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With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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NEW

MS type Lower Profile Plug

H/MS Series

Circular connector conforming to MIL-C-5015

PAT.P



■ Features

1. 20% Height Reduction

When compared with existing H/MS Series connectors the overall height of plug assemblies is lower, allowing it to be used in space constrained applications.

2. Cable Exit in 360° Directions

The cable can exit in any of the 8 fixed direction, in 45° increments.

3. Simple Assembly

The 2-piece design consisting of the contact/insulator assembly and the back-shell assembly allows termination without the use of any specialized tools.

4. Water and Dust Protection

IP 67 rating when fully terminated and mated with corresponding part.

5. TUV Certification

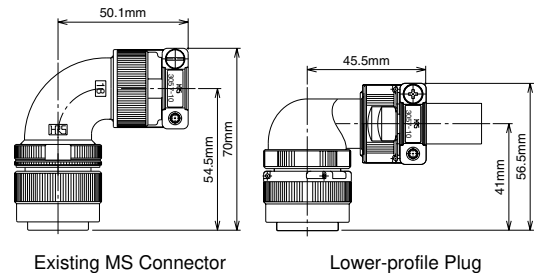
Provided with a protective circuit function for TUV certification. The (D) pin is directly connected to the outside metal case.

■ Applications

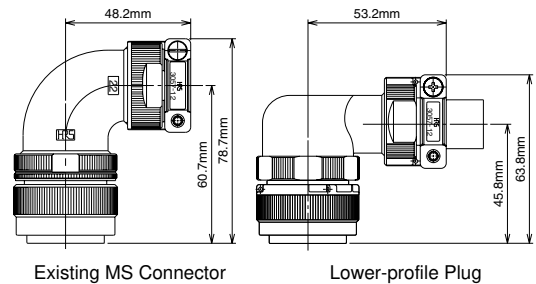
Factory automation equipment, robotic equipment, servo motors, and a wide variety of industrial and measuring instruments.

Connector Height Comparison

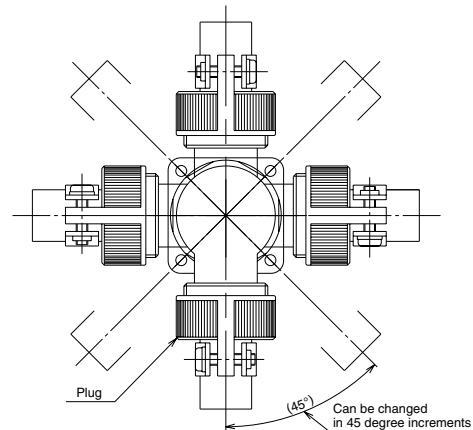
18-10 Size



22-22 Size



Cable Exit Direction of 360°



■ Product Specifications

Rating	Voltage rating	250VAC, 250V DC (pollution degree: 3, overvoltage category: III) 500V AC, 500V DC (pollution degree: 2, overvoltage category: II)	Operating temperature range -25°C to +125°C
	Current rating	23A Max. (18-10 size) 46A Max. (22-22 size)	Storage temperature range -25°C to +125°C

Item	Specification		Conditions
	18-10 size	22-22 size	
1. Contact resistance	3 m ohms max.	1 m ohms max.	1A DC
2. Insulation resistance	5000 M ohms min.		500 V DC
3. Withstanding voltage	No flashover or insulation breakdown.		2250V AC/one minute.
4. Vibration	No electrical discontinuity for 10 ms max.		Frequency: 10 to 500 Hz, single amplitude of 0.75 mm, acceleration of 98 m/s ² for 3 hours in 3 axis.
5. Shock			Acceleration of 490 m/s ² , 11ms duration, sine half-wave waveform, 3 cycles in each of the 3 axis.
6. Durability (insertion/ withdrawal)	Contact resistance: 4.5 m ohms max.	Contact resistance: 1.5 m ohms max.	500 cycles
7. Temperature cycle	Insulation resistance: 5000 M ohms min.		Temperature: -55°C → Room temperature to +125°C → Room temperature Time: 30 → 10 to 15 → 30 → 10 to 15 (Minutes) 5 cycles.
8. Humidity	Insulation resistance: 50 M ohms min. (Humidity state) 500 M ohms min. (Dry state)		96 hours at temperature of 71°C and humidity of 95% .
9. Water/dust protection	When mated with corresponding connector.		No dust penetration. No water penetration when submerged for 0.5 hour at the depth of 1 meter.

■ Materials

Item	Material	Finish	Remarks
Body	Aluminum alloy	Black chromate	_____
Insulator	PPS	Color: Black	UL94V-0
Socket Contacts	Copper alloy	Silver plating	_____
Gasket	Silicone Rubber	Color: Black	_____
Bushing	Chloroprene rubber	Color: Black	_____

■ Additional Product Information

1. Product number suffixes

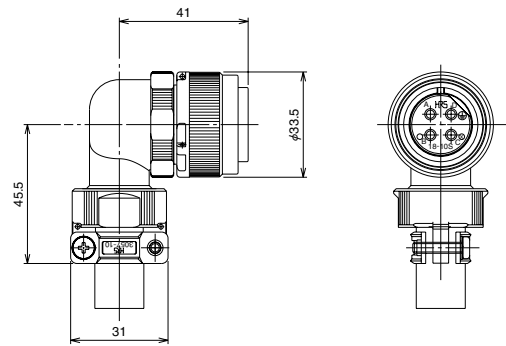
- (10) Supplied with a wire hole in the locking ring (to prevent loosening of the ring).
- (11) Supplied without the wire hole in the locking ring.

2. Corresponding receptacles.

- 18-10 Size: Part number H/MS3102A18-10P-D-T1(10)
- 22-22 Size: Part number H/MS3102A22-22P-D-T(10)

■ Plug

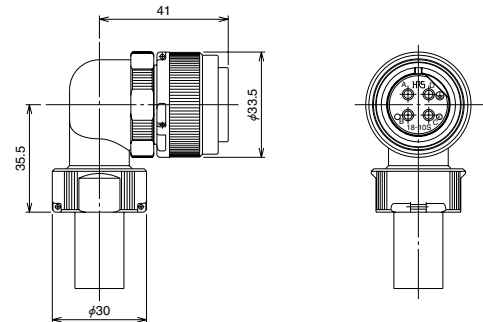
H/MS08A18-10S-DT10D(10)



Shown one type.

Part Number	CL No.	Number of Contacts	Weight	Applicable Cable Diameter	Contact solder pot inner diameter
H/MS08A18-10S-DT10D(10)	CL120-0476-3-10	4	89g	$\phi 13 \sim \phi 14.3\text{mm}$	2.5mm
H/MS08A18-10S-DT10D(11)	CL120-0476-3-11	4	89g	$\phi 13 \sim \phi 14.3\text{mm}$	2.5mm

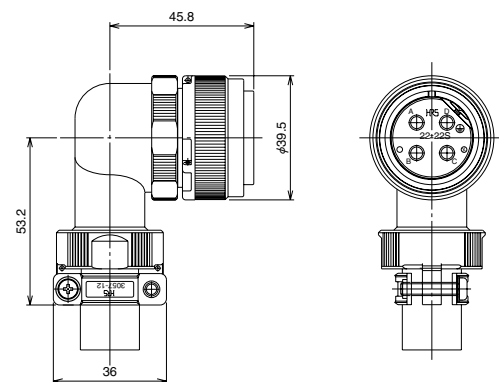
H/MS08A18-10S-DT10C(10)



Shown one type.

Part Number	CL No.	Number of Contacts	Weight	Applicable Cable Diameter	Contact solder pot inner diameter
H/MS08A18-10S-DT10C(10)	CL120-0480-0-10	4	77.6g	$\phi 13 \sim \phi 14.3\text{mm}$	2.5mm
H/MS08A18-10S-DT10C(11)	CL120-0480-0-11	4	77.6g	$\phi 13 \sim \phi 14.3\text{mm}$	2.5mm

H/MS08A22-22S-DT12D(10)



Shown one type.

