CABLINE®-SS

The simulation of passing PLUG through hinge

Part No. Plug: 20380-#**T-##

Technical Report

Rev.	ECN	Date	Prepared by	Checked by	Approved by
2	R26199	2026/03/30	T.Yamaguchi	T.Tanigawa	T.Masunaga
1	R23209	2023/05/10	K. Baba	R. Takei	H. Ikari
0	R21109	2021/02/22	R. Hatano	T.Tanigawa	H. Ikari

CABLINE-SS The simulation of passing PLUG through hinge

1. Purpose

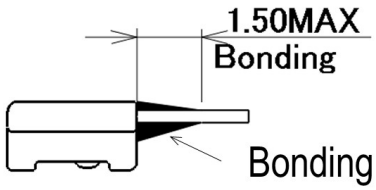
We report the simulation results of the minimum diameter of the hinge that can store the connector(CABLINE-SS Plug) and cable.

2. Simulation conditions

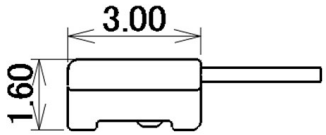
- Connector : CABLINE-SS PLUG CABLE ASS'Y (20380-#**T-##)
- Number of pins : 50P, 40P, 35P, 32P, 30P, 20P,14P,10P
- Cable : MICRO-COAX CABLE AWG#38,40,42 (See Table.1 for jacket diameter)
  ※Each simulation is connected to all Pins.
- Bonding : CABLINE-SS recommend bonding cable outlets.
  When bonding, be sure to bend the cable from the end of the bonding.

Table.1 Cable jacket(outer) diameter (mm)

AWG#	Impedance matching	
	45ohm	50ohm
38	0.39	-
40	0.33	0.37
42	0.29	0.33



With Bonding



Without Bonding

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
The simulation results are shown in Table.2 and 3.
※See the next page for details.

Table.2 Minimum hinge inner diameter with bonding (mm)

Cable	Size	AWG#38	AWG#40		AWG#42	
	Impedance matching	45ohm	45ohm	50ohm	45ohm	50ohm
	Jacket diameter	0.39	0.33	0.37	0.29	0.33
Minimum hinge inner diameter	Connector 10P	5.48	5.42	5.46	5.37	5.42
	Connector 14P	5.48	5.42	5.46	5.37	5.42
	Connector 20P	5.48	5.42	5.46	5.37	5.42
	Connector 30P	5.48	5.42	5.46	5.37	5.42
	Connector 32P	5.48	5.42	5.46	5.37	5.42
	Connector 40P	5.48	5.42	5.46	5.37	5.42
	Connector 50P	5.48	5.42	5.46	5.37	5.42

Table.3 Minimum hinge inner diameter without bonding (mm)

Cable	Size	AWG#38	AWG#40		AWG#42	
	Impedance matching	45ohm	45ohm	50ohm	45ohm	50ohm
	Jacket diameter	0.39	0.33	0.37	0.29	0.33
Minimum hinge inner diameter	Connector 10P	4.02	3.95	4.00	3.91	3.95
	Connector 14P	4.02	3.95	4.00	3.91	3.95
	Connector 20P	4.02	3.95	4.00	3.91	3.95
	Connector 30P	4.14	3.97	4.07	3.91	3.97
	Connector 32P	4.17	3.97	4.09	3.91	3.97
	Connector 40P	4.35	4.12	4.27	3.94	4.12
	Connector 50P	4.51	4.19	4.39	4.03	4.19

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3. Simulation result
   3.1 With bonding
      Simulation results with AWG #38 (45ohm).

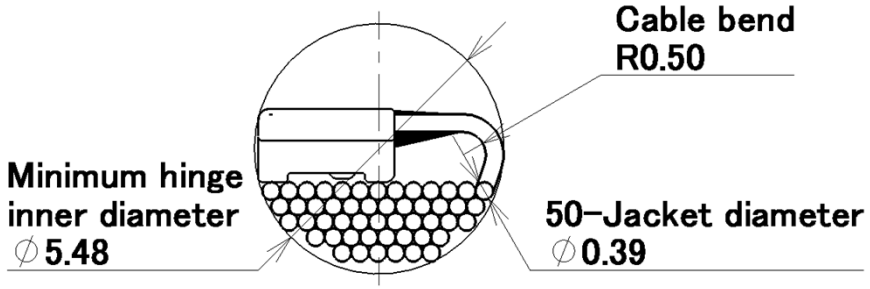

Fig.1 AWG#38 (45ohm) 50P

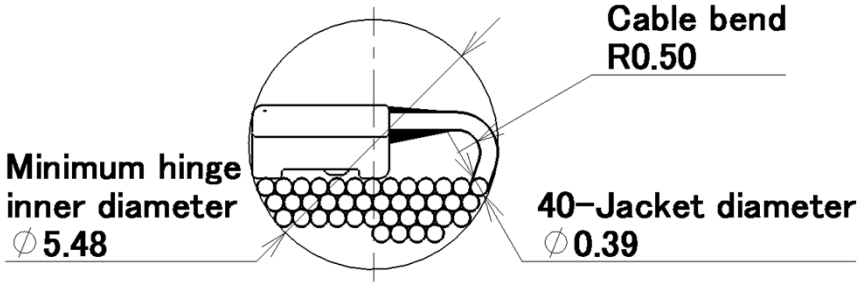

Fig.2 AWG#38 (45ohm) 40P

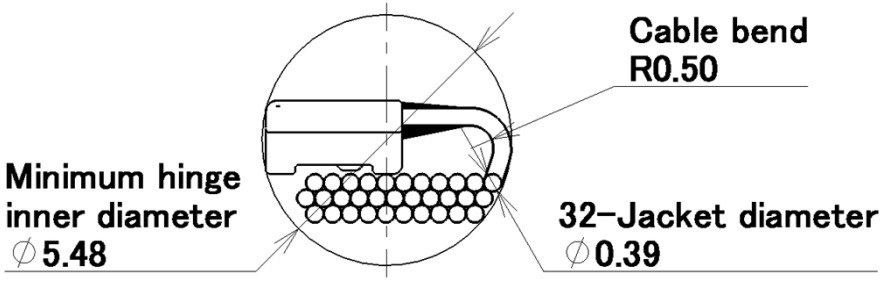

Fig.3 AWG#38 (45ohm) 32P

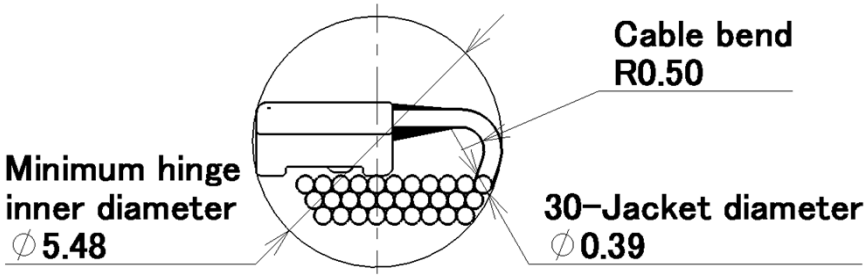

Fig.4 AWG#38 (45ohm) 30P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
   3.1 With bonding
   Simulation results with AWG #38 (45ohm).

