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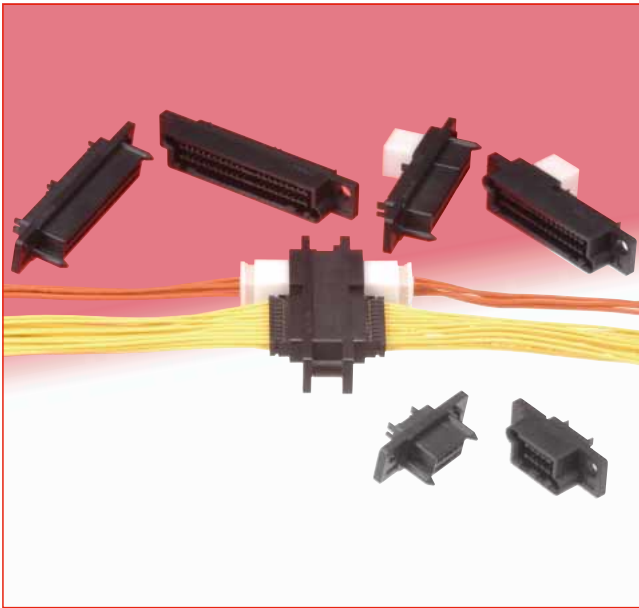
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# Ultra-small Rack/Panel Crimp Connectors

## QR/P15 Series



### ● Separate connection to panel-mounted connectors

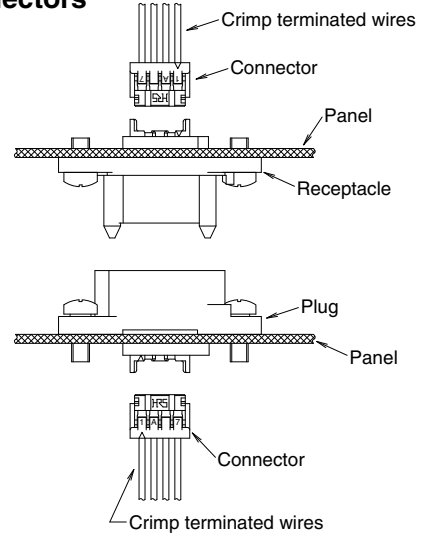


Fig.1

## ■ Overview

Expansion of the proven QR/P Series with a separate panel-mounted plugs / receptacles connecting with detachable crimp terminated connectors.

Plugs / receptacles can be mounted on the panels and the terminated connectors may be inserted at later time, allowing wire crimp termination to be done away from the equipment.

Available in 8 or 24 pos (with 4 positions for power contacts) and 40 pos.

## ■ Features

### 1. Two piece part structure

The main connector body is not directly terminated with individual or discrete wires, but allows for cabled, sub-assembly connector groups to be plugged and unplugged to it.

This separate structure of a main connector body and sub-assemblies allows harnesses to be pre-assembled, and simplifies the installation of both the sub-assemblies and rack and panel mounting.

### 2. Sequential contact mating structure

Sequential contact mating is featured on the 40-position version, with two contacts on each side of the connector. This provides better grounding and improved safety.

### 3. Accepts power supply connections (24-position only)

The 24-position connectors incorporate power supply contacts.

The power supply connections use an MDF6 Series 4-position connector (3.5mm pitch, UL and CSA recognized, and can handle 6A a current using 16 AWG conductors.

Wire termination can also be accomplished with an automatic crimping machine.

### 4. Reliable connections

Two-point contacts assure highly reliable electrical and mechanical connection.

## ■Product Specifications

Ratings	Current rating	Signal: 1 A Power: 6 A	Operating temperature range:-10°C to +60°C
	Voltage rating	30V AC/ DC	