Part Number	CL No.	Number of Contacts	Weight	Applicable Cable Diameter	Contact solder pot inner diameter
H/MS08A22-22S-DT12D(10)	CL120-0477-6-10	4	127g	$\phi 14.9 \sim \phi 15.9\text{mm}$	4.5mm
H/MS08A22-22S-DT12D(11)	CL120-0477-6-11	4	127g	$\phi 14.9 \sim \phi 15.9\text{mm}$	4.5mm

◆ Assembly Procedures

Process	Outline of assembly									
1	<div style="text-align: center;"> </div> <p>Table 1</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr style="background-color: #f2f2f2;"> <th></th> <th>A</th> <th>B</th> </tr> </thead> <tbody> <tr> <td>18-10 Size</td> <td>24mm</td> <td>13mm</td> </tr> <tr> <td>22-22 Size</td> <td>33mm</td> <td>15mm</td> </tr> </tbody> </table> <p>a. Pass the strain relief clamp, washer, bushing, and hood over the cable, in this order. b. Prepare the cable and conductors per the dimensions in Table 1. c. Bend the exposed conductor to the B dimension as indicated in Table 1. d. Pre-solder the exposed conductor and solder it as shown to the exposed contact. Note: Use care not to damage the conductor's insulation.</p>		A	B	18-10 Size	24mm	13mm	22-22 Size	33mm	15mm
	A	B								
18-10 Size	24mm	13mm								
22-22 Size	33mm	15mm								
2	<div style="text-align: center;"> </div> <p>Table 2</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr style="background-color: #f2f2f2;"> <th>Locking Ring</th> <th>Cable Clamp</th> </tr> </thead> <tbody> <tr> <td>3 to 3.5N · m</td> <td>5 to 6N · m</td> </tr> </tbody> </table> <p>a. Place over the contact/insulator assembly (in the following order: Back shell, bushing, washer, strain relief clamp). b. Tighten the Locking ring and Cable clamp to the torque values per Table 2. c. Tighten the set screw to a torque value of 0.3-0.4 N·m HRS recommended tool: PB205/1.27 (CL150-0066-3) or equivalent. d. Using screwdriver tighten the two strain relief clamp screws until both sides of the moveable part are in contact with the cable clamp.</p>	Locking Ring	Cable Clamp	3 to 3.5N · m	5 to 6N · m					
Locking Ring	Cable Clamp									
3 to 3.5N · m	5 to 6N · m									



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H/MS SERIES CIRCULAR CONNECTORS

H/MS SERIES CIRCULAR CONNECTORS COMPLYING WITH JIS B 6015 & MIL GENERAL

■ Scope

The H/MS Series are circular multi-contact connectors meeting the MIL-C-5015 requirements, developed by HIROSE over long years of experience. Connectors complying with TÜV (DIN VDE 0627) and JIS B 6015 (Electric Equipment (electric Equipment for Machine Tools) are not only equipped with protective circuits (grounding terminals), but also compatible with the MS connectors. Thus, the H/MS Series can replace conventional MS connectors easily without any modification on the set side, thus meeting the increasing requirements for safety worldwide.



■ Features

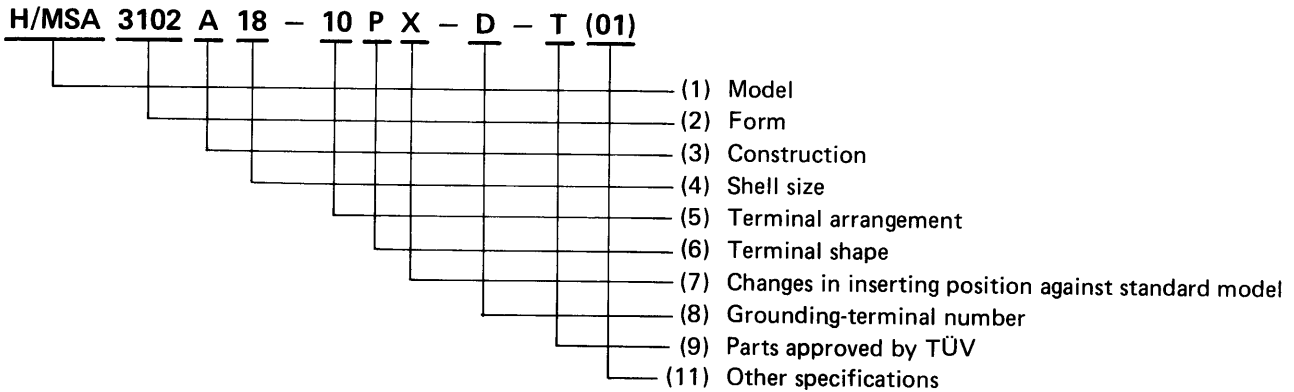
- 1. Waterproof plugs available**
Waterproof plus are available in L-shaped and straight types. The L-shaped type ensures waterproof mating with the sectioned receptacles. Its waterproof performance satisfies IP67F or more.
- 2. Waterproof separate receptacle**
Receptacles are available in models complying with JIS or not complying with JIS, preventing water from entering. Their waterproof performance satisfies exceeds IP67F.
- 3. Models complying with TÜV and JIS B 6015 are equipped with protective circuits (grounding)**
During insertion or extraction, the connector is grounded before the other circuits are connected, and disconnected after all other circuits are disconnected. The protective circuit is designed such that it is connected directly to the outer metal case of the connector.
- 4. Available in a variety of models**
Plugs are available in Right Angle or straight types, waterproof or non-waterproof, and complying or not complying with JIS and TÜV.

Material Finish

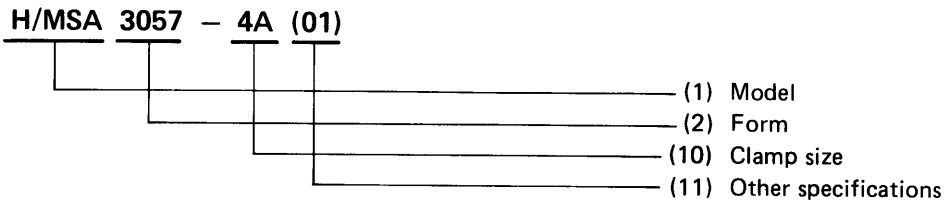
Part No.	Material	Finish
Shell	Aluminum alloy or zinc alloy	Zinc - plated + OD - colored + Black
Insulator	PPS RESIN, PBT, SIR, NBR	(Black)
Male terminal	Copper alloy	Silver-plated
Female terminal	Copper alloy	Silver-plated

Ordering Information

● Plug & receptacle



● Clamp



(1) Model:

H/MS Series
H/MS: Waterproof
H/MSA: Non-waterproof

(2) Form:

Connector forms are classified as follows:
3102: Receptacle
3106: Straight plug
3108: Right angle plug
3057: Cord clamp

(3) Construction:

Stands for connector construction
A: Integrated shell
B: Sectioned shell

(4) Shell size:

Represented by the nominal diameter (in inches) of thread at mating portion multiplied by 16.
Example: A shell with the nominal thread diameter of 1-1/8 inches in called "18" in size. 1-1/8 x 16 = 18 (size 18)

(5) Terminal arrangement:

See page 184.

(6) Terminal shape:

Represented as follows.
P: Solder male terminal
S: Solder female terminal
PC: Crimp male terminal

(7) Changes in inserting position against standard model:

Represented by W, X, Y, or Z. For details, see the Table on page 181.
(8) Grounding-terminal number:
Represented by C, D, G, and N standing for the numbers of grounding terminals of the connectors complying with JIS. The terminal numbers vary depending on shell size. Product numbers without symbols have no grounding terminal.

(9) Parts approved by TÜV:

Inhibits parts approved by TÜV corresponding to DIN VDE 0627.

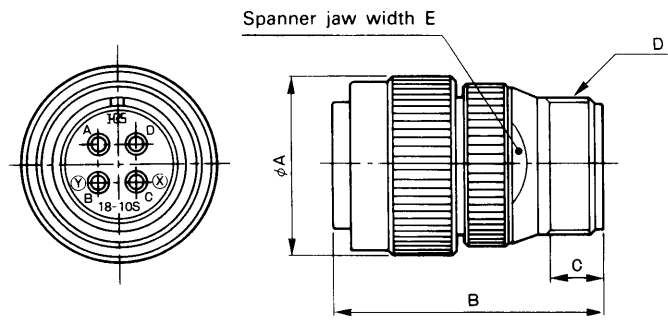
(10) Clamp size:

Stands for the size and construction of clamps.

