshapen even if the male pins are inserted incorrectly.

The contacts of the plug and the male contacts of the receptacle are designed in such a way that even if the two pieces are engaged, the safe positioning of the male contacts will not result in a collision between contacts.

- (3) Contacts are gold plated as a standard to maintain contact stability.
- (4) The number of contacts is available in 4, 6, 8, 12, 16, or 20 contacts allowing these connectors to be used over a wide range of applications.
- (5) Available in a variety of types. In addition to the soldered wiring type, these connectors are available in the crimp-style wiring type and board direct mounting type allowing the connector to be matched to the job.

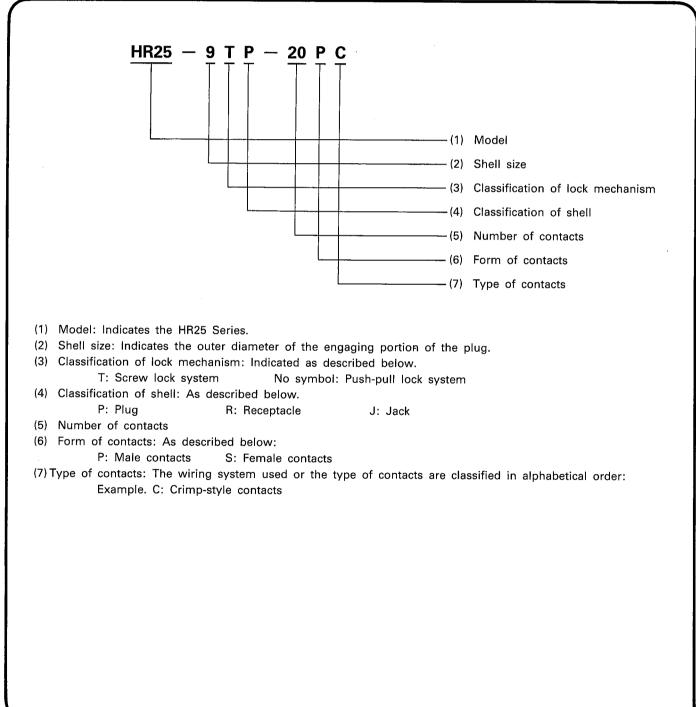
#### APPLICATIONS

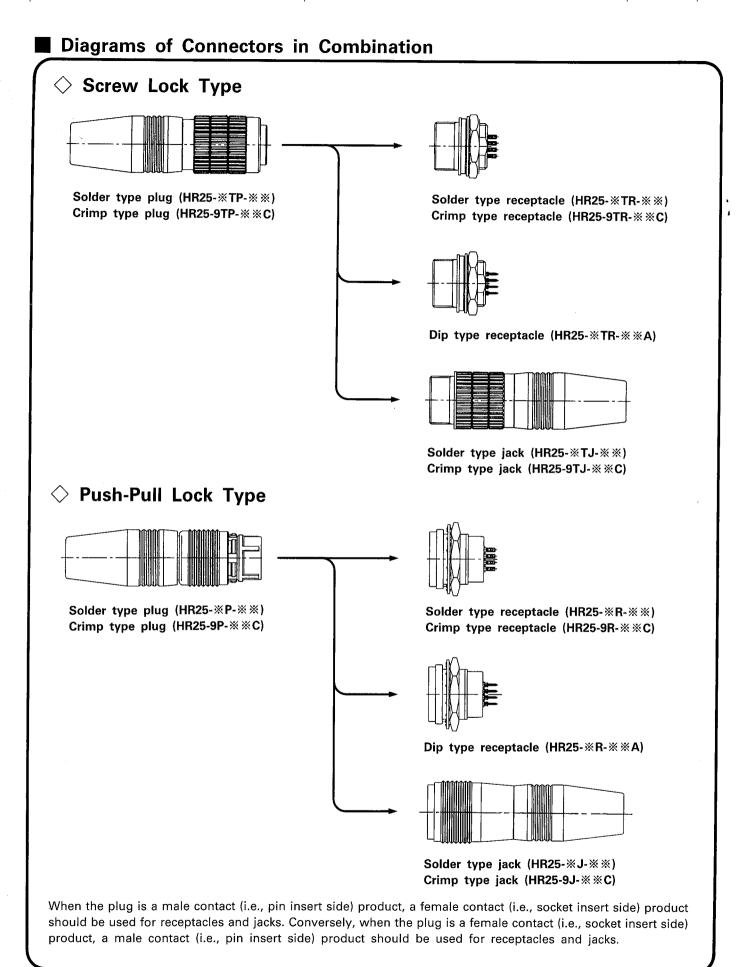
CCD cameras, measuring instruments, wide variety of sensors, mobile radio, medical equipment, etc.

