MEASUREMENT AND CONTROL SOLUTIONS

PRECISION TRANSDUCERS FOR TENSION MEASUREMENT
CRB SERIES

Features and Benefits

- Force range 100 to 1000 Newtons
- 10V excitation
- 2mV / V output
- M12 series adjustable connectors fitted
- Positive mechanical overload
- Stainless steel body and hub
- 1 off M16 or 4 off M6 mounting bolts
- Self aligning bearing included
- Minimal intrusion between machine frame
- Simple idler roller design, drawings provided
- Roller diameter can be user defined

The CRB transducer series from TTS Systems are a high precision tension measurement product typical used in web tension applications. This product has been designed to maximize on precision whilst ensuring low manufacturing costs for the sensing roll.

Typically used in pairs each transducer is supplied complete with a self aligning bearing type 2201. The hub is manufactured from stainless steel. The 60mm hub can be pressed into a custom made roller.

The adjustable M12 connector allows maximum flexibility ensuring the cabling can be positioned away from any interference.

The CRB is now well established in the market place and has proven particularly popular with OEMs due to its simplistic approach and low cost.

Let's Talk

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Specifications

General

Excitation voltage	10V DC
Gauge type	350Ω full bridge foil gauge network
Output signal at rated output	16...20mV nominal
Temperature range	+5 - 90°C
Humidity	95% R.H.
Precision class	better than 0.5%
Combined non linearity & hysteresis	better than 0.5% of maximum rated output
Repeatability	better than 0.2% of maximum rated output
Minimum overload capacity	8,000 Newtons
IP rating	IP50

Mechanical

Weight	1.1kg

Complete drawings available on request.

Ordering Details

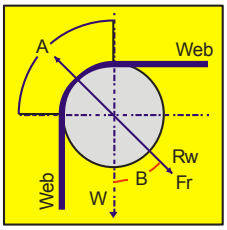
CRB - xxx
Where **xxx** is the force rating as shown below

Available force ratings are:

Rating..... 100, 250, 500, 1000 Newtons
Please note: roller not included.

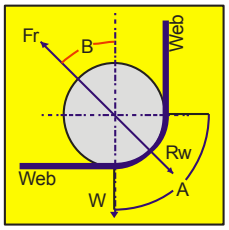
Calculating The Transducer Rating

Configuration 1
Fr is below horizontal



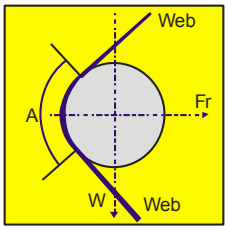
Fr = T * sin (A/2)
Rw = (W/2) * cosB
MWF = (K * Fr) + Rw

Configuration 2
Fr is above horizontal



Fr = T * sin (A/2)
Rw = (W/2) * cosB
MWF = (K * Fr) -

Configuration 3
Fr is horizontal



Fr = T * sin (A/2)
Rw = (W/2) * cosB
MWF = (K * Fr)

Key

T	Maximum working tension
Fr	Wrap angle bisector
W	Idler roll weight
Rw	Resultant force due to idler roll load
A	Wrap angle of material
K	Constant for calibration
MWF	Total calculate load per cell

To calculate transducer ratings you require the following parameters, maximum working tension (T), wrap angle (A) and angular offset (B). The formula given for the configuration, allows you to calculate the total load, termed MWF, that will be measured by the transducer. When calculated select the next rating above the MWF.

The following should be considered when selecting the transducer rating:

- (K) is a constant to allow for calibration. This figure is normally 2
- (T) should be the maximum working tension
- The wrap angle should be greater than 15 degrees and must not vary. Ideally, the sensing roll should be placed between an infeed and outfeed idler roller.
- Where multiple loads are applied to the same transducer rating, consideration has to be given to the upper and lower tension forces to ensure that the transducer generates an adequate signal for amplification.

Please contact TTS on 01233 624422 or through the internet on www.tts-systems.com if you require any assistance or further guidance