Item	Specification	Conditions
1. Insulation resistance	1,000 MΩ min.	500 V DC
2. Withstanding voltage	No flashover or insulation breakdown	500 V AC / 1 minute
3. Contact resistance	50 mΩ max.	100 mA
4. Mating/ Unmating forces	8 pos.    0.8 N min.    8 N max.	Measured when mated with corresponding connector
	24 pos.    2.8 N min.    28 N max.	
	40 pos.    4.0 N min.    40 N max.	
5. Durability	Contact resistance: 60 mΩ max.	1,000 cycles No damage, cracks or parts dislocation.
6. Vibration	No electrical discontinuity of 10 μs or longer	Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, 3 directions for 2 hours No damage, cracks or parts dislocation.
7. Shock	No electrical discontinuity of 10 μs or longer	Acceleration of 490 m/s <sup>2</sup> , 11 ms duration, sine half-wave, 3 cycles in each of the 3 axis No damage, cracks or parts dislocation.
8. Temperature cycle	Contact resistance: 60 mΩ max. Insulation resistance: 1,000 MΩ min.	No damage, cracks or parts dislocation. Temperature: -55 → +5 to 35 → +85 → +5 to 35°C Time:        30 →    5        → 30 → 5 min. 5 cycles
9. Humidity (Steady state)	Contact resistance: 60 mΩ max. Insulation resistance: 1,000 MΩ min.	No damage, cracks or parts dislocation. 96 hours at 40°C, R.H. 90% to 95%
10. Hydrogen sulfide	Contact resistance: 60mΩ max.	96 hours at a concentration of 3 ppm

## ■Materials

### ●Plug

Part	Material	Finish	Remarks
Insulator	PBT	Color: Black	UL94V-0
Contacts	Phosphor bronze	Selective gold plated	—
Pin socket	Polyamide	Color: Black, white (Natural)*	UL94V-0
Shoulder Screw	Steel	Nickel plated	—

### ●Receptacle

Part	Material	Finish	Remarks
Insulator	PBT	Color: Black	UL94V-0
Contacts	Phosphor bronze	Selective gold plated	—
Pin socket	Polyamide	Color: Black, white (Natural)*	UL94V-0

\*Insulator bodies for the MDF6 connectors in the 24-position power supply connector will be white.

## ■Product Number Structure

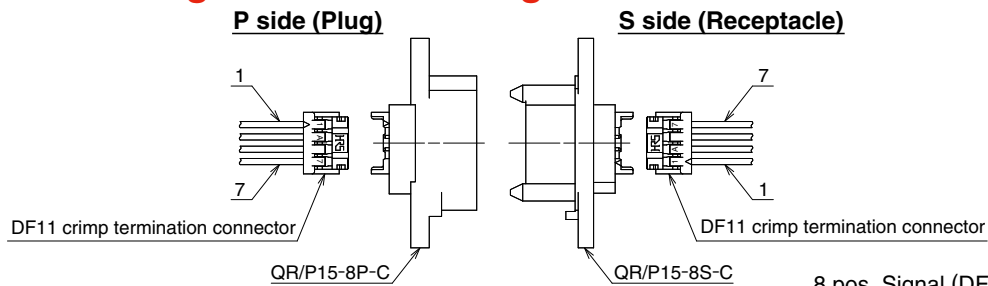
**QR / P15 - 24 (4) P - C (50)**

①                      ②                      ③                      ④                      ⑤                      ⑥

① Series name	: QR/P15
② Number of contacts	: 8, 24, 40
③ Number of power contacts	: 4 (24 position connector only)
④ Connector type	P: Plug S: Receptacle
⑤ Series number	
⑥ Specification number	50: Standard