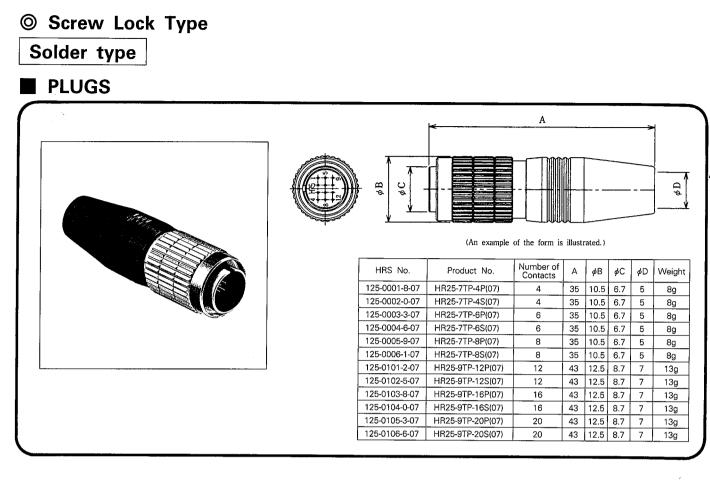
# MAJOR SPECIFIED MATERIALS

Part Name	Material	Finish
Male contacts	Phosphor bronze	Gold and partial gold plating
Female contacts	Phosphor bronze	Partial gold plating
Insulation	PPS resin	(Black)
Shell	Brass and zinc alloy	Nickel plating

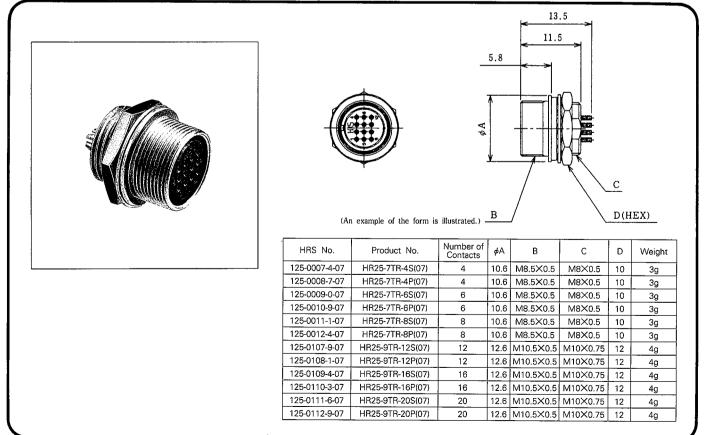
# STRUCTURE OF THE PRODUCT NUMBER







#### RECEPTACLES

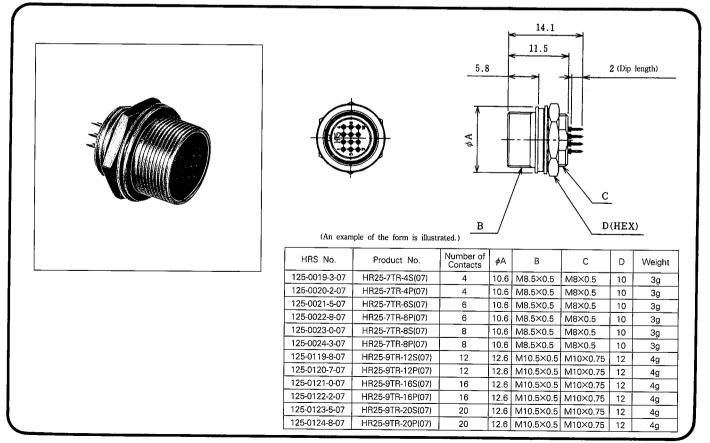


JACKS

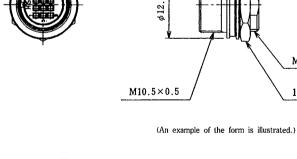
		<b> </b> <		В				>
			example of th	e form	MMM.	ustrate	d.)	
	HRS No.	Product No.	Number of Contacts	φA	В	φC	D	Weight
	125-0013-7-07	HR25-7TJ-4S(07)	4	10.6	35	5	M8.5×0.5	8g
	125-0014-0-07	HR25-7TJ-4P(07)	4	10.6	35	5	M8.5×0.5	8g
	125-0015-2-07	HR25-7TJ-6S(07)	6	10.6	35	5	M8.5×0.5	8g
	125-0016-5-07	HR25-7TJ-6P(07)	6	10.6	35	5	M8.5×0.5	8g
	125-0017-8-07	HR25-7TJ-8S(07)	8	10.6	35	5	M8.5×0.5	8g
	125-0018-0-07	HR25-7TJ-8P(07)	8	10.6	35	5	M8.5×0.5	8g
	125-0113-1-07	HR25-9TJ-12S(07)	12	12.6	43	7	M10.5×0.5	12g
	125-0114-4-07	HR25-9TJ-12P(07)	12	12.6	43	7	M10.5×0.5	12g
	125-0115-7-07	HR25-9TJ-16S(07)	16	12.6	43	7	M10.5×0.5	12g
	125-0116-0-07	HR25-9TJ-16P(07)	16	12.6	43	7	M10.5×0.5	12g
	125-0117-2-07	HR25-9TJ-20S(07)	20	12.6	43	7	M10.5×0.5	12g
	125-0118-5-07	HR25-9TJ-20P(07)	20	12.6	43	7	M10.5×0.5	12g

