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## Teonex® Q5100

Teonex® Q5100 is a flexible, slightly cloudy, biaxially oriented polyethylenenaphthalate (PEN) film.

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### Attributes

Compared to PET polyester film, Teonex® Q5100 has optimum properties in every respect.

The increased temperature resistance results in film approval in thermal class F (155 °C). It has a electrical relative temperature index (RTI) of 180 °C and a mechanical RTI of 160 °C according to UL.

Further advantages of Teonex® Q5100 are:

- extremely high dielectric strength
- very good mechanical strength
- high-level of stiffnes
- low water absorption
- easy to laminate

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### Application

Teonex® Q5100 was specially developed for use in electric motors with increased load as slot insulation, phase insulation and wedges.

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### Standards

- Class F (155 °C) insulating material
- UL approved, file no. E51743

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### Delivery forms

#### Film thicknesses in µm:

- from 12, 16, 25, 38, 50, 75,100, 125, 188, 250

Teonex® Q5100 can be supplied:

- in slit rolls from widths of 6 mm (depending on thickness) and above.
- in rolls up to a width of 1,000 mm

#### Overall diameter of the slit rolls/ rolls

- approx. 240, 330 or 450 mm.

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### Feathering:

- depth approx. 1 - 12 mm, distance approx. 1 - 10 mm
- from widths of 10 to 240 mm and thickness of 0.125 mm

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### Base

Polyethylenaphthalte

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| Mechanical                                | Unit of measure |     |     |     |     |     |     |
|---|-----------------|-----|-----|-----|-----|-----|-----|
| Nominal thickness                         | µm              | 12  | 16  | 25  | 38  | 50  | 75  |
| Tensile strength longitudinal             | MPa             | 300 | 330 | 340 | 320 | 290 | 290 |
| Tensile strength transversal              | MPa             | 330 | 340 | 350 | 320 | 300 | 280 |
| Elongation at break longitudinal          | %               | 100 | 90  | 100 | 110 | 120 | 100 |
| Elongation at break transversal           | %               | 90  | 80  | 90  | 110 | 120 | 100 |
| Shrinkage (30 min at 150 °C) longitudinal | %               | 0.7 | 1.0 | 1.0 | 0.5 | 0,4 | 0.5 |
| Shrinkage (30 min at 150 °C) transversal  | %               | 0.3 | 0,3 | 0.4 | 0.3 | 0.3 | 0.4 |
| Shrinkage at 200 °C longitudinal          | %               | 2.6 | 2.7 | 2.7 | 1.2 | 0.8 | 1.0 |
| Shrinkage at 200 °C transversal           | %               | 3.5 | 1.7 | 1.9 | 1.3 | 0.8 | 1.0 |

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| Mechanical                                | Unit of measure |     |     |     |     | Test method |
|---|-----------------|-----|-----|-----|-----|-------------|
| Nominal thickness                         | µm              | 100 | 125 | 188 | 250 |             |
| Tensile strength longitudinal             | MPa             | 260 | 260 | 250 | 210 | JIS C2318   |
| Tensile strength transversal              | MPa             | 280 | 260 | 240 | 190 | JIS C2318   |
| Elongation at break longitudinal          | %               | 110 | 100 | 110 | 120 | JIS C2318   |
| Elongation at break transversal           | %               | 100 | 100 | 100 | 110 | JIS C2318   |
| Shrinkage (30 min at 150 °C) longitudinal | %               | 0.3 | 0,2 | 0.2 | 0.2 | JIS C2318   |
| Shrinkage (30 min at 150 °C) transversal  | %               | 0.4 | 0.3 | 0.4 | 0.3 | JIS C2318   |
| Shrinkage at 200 °C longitudinal          | %               | 0.9 | 1.0 | 1,1 | 0.9 | JIS C2318   |
| Shrinkage at 200 °C transversal           | %               | 1.1 | 0.8 | 0.7 | 0.7 | JIS C2318   |

| Electrical          | Unit of measure |     |
|---------------------|-----------------|-----|
| Nominal thickness   | µm              | 12  |
| Dielectric strength | kV              | 9.6 |

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| Electrical          | Unit of measure |     |     |      |      |      |      |
|---------------------|-----------------|-----|-----|------|------|------|------|
| Nominal thickness   | µm              | 16  | 25  | 38   | 50   | 75   | 100  |
| Dielectric strength | kV              | 9.6 | 8.1 | 11.2 | 12.7 | 16.2 | 18.0 |

| Electrical          | Unit of measure |      |      |      | Test method |
|---------------------|-----------------|------|------|------|-------------|
| Nominal thickness   | µm              | 125  | 188  | 250  |             |
| Dielectric strength | kV              | 20.7 | 25.0 | 28.7 |             |

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