## ◆ Connector Mating Charts and Wiring Termination Tables

### ● 8-pos.

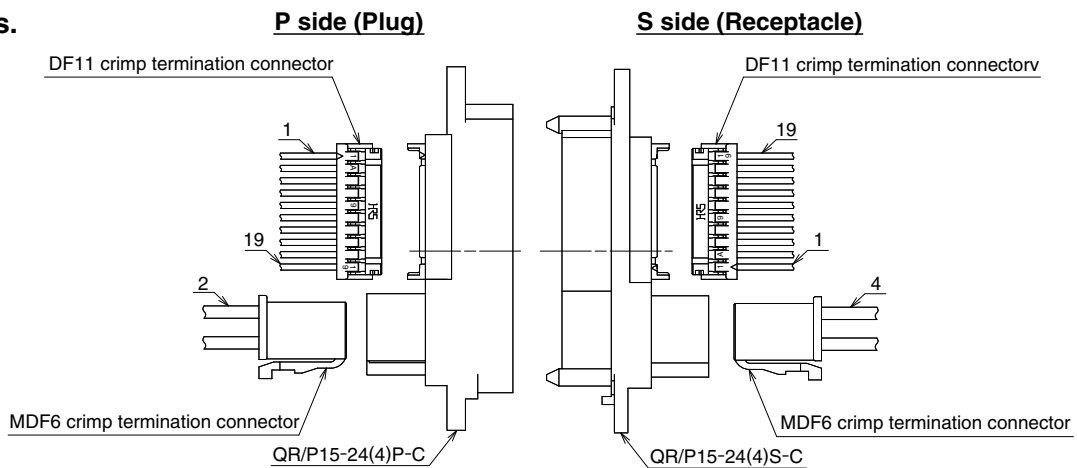


Part No.	HRS No.	No. of contacts	RoHS	Remarks
DF11-8DS-2C	543-0503-0	8	Yes	Wire connection in applicable connectors

8 pos. Signal (DF11 connector)

P side	1	3	5	7	2	4	6	8
S side	7	5	3	1	8	6	4	2

### ● 24-pos.



Part No.	HRS No.	No. of contacts	RoHS	Remarks
DF11-20DS-2C	543-0509-7	20	Yes	Wire connection in applicable connectors
MDF6-4DS-3.5C	543-0074-1	4		

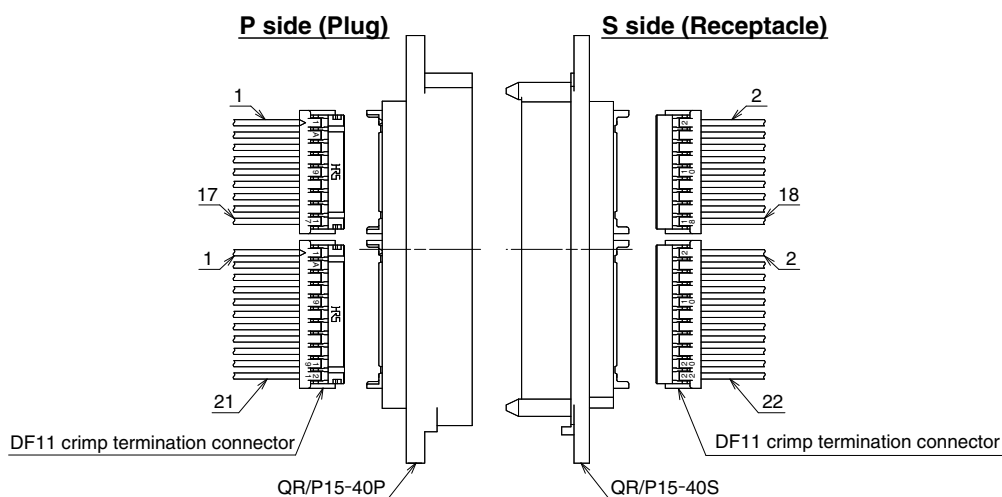
20 pos. Signal (DF11 connector)

P side	1	3	5	~	15	17	19	2	4	6	~	16	18	20
S side	19	17	15	~	5	3	1	20	18	16	~	6	4	2

4 pos. Power (MDF6 connector)

P side	1	2	3	4
S side	3	4	1	2

### ● 40-pos.



Part No.	HRS No.	No. of contacts	RoHS	Remarks
DF11-18DS-2C	543-0508-4	18	Yes	Wire connection in applicable connectors
DF11-22DS-2C	543-0510-6	22		

18 pos. Signal (DF11 connector)

P side	1	3	5	~	13	15	17	2	4	6	~	14	16	18
S side	2	4	6	~	14	16	18	1	3	5	~	13	15	17

22 pos. Signal (DF11 connector)

P side	1	3	5	~	17	19	21	2	4	6	~	18	20	22
S side	2	4	6	~	18	20	22	1	3	5	~	17	19	21