## Board direct mounting type

#### RECEPTACLES



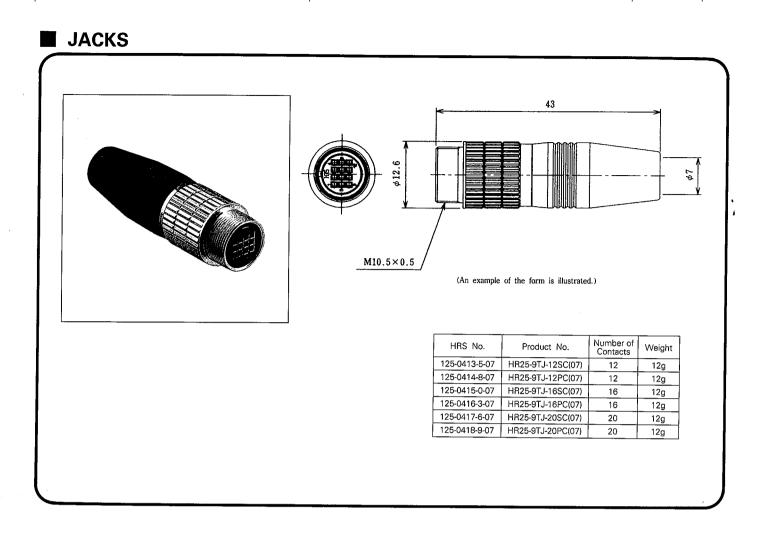
HRS No.         Product No.         Number of Contacts         Weight           125-0401-6-07         HR25-9TP-12PC(07)         12         12g           125-0402-9-07         HR25-9TP-12SC(07)         12         12g           125-0403-1-07         HR25-9TP-16PC(07)         16         12g           125-0404-4-07         HR25-9TP-16SC(07)         16         12g           125-0406-0-07         HR25-9TP-20PC(07)         20         12g           125-0406-0-07         HR25-9TP-20SC(07)         20         12g           125-0406-0-07         HR25-9TP-20SC(07)         20         12g <th></th> <th>φ12.5 φ12.5</th> <th>(An exa</th> <th>43</th> <th>trated.)</th> <th></th> <th>φ7</th>		φ12.5 φ12.5	(An exa	43	trated.)		φ7
125-0401-6-07       HR25-9TP-12PC(07)       12       12g         125-0402-9-07       HR25-9TP-12SC(07)       12       12g         125-0403-1-07       HR25-9TP-16PC(07)       16       12g         125-0404-4-07       HR25-9TP-16SC(07)       16       12g         125-0405-7-07       HR25-9TP-20PC(07)       20       12g         125-0406-0-07       HR25-9TP-20SC(07)       20       12g			HRS No.	Product No.	Number of	Weight	
125-0402-9-07       HR25-9TP-12SC(07)       12       12g         125-0403-1-07       HR25-9TP-16PC(07)       16       12g         125-0404-4-07       HR25-9TP-16SC(07)       16       12g         125-0405-7-07       HR25-9TP-20PC(07)       20       12g         125-0406-0-07       HR25-9TP-20SC(07)       20       12g						-	
125-0404-4-07       HR25-9TP-16SC(07)       16       12g         125-0405-7-07       HR25-9TP-20PC(07)       20       12g         125-0406-0-07       HR25-9TP-20SC(07)       20       12g							
125-0405-7-07     HR25-9TP-20PC(07)     20     12g       125-0406-0-07     HR25-9TP-20SC(07)     20     12g							
125-0406-0-07 HR25-9TP-20SC(07) 20 12g							
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IEGEP I AGLES	RECEPTACLES						,



HRS No.	Product No.	Number of Contacts	A	Weight
125-0407-2-07	HR25-9TR-12SC(07)	12	11.5	Зg
125-0408-5-07	HR25-9TR-12PC(07)	12	13	3g
125-0409-8-07	HR25-9TR-16SC(07)	16	11.5	3g
125-0410-7-07	HR25-9TR-16PC(07)	16	13	3g
125-0411-0-07	HR25-9TR-20SC(07)	20	11.5	3g
125-0412-2-07	HR25-9TR-20PC(07)	20	13	Зg

M10×0.75

12(HEX)



