



THE TENSION CONTROL SPECIALISTS

QUICK START GUIDE



Model C Tension Transducer

DOC 801-2584

SAFETY



This label indicates: “Read The Manual”

Make sure you read and understand all instructions and safety precautions listed in this manual before installing or operating your Model C Tension Transducer. If you have any questions concerning the operation of your device or the information in this guide, please contact us.

Email: techsupport@dfc.com

Telephone: (603) 332-6150

- **Observe all warning labels.**
- **Never remove warning labels.**



Please review the Model C Instruction Manual (DFE P/N 801-0647) online at www.dfc.com to familiarize yourself with all of the unit’s installation instructions, specifications, safety information, and wiring diagrams.



WARNING: If this equipment is not connected or operated in the manner specified, the operating safety of this unit or of connected equipment cannot be guaranteed.



WARNING: Do not connect a standard excitation (5V) Model C transducer to a DFE amplifier with the Extended Range (XRE) option enabled (10V), the transducers may be damaged.

GENERAL DESCRIPTION

The Model C Tension Transducer is an electro-mechanical device that converts web tension into a DC voltage proportional to tension. The voltage is amplified in external electronic circuitry such as a DFE Tension Amplifier, Indicator or Closed-Loop Controller which is calibrated to output and/or display actual web tension. The tension reading is expressed in pounds, ounces, grams, kilograms, newtons or any other desirable units. It can also be supplied to a regulator circuit to control tension automatically.

TRANSDUCER ROLL

The Model C Transducers are used in pairs. One is mounted on each end of an idler roll shaft. The roll chosen is called the Transducer Roll or Load Cell Roll.

The Transducer Roll must be a true idler. Nothing must contact the roll or its shaft except the web. The Transducer Roll shaft may be non-rotating (use the D version transducer) or rotating (use the L version transducer).



WARNING: The roll must be dynamically balanced if web speed is over 300 FPM. Refer to the manual for specifications. **An unbalanced roll will reduce the accuracy of the tension signal and may damage the transducers.**

WRAP ANGLE

The wrap angle must not change as the material roll on the unwind or rewind changes in diameter. Changes to Transducer Roll wrap angle or force direction during operation will result in calibration drift.

MOUNTING CONSIDERATIONS

Both Dead Shaft (D) and Live Shaft (L) versions of the Model C Transducer are mounted on a machine frame with the idler roll shaft inserted into a split coupling. Refer to the installation section of the Model C manual for complete instructions, including setting

appropriate gaps for shaft end clearance and axial play under normal and hot operating conditions.

For normal installations, coupling axial play should be expanded on one side and compressed on the other. In hot conditions, both couplings should be moved in the direction of the idler roll before securing the clamp. This will allow additional clearance for shaft thermal expansion as temperature increases.

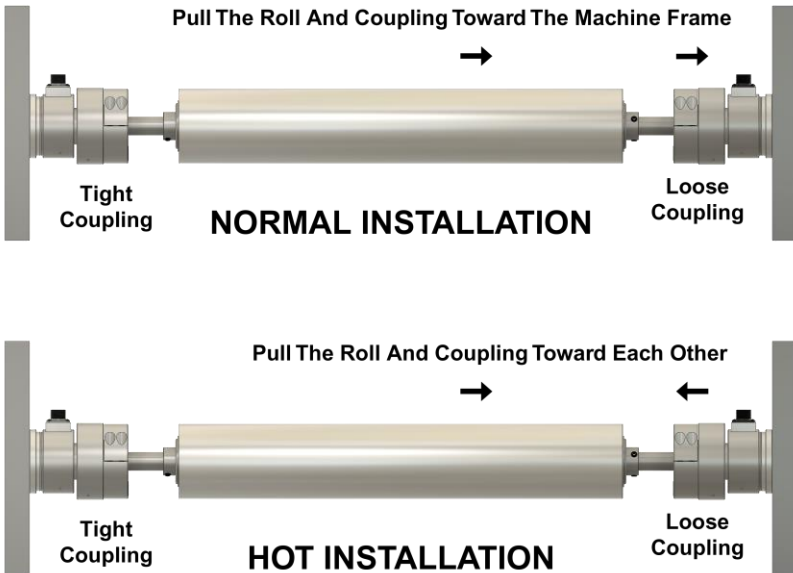


Figure 1 - Adjust Axial Play



WARNING: The structure the transducers are mounted to must be very stable and strong. Any movement of the structure may be sensed by the transducers and may cause inaccurate tension readings. The surfaces must also be smooth and flat so the transducers won't be misaligned when they are installed.

SHAFT END CLEARANCE

During installation, allowances for shaft end clearance should be observed as shown in the drawing below.

