TNT-Series

Tension Sensing Rolls

IP54

Montalvo TNT-Series Tension Sensing Rolls

Montalvo offers the TNT-Series web tension sensing roll. The roll combines the best of both worlds in one package - a Montalvo engineered uniquely sensitive strain gauge system coupled with a durable, high performance, lightweight aluminum tube to produce an integrated sensing roll that fits virtually any application. Flexible mounting options and a wide variety of sizes and load ranges make the TNT a versatile machine component for both OEMs and end users. Montalvo TNT - fast, cool, smooth, accurate.

Features

- Roll widths from 200mm
- Custom mounting options
- Standard load ratings from 125N
- Standard roll diameters from 80mm

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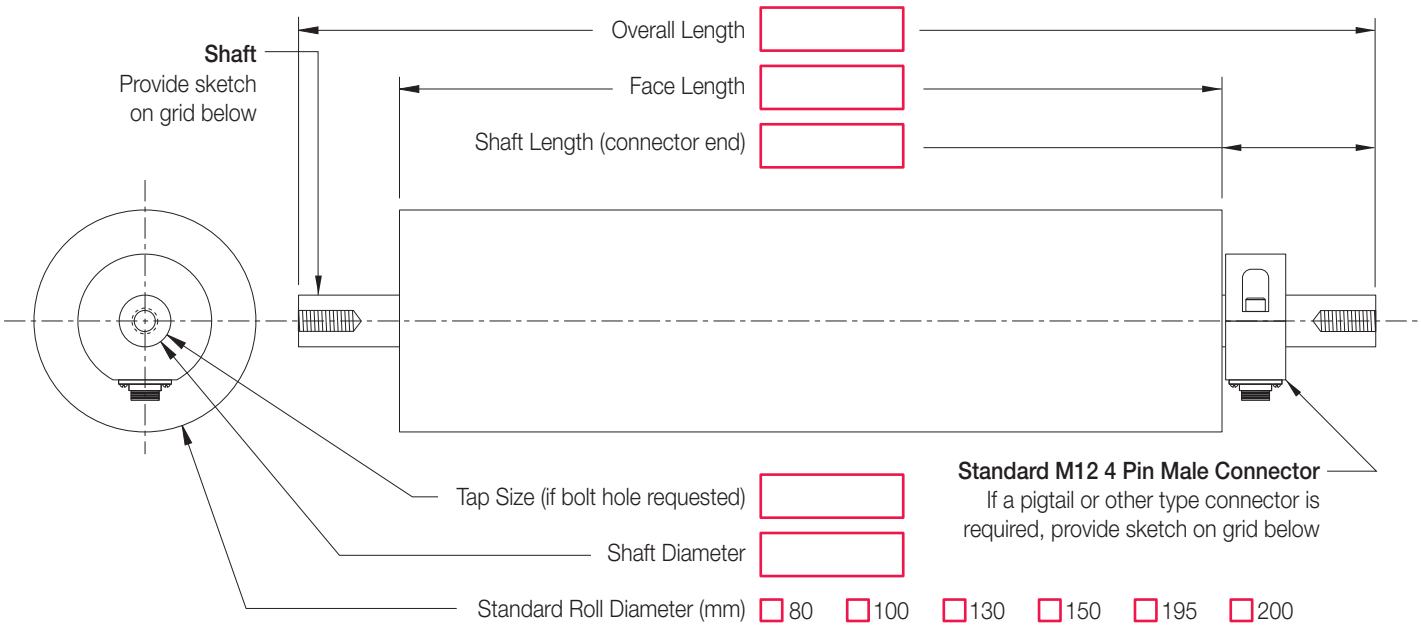
Dimensions



Specifications ☐ METRIC ☐ INCH ☐ AS NOTED

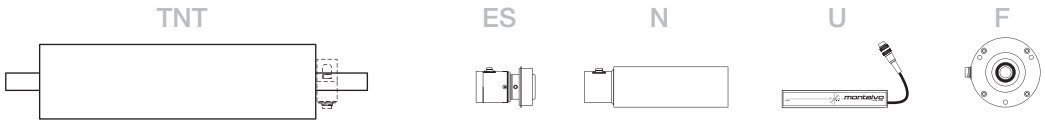
If you have a non-standard application, please use this grid to sketch requirements for the Shaft, Connector and/or Roll.