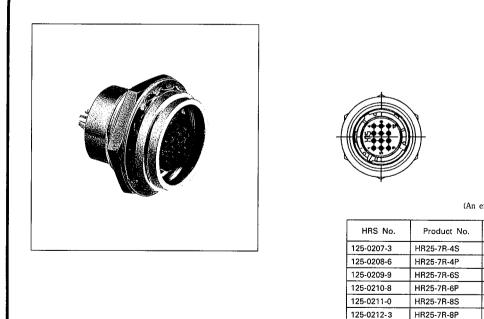
# O Push-Pull Lock Type

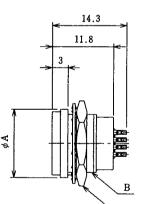
# Solder type

PLUGS

	¢ Q B	(An example of th	A	strated	.)			
	HRS No.	Product No.	Number of Contacts	А	φB	φC	φD	Weight
	125-0201-7-07	HR25-7P-4P(07)	4	34.8	10.5	7.45	5	8g
	125-0202-0-07	HR25-7P-4S(07)	4	34.8	10.5	7.45	5	8g
	125-0203-2-07	HR25-7P-6P(07)	6	34.8	10.5	7.45	5	8g
	125-0204-5-07	HR25-7P-6S(07)	6	34.8	10.5	7.45	5	8g
	125-0205-8-07	HR25-7P-8P(07)	8	34.8	10.5	7.45	5	8g
	125-0206-0-07	HR25-7P-8S(07)	8	34.8	10.5	7.45	5	8g
L	125-0301-1-07	HR25-9P-12P(07)	12	42.8	12.5	9.45	7	13g
	125-0302-4-07	HR25-9P-12S(07)	12	42.8	12.5	9.45	7	13g
	125-0303-7-07	HR25-9P-16P(07)	16	42.8	12.5	9.45	7	13g
	125-0304-0-07	HR25-9P-16S(07)	16	42.8	12.5	9.45	7	13g
	125-0305-2-07	HR25-9P-20P(07)	20	42.8	12.5	9.45	7	13g
	125-0306-5-07	HR25-9P-20S(07)	20	120	12.5	0.45	7	13g

# **RECEPTACLES**



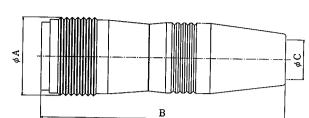


(An example of the form is illustrated.) C(HEX)

HRS No.	Product No.	Number of Contacts	φA	В	с	Weight
125-0207-3	HR25-7R-4S	4	11	M10×0.75	12	4g
125-0208-6	HR25-7R-4P	4	11	M10×0.75	12	4g
125-0209-9	HR25-7R-6S	6	11	M10×0.75	12	4g
125-0210-8	HR25-7R-6P	6	11	M10×0.75	12	4g
125-0211-0	HR25-7R-8S	8	11	M10×0.75	12	4g
125-0212-3	HR25-7R-8P	8	11	M10×0.75	12	4g
125-0307-8	HR25-9R-12S	12	13	M12×0.75	14	5g
125-0308-0	HR25-9R-12P	12	13	M12×0.75	14	5g
125-0309-3	HR25-9R-16S	16	13	M12×0.75	14	5g
125-0310-2	HR25-9R-16P	16	13	M12×0.75	14	5g
125-0311-5	HR25-9R-20S	20	13	M12×0.75	14	5g
125-0312-8	HR25-9R-20P	20	13	M12×0.75	14	

#### JACKS





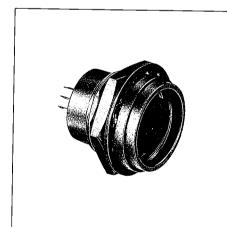
(An example of the form is illustrated.)

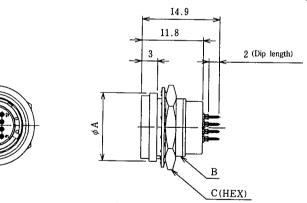
HRS No.	Product No.	Number of Contacts	A	φB	фС	Weight
125-0213-6-07	HR25-7J-4S(07)	4	11.8	35.8	5	9g
125-0214-9-07	HR25-7J-4P(07)	4	11.8	35.8	5	9g
125-0215-1-07	HR25-7J-6S(07)	6	11.8	35.8	5	9g
125-0216-4-07	HR25-7J-6P(07)	6	11.8	35.8	5	9g
125-0217-7-07	HR25-7J-8S(07)	8	11.8	35.8	5	- 9g
125-0218-0-07	HR25-7J-8P(07)	8	11.8	35.8	5	9g
125-0313-0-07	HR25-9J-12S(07)	12	13.8	43.8	7	14g
125-0314-3-07	HR25-9J-12P(07)	12	13.8	43.8	7	14g
125-0315-6-07	HR25-9J-16S(07)	16	13.8	43.8	7	14g
125-0316-9-07	HR25-9J-16P(07)	16	13.8	43.8	7	14g
125-0317-1-07	HR25-9J-20S(07)	20	13.8	43.8	7	14g
125-0318-4-07	HR25-9J-20P(07)	20	13.8	43.8	7	14g

# Board direct mounting type

## RECEPTACLES

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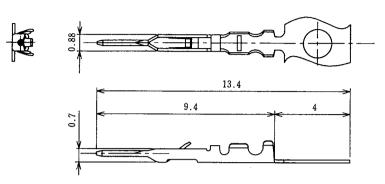


(An example of the form is illustrated.)