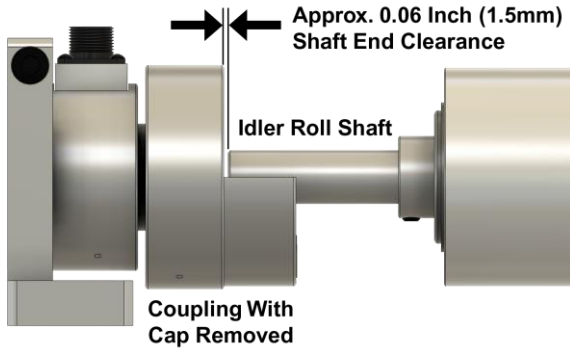


Figure 2 - Shaft End Clearance



IMPORTANT! The coupling cap for the Live Shaft (L) version has been made removable to allow the roll shaft to be taken out without loosening the transducers from the machine frame. **The cap must not be used to clamp the roll shaft. The cap must be tightened before the bushing clamp is tightened. If not, severe shaft run-out will occur.** Follow the procedure in the manual.

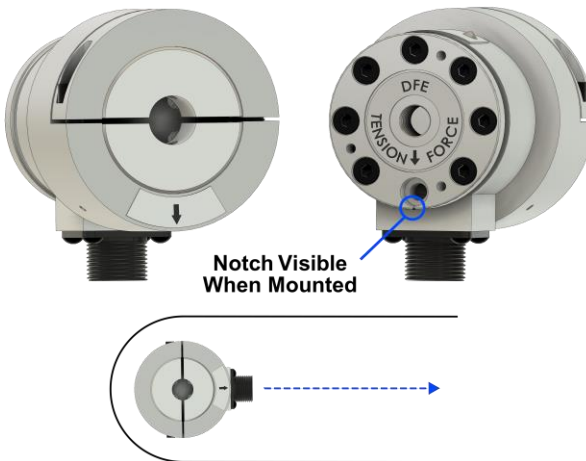


Figure 3 - Align Transducer Force Arrow or Notch with Bisected Web Wrap Angle

TRANSDUCER ELECTRICAL CONNECTIONS

TA1 / TA500 Amplifier

TrueView™ 1100 Indicator

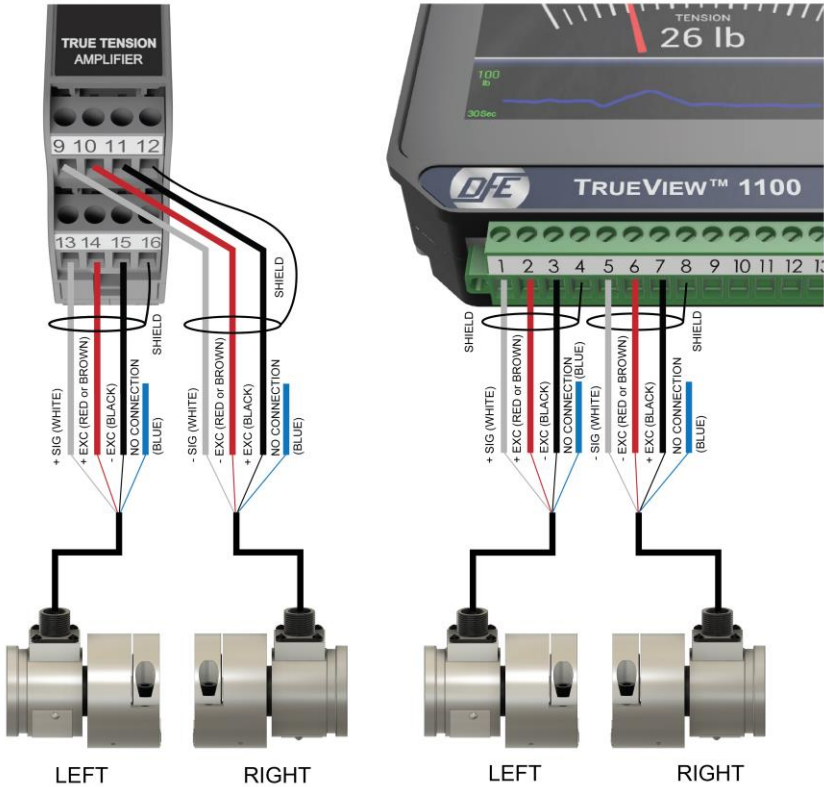


Figure 4 - Wire Connections for Amplifier or Indicator

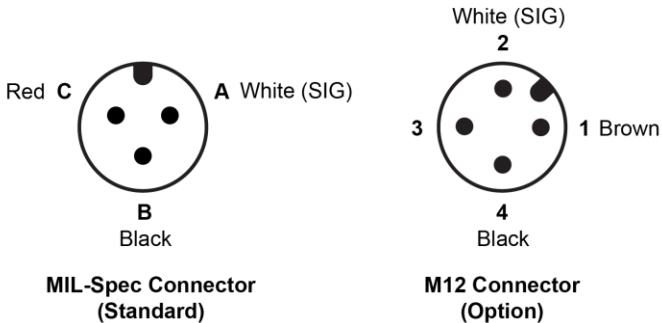


Figure 5 – Model C Connectors

Note: M12 connector cables do not use the blue wire.

CALIBRATION

No physical calibration adjustments are required with the Model C Transducer. Follow the electronic calibration steps listed in the manual of the DFE Tension Amplifier, Indicator or Closed-Loop Controller being used with the device.

The complete instruction manual is located on the Model C Transducer product page:

<https://dfe.com/products/tension-transducers/c-series-tension-transducers>

Or by scanning the QR code below with a tablet or smartphone:





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