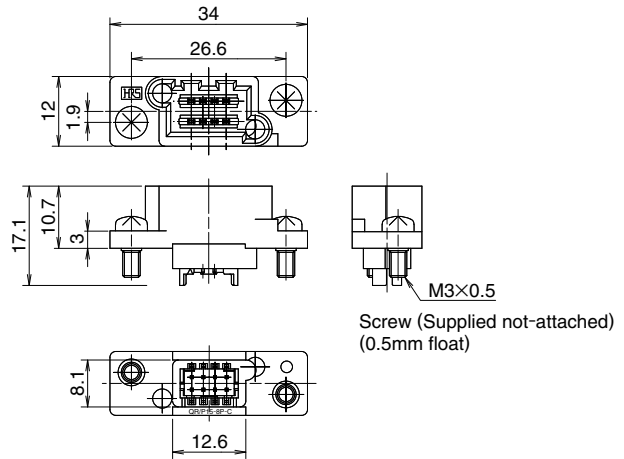
Note: Refer to the Nylon Connector Catalog for details about the wire terminations used in DF 11 and MDF6 connectors.

## Plugs

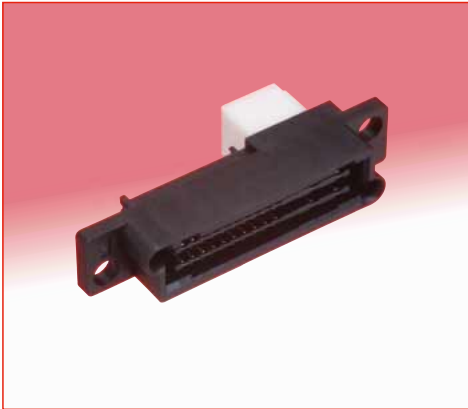
### ●8 pos.



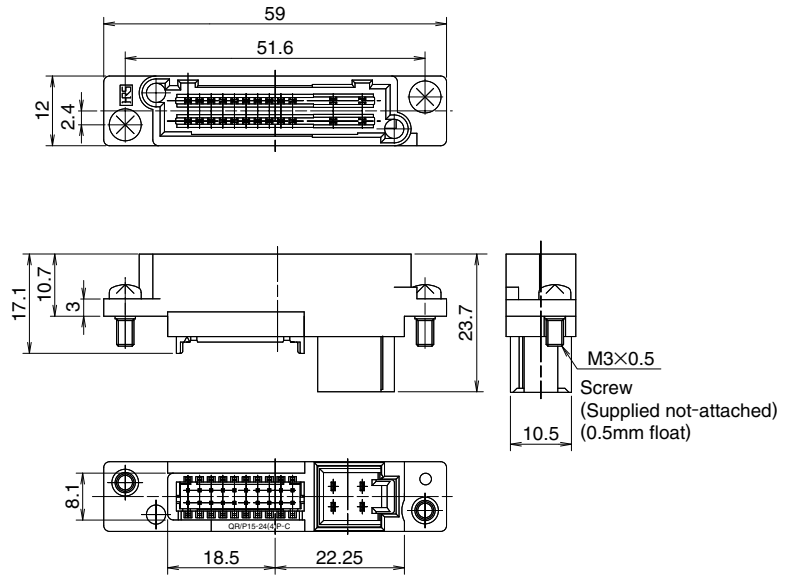
Part No.	HRS No.	RoHS
QR/P15-8P-C(50)	221-0247-0 50	Yes



### ●24 pos.



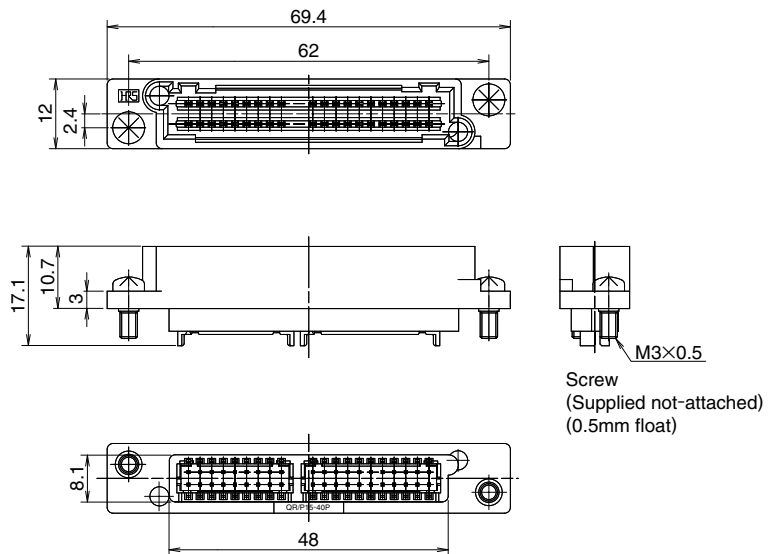
Part No.	HRS No.	RoHS
QR/P15-24(4)P-C(50)	221-0249-6 50	Yes