HRS No.	Product No.	Number of Contacts	φA	В	с	Weight
125-0219-2	HR25-7R-4SA	4	11	M10×0.75	12	4g
125-0220-1	HR25-7R-4PA	4	11	M10×0.75	12	4g
125-0221-4	HR25-7R-6SA	6	11	M10×0.75	12	4g
125-0222-7	HR25-7R-6PA	6	11	M10×0.75	12	4g
125-0223-0	HR25-7R-8SA	8	11	M10×0.75	12	4g
125-0224-2	HR25-7R-8PA	8	11	M10×0.75	12	4g
125-0319-7	HR25-9R-12SA	12	13	M12×0.75	14	5g
125-0320-6	HR25-9R-12PA	12	13	M12×0.75	14	- 5g
125-0321-9	HR25-9R-16SA	16	13	M12×0.75	14	5g
125-0322-1	HR25-9R-16PA	16	13	M12×0.75	14	5g
125-0323-4	HR25-9R-20SA	20	13	M12×0.75	14	5g
125-0324-7	HR25-9R-20PA	20	13	M12×0.75	14	5g

## CRIMP-STYLE CONTACTS

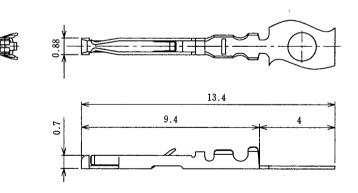
#### **Male Contacts**



Туре	HRS No.	Product No.	Suitable Wire
Loose contacts	125-0419-1	HR25-PC-111	AWG # 30~32
Continuous contacts	125-0420-0	HR25-PC-211	AWG # 30~32

NOTES: 1. Please use wire with a covering outside diameter of 0.71 mm or less. 2. Loose contacts come in packages of 100 pieces. Continuous contacts come in reels of 10,000 pieces.

#### **Female Contacts**



Туре	HRS No.	Product No.	Suitable Wire
Loose contacts	125-0421-3	HR25-SC-111	AWG # 30~32
Continuous contacts	125-0422-6	HR25-SC-211	AWG # 30~32

NOTES: 1. Please use wire with a covering outside diameter of 0.71 mm or less. 2. Loose contacts come in packages of 100 pieces. Continuous contacts come in reels of 10,000 pieces.

# Applicable Tools

Туре	Item	HRS No.	Product No.	Applicable Contacts	Applicable Wire and Applicable Cable Diameter
Manual	Manual crimping tool	150-0207-3	HR25-TA3032HC	HR25-PC-111 HR25-SC-111	AWG # 30
Auto	Auto crimping machine body	901-0005-4	CM-105	_	_
	Applicator	901-2040-6	AP105-HR25-1	HR25-PC-211 HR25-SC-211	AWG # 30
Cal	ble crimping tool	150-0041-2	HR10A-TC-02		φ7, φ5
	Extractor	150-0091-0	HR25-TP	_	_
Hex (opposing si	agon bar wrench de-to-side distance 1.27)	150-0066-3	PB205/1.27	_	



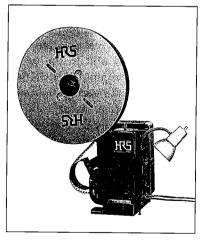
(HR10A-TC-02) Cable crimping tool



(HR25-TA-3032HC) Manual crimping tool



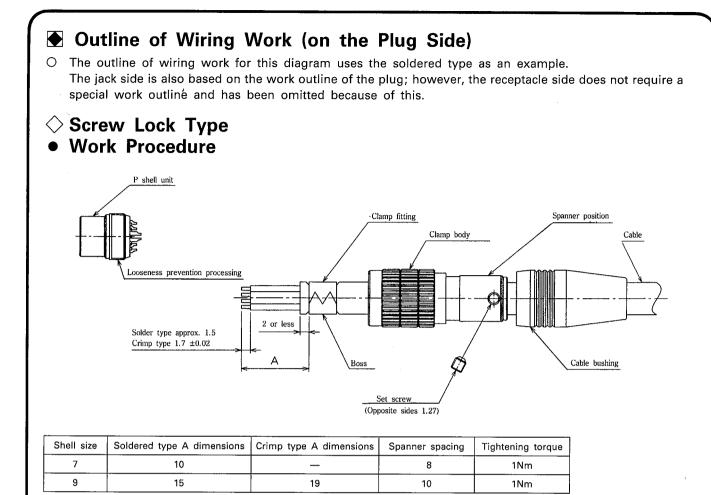
(HR25-TP) Extraction tool



Automatic crimper Model CM-105

PB\_205/1.27

(PB205/1.27) Hexagonal wrench driver



- With regard to cables, the wire to be used should have a conductor with a nominal cross-sectional area of 0.08 mm<sup>2</sup> (AWG #28) or less in a finished form suited to each size.
- 2. First pass the cable bushing and the plug body in order over the cable, then cut the end at the dimensions indicated in the above diagram.
- 3. Mount the P shell unit in the wiring jig and perform the solder wiring.
- 4. Use the cable crimping jig (HR10A-TC-02) to fix the clamp fitting to the cable.
- 5. After performing the wiring, tighten the plug body to the screw portion of the P shell unit using the specified torque (in the above table).
- 6. Tighten the set screw so that the tip of the set screw falls into one of the two bosses of the clamp fitting. Note that the tightening torque of the set screw is from 0.3 to 0.4 Nm.
- 7. Put the cable bushing over the plug body and complete the work. Note that the use of a paint lock (e.g., Locktight 271 manufactured by Nihon Locktight K.K.) is recommended on the screw portion to prevent loosening of the P shell unit.

