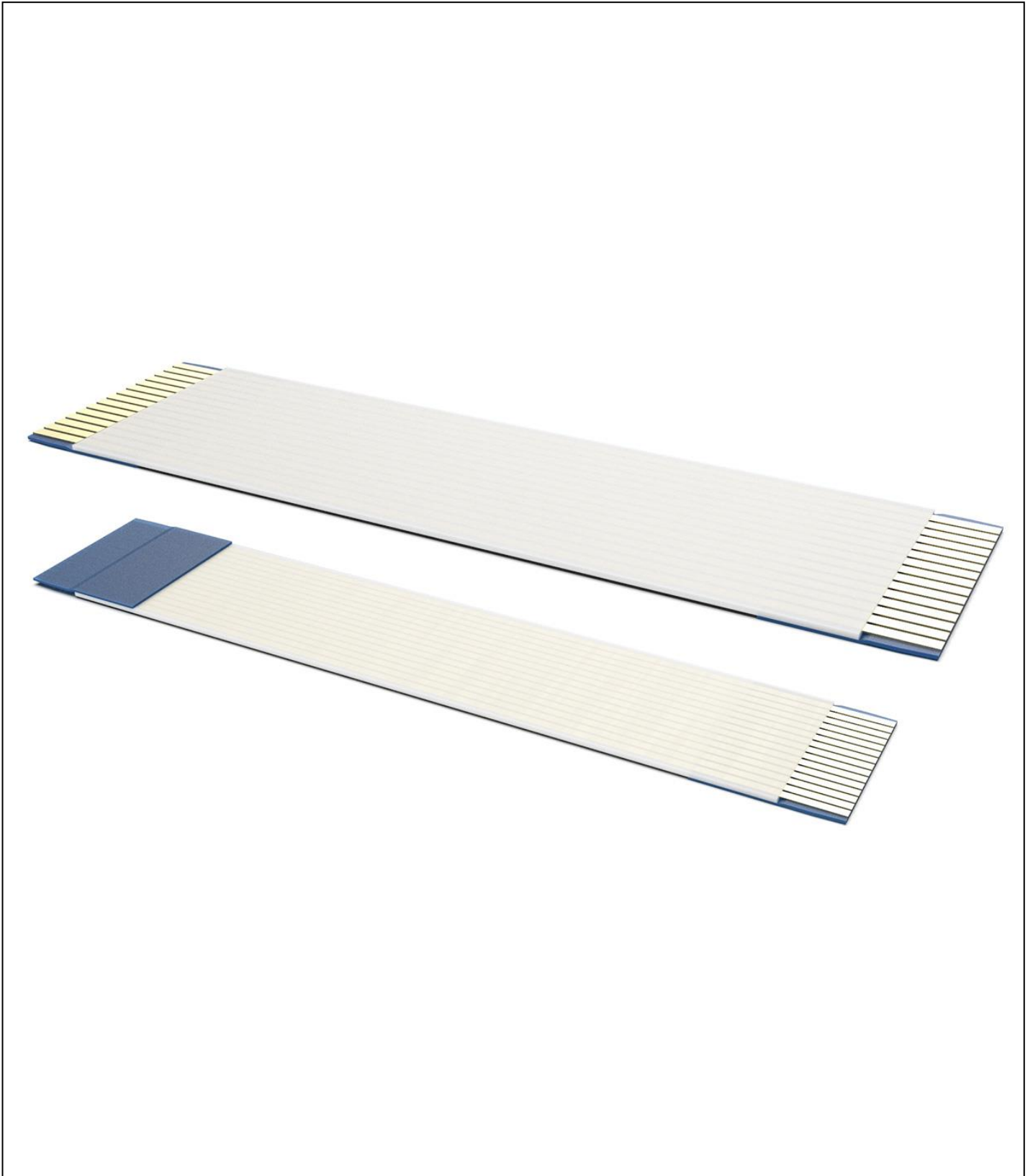


# PRODUCT SPECIFICATION

|                            |                                   |                 |    |                |          |                 |    |
|----------------------------|-----------------------------------|-----------------|----|----------------|----------|-----------------|----|
| <b>Part Number</b>         | Flat Flex Cables                  | <b>Rev</b>      | A  | <b>Date</b>    | 07/07/23 |                 |    |
| <b>Product Description</b> | FFC general product specification |                 |    | <b>Page</b>    | 1        |                 |    |
| <b>Doc Number</b>          | FFC_PS                            | <b>Prepared</b> | YR | <b>Checked</b> | KL       | <b>Approved</b> | PH |



# PRODUCT SPECIFICATION

|                            |                                   |                 |    |                |          |                 |    |
|----------------------------|-----------------------------------|-----------------|----|----------------|----------|-----------------|----|
| <b>Part Number</b>         | Flat Flex Cables                  | <b>Rev</b>      | A  | <b>Date</b>    | 07/07/23 |                 |    |
| <b>Product Description</b> | FFC general product specification |                 |    | <b>Page</b>    | 2        |                 |    |
| <b>Doc Number</b>          | FFC_PS                            | <b>Prepared</b> | YR | <b>Checked</b> | KL       | <b>Approved</b> | PH |

## 1. SCOPE

This specification covers tolerances and characteristics of standard Flat Flex Cables, applicable to FFC Cable drawing rev.B or later.

