

# FTG/FTZ Series Marine Anti-corrosion Watertight Connector

## Description

- FTG series: quick bayonet coupling
  - FTZ series: thread anti-decoupling connection ●
- Application: Between equipment and cable and between cables in the severe environments such as moisture and water immersion
- 50m watertight after being mated
  - Termination: solder
  - Five key orientation to blindly mate and avoid mis-mating
  - High reliable hyperboloid wire spring socket make connector soft insertion and separation and small contact resistance
  - Plug and receptacle loaded with either pin or socket
  - Enterprise standard: Q/21EJ184



## Main technical characteristic

### [Mechanical]

- Shell: stainless steel passive, copper alloy satin nickel plating or aluminum alloy electroless nickel plating
- Insulator: thermosetting material
- Grommet and sealing ring: silicon rubber
- Contact: copper alloy, gold plating

- Vibration: frequency 10~2000Hz acceleration: 196m/ s<sup>2</sup>
- Shock: acceleration 980 m/ s<sup>2</sup>
- Constant acceleration: 980 m/ s<sup>2</sup>
- Endurance: 1000 cycles

### [Electrical]

—Contact resistance and rated current

Contact size (mm)	Contact resistance (mΩ)	Rated current (A)	Inner dia. of solder cup (mm)
φ1.0	5	5	φ1.3
φ1.5	2.5	10	φ1.8
φ2.0	1.25	20	φ2.5
φ3.0	0.75	40	φ3.4
φ3.5	0.7	50	φ4

—Rated voltage, withstanding voltage and insulation resistance:

Operating condition	Rated voltage (V)	Withstanding voltage (V)	Insulation resistance (MΩ)
Normal	500	1500	≥5000
Heat & damp	500	1125	≥100
Altitude (1Kpa)	250	300	—

—EMI shielding: the minimum attenuation should be 60dB at 100MHz~1GHz

[Environmental]

——Operating environment:  $-55^{\circ}\text{C}\sim+200^{\circ}\text{C}$

——Relative humidity: 95% at  $60^{\circ}\text{C}$

——Hermetic: 0~50m water immersion

——Salt spray: stainless steel—1000h; copper alloy—500h; aluminum alloy—48 h

——Leakage: for receptacle sealed at both ends, when the pressure difference is  $5.07\times 10^4$  Pa, the leakage rate should not be more than  $46\text{ Pa}\cdot\text{cm}^3/\text{s}$ ; For sintered glass receptacle, when the pressure difference is  $5.07\times 10^4$  Pa, the leakage rate should not be more than  $1\times 46\text{ Pa}\cdot\text{cm}^3/\text{s}$

——Fungus and dust resistance

## Ordering information

[Plug]

<b>Basic series</b>	<b>FTG</b>	<b>14</b>	<b>T</b>	<b>3</b>	<b>K<sub>1</sub></b>	<b>P</b>	<b>40</b>	<b>(W)</b>
FTG - Quick bayonet coupling								
FTZ - Thread anti-decoupling connection								
<b>Shell size</b> (9 sizes)								
14-18-22-24-27-30-33-36-39								
<b>Shell type</b>								
T - plug								
<b>Contact number</b> See the insert arrangement								
<b>Contact style</b>								
Z <sub>1</sub> - pin, gold plating      K <sub>1</sub> - socket, gold plating								
<b>Shell structure</b>								
P - thread termination, with accessory								
<b>Material and plating</b>								
1 - aluminum alloy, electroless nickel plating								
11 - copper alloy, electroless nickel plating								
12 - copper alloy, satin nickel plating								
40 - stainless steel, passive								
<b>Polarization</b> (5 keys)								
Blank—N, (W) —W, (X) —X, (Y) —Y, (Z) —Z								

[Receptacle]