The aforementioned work procedure is for the soldered type. In the case of the crimp-style type, Steps 1 and 3 are changed as follows:

- 1. With regard to cables, the wire to be used should have a conductor with a nominal cross-sectional area of 0.05 mm<sup>2</sup> (AWG #30) and 0.035 mm<sup>2</sup> (AWG #32) in a finished form suited to each size.
- 3. Crimp a suitable crimp terminal to the conductor portion of the cable, then fit into the housing of the P shell unit.

#### ◇ Push-Pull Type Work Procedure Clamp fitting Spanner position P shell unit Contact block Looseness prevention processing Cable 2 or less Solder type approx. 1.5 Spacer Crimp type 1.7 ±0.02 Boss Cable bushing Α Cable tube Set screw (Opposite sides 1.27)

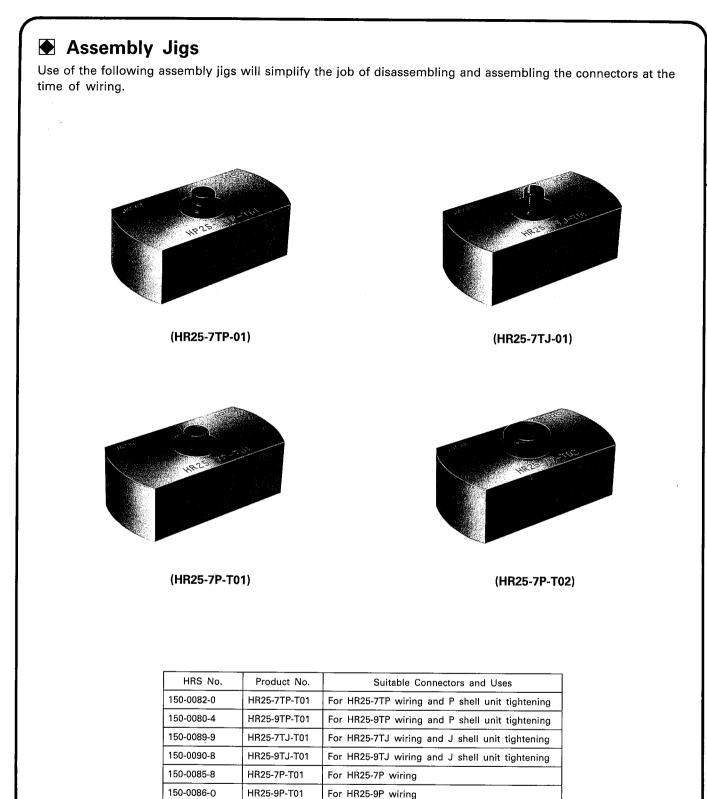
Shell size	Soldered type A dimensions	Crimp type A dimensions	Spanner spacing	Tightening torque
7	10	—	8	1Nm
9	15	19	10	1Nm

- 1. With regard to cables, the wire to be used should have a conductor with a nominal cross-sectional area of 0.08  $mm^2$  (AWG #28) or less in a finished form suited to each size.
- 2. First pass the cable bushing, cable tube, and the spacer in order over the cable, then cut the end at the dimensions indicated in the above diagram.
- 3. Mount the contact block in the wiring jig and perform the solder wiring.
- 4. Use the cable crimping jig (HR10A-TC-02) to fix the clamp fitting to the cable.
- 5. Insert the contact block and the spacer in order to the P shell unit. Be sure to align the guides at this time when making the insertion.
- 6. Using the tightening jig, tighten the P shell unit and the cable tube with the specified torque (in the above table).
- 7. Tighten the set screw so that the tip of the set screw falls into one of the two bosses of the clamp fitting. Note that the tightening torque of the set screw is from 0.3 to 0.4 Nm.
- Put the cable bushing over the cable tube and complete the work. Note that the use of a paint lock (e.g., Locktight 271 manufactured by Nihon Locktight K.K.) is recommended on the screw portion to prevent loosening of the cable tube..

The aforementioned work procedure is for the soldered type. In the case of the crimp-style type, Steps 1 and 3 are changed as follows:

- 1. With regard to cables, the wire to be used should have a conductor with a nominal cross-sectional area of 0.05 mm<sup>2</sup> (AWG #30) and 0.035 mm<sup>2</sup> (AWG #32) in a finished form suited to each size.
- 3. Crimp a suitable crimp terminal to the conductor portion of the cable, then fit into the molded terminal hole.

