

Models 3174-3176

Tension/Compression Pancake Load Cell



Model 3174

DESCRIPTION

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, while exhibiting the high performance characteristics of stiffness and accuracy.

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.

FEATURES

- English threads
- Enhanced accuracy, up to 0.07 %
- Low deflection
- Fatigue-resistant design and enhanced performance
- Tension/compression capacity
- Low profile
- Low sensitivity to extraneous loading

Model 3174-3176

PERFORMANCE SPECIFICATIONS

Characteristic	Measure
Load range ¹	5K, 10K, 20K, 50K, 100K lb
Non-linearity	±0.05 % of rated output
Hysteresis	±0.05 % of rated output
Repeatability	±0.02 % of rated output
Output @ rated capacity	2.00 mV/V (nominal)
Creep	±0.025 % of rated output
Resolution	Infinite
Standard calibration	Tension (+) and compression (-)

ENVIRONMENTAL SPECIFICATIONS

Characteristic	Measure
Temperature, operating	-54 °C to 93 °C [-65 °F to 200 °F]
Temperature, compensated	21 °C to 77 °C [70 °F to 170 °F]
Temperature effect, zero	±0.002 % of rated output/°F
Temperature effect, output	±0.002 % of reading/°F

ELECTRICAL SPECIFICATIONS

Characteristic	Measure
Strain gage type	Foil
Excitation (maximum)	20 Vdc or Vac RMS
Insulation resistance	> 5000 mOhm @ 50 Vdc
Bridge resistance	700 ohm
Number of bridges	1
Zero balance	±1.0 %
Electrical termination	PT02E-10-6P

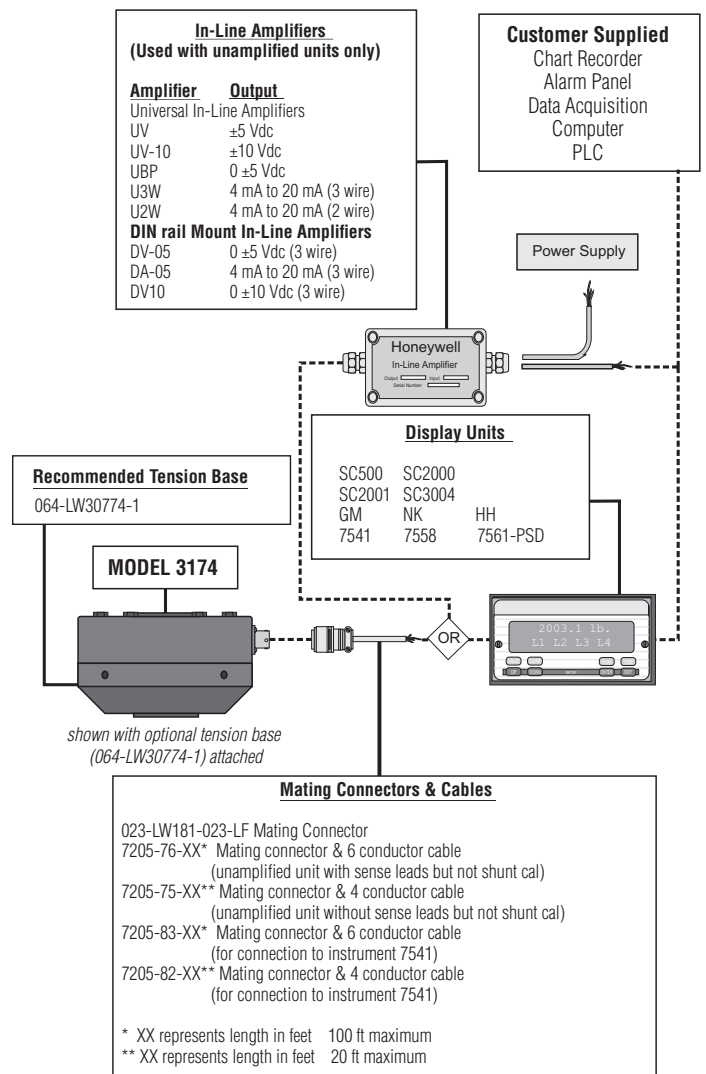
MECHANICAL SPECIFICATIONS

Characteristic	Measure
Static overload capacity	150 % of nominal capacity
Material	Carbon steel
Fatigue life (0 to full fatigue load)	100 x 10 ⁶ cycles
Fatigue life (full fatigue tension to compression)	50 x 10 ⁶ cycles
Natural frequency	See table