<b>Basic series</b>	<b>FTG</b>	<b>14</b>	<b>F</b>	<b>3</b>	<b>K<sub>1</sub></b>	<b>P</b>	<b>40</b>	<b>(W)</b>
FTG - quick bayonet coupling								
FTZ - thread anti-decoupling connection								
<b>Shell size</b> (9 sizes)								
14-18-22-24-27-30-33-36-39								
<b>Shell type</b>								
F-square flange receptacle      Y-cable connection								
N- jam nut receptacle								
<b>Contact number</b> See the insert arrangement								
<b>Contact style</b>								
Z <sub>1</sub> - pin, gold plating      K <sub>1</sub> - socket, gold plating								
<b>Shell structure</b>								
D - no thread termination, without accessory								
P - thread termination, with accessory								
<b>Material and plating</b>								
1 - aluminum alloy, electroless nickel plating								
11 - copper alloy, electroless nickel plating								
12 - copper alloy, satin nickel plating								
40 - stainless steel, passive								

**Polarization** (5 keys)

Blank—N, (W) —W, (X) —X, (Y) —Y, (Z) —Z

[Thru-bulkhead sealed adapter]

<b>Basic series</b>	<b>FTG</b>	<b>14</b>	<b>S</b>	<b>3</b>	<b>M<sub>1</sub></b>	<b>D</b>	<b>40</b>	<b>(W)</b>
FTG- Quick bayonet coupling								
FTZ- Thread anti-decoupling connection								
<b>Shell size</b> (9 sizes)								
14-18-22-24-27-30-33-36-39								
<b>Shell type</b>								
S- jam nut thru-bulkhead sealed adapter, socket on one end without thread, pin on the other end with thread								
S <sub>0</sub> - jam nut thru-bulkhead sealed adapter, pin on one end without thread, socket on the other end with thread								
S <sub>1</sub> - square flange thru-bulkhead sealed adapter, pin inside the panel, socket outside the panel								
S <sub>2</sub> - square flange thru-bulkhead sealed adapter, socket inside the panel, pin outside the panel								
<b>Contact number</b>		See the insert arrangement						
<b>Contact style</b>								
M <sub>1</sub> – Thru-bulkhead sealed contact, gold plating								
<b>Shell structure</b>								
D - no thread termination, without accessory								
<b>Material and plating</b>								
1 - aluminum alloy, electroless nickel plating								
11 –copper alloy, electroless nickel plating								
12 –copper alloy, satin nickel plating								
40 - stainless steel, passive								
<b>Polarization</b> (5 keys)								
Blank—N, (W) —W, (X) —X, (Y) —Y, (Z) —Z								

[Sintered glass sealed receptacle]

<b>Basic series</b>	<b>FTG</b>	<b>14</b>	<b>F</b>	<b>3</b>	<b>M<sub>1</sub></b>	<b>P</b>	<b>40</b>	<b>(W)</b>
FTG - Quick bayonet coupling								
FTZ - Thread anti-decoupling connection								
<b>Shell size</b> (9 sizes)								
14-18-22-24-27-30-33-36-39								
<b>Shell type</b>								
F- square flange sealed receptacle								
N- jam nut sealed receptacle								
<b>Contact number</b>		See the insert arrangement						
<b>Contact style</b>								
M <sub>1</sub> –contact of sintered glass sealed receptacle, gold plating								

### Shell structure

P - thread termination, with accessory

### Material and plating

- 1 - aluminum alloy, electroless nickel plating
- 11 - copper alloy, electroless nickel plating
- 12 - copper alloy, satin nickel plating
- 40 - stainless steel, passive

### Polarization (5 keys)

Blank—N, (W) —W, (X) —X, (Y) —Y, (Z) —Z

### Weight table for FTG and FTZ series plug and receptacle (Material: stainless steel)

Unit: Gram

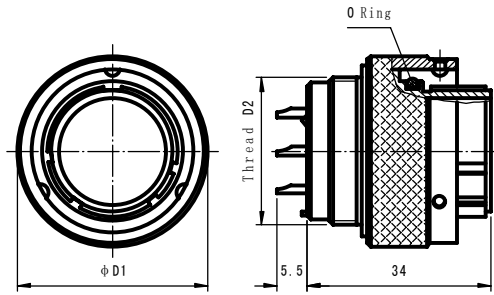
Shell size	Plug	Receptacle (without thread termination)	Receptacle (with thread termination)
14	40	37	38
18	52	48	50
22	68	60	62
24	83	66	69
27	100	81	85
30	124	92	97
33	142	103	108
36	160	117	123
39	176	146	152

