

# TRANSIENT TENSION ACTUATORS & CONTROLLERS

(Swinging type/programmable)

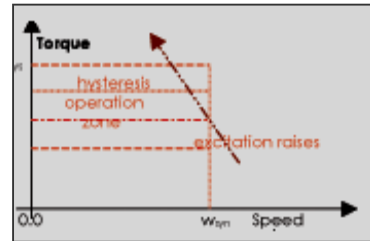
**Application:** MTTC series of low time constant transient Tensional controllers are available in more than 10 different models (10-to1000 kilo watts/ 500 to50, 000 strain) including some tailor made models practically offering readymade solution in tension control for paper, tape, textile, yarn and many applications in printing, testing . These fast responding Tensional controllers has ability to detect fast tension variation in film/yarn and correct accordingly. Actuators has low windage losses,tribological problem, mechanical black-lash/ dead band, and exhibits repeatable tension/speed characteristics which guarantees accurate identification of parameters during steady State/transient conditions

**Operating Principle:** A transient Tension controller operates in absorbing mode while operating in tension mode with its ability to Control tension smoothly over entire rpm range. It compares the sensed tension with set point and takes correction action accordingly. While working in feed forward mode, it infers the current tension from either rpm/diameter of reel and compares it with set point to control desired tension level within permissible error. Its fast working controller makes it possible to regulate the tension for very fragile material very smoothly. Torque speed behaviour of tension controllers is as under.....

$$w = K_1.V/I_{ext} - K_2.T/I^{1.6}_{ext}$$

**Benefits:**

- Simple installation and operational compatibility.
- Consistent performance over large temperature range (80°C)
- Scaled directly in Volt/Ampere with repeatable accuracy.
- Auto zero offsets without drift with ultra high input impedance...
- Facility of programming profile of display in six steps/ RS-232 interface.
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Model	Rated Tension Newton	Non excited Tension % R.T.	R.P.M.	Cooling	Thermal rise °C
MTTC9993000	999.0	1.0%	30-300/Option	Air	70
MTTC500300	500.0	1.0%	30-300/Option	Air	70
MTTC300300	300.0	1.0%	30-300/Option	Air	70
MTTC0200300	200.0	1.0%	30-300/Option	Air	70
MTTC100300	100.0	1.0%	30-300/Option	Air	70
MTTC050300	050.0	1.0%	30-300/Option	Air	70
MTTC020300	020.0	1.0%	30-300/Option	Air	70
MTTC010300	010.9	1.0%	30-300/Option	Air	70
MTTC005300	005.0	1.0%	30-300/Option	Air	70

**General Specification of Tension actuators /controllers;**

Operating voltage 220 volts, 1/3 phase, 40-60 Hz  
 Controlled tension range: 1.0- 1000 kg  
 R.P.M. Range: 30-500  
 Tension control accuracy: 99% of set point  
 Output impedance: compatible to load to ensure maximum possible power trasfer.  
 Resolution 0.1/0.010/0.001 kg.  
 Repeatability 100 percent  
 Response time 0.5 –1.1 mill-seconds  
 Tension control regulation: Line: ±0.1% (for ±10% of input change)  
 Load: 0.05% (for 10 to 100% of load change)  
 Interface Signal 0.0-12.0 volts D.C. (proportional to process variable)  
 Voltage control range 0.0-400 volts  
 Step down ratio 0-100%  
 Control options 1.cascade feedback control with soft start 2.Ratio control (option)  
 2. Contant tension over entire r.p.m. range or profiled as desired external adjustment  
 Display: tension/rpm  
 Protection over voltage/short ckt.  
 Additional: Local: Constant voltage mode, by 10-turn potentiometer  
 Constant current mode, by 10-turn potentiometer  
 Remote: Constant voltage mode, by external voltage of 0 to 10Vdc\*  
 Last two numeral after MTTC indicates tension in kgf and last three numeral indicates r.p.m. .Company may develop customized Tension control system.

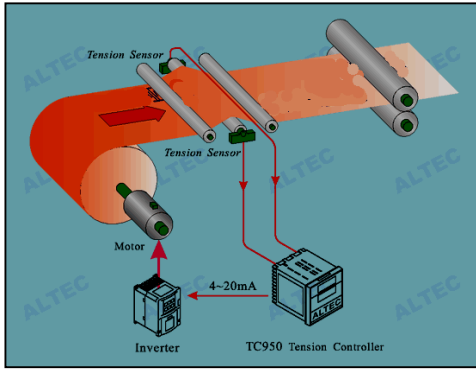


**MOTORON SEMICONDUCTORS CORPORATION**

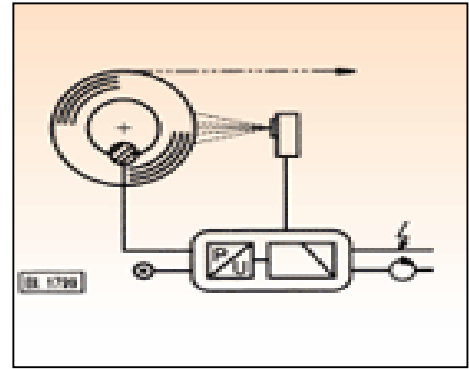
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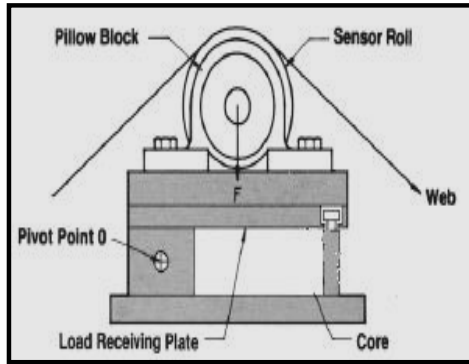
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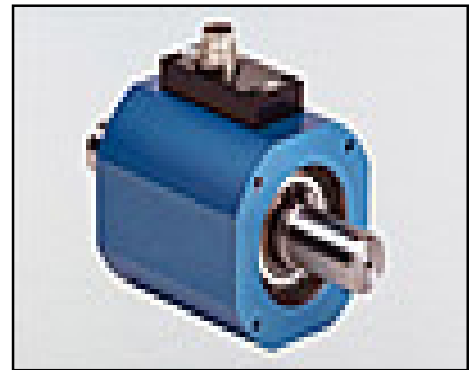
TENSION CONTROL MECHANISM



CONTROL TOPOOGY



MTC001002



MTC002004

Technical specifications and selection chart (MTC series)

T<999 gf/300 rpm

Model	Rated Tension Newton	Shaft-diameter	R.P.M.	Cooling	Thermal rise °C
MTC9993000	999.0	4	30-300/Option	Air	70
MTC500300	500.0	4	30-300/Option	Air	70
MTC300300	300.0	4	30-300/Option	Air	70
MTC0200300	200.0	4	30-300/Option	Air	70
MTC100300	100.0	3	30-300/Option	Air	70
MTC050300	050.0	3	30-300/Option	Air	70
MTC020300	020.0	2	30-300/Option	Air	70
MTC010300	010.9	1	30-300/Option	Air	70
MTC005300	005.0	1/2	30-300/Option	Air	70

Last two numeral after MTC indicates volt.x100 an remaining numeral indicates power (kilo-watts).Company may develop electronic load tester on specific requirement.

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