(11) Other specifications:

Any change to the above specifications will be shown by a two-digit numeric suffix (01), (02),

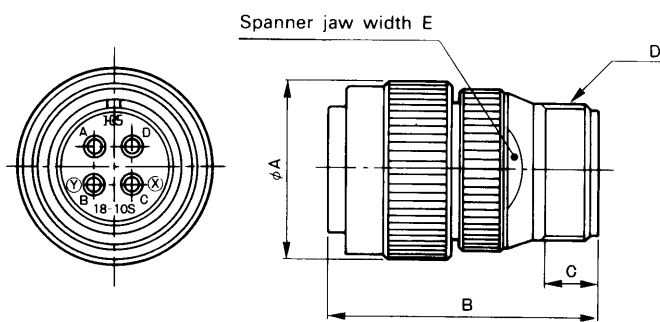
■ Straight Plug



(An example in shape)

HRS No.	Part No.	No. of pins	φA	B	C	D	E	Remarks
120-0651-1	H/MSA3106A10SL-4S	2	22	36.8	10	5/8-24UNEF-2A	—	
120-0653-7	H/MSA3106A10SL-3S	3	22	36.8	10	5/8-24UNEF-2A	—	
120-0653-7-10	H/MSA3106A10SL-3S(10)	3	22	36.8	10	5/8-24UNEF-2A	—	Black
120-0655-2	H/MSA3106A18-10S	4	33.5	50	10	1-20UNEF-2A	27	
120-0655-2-10	H/MSA3106A18-10S(10)	4	33.5	50	10	1-20UNEF-2A	27	Black
120-0657-8	H/MSA3106A18-12S	6	33.5	50	10	1-20UNEF-2A	27	
120-0659-3	H/MSA3106A20-15S	7	37	54.5	10	1 3/16-18UNEF-2A	32	
120-0661-5	H/MSA3106A20-29S	17	37	54.5	10	1 3/16-18UNEF-2A	32	
120-0661-5-01	H/MSA3106A20-29SW(01)	17	37	54.5	10	1 3/16-18UNEF-2A	32	
120-0661-5-11	H/MSA3106A20-29SW(11)	17	37	54.5	10	1 3/16-18UNEF-2A	32	Black
120-0663-0	H/MSA3106A22-14S	19	39.5	54.5	10	1 3/16-18UNEF-2A	32	
120-0665-6	H/MSA3106A22-22S	4	39.5	54.5	10	1 3/16-18UNEF-2A	32	
120-0665-6-10	H/MSA3106A22-22S(10)	4	39.5	54.5	10	1 3/16-18UNEF-2A	32	Black
120-0667-1	H/MSA3106A22-23S	8	39.5	54.5	10	1 3/16-18UNEF-2A	32	
120-0669-7	H/MSA3106A24-10S	7	43	57.7	10	1 7/16-18UNEF-2A	37	
120-0669-7-10	H/MSA3106A24-10S(10)	7	43	57.7	10	1 7/16-18UNEF-2A	37	Black

■ Straight Plug

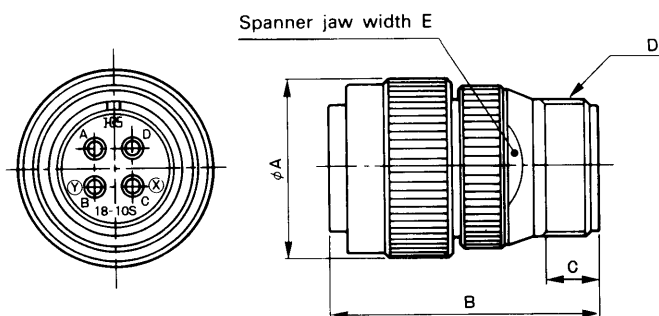


(An example in shape)

[Parts approved by TÜV]

HRS No.	Part No.	No. of pins	ϕ A	B	C	D	E	Remarks
120-0370-2	H/MSA3106A10SL-3S-C-T	3	22	36.8	10	5/8-24UNEF-2A	—	
120-0370-2-10	H/MSA3106A10SL-3S-C-T(10)	3	22	36.8	10	5/8-24UNEF-2A	—	Black
120-0371-5	H/MSA3106A18-10S-D-T	4	33.5	50	10	1-20UNEF-2A	27	
120-0371-5-10	H/MSA3106A18-10S-D-T(10)	4	33.5	50	10	1-20UNEF-2A	27	Black
120-0372-8	H/MSA3106A22-22S-D-T	4	39.5	54.5	10	1 3/16-18UNEF-2A	32	
120-0372-8-10	H/MSA3106A22-22S-D-T(10)	4	39.5	54.5	10	1 3/16-18UNEF-2A	32	Black

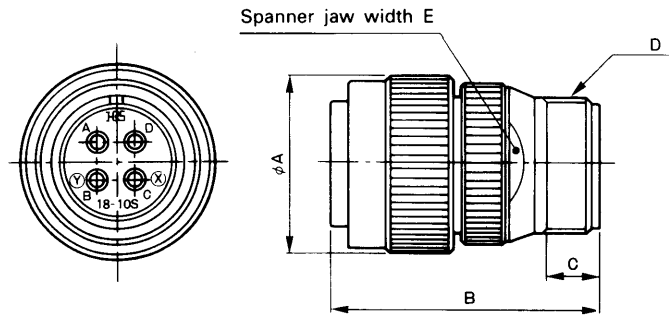
■ Straight Plug (Waterproof Type)



(An example in shape)

HRS No.	Part No.	No. of pins	ϕA	B	C	D	E	Remarks
120-0601-3	H/MS3106A10SL-4S	2	22	36.8	10	5/8-24UNEF-2A	—	
120-0603-9	H/MS3106A10SL-3S	3	22	36.8	10	5/8-24UNEF-2A	—	
120-0603-9-10	H/MS3106A10SL-3S(10)	3	22	36.8	10	5/8-24UNEF-2A	—	Black
120-0605-4	H/MS3106A18-10S	4	33.5	50	10	1-20UNEF-2A	27	
120-0605-4-10	H/MS3106A18-10S(10)	4	33.5	50	10	1-20UNEF-2A	27	Black
120-0607-0	H/MS3106A18-12S	6	33.5	50	10	1-20UNEF-2A	27	
120-0609-5	H/MS3106A20-15S	7	37	54.5	10	1 3/16-18UNEF-2A	32	
120-0611-7	H/MS3106A20-29S	17	37	54.5	10	1 3/16-18UNEF-2A	32	
120-0611-7-01	H/MS3106A20-29SW(01)	17	37	54.5	10	1 3/16-18UNEF-2A	32	
120-0611-7-11	H/MS3106A20-29SW(11)	17	37	54.5	10	1 3/16-18UNEF-2A	32	Black
120-0613-2	H/MS3106A22-14S	19	39.5	54.5	10	1 3/16-18UNEF-2A	32	
120-0615-8	H/MS3106A22-22S	4	39.5	54.5	10	1 3/16-18UNEF-2A	32	
120-0615-8-10	H/MS3106A22-22S(10)	4	39.5	54.5	10	1 3/16-18UNEF-2A	32	Black
120-0617-3	H/MS3106A22-23S	8	39.5	54.5	10	1 3/16-18UNEF-2A	32	
120-0619-9	H/MS3106A24-10S	7	43	57.7	10	1 7/16-18UNEF-2A	37	
120-0619-9-10	H/MS3106A24-10S(10)	7	43	57.7	10	1 7/16-18UNEF-2A	37	Black

■ Straight Plug (Waterproof Type)

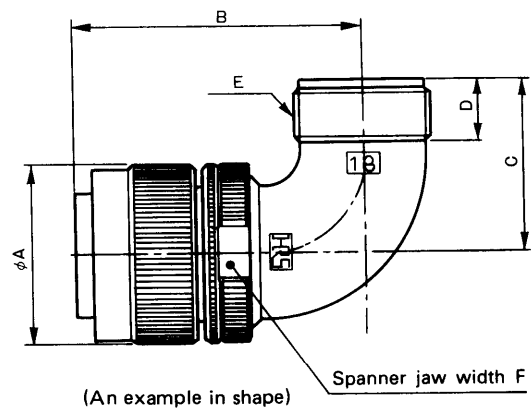


(An example in shape)

[Parts approved by TÜV]