Note: the values in the table are the average values of insert arrangement of the shell with pin or socket and are only for reference

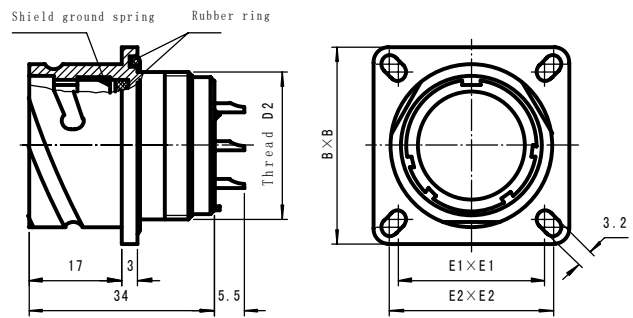
### Outline dimensions

[FTG series (quick bayonet coupling) ]

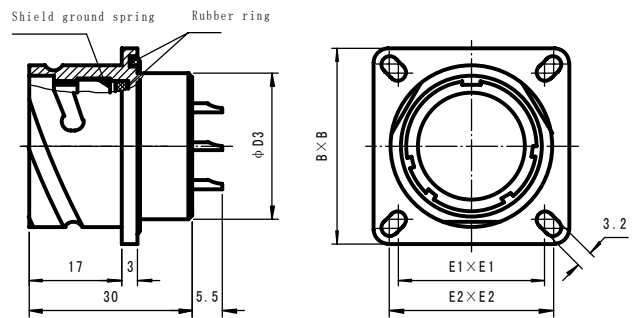
plug FTG-T-P



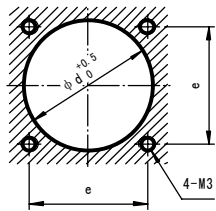
socket FTG-F-P、FTG-F-M,P



socket FTG-F-D



FTG Socket panel cutout size



Shell size	D1	D2	D3	B	E1	E2	d	e
14	22.0	M14×1	14.0	25.0	18.0	19.0	14.5	18.0~19.0
18	26.0	M18×1	18.0	27.5	21.0	22.0	18.5	21.0~22.0
22	30.0	M22×1	22.0	30.0	23.0	24.5	22.5	23.0~24.5
24	32.0	M24×1	24.0	33.0	25.0	27.0	24.5	25.0~27.0
27	35.0	M27×1	27.0	36.0	27.0	30.0	27.5	27.0~30.0
30	38.0	M30×1	30.0	39.0	29.0	32.0	30.5	29.0~32.0
33	41.0	M33×1	33.0	42.0	31.0	34.5	33.5	31.0~34.5
36	44.0	M36×1	36.0	45.0	33.0	37.0	36.5	33.0~37.0
39	47.0	M39×1	39.0	48.0	35.5	39.0	39.5	35.5~39.0