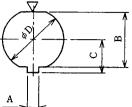
Should there be any points requiring clarification when using the connectors, please contact our Business or Technical Department.



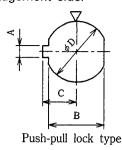
HRS No.	Product No.	Suitable Connectors and Uses
150-0082-0	HR25-7TP-T01	For HR25-7TP wiring and P shell unit tightening
150-0080-4	HR25-9TP-T01	For HR25-9TP wiring and P shell unit tightening
150-0089-9	HR25-7TJ-T01	For HR25-7TJ wiring and J shell unit tightening
150-0090-8	HR25-9TJ-T01	For HR25-9TJ wiring and J shell unit tightening
150-0085-8	HR25-7P-T01	For HR25-7P wiring
150-0086-0	HR25-9P-T01	For HR25-9P wiring
150-0087-3	HR25-7P-T02	For HR25-7P P shell unit tightening
150-0088-6	HR25-9P-T02	For HR25-9P P shell unit tightening

# Mounting Hole Dimensions Diagram

Mounting hole dimensions are indicated as viewed from the engagement side.

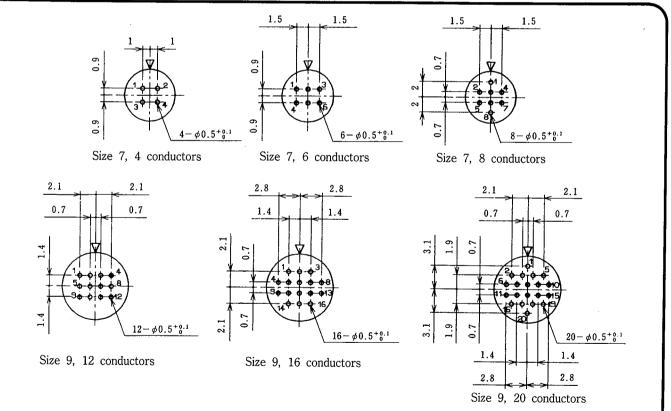


Screw lock type



Lock System	Screw Lock Type		Push-Pull Lock Type	
Shell Size Diagram Symbol	Size 7	Size 9	Size 7	Size 9
A	1.55 <sup>+0.05</sup>	1.55 <sup>+0.05</sup>	1.55 <sup>+0.05</sup>	1.55 <sup>+0.05</sup>
В	$7.25_{-0.02}^{+0.03}$	9.25 <sup>+0.03</sup> -0.02	9.05 <sup>+0.03</sup>	11.05 <sup>+0.03</sup> 0.02
С	$4.4^{+0.1}_{0}$	5.4 <sup>+0.1</sup>	5.1 <sup>+0.1</sup>	6.1 <sup>+0.1</sup>
D	8 <sup>+0.05</sup> 0	10 <sup>+0.05</sup>	10 <sup>+0.05</sup>	12+0.05
Mounting Panel Thickness	0.7~2	0.7~2	0.7~2	0.7~2

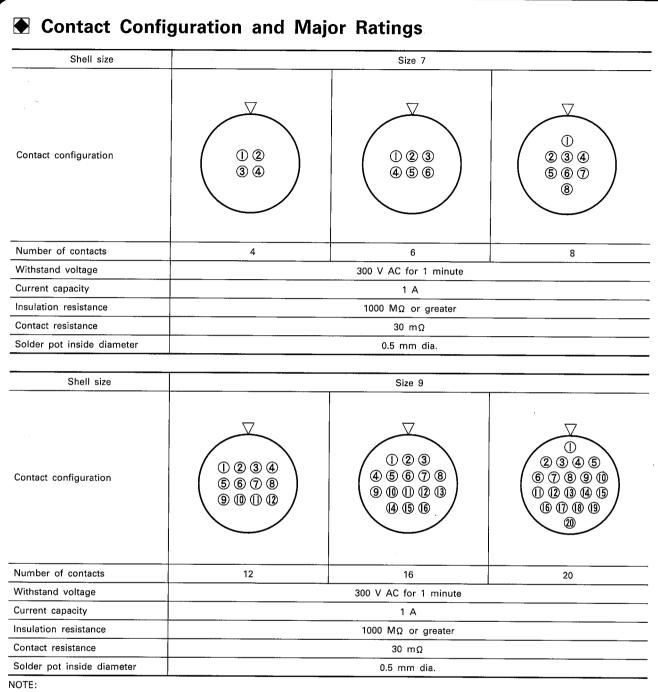
# **RECEPTACLE DIP POST CONFIGURATION DIMENSIONS**



NOTE: 1. The above diagrams are viewed from the engagement side of the socket insert (i.e., the wiring side of the pin insert).

2. The  $\triangle$  mark of the above diagrams indicates the engagement guide key position.

3. A tolerance of  $\pm 0.05$  is recommended for dimensions without indication.



1. The above diagrams are viewed from the engagement side of the socket insert (i.e., the wiring side of the pin insert).