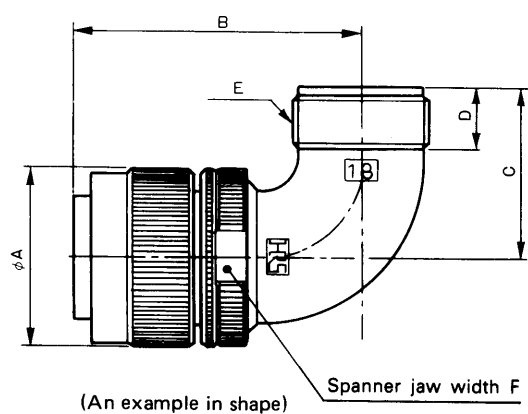
HRS No.	Part No.	No. of pins	ϕA	B	C	D	E	Remarks
120-0326-0	H/MS3106A10SL-3S-C-T	3	22	36.8	10	5/8-24UNEF-2A	—	
120-0326-0-10	H/MS3106A10SL-3S-C-T(10)	3	22	36.8	10	5/8-24UNEF-2A	—	Black
120-0323-2	H/MS3106A18-10S-D-T	4	33.5	50	10	1-20UNEF-2A	27	
120-0323-2-10	H/MS3106A18-10S-D-T(10)	4	33.5	50	10	1-20UNEF-2A	27	Black
120-0324-5	H/MS3106A22-22S-D-T	4	39.5	54.5	10	1 3/16-18UNEF-2A	32	
120-0324-5-10	H/MS3106A22-22S-D-T(10)	4	39.5	54.5	10	1 3/16-18UNEF-2A	32	Black
120-0325-8	H/MS3106A24-10S-G-T	7	43	57.7	10	1 7/16-18UNEF-2A	37	
120-0325-8-10	H/MS3106A24-10S-G-T(10)	7	43	57.7	10	1 7/16-18UNEF-2A	37	Black

■ Right-Angle Plug



HRS No.	Part No.	No. of pins	φA	B	C	D	E	F	Remarks
120-0751-6	H/MSA3108B10SL-4S	2	22	37.3	24.5	11.6	5/8-24UNEF-2A	20	
120-0753-1	H/MSA3108B10SL-3S	3	22	37.3	24.5	11.6	5/8-24UNEF-2A	20	
120-0753-1-10	H/MSA3108B10SL-3S(10)	3	22	37.3	24.5	11.6	5/8-24UNEF-2A	20	Black
120-0755-7	H/MSA3108B18-10S	4	33.5	54.5	32	11.6	1-20UNEF-2A	32	
120-0755-7-10	H/MSA3108B18-10S(10)	4	33.5	54.5	32	11.6	1-20UNEF-2A	32	Black
120-0757-2	H/MSA3108B18-12S	6	33.5	54.5	32	11.6	1-20UNEF-2A	32	
120-0761-0	H/MSA3108B20-29S	17	37	60.7	34	11.6	1 3/16-18UNEF-2A	35	
120-0761-0-01	H/MSA3108B20-29SW(01)	17	37	60.7	34	11.6	1 3/16-18UNEF-2A	35	
120-0761-0-11	H/MSA3108B20-29SW(11)	17	37	60.7	34	11.6	1 3/16-18UNEF-2A	35	Black
120-0763-5	H/MSA3108B22-14S	19	39.5	60.7	34	11.6	1 3/16-18UNEF-2A	38	
120-0765-0	H/MSA3108B22-22S	4	39.5	60.7	34	11.6	1 3/16-18UNEF-2A	38	
120-0765-0-10	H/MSA3108B22-22S(10)	4	39.5	60.7	34	11.6	1 3/16-18UNEF-2A	38	Black
120-0767-6	H/MSA3108B22-23S	8	39.5	60.7	34	11.6	1 3/16-18UNEF-2A	38	
120-0769-1	H/MSA3108B24-10S	7	43	67.1	39.6	11.6	1 7/16-18UNEF-2A	41	
120-0769-1-10	H/MSA3108B24-10S(10)	7	43	67.1	39.6	11.6	1 7/16-18UNEF-2A	41	Black

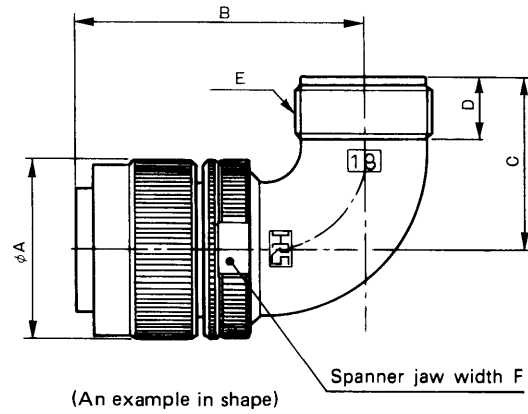
■ Right-Angle Plug



[Parts approved by TÜV]

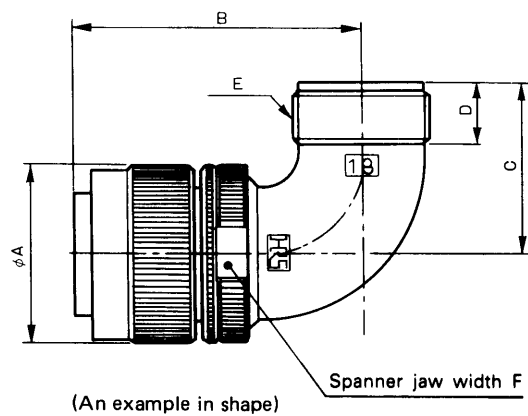
HRS No.	Part No.	No. of pins	ϕ A	B	C	D	E	F	Remarks
120-0471-0	H/MSA3108B18-10S-D-T	4	33.5	54.5	32	11.6	1-20UNEF-2A	32	
120-0471-0-10	H/MSA3108B18-10S-D-T(10)	4	33.5	54.5	32	11.6	1-20UNEF-2A	32	Black

■ Right-Angle Plug (Waterproof Type)



HRS No.	Part No.	No. of pins	φA	B	C	D	E	F	Remarks
120-0701-8	H/MS3108B10SL-4S	2	22	37.3	24.5	11.6	5/8-24UNEF-2A	20	
120-0703-3	H/MS3108B10SL-3S	3	22	37.3	24.5	11.6	5/8-24UNEF-2A	20	
120-0703-3-10	H/MS3108B10SL-3S(10)	3	22	37.3	24.5	11.6	5/8-24UNEF-2A	20	Black
120-0705-9	H/MS3108B18-10S	4	33.5	54.5	32	11.6	1-20UNEF-2A	32	
120-0705-9-10	H/MS3108B18-10S(10)	4	33.5	54.5	32	11.6	1-20UNEF-2A	32	Black
120-0707-4	H/MS3108B18-12S	6	33.5	54.5	32	11.6	1-20UNEF-2A	32	
120-0709-0	H/MS3108B20-15S	7	37	60.7	34	11.6	1 3/16-18UNEF-2A	35	
120-0711-1	H/MS3108B20-29S	17	37	60.7	34	11.6	1 3/16-18UNEF-2A	35	
120-0711-1-01	H/MS3108B20-29SW(01)	17	37	60.7	34	11.6	1 3/16-18UNEF-2A	35	
120-0711-1-11	H/MS3108B20-29SW(11)	17	37	60.7	34	11.6	1 3/16-18UNEF-2A	35	Black
120-0713-7	H/MS3108B22-14S	19	39.5	60.7	34	11.6	1 3/16-18UNEF-2A	38	
120-0715-2	H/MS3108B22-22S	4	39.5	60.7	34	11.6	1 3/16-18UNEF-2A	38	
120-0715-2-10	H/MS3108B22-22S(10)	4	39.5	60.7	34	11.6	1 3/16-18UNEF-2A	38	Black
120-0717-8	H/MS3108B22-23S	8	39.5	60.7	34	11.6	1 3/16-18UNEF-2A	38	
120-0719-3	H/MS3108B24-10S	7	43	67.1	39.6	11.6	1 7/16-18UNEF-2A	41	
120-0719-3-10	H/MS3108B24-10S(10)	7	43	67.1	39.6	11.6	1 7/16-18UNEF-2A	41	Black

■ Right-Angle Plug (Waterproof Type)

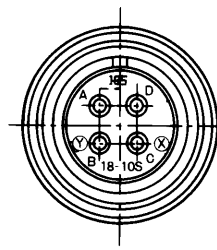


[Parts approved by TÜV]

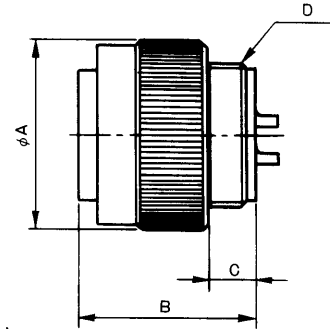
HRS No.	Part No.	No. of pins	φA	B	C	D	E	F	Remarks
120-0421-1	H/MS3108B10SL-3S-C-T	3	22	37.3	24.5	11.6	5/8-24UNEF-2A	20	
120-0421-1-10	H/MS3108B10SL-3S-C-T(10)	3	22	37.3	24.5	11.6	5/8-24UNEF-2A	20	Black
120-0422-4	H/MS3108B18-10S-D-T	4	33.5	54.5	32	11.6	1-20UNEF-2A	32	
120-0422-4-10	H/MS3108B18-10S-D-T(10)	4	33.5	54.5	32	11.6	1-20UNEF-2A	32	Black
120-0423-7	H/MS3108B22-22S-D-T	4	39.5	60.7	34	11.6	1 3/16-18UNEF-2A	38	
120-0423-7-10	H/MS3108B22-22S-D-T(10)	4	39.5	60.7	34	11.6	1 3/16-18UNEF-2A	38	Black
120-0424-0	H/MS3108B24-10S-G-T	7	43	67.1	39.6	11.6	1 7/16-18UNEF-2A	41	
120-0424-0-10	H/MS3108B24-10S-G-T(10)	7	43	67.1	39.6	11.6	1 7/16-18UNEF-2A	41	Black

■ Separate Unit

Use this unit in combination with connectors for flexible conduit tubes or tough-rubber sheathed cables.