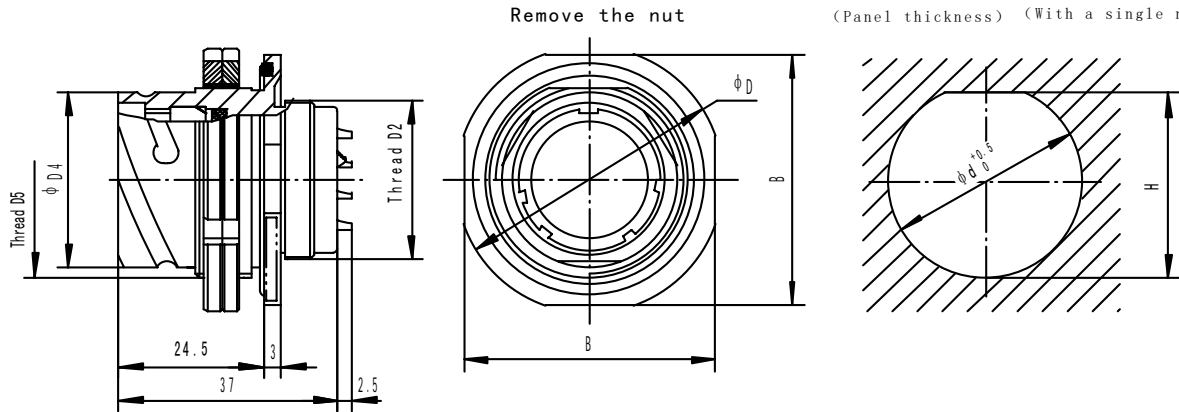
socket FTG-N-P、FTG-N-M,P

Recommended panel cutout size

2.5mm~5mm

5mm~8mm

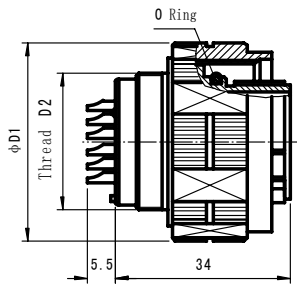
(Panel thickness) (With a single nut)



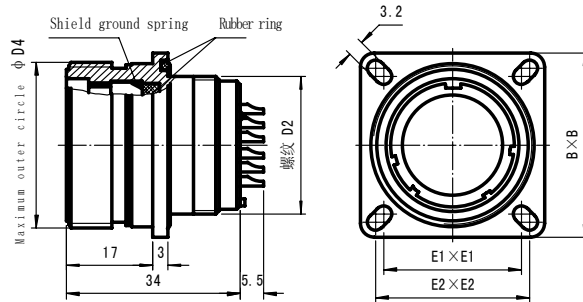
Shell size	B	D	D2	D4	D5	d	H
14	29	31	M14×1	16.8	20	20.2	19.1
18	33	35	M18×1	20.8	24	24.2	23.1
22	38	40	M22×1	24.8	27	27.2	26.1
24	41	44	M24×1	26.8	30	30.2	29.1
27	43	47	M27×1	29.8	33	33.2	32.1
30	46	50	M30×1	32.8	36	36.2	35.1
33	49	53	M33×1	35.8	39	39.2	38.1
36	52	56	M36×1	38.8	42	42.2	41.1
39	56	59	M39×1	41.8	45	45.2	44.1

[FTZ series (thread anti-decoupling connection) ]

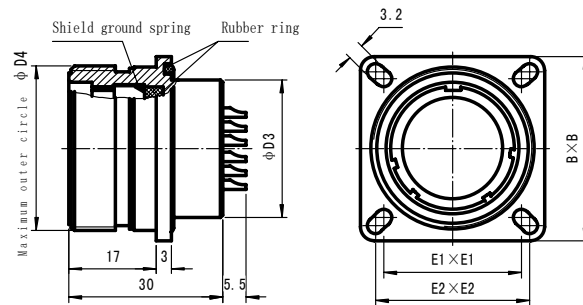
plug FTZ-T-P



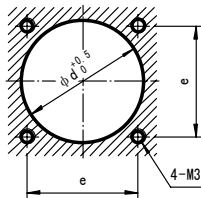
socket FTZ-F-P、FTZ-F-M,P



socket FTZ-F-D



FTZ Socket panel cutout size

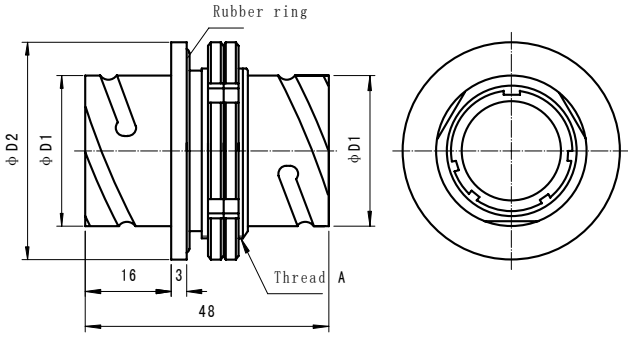


Shell size	D1	D2	D3	D4	B	E1	E2	d	e
14	25.0	M14×1	14.0	19.1	25.0	18.0	19.0	14.5	18.0~19.0
18	29.4	M18×1	18.0	22.3	27.5	21.0	22.0	18.5	21.0~22.0
22	32.4	M22×1	22.0	25.4	30.0	23.0	24.5	22.5	23.0~24.5
24	35.6	M24×1	24.0	30.2	33.0	25.0	27.0	24.5	25.0~27.0
27	38.6	M27×1	27.0	31.8	36.0	27.0	30.0	27.5	27.0~30.0
30	41.7	M30×1	30.0	34.8	39.0	29.0	32.0	30.5	29.0~32.0
33	44.8	M33×1	33.0	38.1	42.0	31.0	34.5	33.5	31.0~34.5
36	48.1	M36×1	36.0	41.2	45.0	33.0	37.0	36.5	33.0~37.0
39	51.0	M39×1	39.0	44.5	48.0	35.5	39.0	39.5	35.5~39.0