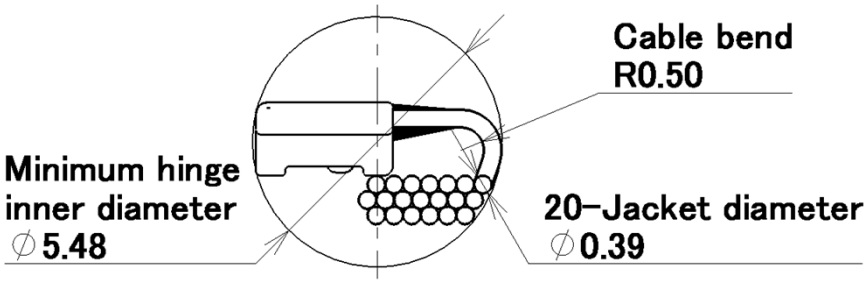

Fig.5 AWG#38 (45ohm) 20P

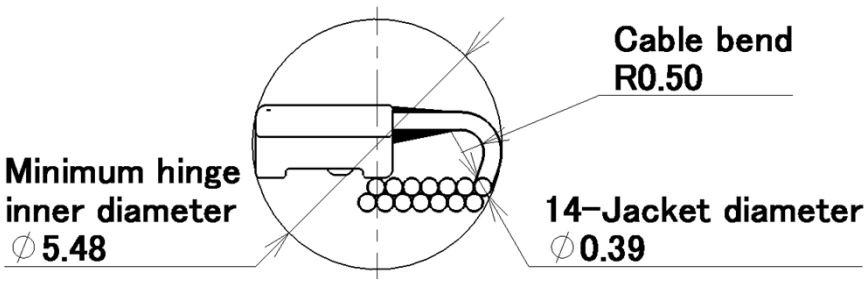

Fig.6 AWG#38 (45ohm) 14P

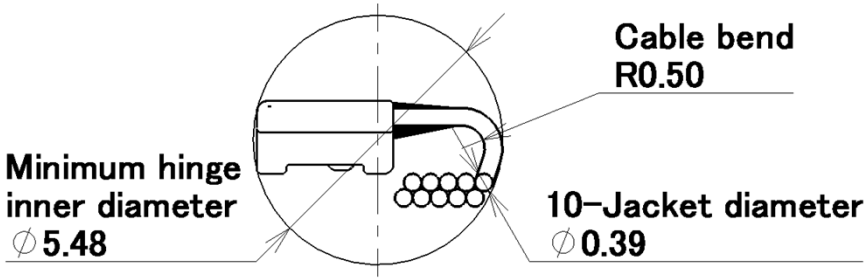

Fig.7 AWG#38 (45ohm) 10P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
   3.1 With bonding
      Simulation results with AWG #40 (50ohm).

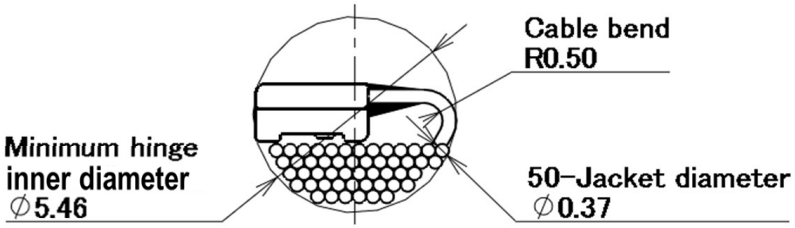

Fig.8 AWG#40 (50ohm) 50P

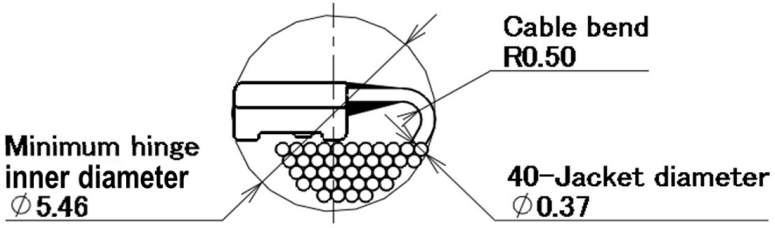

Fig.9 AWG#40 (50ohm) 40P

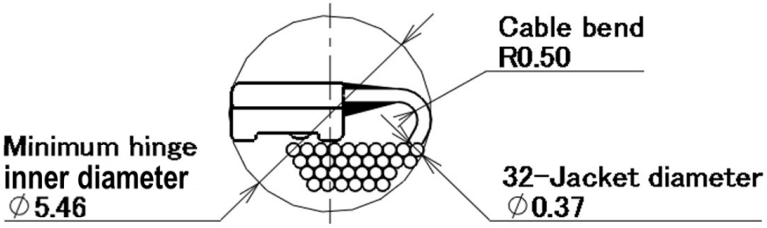

Fig.10 AWG#40 (50ohm) 32P

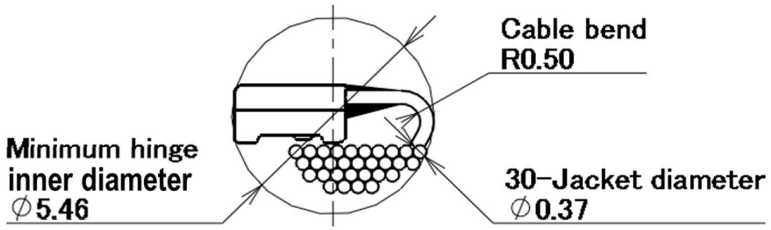

Fig.11 AWG#40 (50ohm) 30P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
   3.1 With bonding
      Simulation results with AWG #40 (50ohm).

