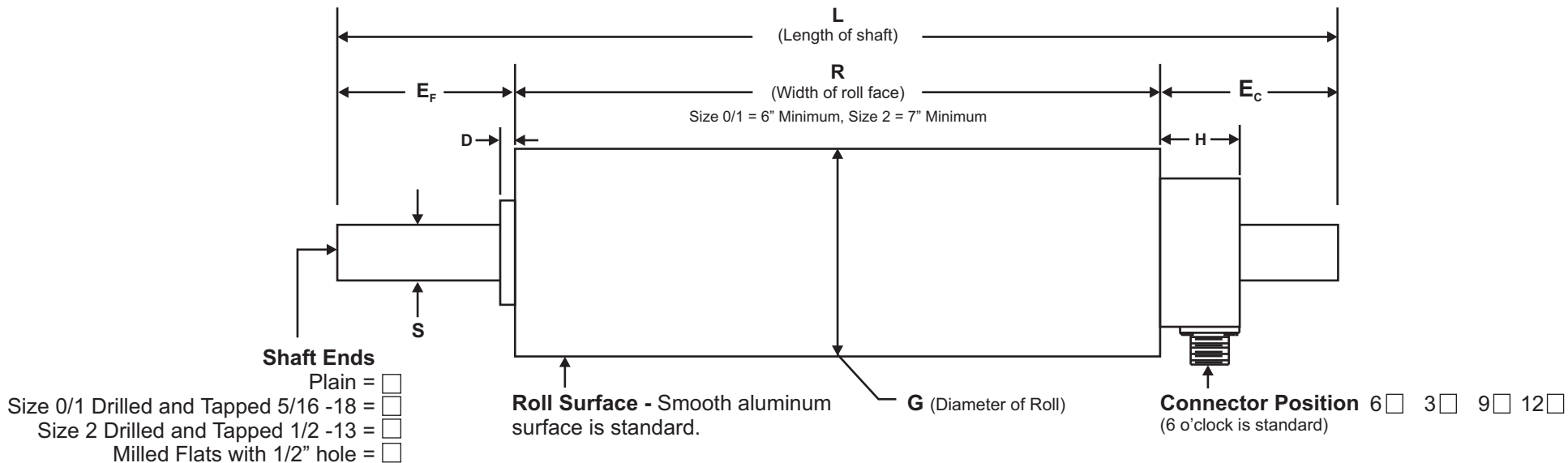


# TENSION ROLL® TRANSDUCER SPECIFICATION (Fax to DFE at 603-332-3758)

COMPANY \_\_\_\_\_ PREPARED BY \_\_\_\_\_  
 ADDRESS \_\_\_\_\_ PHONE \_\_\_\_\_ FAX \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_ E-MAIL \_\_\_\_\_ DATE \_\_\_\_\_

## A. ROLL AND SHAFT CONFIGURATION



SIZE	MINIMUM		S	D	H	STANDARD G
	$E_F$	$E_C$				
<b>0</b>	0.43	1.50	1.00	0.31	1.20	2.25
<b>1</b>	0.43	1.50	1.00	0.31	1.30	3.00
<b>2</b>	0.43	1.50	1.125	0.31	1.30	4.00

Roll will be built with  $E_C = E_F$  (roll centered on shaft) unless specified otherwise

$L =$  \_\_\_\_\_ Shaft

$R =$  \_\_\_\_\_ Roll (see Note 3)

$G =$  \_\_\_\_\_ Dia.

$E_F =$  \_\_\_\_\_

$E_C =$  \_\_\_\_\_

Roll material \_\_\_\_\_

Roll surface \_\_\_\_\_

Load Rating \_\_\_\_\_

OPTIONS	ACCESSORIES

## B. WEB CHARACTERISTICS

- Total Web Tension, Max. \_\_\_\_\_ Min. \_\_\_\_\_ pounds (if known)
- Type of Web Material \_\_\_\_\_
- Material Width: Max. \_\_\_\_\_ Min. \_\_\_\_\_ inches
- Basis Weight or Thickness \_\_\_\_\_ • Max. Web Speed \_\_\_\_\_ FPM

NOTE: If more than one material is used, give information for the two requiring the most and least tension.