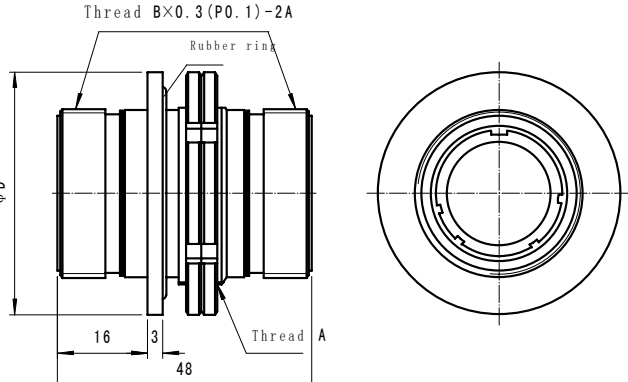


## FTG, FTZ series thru-bulkhead sealed adapter

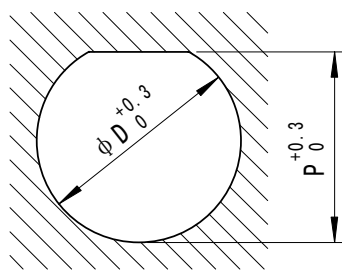
[Thru-bulkhead sealed adapter FTG-S-M<sub>1</sub>D]

	Shell size	Thread A	D1	D2
	14	M20×1	16.8	29
	18	M24×1	20.8	32
	22	M27×1	24.8	37
	24	M30×1	26.8	39
	27	M33×1	29.8	42
	30	M36×1	32.8	45
	33	M39×1	35.8	48
	36	M42×1	38.8	51
	39	M45×1	41.8	54

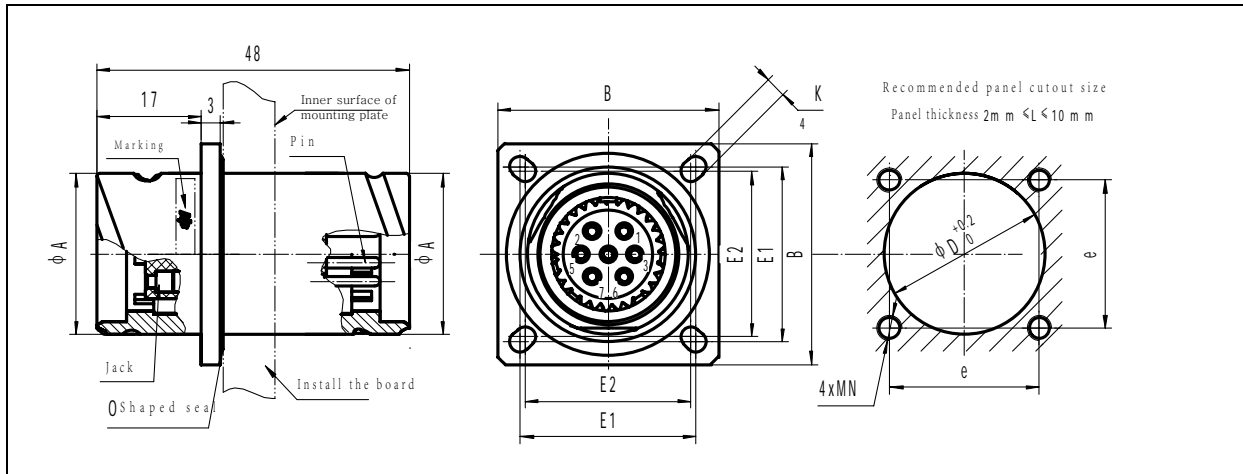
## Thru-bulkhead sealed adapter FTZ-S-M<sub>1</sub>D