Scale: ☐ = _____ *Unit of measure* ☐ *METRIC* ☐ *INCH*

How To Specify

Series

TNT, ES, N, U or F

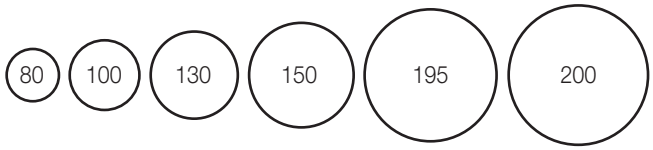


Roll - Diameter

80, 100, 130, 150, 195 or 200 mm (nominal)

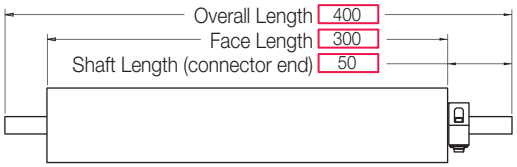
Dimensions expressed as Ømm

Note: Roll diameters are typical



Roll - Overall Length, Face Length and Shaft Length at Connector End

To be specified by customer
1 - Use worksheet
or 2 - Provide dimensional drawings
or 3 - Call a Montalvo Applications Specialist



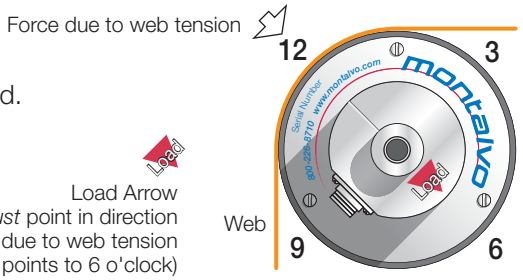
Connector Position

09 o'clock

Position is relative to LOAD ARROW, which is always 6 o'clock, as observed from end of shaft at connector end.

09 o'clock is *standard*

Note: Standard connector shown (Non-standard configurations available)



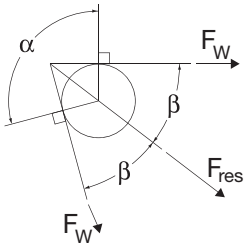
Load Arrow
Must point in direction of force due to web tension (load arrow always points to 6 o'clock)

Example

TNT-130-0400-0300-0050-09

- Series - TNT
- Roll Diameter - 130
- Overall Length - (mm)
- Roll Face Length (mm)
- Connector Position - 09 o'clock
- Shaft Length at Connector End (mm)

Note: It is highly recommended that you consult a Montalvo Applications Specialist to to ensure proper load rating



$\beta = 90 - 1/2 \times \alpha$

$F_{res} = 2 \times F_W \times \cos \beta$

F_{res}	*resultant force*
F_W	*maximum web force (total web tension)*
α	*wrap angle*
β	*angle between resultant force and web*