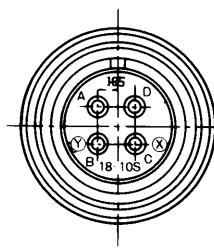
(An example in shape)



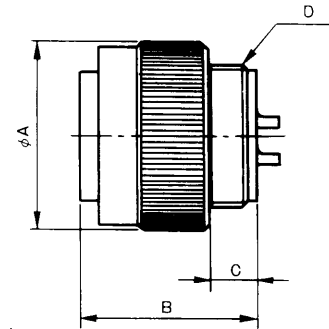
HRS No.	Part No.	No. of pins	ϕ A	B	C	D	Remarks
120-0651-1-03	H/MSA3106A10SL-4S(03)	2	22	24	6.5	9/16-24UNEF-2A	
120-0653-7-03	H/MSA3106A10SL-3S(03)	3	22	24	6.5	9/16-24UNEF-2A	
120-0655-2-03	H/MSA3106A18-10S(03)	4	33.5	31.2	8	1-20UNEF-2A	
120-0659-3-03	H/MSA3106A20-15S(03)	7	37	33.2	10	1 1/8-18UNEF-2A	
120-0661-5-03	H/MSA3106A20-29S(03)	17	37	33.2	10	1 1/8-18UNEF-2A	
120-0663-0-03	H/MSA3106A22-14S(03)	19	39.5	33.2	10	1 1/4-18UNEF-2A	
120-0665-6-03	H/MSA3106A22-22S(03)	4	39.5	33.2	10	1 1/4-18UNEF-2A	
120-0669-7-03	H/MSA3106A24-10S(03)	7	43	34.7	10	1 3/8-18UNEF-2A	

■ Separate Unit

Use this unit in combination with connectors for flexible conduit tubes or tough-rubber sheathed cables.



(An example in shape)

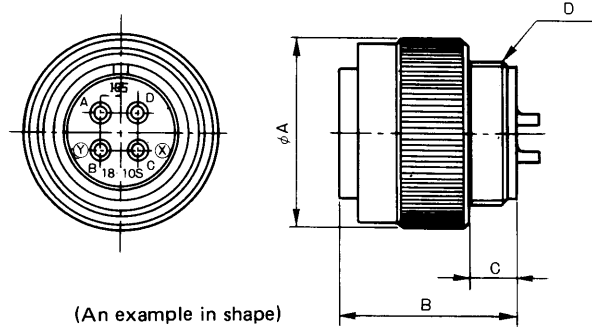


[Parts approved by TÜV]

HRS No.	Part No.	No. of pins	ϕ A	B	C	D	Remarks
120-0370-2-03	H/MSA3106A10SL-3S-C-T(03)	3	22	24	6.5	9/16-24UNEF-2A	
120-0370-2-13	H/MSA3106A10SL-3S-C-T(13)	3	22	24	6.5	9/16-24UNEF-2A	Black
120-0371-5-03	H/MSA3106A18-10S-D-T(03)	4	33.5	31.2	8	1-20UNEF-2A	
120-0371-5-13	H/MSA3106A18-10S-D-T(13)	4	33.5	31.2	8	1-20UNEF-2A	Black
120-0372-8-03	H/MSA3106A22-22S-D-T(03)	4	39.5	33.2	10	1-1/4-18UNEF-2A	
120-0372-8-13	H/MSA3106A22-22S-D-T(13)	4	39.5	33.2	10	1-1/4-18UNEF-2A	Black

■ Separate Unit (Waterproof Type)

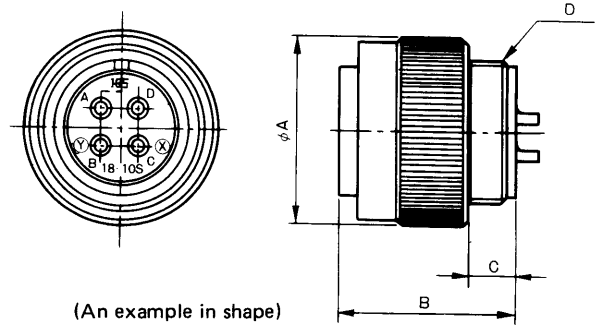
Use this unit in combination with connectors for flexible conduit tubes or tough-rubber sheathed cables.



HRS No:	Part No.	No. of pins	φ A	B	C	D	Remarks
120-0601-3-03	H/MS3106A10SL-4S(03)	2	22	24	6.5	9/16-24UNEF-2A	
120-0603-9-03	H/MS3106A10SL-3S(03)	3	22	24	6.5	9/16-24UNEF-2A	
120-0603-9-13	H/MS3106A10SL-3S(13)	3	22	24	6.5	9/16-24UNEF-2A	Black
120-0605-4-03	H/MS3106A18-10S(03)	4	33.5	31.2	8	1-20UNEF-2A	
120-0605-4-13	H/MS3106A18-10S(13)	4	33.5	31.2	8	1-20UNEF-2A	Black
120-0609-5-03	H/MS3106A20-15S(03)	7	37	33.2	10	1 1/8-18UNEF-2A	
120-0611-7-03	H/MS3106A20-29S(03)	17	37	33.2	10	1 1/8-18UNEF-2A	
120-0611-7-04	H/MS3106A20-29SW(04)	17	37	33.2	10	1 1/8-18UNEF-2A	
120-0611-7-14	H/MS3106A20-29SW(14)	17	37	33.2	10	1 1/8-18UNEF-2A	Black
120-0613-2-03	H/MS3106A22-14S(03)	19	39.5	33.2	10	1 1/4-18UNEF-2A	
120-0615-8-03	H/MS3106A22-22S(03)	4	39.5	33.2	10	1 1/4-18UNEF-2A	
120-0615-8-13	H/MS3106A22-22S(13)	4	39.5	33.2	10	1 1/4-18UNEF-2A	Black
120-0617-3-03	H/MS3106A22-23S(03)	8	39.5	33.2	10	1 1/4-18UNEF-2A	
120-0619-9-03	H/MS3106A24-10S(03)	7	43	34.7	10	1 3/8-18UNEF-2A	
120-0619-9-13	H/MS3106A24-10S(13)	7	43	34.7	10	1 3/8-18UNEF-2A	Black

■ Separate Unit (Waterproof Type)

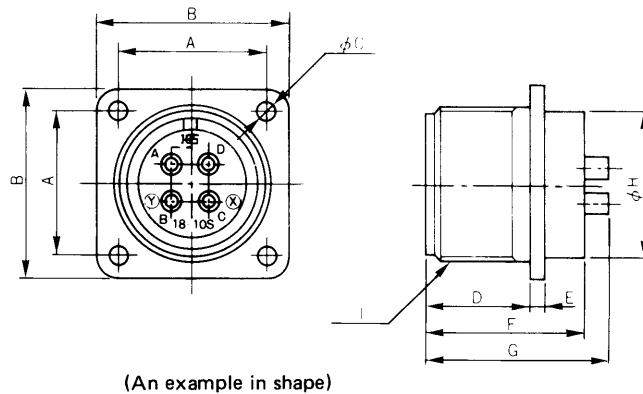
Use this unit in combination with connectors for flexible conduit tubes or tough-rubber sheathed cables.