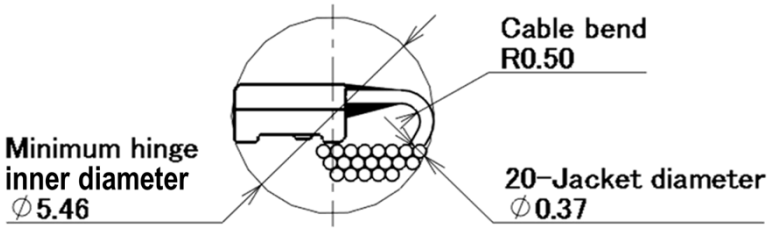

Fig.12 AWG#40 (50ohm) 20P

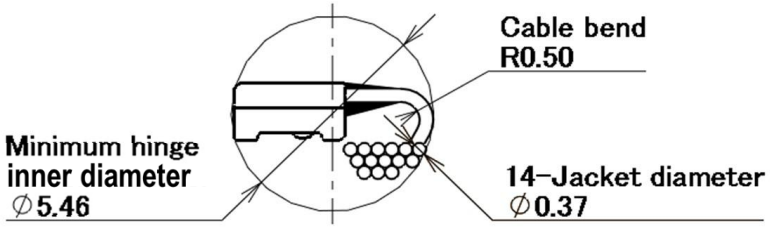

Fig.13 AWG#40 (50ohm) 14P

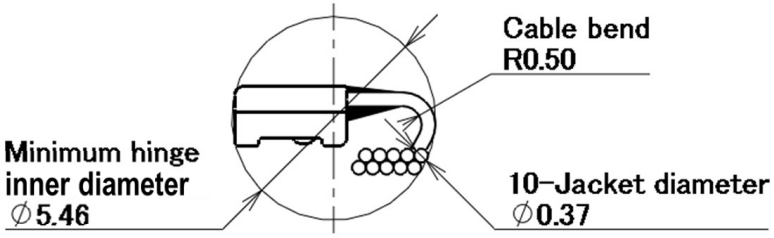

Fig.14 AWG#40 (50ohm) 10P

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3. Simulation result
   3.1 With bonding
      Simulation results with AWG #40 (45ohm).

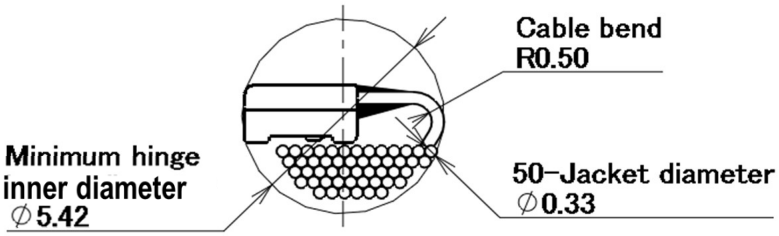

Fig.15 AWG#40 (45ohm) 50P

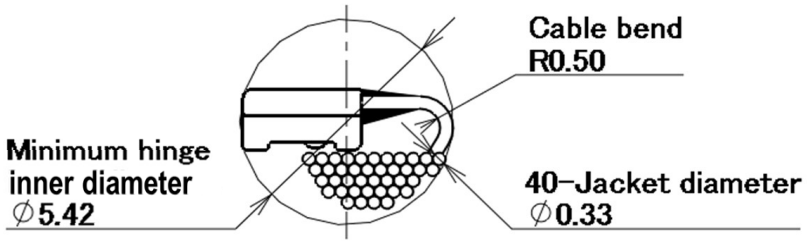

Fig.16 AWG#40 (45ohm) 40P

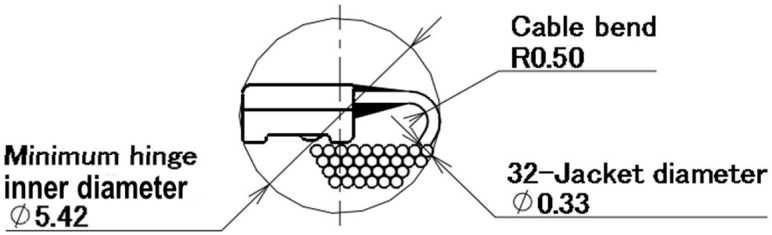

Fig.17 AWG#40 (45ohm) 32P

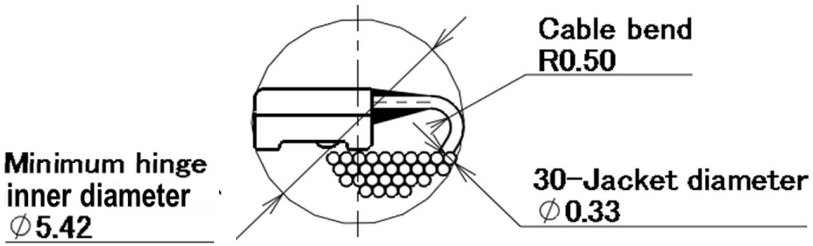

Fig.18 AWG#40 (45ohm) 30P

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3. Simulation result
   3.1 With bonding
      Simulation results with AWG #40 (45ohm).

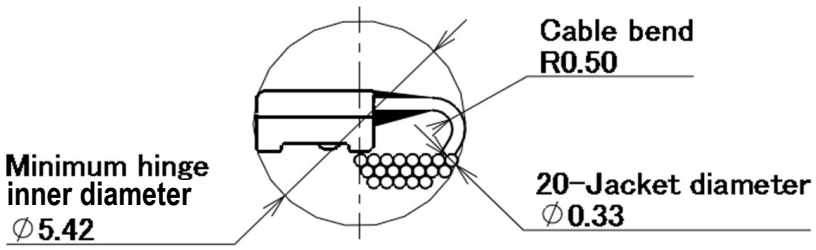

Fig.19 AWG#40 (45ohm) 20P

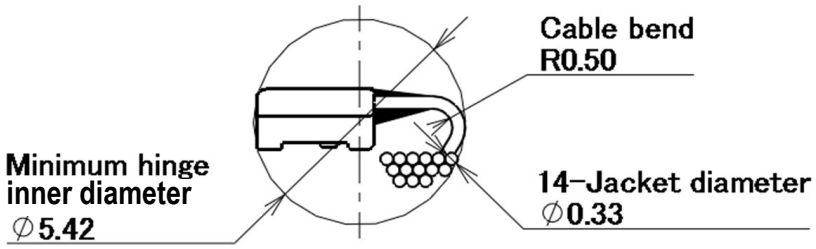

Fig.20 AWG#40 (45ohm) 14P

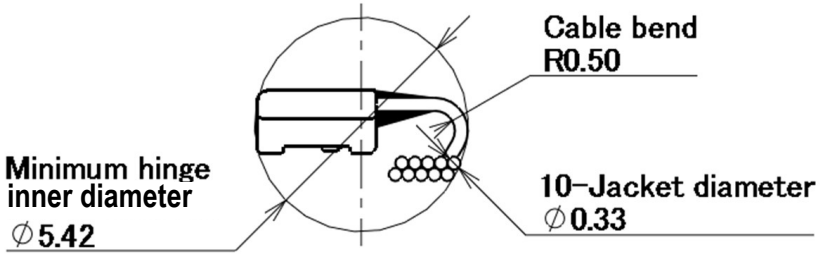

Fig.21 AWG#40 (45ohm) 10P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
   3.1 With bonding
   Simulation results with AWG #42 (50ohm).