### ●40 pos.



Part No.	HRS No.	RoHS
QR/P15-40P(50)	221-0252-0 50	Yes

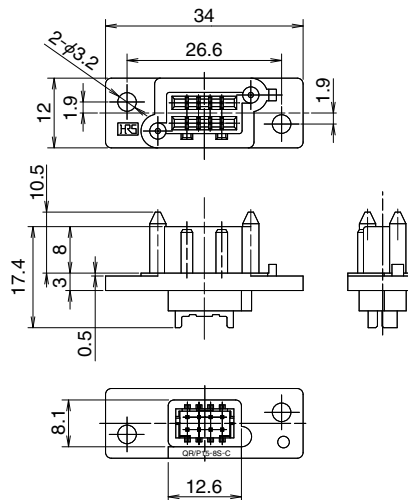


## ■ Receptacles

● 8 pos.



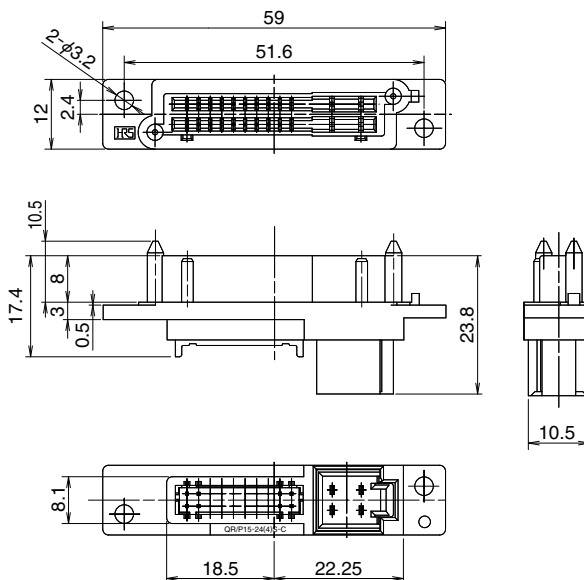
Part No.	HRS No.	RoHS
QR/P15-8P-C(50)	221-0248-3 50	Yes



● 24 pos.



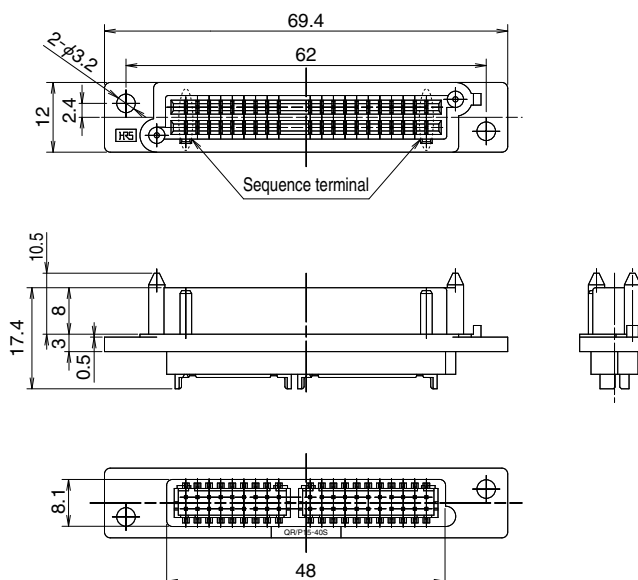
Part No.	HRS No.	RoHS
QR/P15-24(4)S-C(50)	221-0250-5 50	Yes



● 40 pos.

