The optical connection requirement for environmentally exposed mating cycles.

**Robust to contamination**
- Large beam transmission at the connection interface.
- No dust collecting socket cavity:

**Easy design in**
- ELIOBEAM® can be mounted in all standard EN4531 cavities either in MIL-DTL-38999 or ARINC 600 connectors.

**Excellent performances**
- Contact alignment is based on ceramic sleeve naturally protected by the contact when the connector is unmated.
**8D Series & ARINC 600 Series | ELIOBEAM® Fiber Optic Contact**

**ELIObeam contact**

- Fit in all ELIO® standard cavities (ABS1213, EN4531)
- Optical lense for expanded beam
- Allows signal communication without physical contacts
- Used like ELIO® standard contact

---

**Technical features**

**Mechanical**

- **Endurance:** Minimum 500 mating/unmating operations
- **Shock:** 300 g, 3ms as per EN 2591-6402 method A
- **Vibration:** In MIL-DTL-38999 Series III/EN3645 connectors:
  - Sine 5Hz to 3000Hz as per EN2591-6403 method A
  - Random as per EN2591-6403 method B
- **Cable cyclic flexing:**
  100 cycles, load 40N as per EN2591-609
- **Cable pulling:** 111N
- **Cable torsion:**
  100 cycles, load 40N as per EN2591-611

**Environmental**

- **Salt spray:** See the connector standard
- **Temperature range:**
  - 65°C to +125°C (1000 hours)
- **Rapid temperature change:**
  10 cycles - 65°C / +150°C (30min/30min)
- **Air leakage:**
  Max leakage 16 cm³/h, 2 hours, 40kPa differential pressure
- **Damp heat and low temperature:**
  5 cycles of 48h -65°C/+70°C with stage at 40°C with 95% of humidity as per EN2591-6303 method A

**Optical**

- **Multimode contact - Insertion Loss (IL):**
  < 0.7dB mean 95% of the samples as per EN2591-601,
  < 1.0dB maximum on 100% of the samples after tests
- **Multimode contact - Return Loss (RL):**
  > 16dB before and after tests as per EN2591-605

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**Resistance to fluids as per MIL-DTL-38999/EN3645 standard**

- **Fuel:** JP5
- **Mineral Hydraulic fluid:** MIL-PRF-5606 ( NATO H-515)
- **Synthetic hydraulic fluid:** AS1241 (Skydrol 500B4, LD4)
- **Mineral lubricant:** MIL-PRF-7870 (NATO O-142)
- **Synthetic lubricant:** MIL-PRF-23699 (NATO O-156), MIL-PRF-7808 (NATO O-148)
- **Cleaning fluid:** MIL-PRF-87937 diluted, Propanol, white spirit, Azeotrope R113 + Methanol
- **De-icing fluid:** AMS 1424 (NATO S-742)
- **Extinguishing fluid:** Chlorobromomethane
- **Cooling fluid:** Coolanol

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* With multimode EN4641-100 and EN4641-301 cables and following the maintenance procedure in the document "Technical Bulletin N°170 - Fiber optics installation and maintenance procedure".
**Principle of expanded beam**

The expanded beam concept expands and collimates the beam from the launch fiber. Without mechanical contact of the optical elements, the beam remains collimated until it is focused down to the receiving fiber.

The beam expansion at the interface provides protection of the fiber from contaminants.

![Diagram of expanded beam concept](image)

**ELIObeam contact - Ordering information**

<table>
<thead>
<tr>
<th>EOB1</th>
<th>09N</th>
<th>G</th>
<th>L</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cable external diameter &amp; Contact sealing:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>09N: 0.9±0.1mm. Non waterproof</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18N: from 1.5mm to 1.9mm. Non waterproof</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18W: 1.8±0.1mm. Waterproof</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20N: from 1.7mm to 2.1mm. Non waterproof</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20W: 2.0±0.1mm. Waterproof</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fibre type:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G: ELIOBEAM® Multimode fibre, 50/125 or 62.5/125</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Boot type:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L: Long boot</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S: Short boot</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>N: No boot (non waterproof version only)</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Contact version index**

![Diagram of ELIOBEAM® contact dimensions](image)

All dimensions are in millimeters.