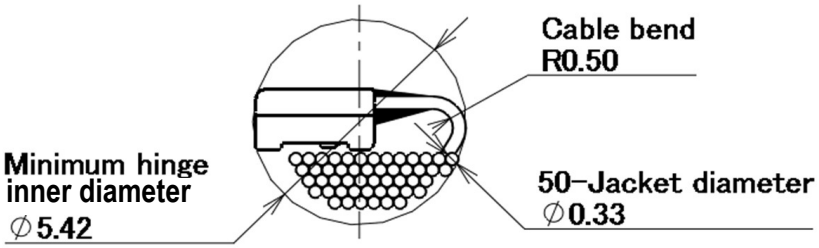

Fig.22 AWG#42 (50ohm) 50P

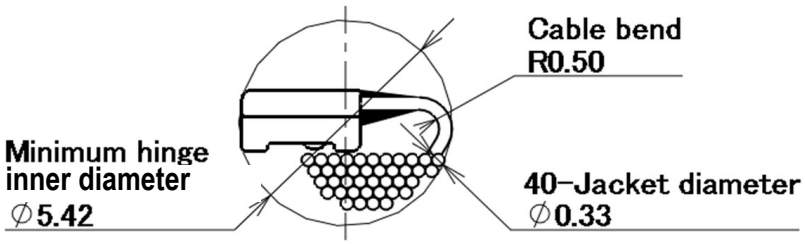

Fig.23 AWG#42 (50ohm) 40P

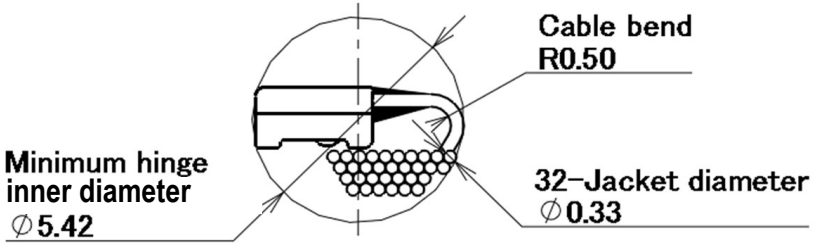

Fig.24 AWG#42 (50ohm) 32P

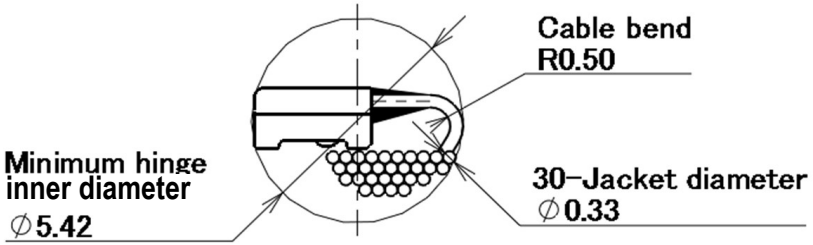

Fig.25 AWG#42 (50ohm) 30P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
   3.1 With bonding
   Simulation results with AWG #42 (50ohm).

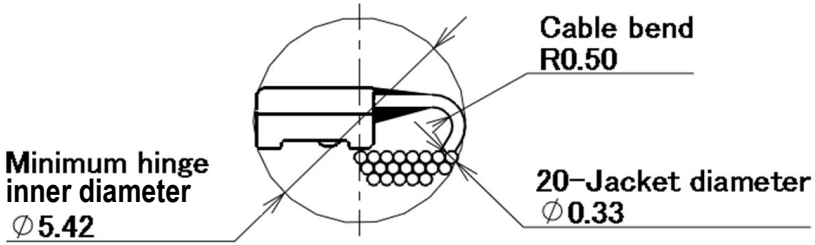

Fig.26 AWG#42 (50ohm) 20P

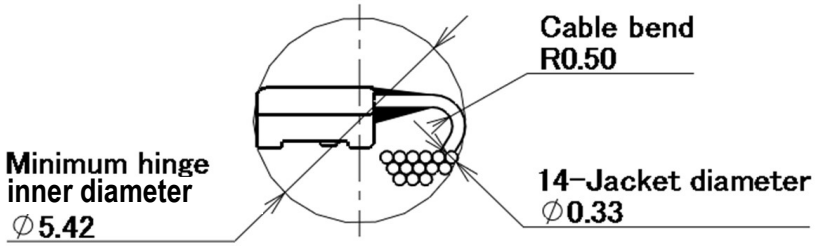

Fig.27 AWG#42 (50ohm) 14P

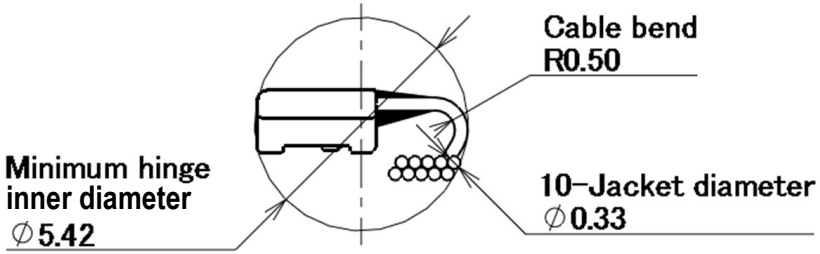

Fig.28 AWG#42 (50ohm) 10P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
   3.1 With bonding
   Simulation results with AWG #42 (45ohm).