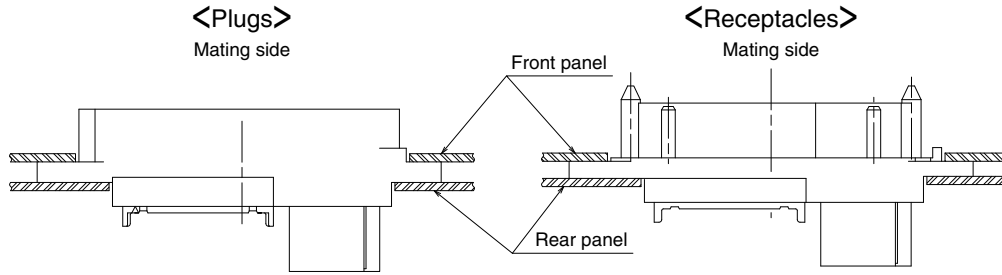


Part No.	HRS No.	RoHS
QR/P15-40S(50)	221-0253-3 50	Yes



◆ Panel cutouts

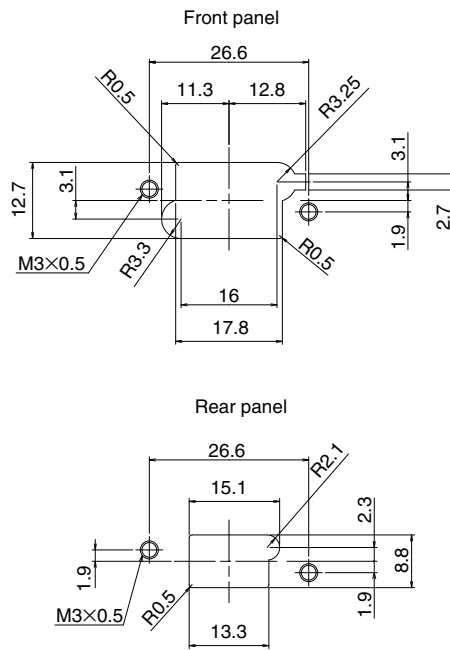
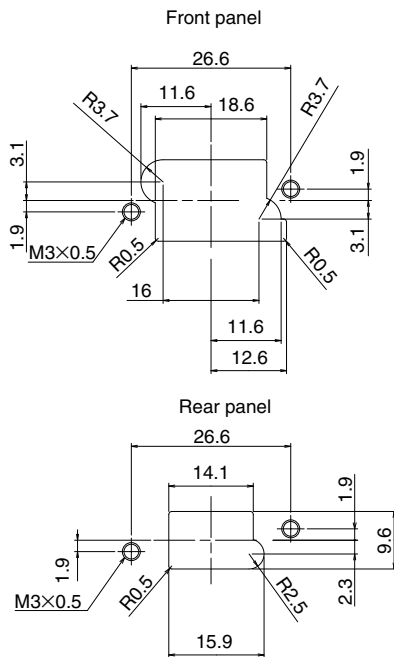
Applicable panel thickness: 1.5mm to 3.0mm



8 pos

QR/P15-8P-C(50)

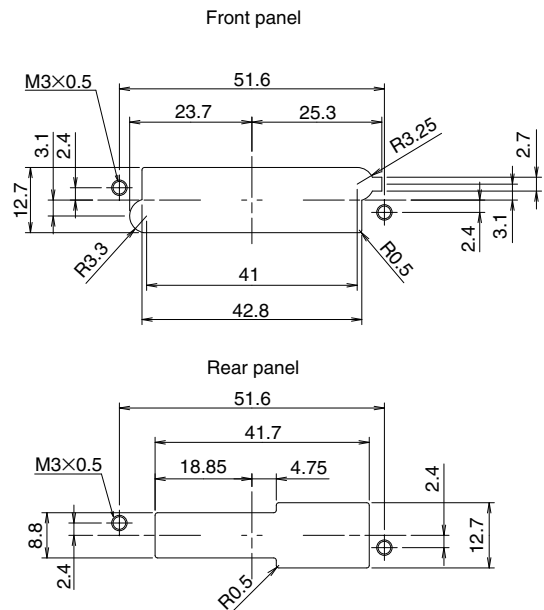
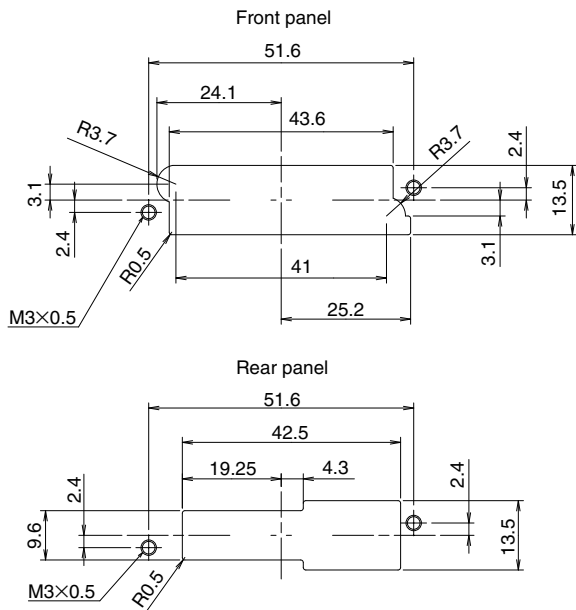
QR/P15-8S-C(50)