WIRING CODES

Cable	
Red	(+) excitation
Black	(-) excitation
Green	(+) output
White	(-) output

TYPICAL SYSTEM DIAGRAM

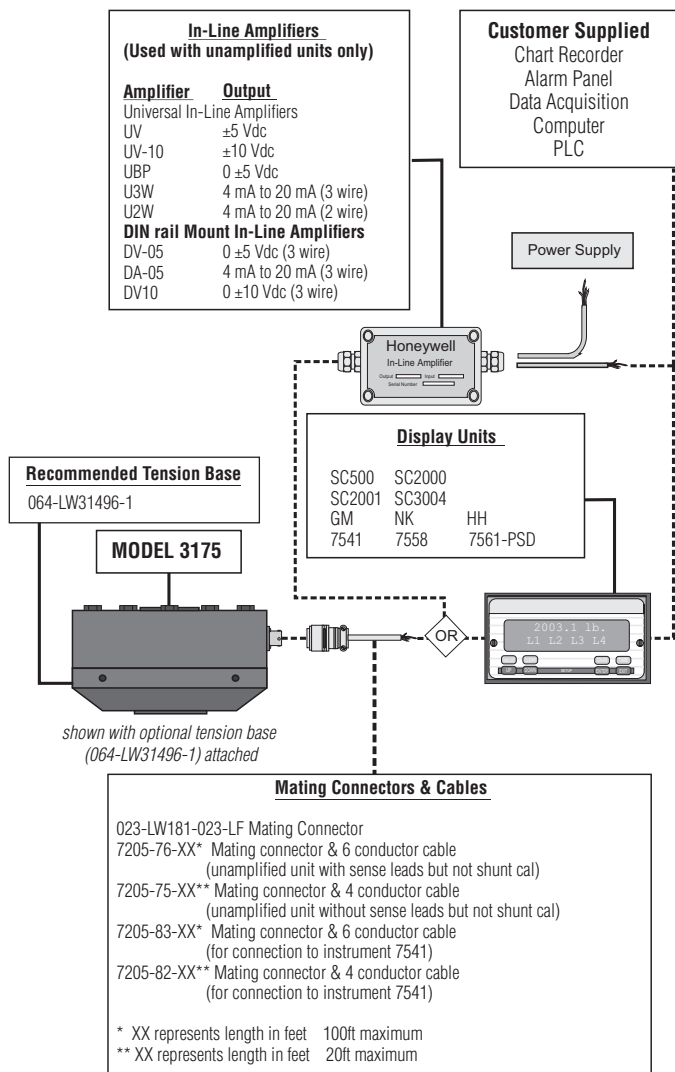


Tension/Compression Pancake Load Cell

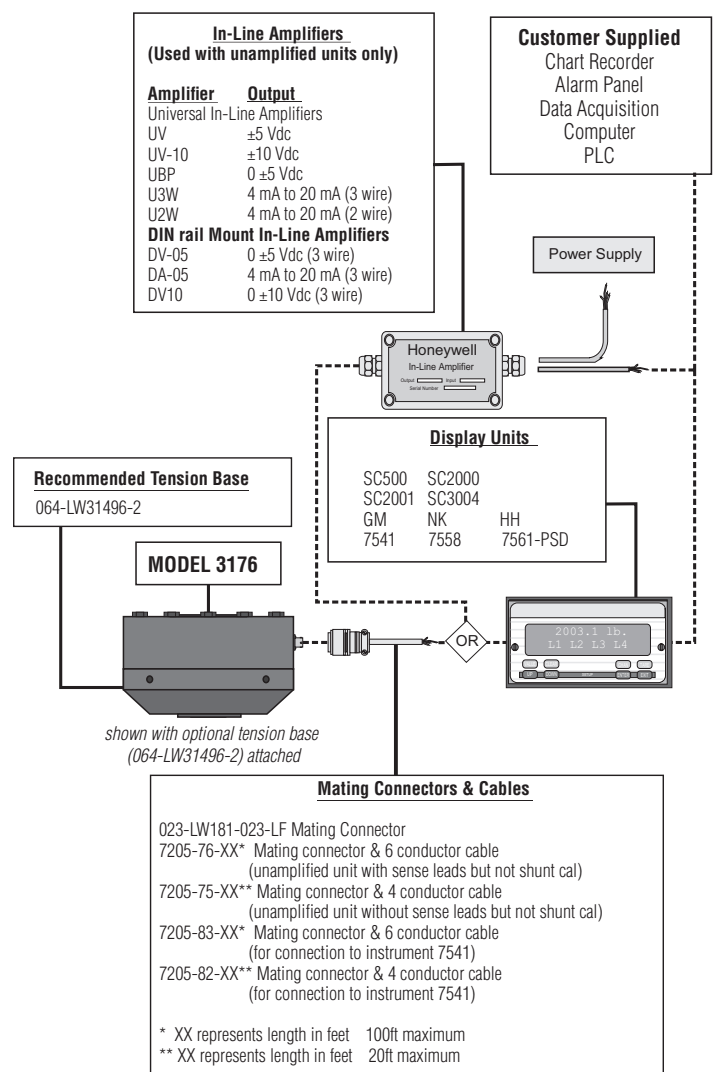
NATURAL FREQUENCY

Model	Nominal load limit capacity F_z		Static extraneous load limits					Deflection at nominal load limit (in)	Ringing frequency (Hz)
	lb	N	Static overload capacity (% of nominal capacity)	Fatigue capacity (% of nominal capacity)	Shear F_x or F_y (lb)	Bending M_x or M_y (lb-in)	Torque M_z (lb-in)		
3174	5K	20K	150	100	11K	9K	12K	0.001	6500
3174	10K	50K	150	100	25K	27K	24K	0.001	7200
3174	20K	100K	150	100	55K	58K	35K	0.001	8600
3175	50K	200K	150	100	32K	33K	67K	0.001	12000
3176	100K	500K	150	100	78K	147K	196K	0.001	15000