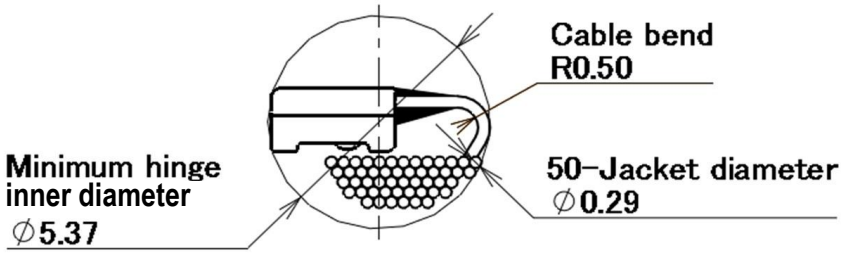

Fig.29 AWG#42 (45ohm) 50P

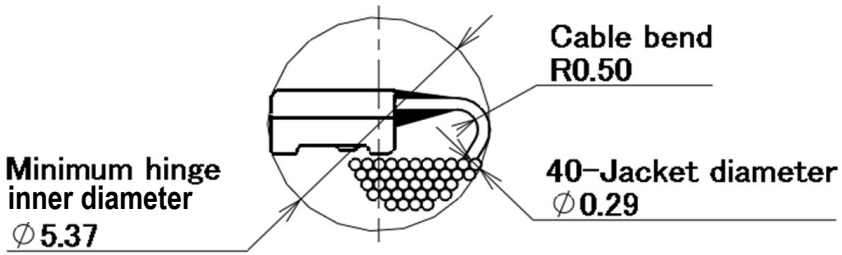

Fig.30 AWG#42 (45ohm) 40P

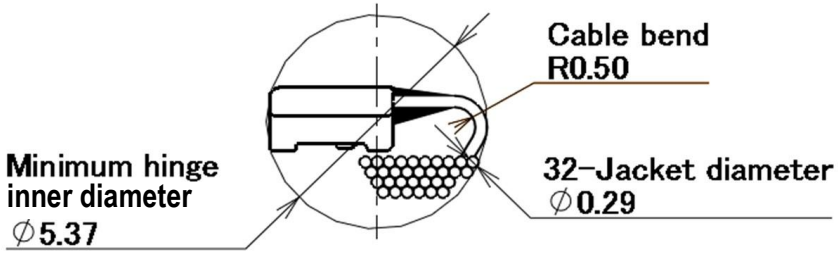

Fig.31 AWG#42 (45ohm) 32P

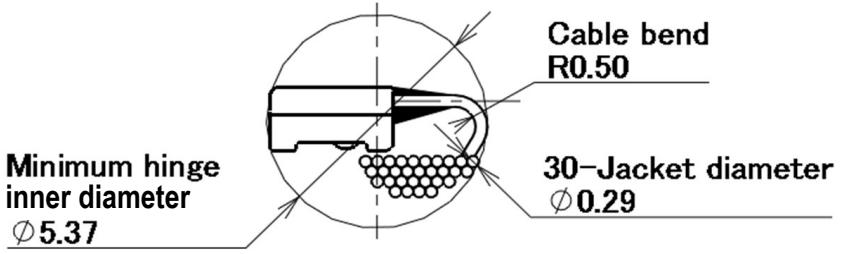

Fig.32 AWG#42 (45ohm) 30P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
   3.1 With bonding
   Simulation results with AWG #42 (45ohm).

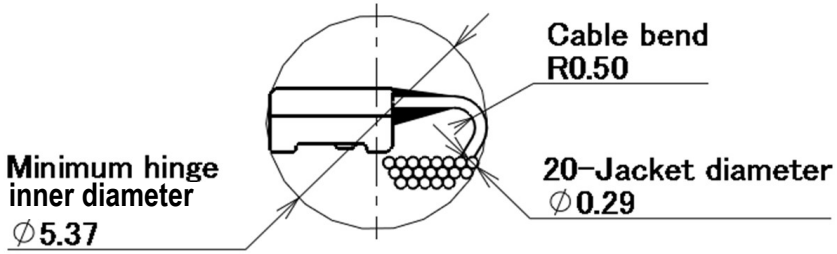

Fig.33 AWG#42 (45ohm) 20P

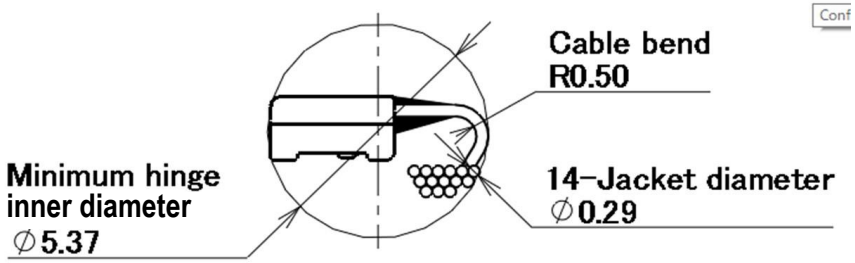

Fig.34 AWG#42 (45ohm) 14P

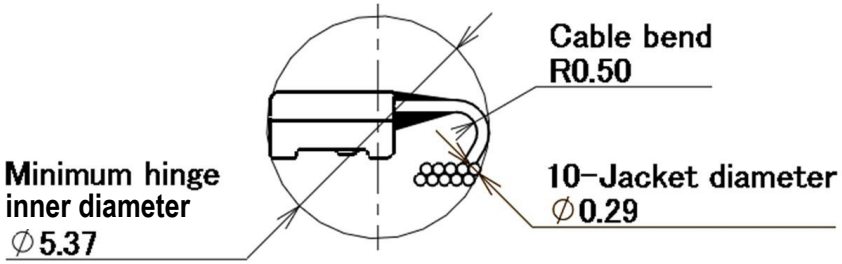

Fig.35 AWG#45 (50ohm) 10P

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3. Simulation result
   3.2 Without bonding
      Simulation results with AWG #38 (45ohm).

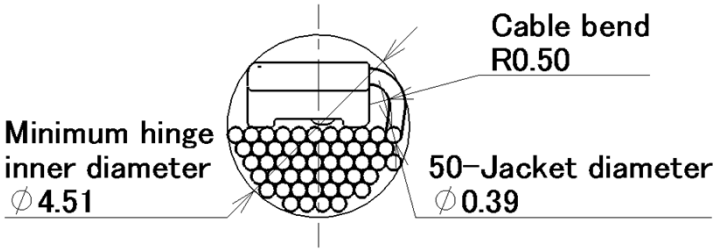

Fig.36 AWG#38 (45ohm) 50P

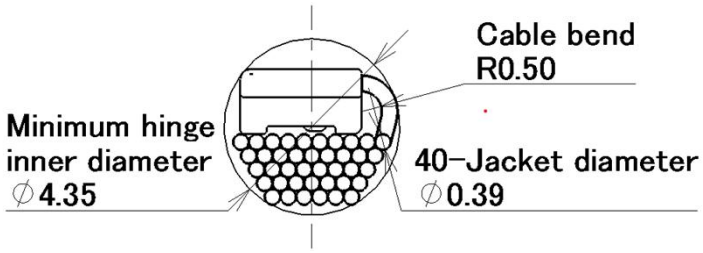

Fig.37 AWG#38 (45ohm) 40P

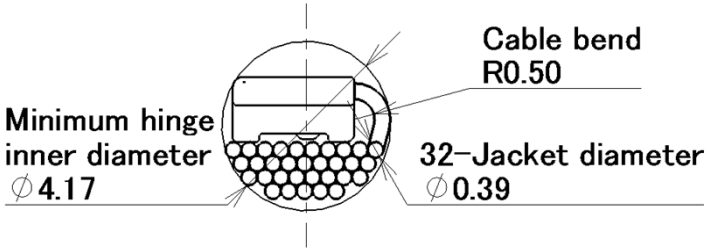

Fig.38 AWG#38 (45ohm) 32P

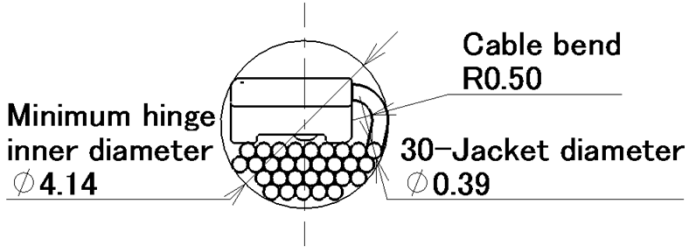

Fig.39 AWG#38 (45ohm) 30P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
   3.2 Without bonding
      Simulation results with AWG #38 (45ohm).

