# U-CTD Series

Diameter Measuring Tension Creel System

## Features

- Unwinding type electrical tension control
- Torque calculated by diameter measurement
- Tension set by main control panel
- Custom designed frame structures and fiber routing to accommodate customer requirements
- Creel can be segregated into zones, so packages of similar diameters would be distributed into zones accordingly, and have equal tension output.
- Ideal for low cost, large scale, electrical tension control creel systems.

## Applications and Fiber Types

- For carbon fiber (PAN and pitch), aramid fibers, glass fibers, and other high performance fibers.
- For pre-preg, pultrusion, UD tape process, Lab systems, etc.

## Specifications

<table>
<thead>
<tr>
<th></th>
<th>Model CTD1200 for OPB/C, HB/C actuators (max 1.5 A output)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tension controller</td>
<td>Model CTD3200 for larger actuators (max 3.0 A output)</td>
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<tr>
<td></td>
<td>Output voltage to brakes can be monitored</td>
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<table>
<thead>
<tr>
<th></th>
<th>Determined upon each application.</th>
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<tbody>
<tr>
<td>Tension range</td>
<td>max 500 (m/min), but depends on tension ranges and application details.</td>
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<tr>
<td>Speed range</td>
<td>Determined upon each application.</td>
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<tr>
<td>Compatible package sizes and core sizes</td>
<td>Max package diameter is 999mm. Various lineup of core chuck available to meet customer requirements.</td>
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<tr>
<td>Tension actuator</td>
<td>Standard actuator lineup consist of below: OPB electromagnetic particle brakes, OPC electromagnetic particle clutches, HB electromagnetic hysteresis brakes, HC electromagnetic hysteresis clutch</td>
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<tr>
<td>Creel framework</td>
<td>Standard and custom configurations available</td>
</tr>
<tr>
<td>Fiber guiding</td>
<td>Pin combs, eyelet guides, and yarn guide rollers</td>
</tr>
<tr>
<td>Other</td>
<td>Stability factor can be adjusted in cases where diameter measurement fluctuation occurs (products with uneven distribution on reel, etc.).</td>
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<tr>
<td>Operator interface</td>
<td>CTS1160 type digital setting unit</td>
</tr>
</tbody>
</table>

Please contact Izumi International, Inc. for special requirements.
**Component Details**

**Ultrasonic Sensor**

- Compact structure allows for mounting in tight spaces
- Non contact type sensor prevents any damage to the fibers.

**Actuators**

- OPB/OPC type electromagnetic particle brakes and clutches
  - 0.5 - 8 [Nm] selection range
- HB/HC type electromagnetic hysteresis brakes and clutches
  - 0.05 - 1 [Nm] selection range

**CTS Setting Unit**

- Simple digital interface for easy tension control
- Basic initial parameters input via CTS unit.
- Other HMI interface available upon request as well as interfacing with customer control system.

**Configurations**

- Diameter of master package of each zone is monitored and used to calculate required torque.
- Zones can be set up as required. Increasing zones will increase cost, but also increases controllability of tension, and flexibility of package diameters.
- Backup sensor systems with sensor failure monitoring can be incorporated as optional feature, to prevent sensor malfunction from causing incorrect torque to be calculated.

**Picture above shows different type of actuators for torque generation**

**Picture above shows basic tension setting interface for all UCTD series creels.**