

## MODELS 3174, 3175 AND 3176

Tension and compression 5,000 lbs. to 150,000 lbs.



### 3174 WITH TENSION BASE



**Consult factory  
for specials.**

### FEATURES :

- High accuracy
- Low deflection
- Proven fatigue-resistant design and performance
- Tension and compression
- Low sensitivity to extraneous loads
- Low profile

Models 3174, 3175 and 3176 are fatigue-resistant, low-profile tension and compression load cells that are well suited to materials testing machines and other applications requiring a rugged load sensor, with the superior characteristics of stiffness and low profile.

Models 3174, 3175 and 3176 are additions to the well-known Lebow® line of fatigue rated load cells which have been proven by more than 20 years' use in demanding applications. Lebow® fatigue-resistant load cells are the result of many years of design development. You will note from the specifications that these load cells are extremely resistant to extraneous bending and side loading forces. The structure virtually eliminates bending strains at the strain gage, minimizing the primary cause of load cell failures.

### PERFORMANCE SPECS : 3174, 3175 AND 3176

#### SPECIFICATIONS

<b>Output at rated capacity:</b> <i>millivolts per volt, nominal</i>	±2
<b>Nonlinearity:</b> <i>of rated output</i>	±0.05%*
<b>Hysteresis:</b> <i>of rated output</i>	±0.05%**
<b>Repeatability:</b> <i>of rated output</i>	±0.02%
<b>Zero balance:</b> <i>of rated output</i>	±1.0%
<b>Creep:</b> <i>in 20 minutes of rated output</i>	<±0.025%
<b>Bridge resistance:</b> <i>ohms nominal</i>	700
<b>Temperature range, compensated:</b> °F	+70 to +170
<b>Temperature range, compensated:</b> °C	+21 to +77
<b>Temperature range, usable:</b> °F	-65 to +200
<b>Temperature range, usable:</b> °C	-54 to +93
<b>Temperature effect on output:</b> <i>of reading per °F</i>	±0.002%
<b>Temperature effect on output:</b> <i>of reading per °C</i>	±0.0036%
<b>Temperature effect on zero:</b> <i>of rated output per °F</i>	±0.002%
<b>Temperature effect on zero:</b> <i>of rated output per °C</i>	±0.0036%
<b>Excitation voltage, maximum:</b> <i>volts DC or AC rms</i>	20
<b>Insulation resistance, bridge/case:</b> <i>megohms at 50 VDC</i>	>5000
<b>Number of bridges:</b>	1
<b>Fatigue life:</b> <i>0 to full fatigue load</i> <i>(cycles x 10<sup>6</sup>)</i>	100
<b>Fatigue life:</b> <i>full fatigue tension</i> <i>to full fatigue comp. (cycles x 10<sup>6</sup>)</i>	50

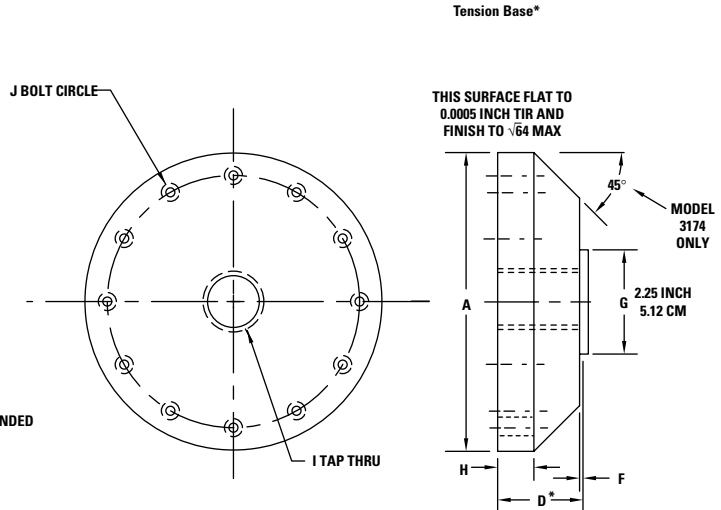
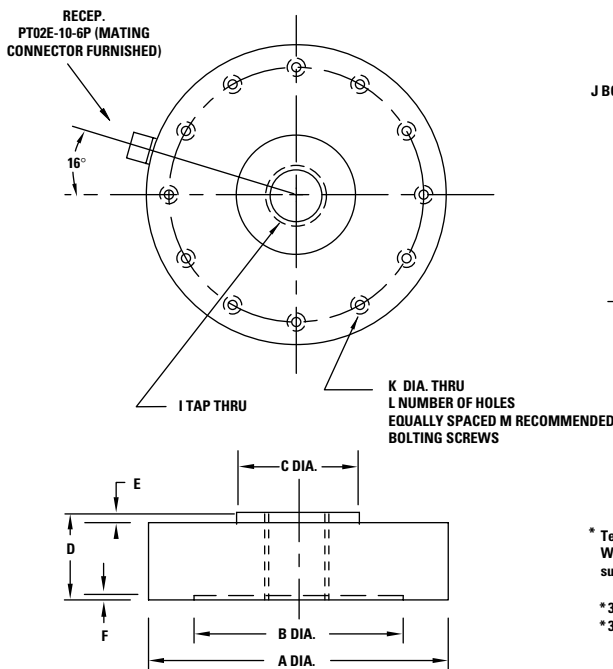
\*Model 3175 and 3176 Nonlinearity: of rated output is ±0.10%