	Shell size	Thread A	B	D
	14	M22×1	0.7500	32
	18	M25×1	0.8750	35
	22	M28×1	1.0000	38
	24	M33×1	1.1875	43
	27	M34×1	1.2500	44
	30	M37×1	1.3750	47
	33	M42×1	1.5000	52
	36	M45×1	1.6250	55
	39	M48×1	1.7500	58

## Recommended panel cut-out dimensions

 <p>Panel thickness 2~6mm</p>	Shell size	FTG-S-M <sub>1</sub> D		FTZ-S-M <sub>1</sub> D	
		D	P	D	P
	14	20.2	19.2	22.2	21
	18	24.2	23.2	25.2	24
	22	27.2	26.2	28.2	27
	24	30.2	29.2	33.2	32
	27	33.2	32.2	34.2	33.1
	30	36.2	35.2	37.2	36.2
	33	39.2	38.2	42.2	41
	36	42.2	41.2	45.2	44
39	45.2	44.2	48.2	47	

[Thru-bulkhead sealed adapter FTG-S<sub>1</sub> (2)]

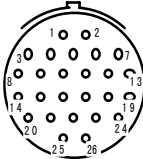
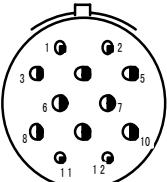
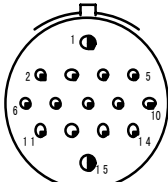
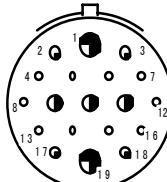
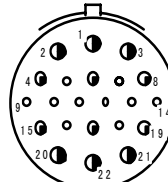
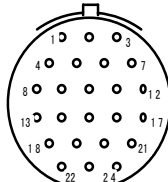
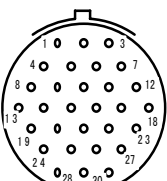
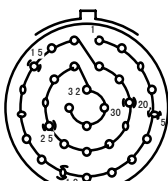
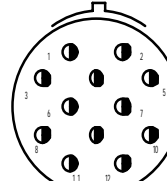
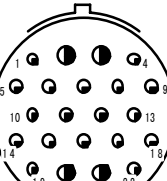
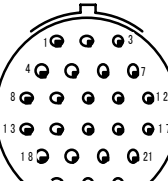
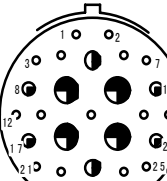
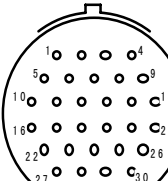
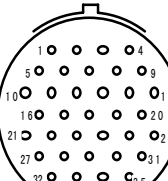
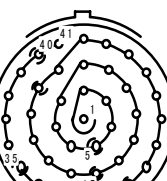
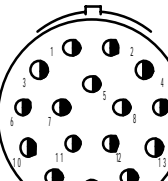


Shell size	A	B	D	e	E1	E2	N	K
14	16.8	27	17	20~21	21	20	3	3.2
18	20.8	30	21	22.5~24.5	24.5	22.5	3	3.2
22	24.8	33	25	25.5~27	27	25.5	3	3.2
24	26.8	36	27	27~30	30	27	3	3.2
27	29.8	39	30	29~32	32	29	3	3.2
30	32.8	42	33	31~35	35	31	3	3.2
33	35.8	45	36	33.5~37.5	37.5	33.5	3	3.2
36	38.8	48	39	36.5~40.5	40.5	36.5	4	4.4
39	41.8	51	42	39~43.5	43.5	39	4	4.4

FTG, FTZ series insert arrangement (Mating face of pin inserts)

Shell size	14	14-2  2-Φ1.5	14-3  3-Φ1.0	14-5  5-Φ1.0			
	18	18-3  3-Φ1.5	18-4  4-Φ1.0	18-7  7-Φ1.0	18-4-1  2-Φ1.0, 2-Φ1.5	18-5  5-Φ1.0	
	22	22-7  7-Φ1.5	22-10  6-Φ1.0, 4-Φ1.5	22-10-1  10-Φ1.0	22-11  11-Φ1.0	22-12  12-Φ1.0	
	24	24-3  3-Φ3.0	24-4  4-Φ3.0	24-5  5-Φ3.0	24-7  7-Φ2.0	24-8  4-Φ1.0, 4-Φ3.0	24-10  10-Φ1.5
		24-12  12-Φ1.5	24-14  14-Φ1.0	24-19  19-Φ1.0			
	27	27-4  4-Φ3.5	27-12  8-Φ1.0, 4-Φ3.0	27-14  6-Φ1.0, 8-Φ2.0	27-14-1  14-Φ1.5	27-19  14-Φ1.0, 5-Φ1.5	27-19-1  19-Φ1.0