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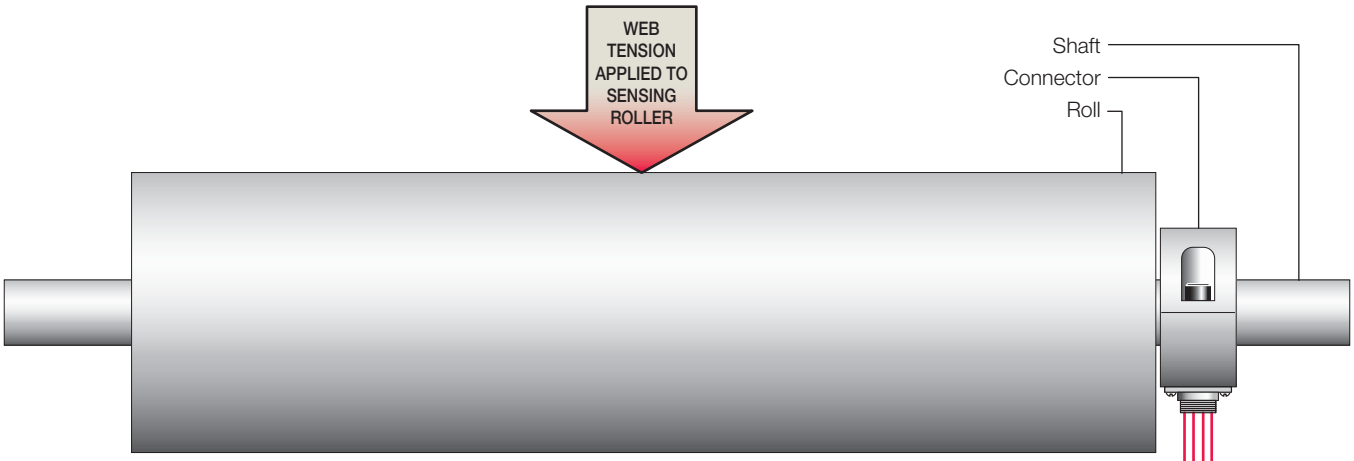
How They Work

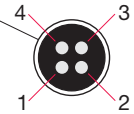
The strain gauges of the Montalvo TNT-Series load cell form a full bridge configuration. The force resulting from the web tension bends the internal (mounted on each end of roll) sensing beams slightly. As a result the resistance of each strain gauge changes, producing an output signal proportional to the web tension.



Montalvo Load Cell Cable (option). Connector wired as specified below:

Female 4 pin M12 connector

Pin 1 BROWN or RED..... Excitation
Pin 2 WHITE ..... Signal
Pin 3 BLUE or GREEN ..... Signal
Pin 4 BLACK..... Excitation

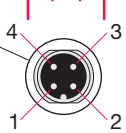


Cable Connector
Female 4 pin M12
(view of terminals)

Connector can be either fixed to load cell (standard) or on a pigtail wire (option).

Male 4 pin M12 connector

Pin 1 ..... Excitation
Pin 2 ..... Signal
Pin 3 ..... Signal
Pin 4 ..... Excitation



Load Cell Connector
Male 4 pin M12
(view of connector pins)

Specifications

Electrical

Excitation..... 5 VDC
Output - nominal ..... 50 mV/V
Gauge Resistance ..... 80 - 130 Ω
Type ..... full bridge semi-conductor
Repeatability..... ±0.25% full span
Non-Linearity and hysteresis (combined)..... ±0.50% full span

Connector*

Type ..... Male 4 pin M12
Pin 1..... Excitation
Pin 2..... Signal
Pin 3..... Signal
Pin 4..... Excitation
Standard Postion..... 09 o'clock

Loading

Rated lb (N) .....from 25 (125)
Overload..... 300% of rated

Environmental

Classification IP54
Temperature °F (°C) Compensated..... 14 to 131(-10 to 55)
Operating..... -4 to 185(-20 to 85)
Effect on zero..... 0.015% / °C
Effect on span..... 0.015% / °C

Mechanical

Material Standard Shaft[1] .....carbon steel
Roll[2]..... 6061 aluminum

[1] Optional materials available
[2] Many roll surface coatings and finishes available
* Connector shown is standard - optional connections available

Related Montalvo Products

The ***NEW*** S4 Digital Tension Controller
The ***NEW*** A4 Digital Load Cell Amplifier
The ***NEW*** i4HD Tension Indicator
and... Cables

207-856-2501 / 800-226-8710
+86-21-61401822
+45 75 57 27 11

The Montalvo Corporation
50 Hutcherson Drive, Gorham, Maine 04038 USA
Fax: 1-800-644-5097 / 207-856-2509
1-800-226-8710 / info@montalvo.com / www.montalvo.com

EST. 1947 montalvo Better Web Control®