[Parts approved by TÜV]

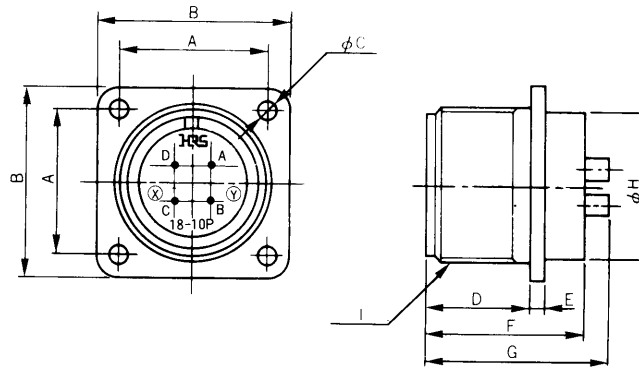
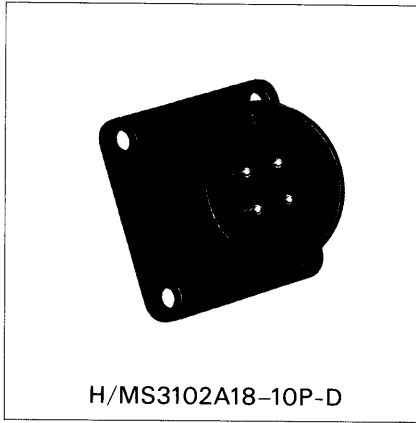
HRS No.	Part No.	No. of pins	ϕA	B	C	D	Remarks
120-0326-0-03	H/MS3106A10SL-3S-C-T(03)	3	22	24	6.5	9/16-24UNEF-2A	
120-0326-0-13	H/MS3106A10SL-3S-C-T(13)	3	22	24	6.5	9/16-24UNEF-2A	Black
120-0323-2-03	H/MS3106A18-10S-D-T(03)	4	33.5	31.2	8	1-20UNEF-2A	
120-0323-2-13	H/MS3106A18-10S-D-T(13)	4	33.5	31.2	8	1-20UNEF-2A	Black
120-0324-5-03	H/MS3106A22-22S-D-T(03)	4	39.5	33.2	10	1 1/4-18UNEF-2A	
120-0324-5-13	H/MS3106A22-22S-D-T(13)	4	39.5	33.2	10	1 1/4-18UNEF-2A	Black
120-0325-8-03	H/MS3106A24-10S-G-T(03)	7	43	34.7	10	1 3/8-18UNEF-2A	
120-0325-8-13	H/MS3106A24-10S-G-T(13)	7	43	34.7	10	1 3/8-18UNEF-2A	Black

■ Receptacle



HRS No.	Part No.	No. of pins	A	B	ϕC	D	E	F	G	ϕH	I	Remarks
120-0254-1	H/MSA3102A18-10S-D	4	26.97	34.92	3.3	19.3	2.8	30.7	35.5	26.8	1 1/8-18UNEF-2A	
120-0258-2	H/MSA3102A20-15S-G	7	29.36	38.1	3.3	19.3	2.8	30.7	37.7	29.6	1 1/4-18UNEF-2A	

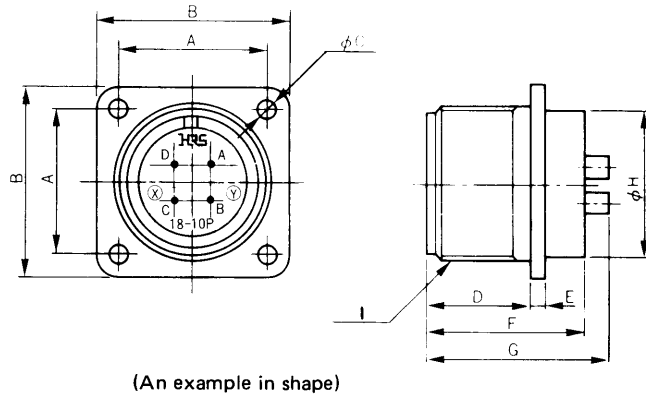
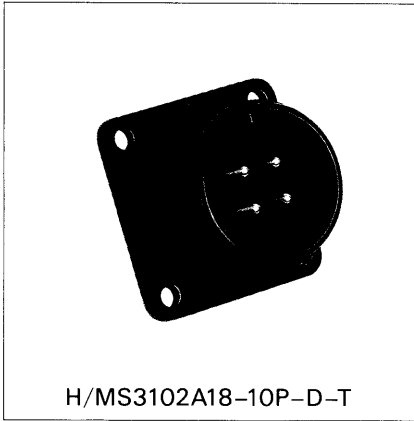
■ Receptacle (Waterproof Type)



HRS No.	Part No.	No. of pins	A	B	φC	D	E	F	G	φH	I	Remarks
* 120-0111-4	H/MS3102A10SL-4P	2	18.26	25.4	3.3	14.5	2.2	23.6	28.3	15.6	5/8-24UNEF-2A	
120-0113-0	H/MS3102A10SL-3P	3	18.26	25.4	3.3	1.45	2.2	23.6	28.3	15.6	5/8-24UNEF-2A	
120-0113-0-10	H/MS3102A10SL-3P(10)	3	18.26	25.4	3.3	14.5	2.2	23.6	28.3	15.6	5/8-24UNEF-2A	Black
120-0101-0	H/MS3102A18-10P	4	26.97	34.92	3.3	19.3	2.8	30	35	26.6	1 1/8-18UNEF-2A	
120-0101-0-10	H/MS3102A18-10P(10)	4	26.97	34.92	3.3	19.3	2.8	30	35	26.6	1 1/8-18UNEF-2A	Black
* 120-0117-0	H/MS3102A18-12P	6	26.97	34.92	3.3	19.3	2.8	30	35	26.6	1 1/8-18UNEF-2A	
120-0115-5	H/MS3102A20-15P	7	29.36	38.1	3.3	19.3	2.8	29.4	35	29.6	1 1/4-18UNEF-2A	
* 120-0103-6	H/MS3102A20-29P	17	29.36	38.1	3.3	19.3	2.8	29.4	33	29.6	1 1/4-18UNEF-2A	
120-0103-6-11	H/MS3102A20-29PW(11)	17	29.36	38.1	3.3	19.3	2.8	29.4	33	29.6	1 1/4-18UNEF-2A	Black
* 120-0105-1	H/MS3102A22-14P	19	31.75	41.28	3.3	19.3	2.8	29.4	33	32.6	1 3/8-18UNEF-2A	
120-0107-7	H/MS3102A22-22P	4	31.75	41.28	3.3	19.3	2.8	29.4	38	32.6	1 3/8-18UNEF-2A	
120-0107-7-10	H/MS3102A22-22P(10)	4	31.75	41.28	3.3	19.3	2.8	29.4	38	32.6	1 3/8-18UNEF-2A	Black
* 120-0119-6	H/MS3102A22-23P	8	31.75	41.28	3.3	19.3	2.8	29.4	35	32.6	1 3/8-18UNEF-2A	
120-0109-2	H/MS3102A24-10P	7	34.92	44.45	3.75	21	2.8	31.6	41	36	1 1/2-18UNEF-2A	
120-0109-2-10	H/MS3102A24-10P(10)	7	34.92	44.45	3.75	21	2.8	31.6	41	36	1 1/2-18UNEF-2A	Black

Note: Models marked with * are available in NBR (acrylonitrile-rubber). Others are available in SIR.

■ Receptacle (Waterproof Type)

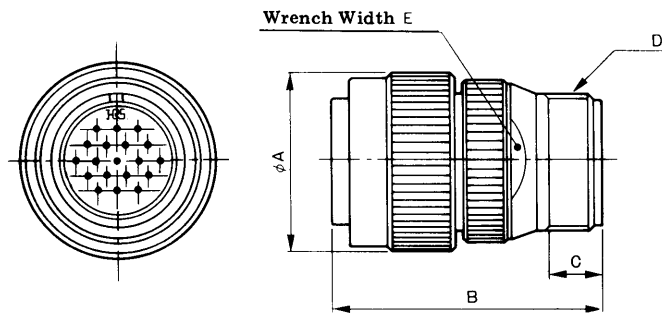


[Parts approved by TÜV]

HRS No.	Part No.	No. of pins	A	B	φC	D	E	F	G	φH	I	Remarks
120-0231-6	H/MS3102A10SL-3P-C-T	3	18.26	25.4	3.3	14.5	2.2	23.6	28.3	15.6	5/8-24UNEF-2A	
120-0231-6-10	H/MS3102A10SL-3P-C-T(10)	3	18.26	25.4	3.3	14.5	2.2	23.6	28.3	15.6	5/8-24UNEF-2A	Black
120-0226-6	H/MS3102A18-10P-D-T	4	26.97	34.92	3.3	19.3	2.8	30	35	26.6	1 1/8-18UNEF-2A	
120-0226-6-10	H/MS3102A18-10P-D-T(10)	4	26.97	34.92	3.3	19.3	2.8	30	35	26.6	1 1/8-18UNEF-2A	Black
120-0227-9	H/MS3102A22-22P-D-T	4	31.75	41.28	3.3	19.3	2.8	29.4	38	32.6	1 3/8-18UNEF-2A	
120-0227-9-10	H/MS3102A22-22P-D-T(10)	4	31.75	41.28	3.3	19.3	2.8	29.4	38	32.6	1 3/8-18UNEF-2A	Black
120-0228-1	H/MS3102A24-10P-G-T	7	34.92	44.45	3.75	21	2.8	31.6	41	36	1 1/2-18UNEF-2A	
120-0228-1-10	H/MS3102A24-10P-G-T(10)	7	34.92	44.45	3.75	21	2.8	31.6	41	36	1 1/2-18UNEF-2A	Black