Φ1.0 Contact  
 Φ1.5 Contact  
 Φ2.0 Contact  
 Φ3.0 Contact  
 Φ3.5 Contact

27	<p>27-26</p>  <p>26-Φ 1.0</p>				
30	<p>30-12</p>  <p>4-Φ 1.5, 8-Φ 2.0</p>	<p>30-15</p>  <p>13-Φ 1.5, 2-Φ 2.0</p>	<p>30-19</p>  <p>10-Φ 1.0, 4-Φ 1.5 3-Φ 2.0, 2-Φ 3.0</p>	<p>30-22</p>  <p>10-Φ 1.0, 6-Φ 1.5 6-Φ 2.0</p>	<p>30-24</p>  <p>24-Φ 1.0</p>
	<p>30-30</p>  <p>30-Φ 1.0</p>	<p>30-32</p>  <p>32-Φ 1.0</p>	<p>30-12-1</p>  <p>12-Φ 2.0</p>		
	<p>33-22</p>  <p>18-Φ 1.5, 4-Φ 2.0</p>	<p>33-24</p>  <p>24-Φ 1.5</p>	<p>33-27</p>  <p>17-Φ 1.0, 4-Φ 1.5 2-Φ 2.0, 4-Φ 3.0</p>	<p>33-30</p>  <p>30-Φ 1.0</p>	<p>33-35</p>  <p>35-Φ 1.0</p>
33	<p>33-41</p>  <p>41-Φ 1.0</p>	<p>33-16</p>  <p>16-Φ 2.0</p>			

○ Φ1.0 Contact   ● Φ1.5 Contact   ● Φ2.0 Contact   ● Φ3.0 Contact   ● Φ3.5 Contact

36	<p>36-37</p> <p>37-<math>\Phi 1.0</math></p>	<p>36-40</p> <p>34-<math>\Phi 1.0</math>, 4-<math>\Phi 1.5</math> 2-<math>\Phi 2.0</math></p>	<p>36-41</p> <p>31-<math>\Phi 1.0</math>, 10-<math>\Phi 1.5</math></p>	<p>36-55</p> <p>55-<math>\Phi 1.0</math></p>
	<p>39-16</p> <p>16-<math>\Phi 3.0</math></p>	<p>39-35</p> <p>16-<math>\Phi 1.0</math>, 13-<math>\Phi 1.5</math> 2-<math>\Phi 2.0</math>, 4-<math>\Phi 3.0</math></p>	<p>39-36</p> <p>18-<math>\Phi 1.0</math>, 6-<math>\Phi 1.5</math> 12-<math>\Phi 2.0</math></p>	<p>39-37</p> <p>37-<math>\Phi 1.5</math></p>
	<p>39-47</p> <p>39-<math>\Phi 1.0</math>, 4-<math>\Phi 1.5</math> 2-<math>\Phi 2.0</math>, 2-<math>\Phi 3.0</math></p>	<p>39-48</p> <p>32-<math>\Phi 1.0</math>, 12-<math>\Phi 1.5</math> 4-<math>\Phi 2.0</math></p>	<p>39-51</p> <p>43-<math>\Phi 1.0</math>, 8-<math>\Phi 1.5</math></p>	<p>39-55</p> <p>55-<math>\Phi 1.0</math></p>
	<p>39-62</p> <p>62-<math>\Phi 1.0</math></p>			

$\circ$   $\Phi 1.0$ Contact  
  $\bullet$   $\Phi 1.5$ Contact  
  $\ominus$   $\Phi 2.0$ Contact  
  $\omin�$   $\Phi 3.0$ Contact  
  $\bullet$   $\Phi 3.5$ Contact