*Note: All dimensions are in millimeters (mm)*
**Recommended cables**

SOURIAU can offer a wide range of cables in its assemblies, from low cost to high performance aeronautical cables. ELIOBEAM® contact is compatible with singlemode and multimode cables, with tactical and breakout cables. ELIOBEAM® contact is suitable with loose and tight structure cable.

See next page and SOURIAU “ELIO® Fiber Optic Technology” catalog.

**#8 Adaptors, Accessories & Tooling**

See SOURIAU “ELIO® Fiber Optic Technology” catalog.

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**Your optical patchcord in 3 steps!**

1. **Select cable**
2. **Select Termini End 1**
3. **Select Termini End 2**
4. **Determine total length**

---

**Patchcord Cable/Terminus Combination Code**

| Patchcord cable/terminus combination code: |
| XX: See tables p.5 |

**Patchcord length:**

- In meter when possible. Examples:
  - for a 3 meter assembly, use 003(M) and not 300(CM)
  - for a 3.5 meter assembly, use 350(CM)

**Standard length tolerances**

| Patchcord from 30 cm to 1 m | 0 / + 5 cm |
| Patchcord from 1 m to 4 m | 0 / + 10 cm |
| Patchcord from 4 m to 15 m | 0 / + 20 cm |
| Patchcord > 15 m | 0 / + 30 cm |

**Length unit:**

- M: Meter
- CM: Centimeter

**Patchcord version index**

Note: To create your patchcord part number, select your patchcord combination code in tables p.5 (1st contact - 2nd contact - Fiber Optic cable) and the length of your assembly on 3 digits in meter (M) or centimetre (CM). You must use meter when possible (see examples above).
SOURIAU offers a wide range of cables, from cost efficient to high performance aeronautical cables. Select your optical fiber’s properties. Temperature range can be critical for your applications. If you need any help on a criteria selection, please contact us.

**Application** | **Fiber type** | **Cable diameter** | **Temperature range** | **Tensile strength (N)** | **OM class** | **Attenuation (dB.km-1)** | **Min. bend radius (mm)** | **Weight (g.km-1)** | **Structure outer jacket** | **Standard** | **Cable type**
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
**FOR FLYING USE** | 62.5/125 | 1.8 | -55°C to +125°C | 250 | OM2 | 4.0/2.0 | 20 | 4 | Tight | ABS0963-003LF, EN4641-102 | FCABLE11
**High performance cables** | 62.5/125 | 0.9 | -55°C to +125°C | 20 | OM2 | 4.0/2.0 | 10 | 1 | NA | EN4641-101 | FCABLE41
50/125 | 1.8 | -65°C to +135°C | 200 | OM3 | 4.0/2.0 | 5 | 4 | Tight | EN4641-301 | FCABLE22
**FOR HARSH ENVIRONMENT** | 50/125 | 1.8 | -40°C to +85°C | 130 | OM3 | 3.0/1.0 | 25 | 2.2 | Loose | - | FCABLE42
**Cost efficient cables** | 50/125 | 1.8 | -40°C to +85°C | 130 | OM1 | 3.5/1.5 | 25 | 2.2 | Loose | - | FCABLE61

* 1st value @850nm for multimode cable, 2nd value @1300nm for multimode (respectively 1300nm and 1550nm for singlemode)

Consult us for other harsh environment cables.

**Select Termini End 1 & 2** according to your selected cable, and get your final Patchcord Cable/Terminus Combination Code

Most common cables with most common contacts - For other combinations please consult us.

All contacts are UPC polished otherwise specified.

<table>
<thead>
<tr>
<th>Termini End 1</th>
<th>Termini End 2</th>
<th>EOB118WGLA</th>
<th>EOB109NGLA</th>
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<tr>
<td><strong>Cable types</strong></td>
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<td><strong>EOB109NGLA</strong></td>
<td><strong>Cable type</strong></td>
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<td>FCABLE11</td>
<td>FCABLE22</td>
<td>FCABLE42</td>
<td>FCABLE61</td>
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<td>3091</td>
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</table>

For further information contact us at technical-emear-ect@esterline.com (Europe - Asia - Africa) technical-americas-ect@esterline.com (North America) or visit our web site www.esterline-connection-technologies.com