■ Straight Plug

(Crimp Type)

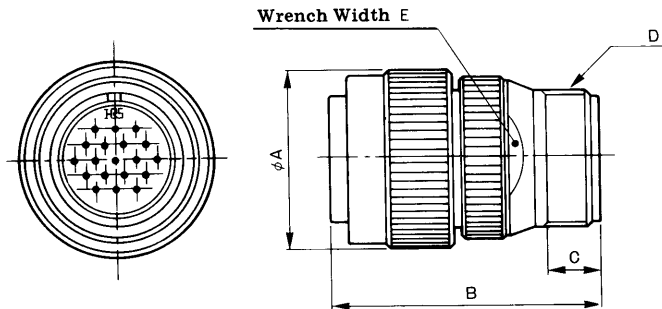


(An example in shape)

HRS No.	Part No.	No. of pins	ϕA	B	C	D	E	Remarks
120-1661-0	H/MSA3106A20-29SC	17	37	54.5	10	1 3/16-18UNEF-2A	32	
120-1663-6	H/MSA3106A22-14SC	19	39.5	54.5	10	1 3/16-18UNEF-2A	32	

■ Straight Plug (Waterproof Type)

(Crimp Type)

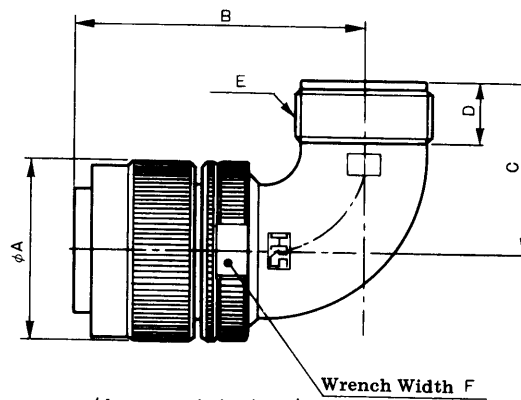


(An example in shape)

HRS No.	Part No.	No. of pins	ϕA	B	C	D	E	Remarks
120-1611-2	H/MS3106A20-29SC	17	37	54.5	10	1 3/16-18UNEF-2A	32	
120-1613-8	H/MS3106A22-14SC	19	39.5	54.5	10	1 3/16-18UNEF-2A	32	

■ Right-Angle Plug

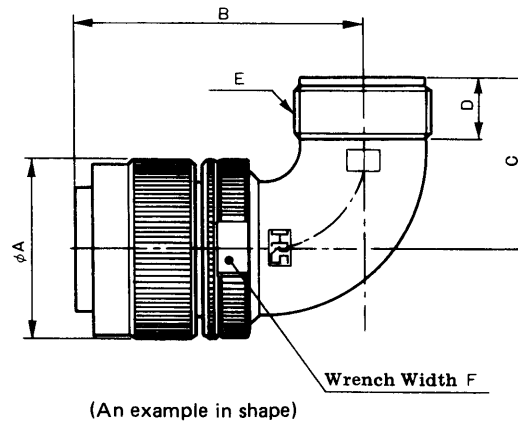
(Crimp Type)



HRS No.	Part No.	No. of pins	ϕA	B	C	D	E	F	Remarks
120-1761-5	H/MSA3108B20-29SC	17	37	60.7	34	11.6	1 3/16-18UNEF-2A	35	

■ Right-Angle Plug (Waterproof Type)

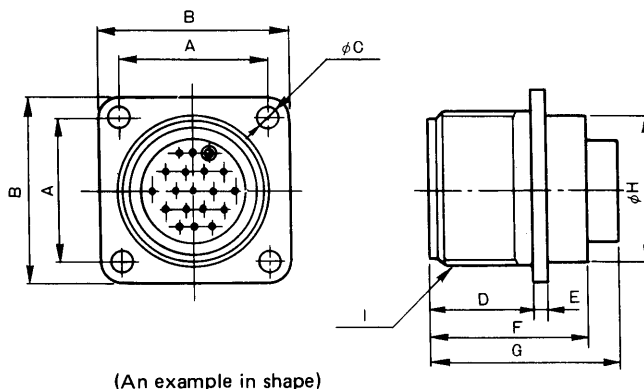
(Crimp Type)



HRS No.	Part No.	No. of pins	ϕA	B	C	D	E	F	Remarks
120-1711-7	H/MSA3108B20-29SC	17	37	60.7	34	11.6	1 3/16-18UNEF-2A	35	
120-1713-2	H/MSA3108B22-14SC	19	39.5	60.7	34	11.6	1 3/16-18UNEF-2A	38	

■ Receptacle (Waterproof Type)

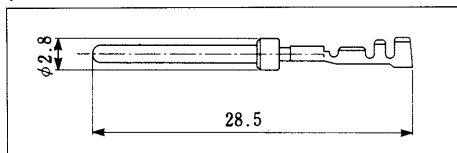
(Crimp Type)



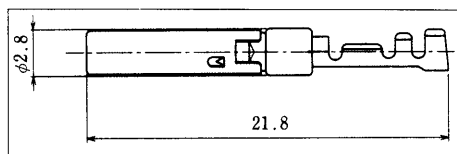
HRS No.	Part No.	No. of pins	A	B	φC	D	E	F	G	φH	I
120-0501-9	H/MS3102A20-29PC	17	29.36	38.1	3.3	19.3	2.8	29.4	37	29.6	1 1/4-18UNEF-2A
120-0502-1	H/MS3102A22-14PC	19	31.75	41.28	3.3	19.3	2.8	29.4	37	32.6	1 3/8-18UNEF-2A

■ Contact

(Male Pin)



(Female Pin)



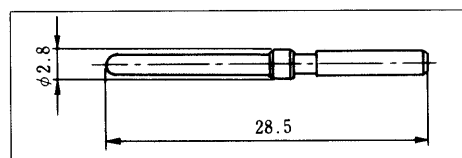
Type	HRS No.	Part No.	Applicable cable
Strip terminal	120-0533-5	H/MS-PC1-212	AWG#24~28
Loose piece terminal	120-0534-8	H/MS-PC1-112	AWG#24~28

Note: Strip terminals are available in a reel of 7,000 units, and loose piece terminals in a pack of 100 units.

Type	HRS No.	Part No.	Applicable cable
Strip terminal	120-1531-5	H/MS-SC-212	AWG#24~28

Note: Strip terminals are available in a reel of 7,000 units.

■ Dummy Pin



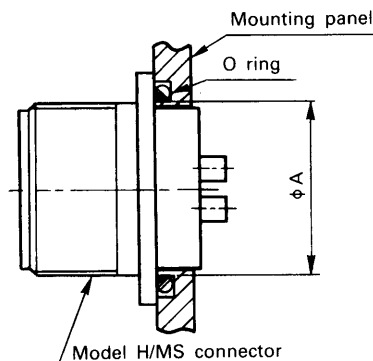
HRS No.	Part No.
120-0532-2	H/MS-PDC

Note: This is designed to be used for waterproof receptacles (crimp type). Do not fail to plug unused wiring holes using it.

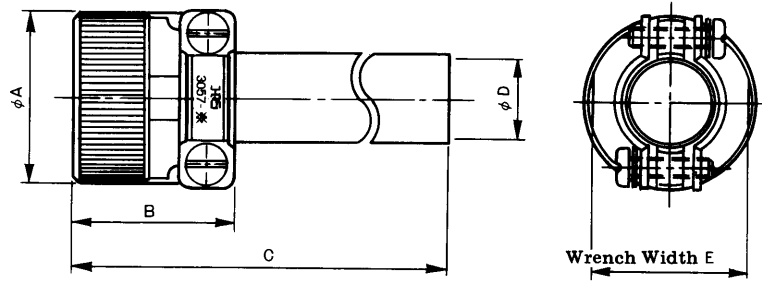
◆ Installing receptacles

Use an O ring or similar material when installing a waterproof receptacle as shown in the Fig. on the right. Recommendable dimensions of O rings are shown in the Table below.