TYPICAL SYSTEM DIAGRAM



TYPICAL SYSTEM DIAGRAM

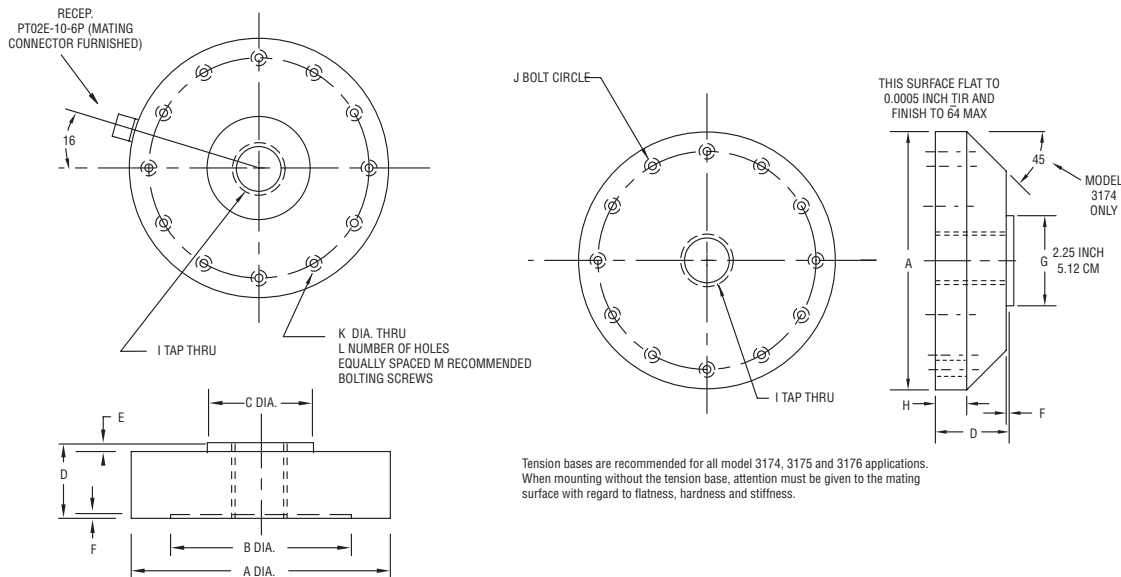


Model 3174-3176

MOUNTING DIMENSIONS

Model	Capacity N [lb]	A cm [in]	B cm [in]	C cm [in]	D cm [in]	E cm [in]	F cm [in]	G cm [in]	H cm [in]	Tap thru I English	J cm [in]	K cm [in]	No. of holes L	Bolting M English
3174	20K-100K [5K-20K]	15,39 [6.06]	10,99 [4.33]	6,35 [2.42]	4,45 [1.75]	0,310 [0.12]	0,13 [0.05]	5,72 [2.25]	2,06 [0.81]	1¼-12 UNF-3B	13,02 [5.13]	10,3 [13/32]	12	3/8-24 hex head, 2¼ inches long, tighten to 750 in-lb
3175	200K [50K]	20,32 [8.00]	13,15 [5.18]	7,98 [3.14]	6,35 [2.50]	0,30 [0.12]	0,08 [0.03]	7,98 [3.14]	n/a	1¼-12 UN-3B	16,51 [6.50]	13,50 [17/32]	16	½-20 hex head, 3 3/8 in long, tighten to 120 ft-lb, grade 8 bolts
3176	500K [100K]	27,94 [11.00]	18,02 [7.09]	12,50 [4.92]	8,89 [3.50]	0,30 [0.12]	0,08 [0.03]	12,50 [4.92]	n/a	2¾-8 UN-3B	22,86 [9.00]	16,70 [21/32]	16	5/8-18 hex head, 4 5/8 in long, tighten to 290 ft-lb, grade 8 bolts

* tighten to 200 in-lbs



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NOTES

1. This unit calibrated to Imperial (non-Metric) units.

Warranty. Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

WARNING

PERSONAL INJURY

- DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

WARNING

MISUSE OF DOCUMENTATION

- The information presented in this datasheet is for reference only. DO NOT USE this document as product installation information.
- Complete installation, operation and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

Find out more

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