ODU ELECTRICAL CONTACTS
Springwire, lamella, turned, slotted and stamped contacts

ODU SPRINGTAC®
ODU LAMTAC®
ODU STAMPTAC®
ODU TURNTAC®
ODU SPRINGTAC® FLATSOCKET

www.odu-usa.com
A PERFECT ALLIANCE.

ODU 5 STAR CUSTOMER EXPERIENCE

ODU GROUP OVERVIEW

• More than 75 years of experience in connector technology
• Over 2,300 employees worldwide
• 10 sales subsidiaries in China, Denmark, France, Germany, Italy, Japan, Korea, Sweden, the UK and the US as well as 5 production and logistics sites
• All technologies under one roof: Design and development, machine tool and special machine construction, injection, stamping, turning, surface technology, assembly and cable assembly

We operate in the following markets: medical, military and security, test and measurement, industrial, energy, and automotive/emobility

As of February 2019

CERTIFIED QUALITY

• ISO 9001
• IATF 16949
• ISO 13485
• ISO 14001
• ISO 50001
• Wide range of UL, CSA, VDE and VDE licenses
• UL, certified cable assembly

For a complete list of our certifications, please visit our website.

www.odu-usa.com

ODU ELECTRICAL CONTACT PORTFOLIO

<table>
<thead>
<tr>
<th></th>
<th>ODU SPRINGTAC®</th>
<th>ODU SPRINGTAC® Flatsocket</th>
<th>ODU LAMTAC®</th>
<th>ODU TURNTAC®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact technology</td>
<td>Springwire technology</td>
<td>Springwire technology</td>
<td>Lamella technology</td>
<td>Turned, slotted contacts</td>
</tr>
<tr>
<td>Contact diameter</td>
<td>From Ø 0.76 mm</td>
<td>From Ø 0.64 x 0.64 mm</td>
<td>From Ø 1.5 mm</td>
<td>From Ø 0.3 mm</td>
</tr>
<tr>
<td>Mating cycles</td>
<td>&gt; 100,000 (up to 1 million)</td>
<td>&gt; 50,000</td>
<td>&gt; 10,000</td>
<td>&gt; 10,000</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>–40°C to +125°C</td>
<td>–40°C to +125°C</td>
<td>–40°C to +150°C</td>
<td>–40°C to +125°C</td>
</tr>
<tr>
<td>High temperature range</td>
<td>Up to +300°C (on request)</td>
<td></td>
<td>Up to +150°C</td>
<td></td>
</tr>
<tr>
<td>Surfaces</td>
<td>Ag (Au up to Ø 1.02 mm)</td>
<td>Ag / Au</td>
<td>Ag / Au</td>
<td>Ag</td>
</tr>
<tr>
<td>Termination technologies</td>
<td>Crimp / screw / solder</td>
<td>Crimp</td>
<td>Crimp / screw / solder</td>
<td>Crimp / screw / solder</td>
</tr>
<tr>
<td>Current (6 mm) per IEC 60512-5-2:2002</td>
<td>100 A</td>
<td>130 A</td>
<td>100 A</td>
<td></td>
</tr>
<tr>
<td>Angular misalignment</td>
<td>+/- 1°</td>
<td>+/- 1°</td>
<td>+/- 5°</td>
<td></td>
</tr>
<tr>
<td>Contact material</td>
<td>CuSn alloy or CuBe</td>
<td>CuBe alloy</td>
<td>CuZnPb</td>
<td></td>
</tr>
<tr>
<td>Primary attribute</td>
<td>High mating cycles</td>
<td>Test &amp; Measurement</td>
<td>High current</td>
<td>High volume</td>
</tr>
<tr>
<td>Points of contact</td>
<td>360° circular</td>
<td>Single or double sided</td>
<td>360° circular</td>
<td>1,2,4,6 Times circular</td>
</tr>
</tbody>
</table>

ORDER SAMPLES NOW
Email us at: sales@odu-usa.com
ODU SPRINGTAC®
High reliability, up to 1,000,000 mating cycles

- Electrical contact with patented springwire technology
- 100,000 mating cycles (potential up to 1 million)
- High-current carrying capacity up to 2,000 A
- High vibration resistance
- Low mating and demating forces
- Low contact resistance
- Secure mating forces for reliability
- Electrical contacts ideal for medical, industrial, test & measurement, and automotive/emobility applications
- Available in 0.76 mm (size 22) contact sizes and larger

ORDER SAMPLES NOW
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**ODU LAMTAC®**

Maximum current-carrying capacity and temperature resistance

- Electrical contact with lamella technology
- >10,000 mating cycles
- Current carrying capacity up to 2,400 A
- Temperature up to 150°C
- Low contact resistance
- Cost efficient
- Secure mating forces for reliability
- 360° contact area
- Self-cleaning contacts
- Electrical contacts ideal for medical, industrial, test & measurement, and automotive/eMobility applications
- Low mating and demating forces
- Available in 1.5 mm contact sizes and larger

**Contact technology**

- Lamella technology

**Operating temperature range**

- −40°C to +150°C

**Contact diameter**

- from Ø 1.5 mm

**Mating cycles**

- >10,000

**Surfaces**

- Ag/Au

**Termination technologies**

- crimp / screw / solder

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Derating curve ODU LAMTAC® see page 13
ODU TURNTAC®
Turned, slotted contacts suitable even for harsh environments

- Turned, slotted contacts
- Rugged contact system, suitable even for harsh environment
- > 10,000 mating cycles
- Low and stable mating and demating forces
- Smallest dimensions possible, down to 0.3 mm contact diameter
- Mating possible at an angle of up to 5 degrees
- Electrical contacts ideal for medical, industrial, test & measurement, and automotive/eMobility applications