\*\*Model 3175 and 3176 Hysteresis: of rated output is ±0.10%  
Higher capacity models available; consult factory.



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MODEL NUMBER	CAPACITY lbs. (N)	A in. (cm.)	B in. (cm.)	DIMENSIONS						TAP THRU I ENGLISH (METRIC)	J in. (cm.)	K in. (cm.)	NO. OF HOLES L	BOLTING M ENGLISH (METRIC)
				C in. (cm.)	D in. (cm.)	E in. (cm.)	F in. (cm.)	G in. (cm.)	H in. (cm.)					
3174	5K-20K (20K-100K)	6.06 (15.39)	4.33 (10.99)	2.42 (6.35)	1.75 (4.45)	0.12 (0.31)	0.05 (0.13)	2.25 (5.72)	0.81 (2.06)	1 1/4-12 UNF-3B (M30 x 2mm-6H)	5.13 (13.02)	1 3/32 (10.3)	12 12	3/8-24 hex head, 2 1/4 inches long. Tighten to 750 in. lbs. (M10 x 1.5mm hex head, 65mm long. Tighten to 90N•m)
3175	50K (200K)	8.00 (20.32)	5.18 (13.15)	3.14 (7.98)	2.50 (6.35)	0.12 (0.30)	0.03 (0.08)	3.14 (7.98)	-	1 3/4-12 UN-3B (M48 x 2mm-6H)	6.50 (16.51)	1 7/32 (13.50)	16 16	1/2-20 hex head, 3 3/8 inches long. Tighten to 120 ft. lbs. Grade 8 bolts
3176	100K (500K)	11.00 (27.94)	7.09 (18.02)	4.92 (12.50)	3.50 (8.89)	0.12 (0.30)	0.03 (0.08)	4.92 (12.50)	-	2 3/4-8 UN-3B (M72 x 3mm-8H)	9.00 (16.70)	2 1/32 (16.70)	16 16	5/8-18 hex head, 4 5/8 inches long. Tighten to 290 ft. lbs. Grade 8 bolts



\* Tension bases are recommended for all model 3174, 3175 and 3176 applications. When mounting without the tension base, attention must be given to the mating surface with regard to flatness, hardness and stiffness.

\* 3175 base height 2.00 inches  
\* 3176 base height 3.00 inches

## SENSOR CHARACTERISTICS : 3174, 3175 AND 3176

MODEL NUMBER	NOMINAL LOAD LIMIT CAPACITY F <sub>z</sub>		STATIC OVERLOAD CAPACITY % OF NOM. CAPACITY	FATIGUE CAPACITY % OF NOM. CAPACITY	STATIC EXTRANEIOUS LOAD LIMITS			DEFLECTION AT NOM. LOAD LIMIT INCHES	RINGING FREQUENCY H <sub>z</sub>
	LBS.	NEWTONS			SHEAR F <sub>x</sub> OR F <sub>y</sub> LBS.	BENDING M <sub>x</sub> OR M <sub>y</sub> LB. INCHES	TORQUE M <sub>z</sub> LB. INCHES		
3174	5K	20K	150	100	11K	9K	12K	0.001	6,500
	10K	50K	150	100	25K	27K	24K	0.001	7,200
	20K	100K	150	100	55K	58K	35K	0.001	8,600
3175	50K	200K	150	100	32K	33K	67K	0.001	12,000
3176	100K	500K	150	100	78K	147K	196K	0.001	15,000

Higher capacities available; consult factory.