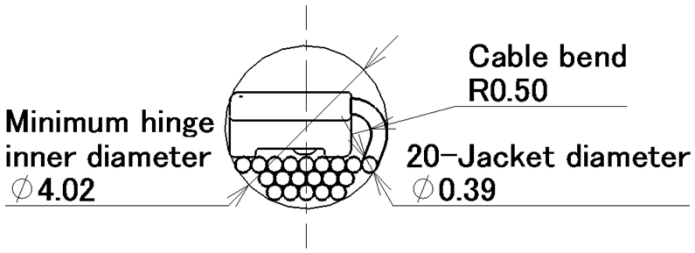

Fig.40 AWG#38 (45ohm) 20P

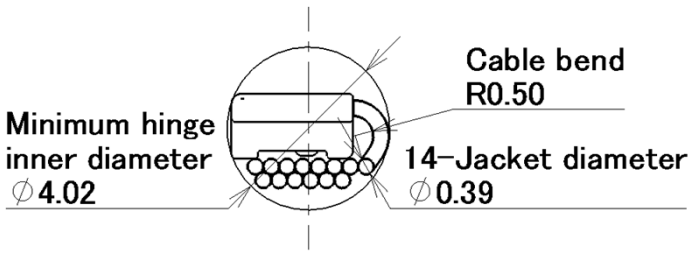

Fig.41 AWG#38 (45ohm) 14P

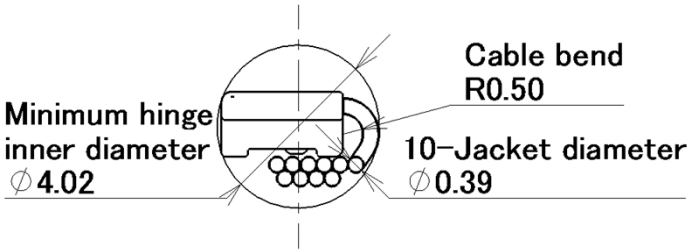

Fig.42 AWG#38 (45ohm) 10P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
   3.2 Without bonding
      Simulation results with AWG #40 (50ohm).

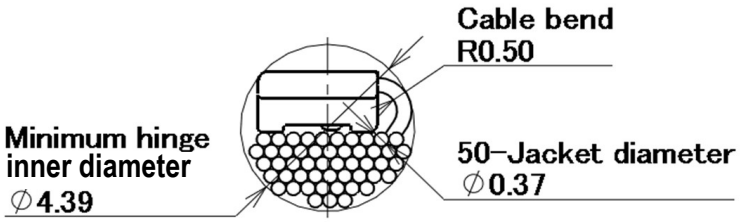

Fig.43 AWG#40 (50ohm) 50P

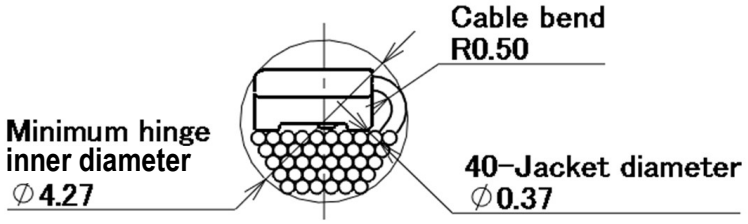

Fig.44 AWG#40 (50ohm) 40P

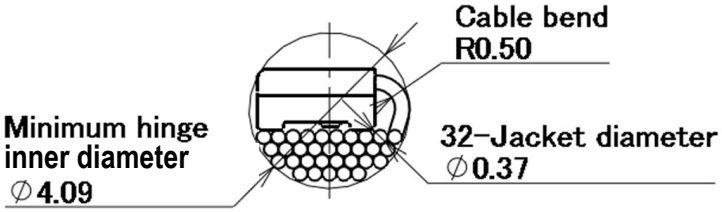

Fig.45 AWG#40 (50ohm) 32P

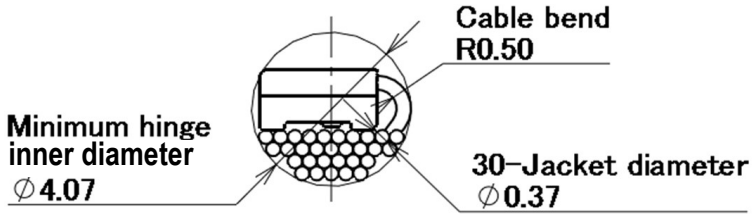

Fig.46 AWG#40 (50ohm) 30P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
   3.2 Without bonding
      Simulation results with AWG #40 (50ohm).

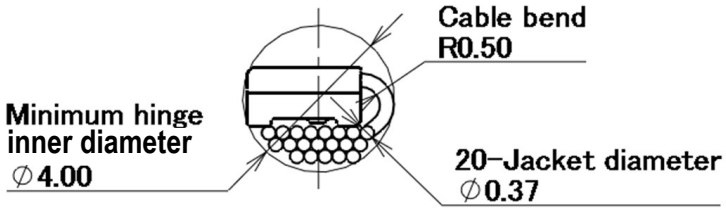

Fig.47 AWG#40 (50ohm) 20P

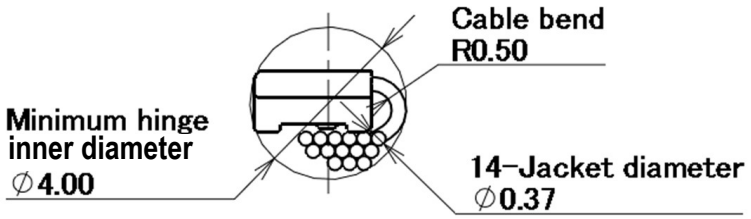

Fig.48 AWG#40 (50ohm) 14P

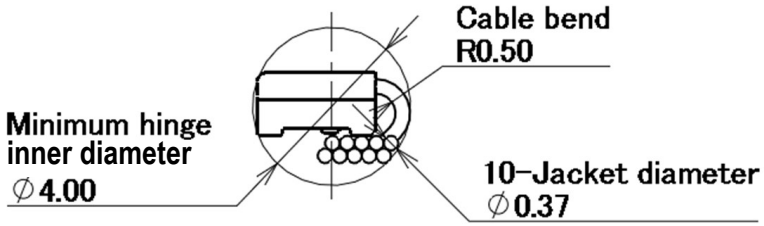

Fig.49 AWG#40 (50ohm) 10P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
   3.2 Without bonding
      Simulation results with AWG #40 (45ohm).