Part No.	φA	O-ring inside dia. (φ)	O-ring size (φ)
H/MS3102A10SL-□□	17.5	17.5	1.5
H/MS3102A18-□□	28.5	28.5	2
H/MS3102A20-□□	31.5	31.5	2
H/MS3102A22-□□	34.5	34.5	2
H/MS3102A24-□□	37.8	37.5	2



■ Cord Clamp



HRS No.	Part No.	φA	B	C	φD	E	Applicable cable dia. range (reference)	Applicable shell size	Remarks
120-0851-0	H/MSA3057-4A	20	26.8	85.3	5.6	17	φ 3.1 ~ φ 5.6	10SL	
120-0851-0-10	H/MSA3057-4A(10)	20	26.8	85.3	5.6	17	φ 3.1 ~ φ 5.6	10SL	Black
120-0852-3	H/MSA3057-10A	30	28.8	74.3	14.3	27	φ10.3 ~ φ14.3	18	
120-0852-3-10	H/MSA3057-10A(10)	30	28.8	74.3	14.3	27	φ10.3 ~ φ14.3	18	Black
120-0853-6	H/MSA3057-12A	34	29.8	72.8	15.9	30	φ11.4 ~ φ15.9	20, 22	
120-0853-6-10	H/MSA3057-12A(10)	34	29.8	72.8	15.9	30	φ11.4 ~ φ15.9	20, 22	Black
120-0855-1	H/MSA3057-12A1	34	29.8	72.8	11.6	30	φ 8 ~ φ11.6	20, 22	
120-0855-1-10	H/MSA3057-12A1(10)	34	29.8	72.8	11.6	30	φ 8 ~ φ11.6	20, 22	Black
120-0854-9	H/MSA3057-16A	40	33.8	71.3	19	36	φ14 ~ φ19	24	
120-0854-9-10	H/MSA3057-16A(10)	40	33.8	71.3	19	36	φ14 ~ φ19	24	Black
120-0856-4	H/MSA3057-16A1	40	33.8	71.3	14.2	36	φ10 ~ φ14.2	24	
120-0856-4-10	H/MSA3057-16A1(10)	40	33.8	71.3	14.2	36	φ10 ~ φ14.2	24	Black

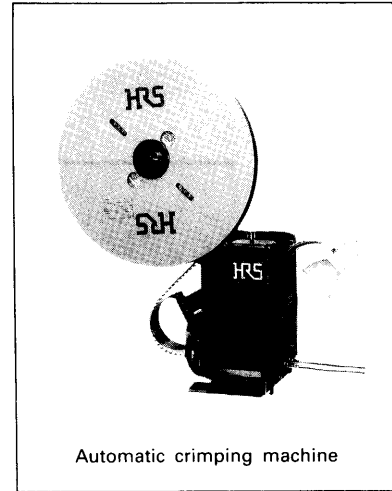
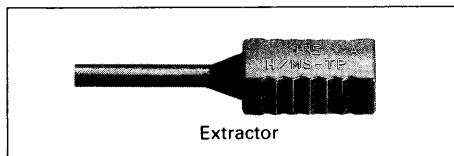
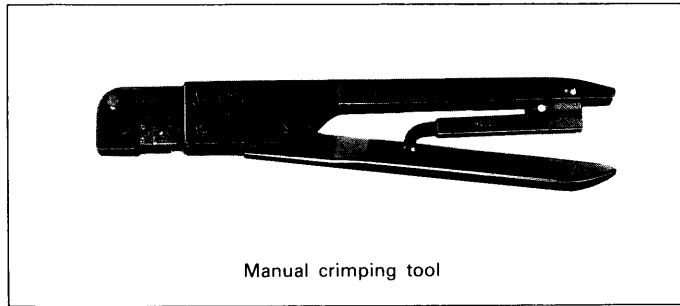
[Waterproof type]

HRS No.	Part No.	φA	B	C	φD	E	Applicable cable dia. range (reference)	Applicable shell size	Remarks
120-0801-2	H/MS3057-4A	20	26.8	83.8	5.6	17	φ 3.1 ~ φ 5.6	10SL	
120-0801-2-10	H/MS3057-4A(10)	20	26.8	83.8	5.6	17	φ 3.1 ~ φ 5.6	10SL	Black
120-0802-5	H/MS3057-10A	30	28.8	72.8	14.3	27	φ10.3 ~ φ14.3	18	
120-0802-5-10	H/MS3057-10A(10)	30	28.8	72.8	14.3	27	φ10.3 ~ φ14.3	18	Black
120-0803-8	H/MS3057-12A	34	29.8	70.8	15.9	30	φ11.4 ~ φ15.9	20, 22	
120-0803-8-10	H/MS3057-12A(10)	34	29.8	70.8	15.9	30	φ11.4 ~ φ15.9	20, 22	Black
120-0805-3	H/MS3057-12A1	34	29.8	70.8	11.6	30	φ 8 ~ φ11.6	20, 22	
120-0805-3-10	H/MS3057-12A1(10)	34	29.8	70.8	11.6	30	φ 8 ~ φ11.6	20, 22	Black
120-0804-0	H/MS3057-16A	40	33.8	69.3	19	36	φ14 ~ φ19	24	
120-0804-0-10	H/MS3057-16A(10)	40	33.8	69.3	19	36	φ14 ~ φ19	24	Black
120-0806-6	H/MS3057-16A1	40	33.8	69.3	14.2	36	φ10 ~ φ14.2	24	
120-0806-6-10	H/MS3057-16A1(10)	40	33.8	69.3	14.2	36	φ10 ~ φ14.2	24	Black

Remarks: Check cable dia. carefully before using cables because clamping force and waterproofness vary depending on their types.

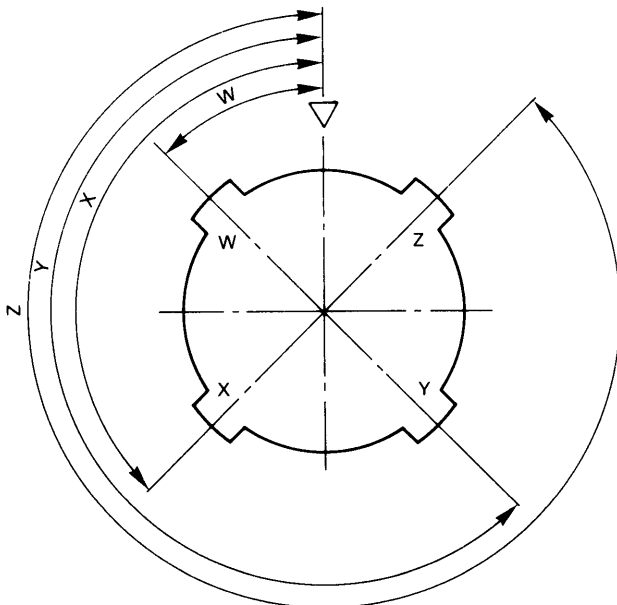
◆ Applicable tools

Type	Item	HRS No.	Part No.	Applicable terminal	Applicable wire
Manual	Manual crimping tool	150-0206-0	H/MS/CC-HT	H/MS-PC1-112	AWG # 24~# 28
Automatic	Automatic crimping machine body	901-0005-4	CM-105	—	—
	Applicator	901-2027-8	AP105-H/MS-PC1-1	H/MS-PC-212	AWG # 24~# 28
901-2032-8		AP105-H/MS-SC-212	H/MS-SC-212	AWG # 24~# 28	
Extractor		150-0076-7	H/MS-TP	H/MS-PC1-112 H/MS-PC1-212 H/MS-SC-212	—



◆ Changes in insert position

Changes in insert position are shown as viewed from the mating side with the receptacle pin inserted. For details, see the Table and Figure below.



Sign of position	W	X	Y	Z
Product No.				
H/MS※※18-10※	—	120°	240°	—
H/MS※※18-12※	80°	—	—	280°
H/MS※※20-15※	80°	—	—	280°
H/MS※※20-29※	80°	—	—	280°
H/MS※※22-14※	80°	—	—	280°
H/MS※※22-22※	—	110°	250°	—
H/MS※※22-23※	35°	—	250°	—
H/MS※※24-10※	80°	—	—	280°

Remarks: The numbers of products that require changes in insert position are given as follows:

Example: H/MS3102A18-10PX-D

— Add the sign of the insert position you desire to the product number.