24 pos

QR/P15-24(4)P-C(50)

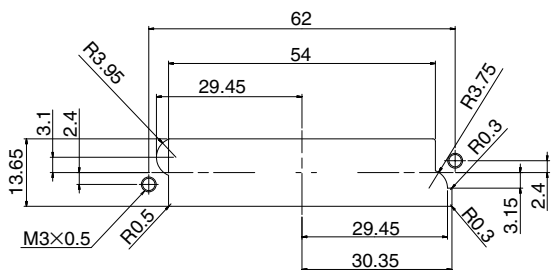
QR/P15-24(4)S-C(50)



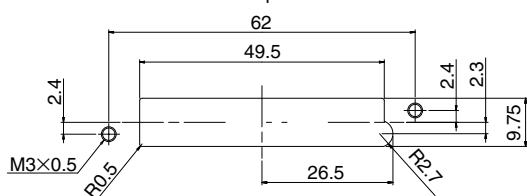
40 pos.

**QR/P15-40P(50)**

Front panel

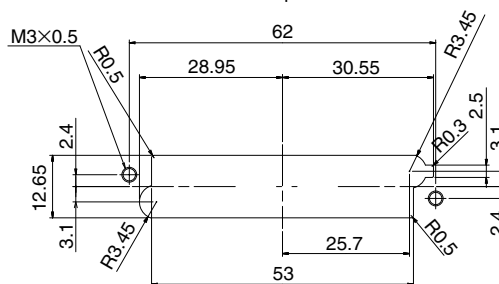


Rear panel

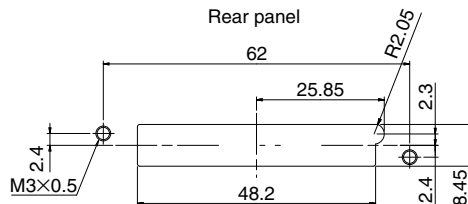


**QR/P15-40S(50)**

Front panel

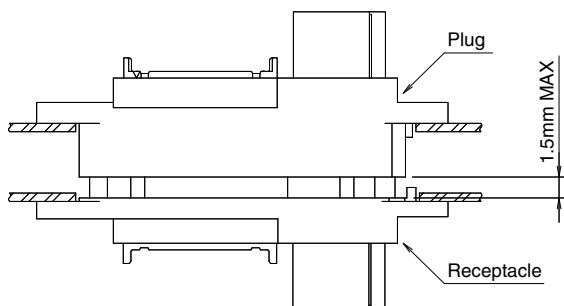


Rear panel



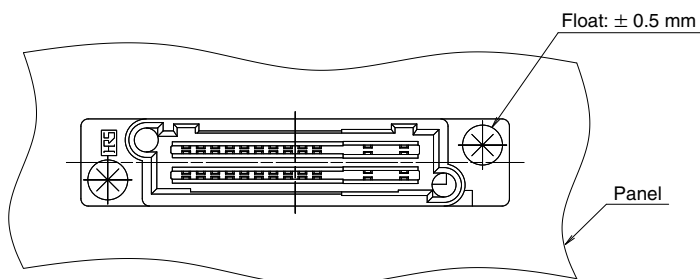
**◆ Mated condition (Shown for reference)**

Note: The distance between the plug and receptacle when fully mated must be 1.5 mm max. as shown below.



**◆ Float – Plug (Shown for reference)**

Note: Floating distance for shoulder screw is ± 0.5 mm.





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