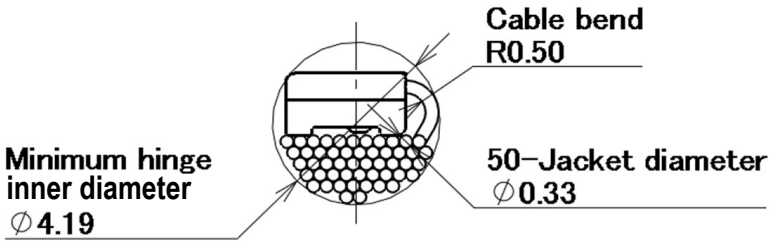

Fig.50 AWG#40 (45ohm) 50P

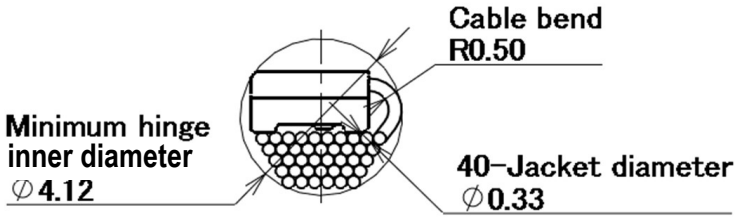

Fig.51 AWG#40 (45ohm) 40P

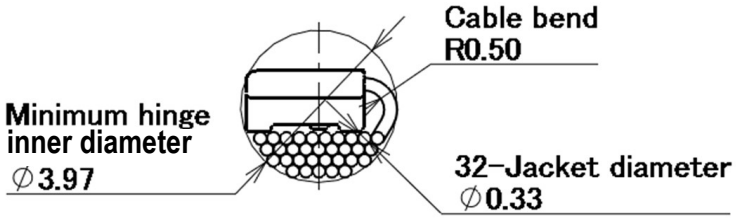

Fig.52 AWG#40 (45ohm) 32P

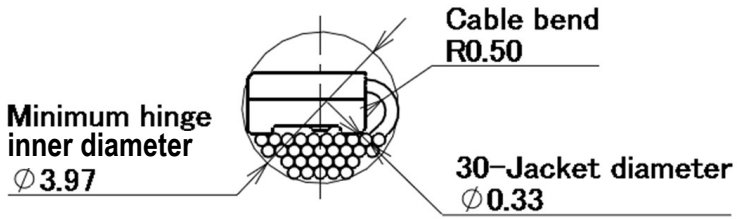

Fig.53 AWG#40 (45ohm) 30P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
   3.2 Without bonding
      Simulation results with AWG #40 (45ohm).

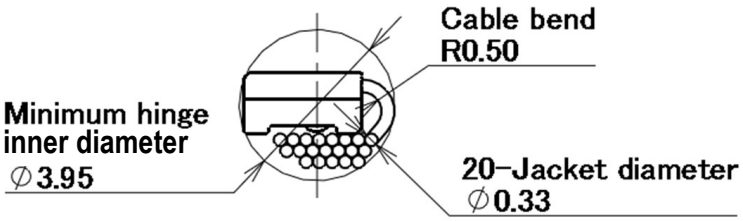

Fig.54 AWG#40 (45ohm) 20P

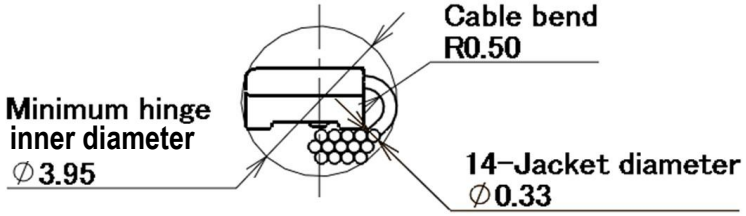

Fig.55 AWG#40 (45ohm) 14P

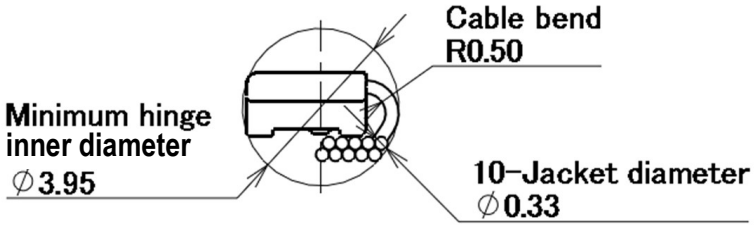

Fig.56 AWG#40 (45ohm) 10P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
3.2 Without bonding
Simulation results with AWG #42 (50ohm).

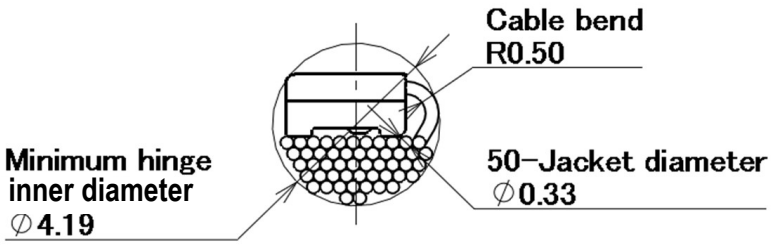

Fig.57 AWG#42 (50ohm) 50P

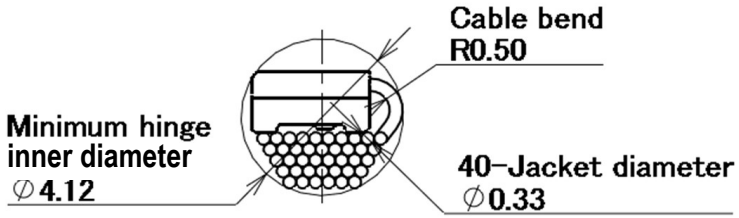

Fig.58 AWG#42 (50ohm) 40P

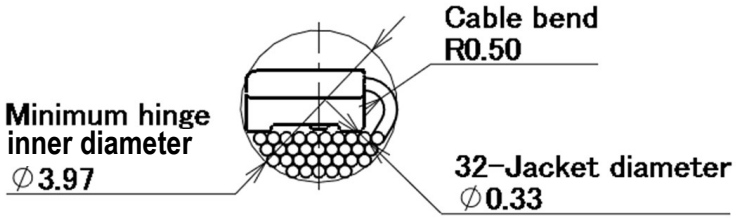

Fig.59 AWG#42 (50ohm) 32P

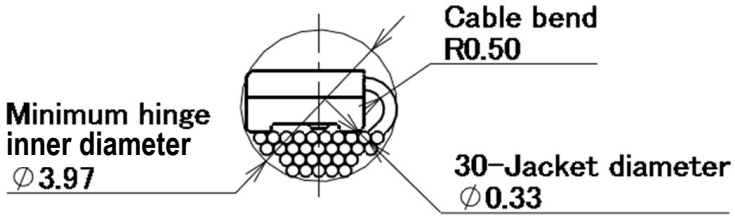

Fig.60 AWG#42 (50ohm) 30P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
   3.2 Without bonding
      Simulation results with AWG #42 (50ohm).