2. The  $\triangle$  mark of the above diagrams indicates the engagement guide key position.

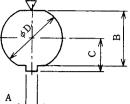
3. The withstand voltage indicates the test voltage value. For regular use the voltage used should be less than 30 V AC or 42 V DC.

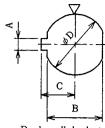
4. The current capacity of the crimp terminals indicates the value when using wire of AWG #30.

5. The insulation resistance indicates a value when measured at 100 V DC.

# Mounting Hole Dimensions Diagram

Mounting hole dimensions are indicated as viewed from the engagement side.



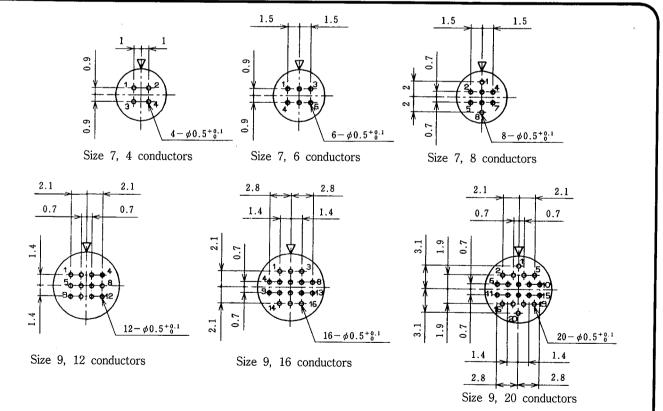


Screw lock type

Push-pull	lock	type
- aon pan	10011	Uppe

Lock System	Screw Lock Type		Push-Pull Lock Type	
Shell Size Diagram Symbol	Size 7	Size 9	Size 7	Size 9
А	1.55 <sup>+0.05</sup>	1.55 <sup>+0.05</sup>	1.55 <sup>+0.05</sup>	1.55 <sup>+0.05</sup>
В	$7.25_{-0.02}^{+0.03}$	$9.25^{+0.03}_{-0.02}$	$9.05^{+0.03}_{-0.02}$	11.05 <sup>+0.03</sup> <sub>-0.02</sub>
С	4.4 <sup>+0.1</sup>	5.4 <sup>+0.1</sup>	5.1 <sup>+0.1</sup>	6.1 <sup>+0.1</sup>
D	8 <sup>+0.05</sup>	10 <sup>+0.05</sup>	10 <sup>+0.05</sup>	12 <sup>+0.05</sup>
Mounting Panel Thickness	0.7~2	0.7~2	0.7~2	0.7~2

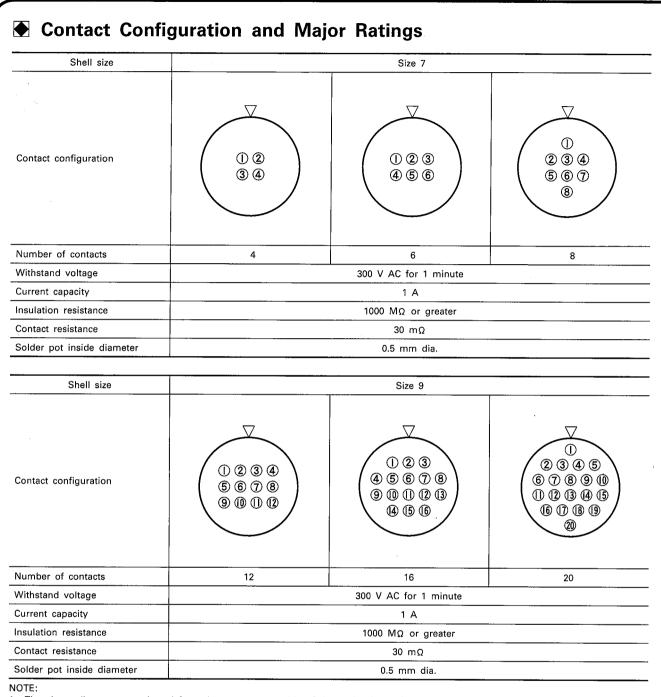
# **RECEPTACLE DIP POST CONFIGURATION DIMENSIONS**



NOTE: 1. The above diagrams are viewed from the engagement side of the socket insert (i.e., the wiring side of the pin insert).

2. The  $\triangle$  mark of the above diagrams indicates the engagement guide key position.

3. A tolerance of  $\pm 0.05$  is recommended for dimensions without indication.



1. The above diagrams are viewed from the engagement side of the socket insert (i.e., the wiring side of the pin insert).

2. The  $\triangle$  mark of the above diagrams indicates the engagement guide key position.

3. The withstand voltage indicates the test voltage value. For regular use the voltage used should be less than 30 V AC or 42 V DC.

4. The current capacity of the crimp terminals indicates the value when using wire of AWG #30.

5. The insulation resistance indicates a value when measured at 100 V DC.