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

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

Please contact Izumi International, Inc. for special requirements

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Component Details

Ultrasonic Sensor

Ultrasonic sensor for diameter calculation

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

Actuators

Picture above shows different type of actuators for torque generation

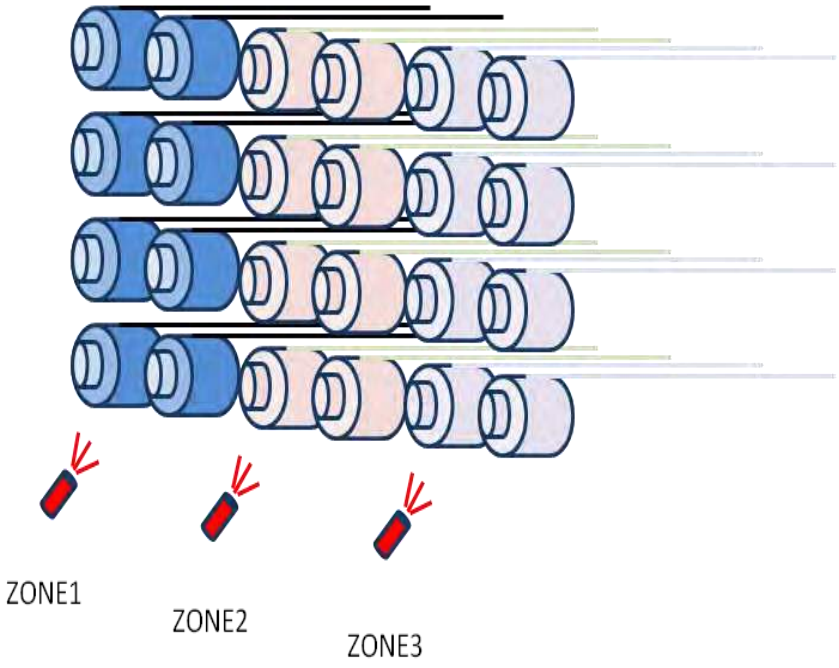
- OPB/OPC type electromagnetic particle brakes and clutches
  0.5 - 8 [Nm] selection range
- HB/HC type electromagnetic hysteresis brakes and clutches
  0.05 - 1 [Nm] selection range

CTS Setting Unit

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

- 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.

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