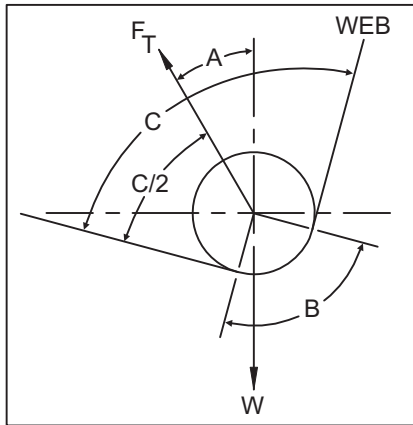
## C. SPECIAL FEATURES: \_\_\_\_\_

## D. LOAD RATING CALCULATION

Cross out the wraps that don't apply

### WRAP 1

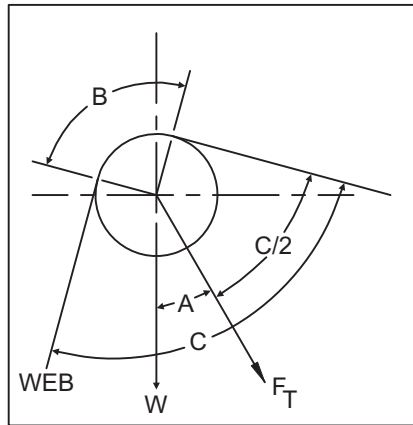
Tension Force  $F_T$ , **above** horizontal



$$\text{LOAD RATING} = \frac{4T \sin\left(\frac{B}{2}\right) - W \cos(A)}{2}$$

### WRAP 2

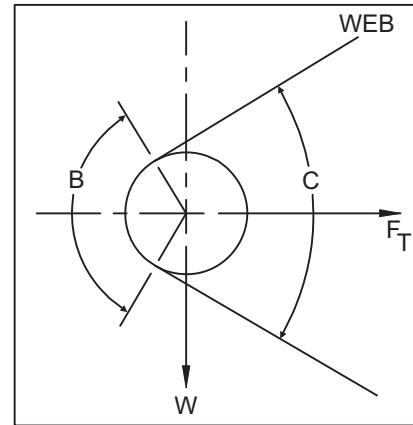
Tension Force  $F_T$ , **below** horizontal



$$\text{LOAD RATING} = \frac{4T \sin\left(\frac{B}{2}\right) + W \cos(A)}{2}$$

### WRAP 3

Tension Force  $F_T$ , **is** horizontal



$$\text{LOAD RATING} = \frac{4T \sin\left(\frac{B}{2}\right)}{2}$$

$W$  = roll assembly weight,  $T$  = Maximum web tension,  $B$  = Wrap angle =  $180^\circ - C^\circ$ ,  $A$  = Angle between Tension Force  $F_T$  and vertical

STANDARD LOAD RATINGS ARE: **Size 0** = 12, 25, 50, 100 lbs  
**Size 1** = 12, 25, 50, 100, 150 lbs  
**Size 2** = 12, 25, 50, 100, 200, 400 lbs.

**TABLE 1**

ANGLE	SINE	COSINE
0°	0.000	1.000
5°	0.087	0.996
10°	0.174	0.985
15°	0.259	0.966
20°	0.342	0.940
25°	0.423	0.906
30°	0.500	0.866
35°	0.574	0.819
40°	0.643	0.766
45°	0.707	0.707
50°	0.766	0.643
55°	0.819	0.574
60°	0.866	0.500
65°	0.906	0.423
70°	0.940	0.342
75°	0.966	0.259
80°	0.985	0.174
85°	0.996	0.087
90°	1.000	0.000

## E. ANGLES AND ROLL WEIGHT

Record information in boxes. If you do not know wrap angle, be sure to give Angle "C".

$W$  = roll weight .....  pounds

$B$  = wrap angle .....  degrees

$F_T$  = force on idler roll due to web tension.  $F_T$  is in the same direction as the arrow on the transducer.

$A$  = angle between  $F_T$  and vertical axis .....  degrees

$C$  = angle between entering and exiting web ....  degrees

**Value of  $W$  for Aluminum Rolls (lbs.)**

SIZE	ROLL DIAMETER	FORMULA
SIZE 0	2.25 inch	$W = 0.3 + 0.16 \times R$
SIZE 1	3 inch	$W = 1.4 + 0.30 \times R$
SIZE 2	4 inch	$W = 4.3 + 0.54 \times R$
	5 inch	$W = 4.3 + 0.69 \times R$
	6 inch	$W = 4.3 + 0.85 \times R$

$R$  = face width of roll (inches). Refer to Note 3 for other roll materials

- NOTES:
- Any covering applied to the roll will affect the load rating calculation.
  - Consult factory for sizing of units with steel or stainless steel rolls.
  - Refer to the TR Transducer data sheets for length limitations,  $W$  formulas, options, and accessories