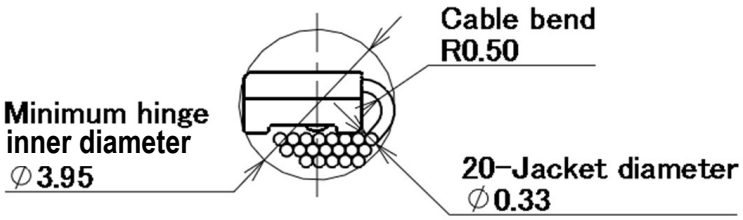

Fig.61 AWG#42 (50ohm) 20P

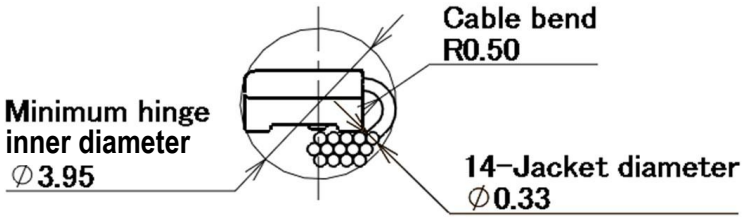

Fig.62 AWG#42 (50ohm) 14P

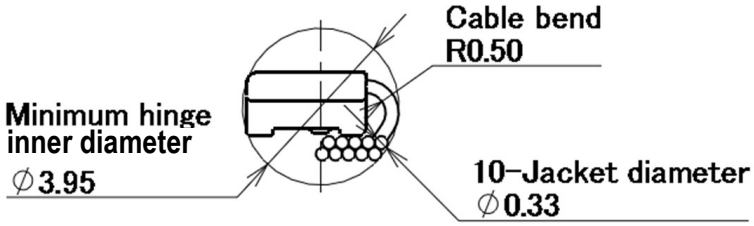

Fig.63 AWG#42 (50ohm) 10P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
   3.2 Without bonding
      Simulation results with AWG #42 (45ohm).

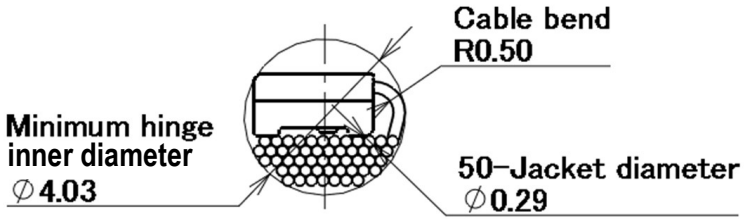

Fig.64 AWG#42 (45ohm) 50P

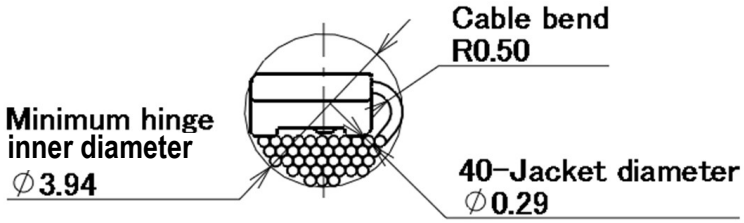

Fig.65 AWG#42 (45ohm) 40P

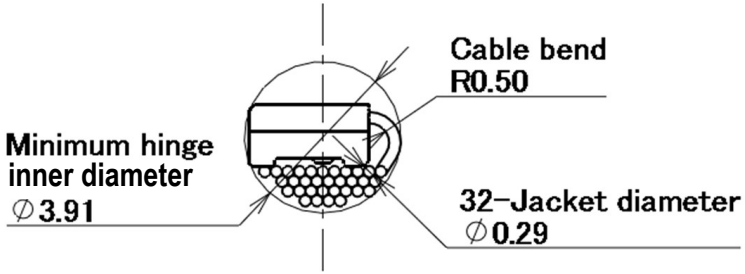

Fig.66 AWG#42 (45ohm) 32P

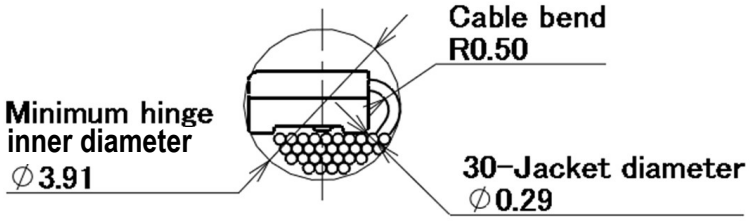

Fig.67 AWG#42 (45ohm) 30P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

3. Simulation result
   3.2 Without bonding
      Simulation results with AWG #42 (45ohm).

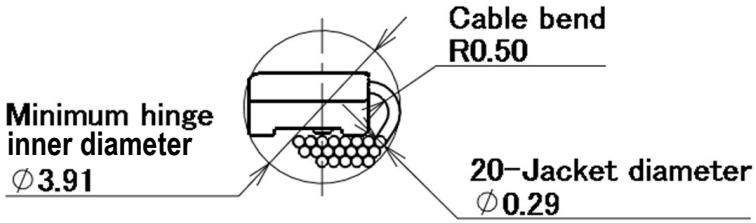

Fig.68 AWG#42 (45ohm) 20P

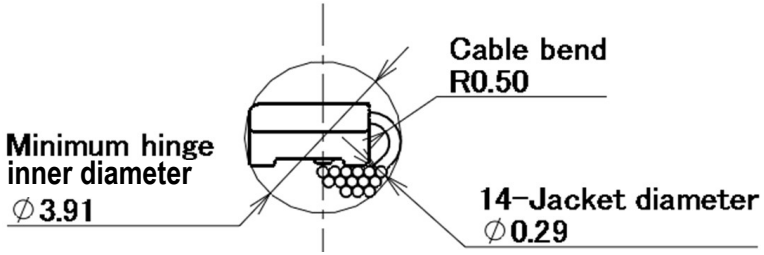

Fig.69 AWG#42 (45ohm) 14P

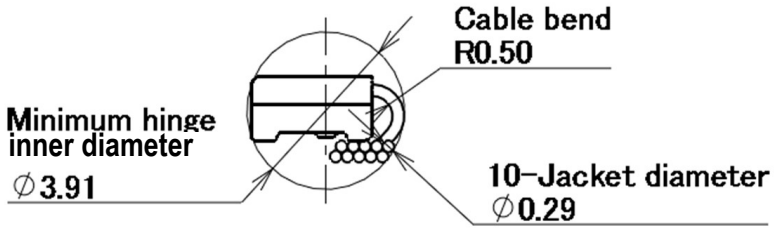

Fig.70 AWG#42 (45ohm) 10P

The simulation results presented in this report are not guaranteed. The diameter of the hinge that can be passed through may vary depending on the processing method of the harness and the type of cables used. Please use the results as a reference value. Furthermore, the utilization of bonding is recommended.

CABLINE-SS The simulation of passing PLUG through hinge