ODU TURNTAC® ELECTRICAL CONTACTS FOR STANDARD CHARGING INTERFACES

- IEC 62196 (VDE 0623-5)
- SAE J1772
- GB/T 20234

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**ODU STAMPTAC®**
Economical contact systems for automatic processing

- Stamped and formed contacts
- Economical contact systems for automatic processing
- > 10,000 mating cycles
- Sealing possible up to IP67
- Cost-efficient alternative for high volumes
- Electrical contacts ideal for medical, industrial, test & measurement, and automotive / eMobility applications

**ODU SPRINGTAC® FLATSOCKET**

- Low, stable contact resistance
- Versions for 2-wire and 4-wire measurement (Kelvin measurement)
- Ideal for test adapters and replacement inserts
- > 50,000 mating cycles
- High current-carrying capacity
- Electrical contacts ideal for test & measurement applications

**ORDER SAMPLES NOW**
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ODU CUSTOM CONNECTOR CAPABILITIES

EXTREME DESIGNS – PUSHING THE LIMITS

See below some of our technical capabilities that have been used for specific custom applications. We continuously work with our customers to meet the most extreme technical challenges.

** Requirement Extremes ODU has achieved **

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Extremes ODU has achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>High current</td>
<td>2,400 A</td>
</tr>
<tr>
<td>High voltage</td>
<td>56 kV (DC) 36 kV (AC)</td>
</tr>
<tr>
<td>Water protection</td>
<td>IP67 / IP68 / IP69K / IP6K9K</td>
</tr>
<tr>
<td>Vacuum tightness</td>
<td>1 × 10^{-11} mbar l/s</td>
</tr>
<tr>
<td>Salt spray</td>
<td>700 hours</td>
</tr>
<tr>
<td>EMC / EMI protection</td>
<td>&gt; 75 dB (0 – 5 MHz) / &gt; 65 dB (5 MHz – 500 MHz)</td>
</tr>
<tr>
<td>High speed data rate</td>
<td>USBI 3.2 Gen 1x1 – 5 GBit/s / HDMI 2.0 – 14.4 Gbit/s / 10 Gig Ethernet – 10 Gbit/s²</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>Up to 300 °C</td>
</tr>
<tr>
<td>Pressure</td>
<td>650 bar (9427 psi) operating receptacle / 500 bar (7251 psi) operating mated condition / 1,000 bar (14503 psi) burst</td>
</tr>
<tr>
<td>Vibration</td>
<td>LV214 Severity Level 4 (20 g, 10 – 2000 Hz, 22 h) Four-time multi-sinus per three-dimensional axis (16 g, 20 – 2000 Hz, 65 h per axis)</td>
</tr>
<tr>
<td>Mating cycles</td>
<td>&gt; 1 Million</td>
</tr>
<tr>
<td>Hydraulic connection</td>
<td>25 bar (362 psi) operating</td>
</tr>
<tr>
<td>Pneumatic connection</td>
<td>20 bar (290 psi) operating</td>
</tr>
<tr>
<td>Fiber optic</td>
<td>&lt; 1 dB Typical @ 100,000 mating cycles single mode / multimode</td>
</tr>
<tr>
<td>Magnetic permeability</td>
<td>Magnetic permeability µr &lt; 1.0005</td>
</tr>
<tr>
<td>Environmental</td>
<td>Salt spray / fog, chemical resistance, UV, Arizona dust, radiation, sterilization</td>
</tr>
<tr>
<td>Shock</td>
<td>1,000 g</td>
</tr>
<tr>
<td>Contact density</td>
<td>1 contact/mm²</td>
</tr>
<tr>
<td>Smallest contact diameter</td>
<td>0.3 mm</td>
</tr>
<tr>
<td>Smallest circular connector</td>
<td>5 mm</td>
</tr>
<tr>
<td>Electrical vehicle adapter</td>
<td>Electric vehicle adapter</td>
</tr>
<tr>
<td>Self finding solutions</td>
<td>+/- 5 mm float (shielid and tight)</td>
</tr>
</tbody>
</table>
| ¹These ODU specific connectors can transmit common data transmission protocols such as USB® 3.2 Gen 1x1, HDMI® 2.0 and Ethernet, but they are not USB®-, HDMI®-, and Ethernet-standard connectors.

** ODU PRODUCT AVAILABILITY **

** DERATING CURVE – ODU LAMTAC® CURRENT-CARRYING CAPACITY DIAGRAM **

Measurement according to IEC 60529-5-2:2002 [BSEN 60529-5-2:2003] (basis curve is shown). Upper limit temperature +150 °C. Connection with the largest specified nominal cross-section.
CUSTOM COMPONENT OVERMOLD
(Custom Requirement)

NON ODU CONNECTORS
- High-speed standard connectors such as: USB® 3.2 Gen 1x1, USB® 2.0, HDMI® 2.0 and Ethernet CAT 5
- Military and medical connectors
- Wire to board connectors

ODU TESTING & QUALITY
- In-process checking
- Data rate testing
- 100% final inspection
- Potting and environmental sealing
- IPC / WHMA-A-620
- Production possible in cleanroom in accordance with EN ISO 14644-1

ODU CABLE ASSEMBLY SOLUTIONS & CONNECTORS FROM ONE SOURCE

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ASK OUR ENGINEERS
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A PERFECT ALLIANCE.

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Further information and specialized representatives can be found at:
www.odu-usa.com/contact

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