## 2. GENERAL TOLERANCES

| No. | Description              | Size (mm) | FFC pitch & tolerance (mm) |       |
|-----|--------------------------|-----------|----------------------------|-------|
|     |                          |           | 0.5                        | 1.0   |
| 1   | Overall Length (L)       | ≤50       | ±1.5                       |       |
|     |                          | 51 – 100  | ±2                         |       |
|     |                          | 101 – 300 | ±3                         |       |
|     |                          | 301 – 800 | ±5                         |       |
|     |                          | >800      | ±1%                        |       |
| 2   | Conductor Thickness      | 0.035     | ±0.005                     |       |
|     |                          | 0.05      | ±0.005                     |       |
|     |                          | 0.1       | ±0.01                      |       |
| 3   | Conductor Width          | 0.3       | ±0.03                      |       |
|     |                          | 0.65      | ±0.03                      |       |
| 4   | Pitch                    | 0.5       | ±0.05                      |       |
|     |                          | 1.0       |                            | ±0.05 |
| 5   | Cable Width (W)          | 0.5       | ±0.08                      |       |
|     |                          | 1.0       |                            | ±0.1  |
| 6   | Exposed Conductor Length | ≤6        | ±1                         |       |
| 7   | Support Strip Length     | 4 – 6     | ±1                         |       |
|     |                          | 6 – 7     | ±1.5                       |       |
|     |                          | >8        | ±2                         |       |

# PRODUCT SPECIFICATION

|                            |                                   |                 |    |                |          |                 |    |
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| <b>Product Description</b> | FFC general product specification |                 |    | <b>Page</b>    | 3        |                 |    |
| <b>Doc Number</b>          | FFC_PS                            | <b>Prepared</b> | YR | <b>Checked</b> | KL       | <b>Approved</b> | PH |

## 3. CHARACTERISTICS

|            | Item                               | Test Condition  | Requirement  |
|------------|------------------------------------|---|--|
| Electrical | Conductor Resistance (0.5mm pitch) | JIS-C-3102 (at 20°C)  | 2.2Ω/m Max.  |
|            | Conductor Resistance (1.0mm pitch) |   | 1.1Ω/m Max.  |
|            | Insulation Resistance              | Apply 500Vdc for 1 min  | 1000MΩ Min   |
|            | Rated Current (0.5mm pitch)        | -   | 0.5A   |
|            | Rated Current (1.0mm pitch)        | -   | 1.0A   |
|            | Dielectric Strength                | 500Vac, 0.5mA, 1 min, adjacent conductors in air<br>1000Vac, 0.5mA, 1 min, adjacent conductors in water | No breakdown   |
|            | Continuity                         | DC3V tester   | No open circuit with each conductor, no short circuit to adjacent conductors |
|            | Rated Voltage and Temperature      | UL 758  | 60V, +80°C or +105°C depending on UL style                                   |
| Physical   | Operating Temperature              | Fixed wiring  | -40°C to +80°C or +105°C depending on UL style                               |
|            | Flammability                       | UL 758 VW-1   | Pass   |
|            | Resistance to Heat                 | +85°C or +110°C (depending on UL style) for 96hrs   | No negative impact on insulation resistance or dielectric strength           |
|            | Resistance to Humidity             | +40°C, 95% RH for 96hrs   | No negative impact on insulation resistance or dielectric strength           |

# PRODUCT SPECIFICATION

|                            |                                   |                 |    |                |          |                 |    |
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| <b>Product Description</b> | FFC general product specification |                 |    | <b>Page</b>    | 4        |                 |    |
| <b>Doc Number</b>          | FFC_PS                            | <b>Prepared</b> | YR | <b>Checked</b> | KL       | <b>Approved</b> | PH |

|  |                                  |   |  |
|--|----------------------------------|---|--|
|  | Temperature and Humidity Cycling | -40°C (0% RH) → +25°C (65% RH)<br>→ +85°C (95% RH) → +25°C (65% RH), 5 cycles | No negative impact on insulation resistance or dielectric strength |
|  | Flex Life (Folding Test)         | 600g weight, 0.5mm R, 180°, 60 cycles/min                                     | 100 cycles Min.  |
|  | Flex Life (Reciprocating Test)   | 10mm R, 180mm stroke, 70 cycles/min   | 100,000 cycles Min.  |
|  | Abrasion                         | Ø0.5mm, 600g, 60 cycles/min   | 100,000 cycles Min.  |
|  | Insulation Elongation            | JIS-K-6732  | 70% Min.   |
|  | Insulation Tensile Strength      |   | 3.5kg/mm <sup>2</sup> Min.   |
|  | Adhesive Strength                | Between conductor and insulator   | 0.2kg/cm Min.  |
|  |                                  | Between insulator and insulator   | 0.6kg/cm Min.  |
|  |                                  | Between support strip and insulator   | 0.2kg/cm Min.  |
|  | Durability                       | Insertion and withdrawal  | 30 cycles Min.   |

# PRODUCT SPECIFICATION

|                            |                                   |                 |    |                |          |                 |    |
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| <b>Product Description</b> | FFC general product specification |                 |    | <b>Page</b>    | 5        |                 |    |
| <b>Doc Number</b>          | FFC_PS                            | <b>Prepared</b> | YR | <b>Checked</b> | KL       | <b>Approved</b> | PH |

## Revision details:

| Revision | Information    | Page | Release Date |
|----------|----------------|------|--------------|
| 0.1      | Initial draft  | -    | 23/06/2023   |
| 0.2      | Revised draft  | -    | 05/07/2023   |
| A        | Formal release | -    | 07/07/2023   |
|          |                |      |              |

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