Ultra Precision, Fatigue Rated Universal Load Cells

Models 45 and 47

LONG FATIGUE LIFE

STAINLESS STEEL

ACCURACY UP TO 0.02%

250 TO 100,000 lbs.

APPROVED CENELEC APPROVED FM APPROVED INTRINSICALLY SAFE AMP

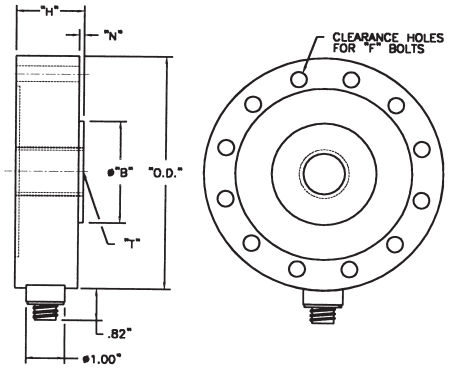
Model 45 and 47 Ultra Precision Fatigue Rated Load Cell offers a low profile design for both tension and compression applications. The all welded stainless steel construction and stabilizing diaphragms provide the same ruggedness which has made our Model 41 and 43 pancake type load cells so successful.

The Model 45 and 47 are available in ranges 250 lbs. thru 100,000 lbs. and mounting dimensions are universally interchangeable within the industry.

Options include hi-level outputs of 4-20 mA or 0-5 VDC as well as weatherproof or submersible cable configurations and CSA and cenelec intrinsically safe amplifiers.

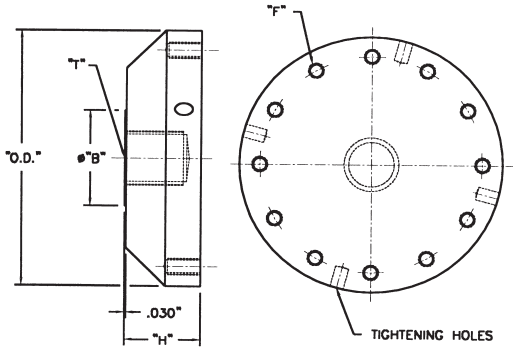
LOAD CELL

Model 45 (Order Code AL116)
Model 47 (Order Code AL117)



PULL PLATE

Model 45 Optional
Model 47 Installed



Dimensions

Model 45 Fatigue Rated (Order Code AL116)
Model 47 Ultra Precision Fatigue Rated (Order Code AL117)

Range	O.D."	H"	T	B"	N"	F
250; 500; 1,000; 2,500; 5,000 lbs	4.12	1.37	5/8-18 UNF-3B	1.34	0.12	9/32 Dia., 8 Holes Eq. Sp., 3.50 B.C.
12,500-25,000 lbs	6.06	1.75	1-1/4-12 UNF-3B	2.65	0.12	13/32 Dia., 12 Holes Eq. Sp., 5.125 B.C.
50,000 lbs.	8.00	2.50	1-3/4-12 UNF-3B	3.76	0.25	17/32 Dia., 16 Holes Eq. Sp., 6.50 B.C.
100,000 lbs.	11.00	3.50	2-3/4-8 UNF-3B	4.81	0.50	11/16 Dia., 16 Holes Eq. Sp., 9.00 B.C.

Pull Plate for Model 45

Range	Order Code	O.D."	H"	T	B"	F
250; 500; 1,000; 2,500; 5,000 lbs.	AA229	4.12	1.12	5/8-18 UNF-3B	1.25	1/4-28, 8 Holes Eq. Sp., 3.50 B.C.
12,500-25,000 lbs.	AA230	6.06	1.75	1-1/4-12 UNF-3B	2.25	3/8-24, 12 Holes Eq. Sp., 5.125 B.C.
50,000 lbs.	AA231	8.00	2.00	1-3/4-12 UNF-3B	3.00	1/2-20, 16 Holes Eq. Sp., 6.50 B.C.
100,000 lbs.	AA232	11.00	3.00	2-3/4-8 UNF-3B	4.50	5/8-18, 16 Holes Eq. Sp., 9.00 B.C.

Fatigue Rated (Fatigue Rated Ultra-Precision)

		Model 45 (Model 47)**				
PERFORMANCE	Range	250*; 500; 1,000 lb.	2,500; 5,000 lb.	12,500; 25,000 lb.	50,000 lb.	100,000 lb.
	Output, standard (mV/V)	2.0	2.0	2.0	2.0	2.0
	Static error band, (+/-%F.S.)[1]	0.04 (0.02)	0.05 (0.03)	0.05 (0.04)	0.05 (0.04)	0.06 (0.05)
	Nonlinearity, (+/-%F.S.)[2]	0.05 (0.02)	0.05 (0.03)	0.05 (0.04)	0.05 (0.04)	0.05 (0.05)
	Hysteresis, (+/-%F.S.)[2]	0.02 (0.02)	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)	0.04 (0.03)
	Non-Repeatability, (+/-%F.S.)[2]	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)
	Fatigue Life Cycle	10^8 fully reversed				
ENVIRONMENTAL	Temperature, Operating	-65°F to 200°F				
	Temperature, Compensated	0°F to 150°F				
	Temperature Effect					
	– Zero (max) %F.S./°F	0.0008				
	– Span (max) %Rdg./°F	0.0008				
ELECTRICAL	Excitation, calibrated (VDC)	10				
	Excitation, maximum (VDC)	20				
	Bridge Resistance, nominal Ω	350				
	Insulation Resistance mΩ	5000 @ 50 VDC				
	Wiring Code, standard	#39, see appendix				
	Electrical Termination	PC02A-10-6P				
	Mating Harness	AA163				
MECHANICAL	Deflection @ full scale load (IN)	0.0015	0.001	0.002	0.002	0.0025
	Static Overload Capacity, (+/-%F.S.)***	300	300	300	300	300
	Ringing Frequency (kHz)	2.4, 2.4, 3.4	6.8, 9.1	5.7, 7.0	6.3	4.5
	Weight, Element (lb)	3.1	3.2	8.8	22	55
	Base (optional on model 45)	AA229	AA229	AA230	AA231	AA232
	Weight, base (lb)	3.5	3.5	11	20	61
	Load Button (optional)	AA290	AA290	AA291	AA292	AA293

* 250 lb range has 700 Ohm bridge resistance
** Data for model 47 shown in parenthesis, otherwise same for both models
*** Off-axis loading maximum allowable 50% of F.S.

[1] Static error band is the guaranteed performance specification. The static error band is calculated as the best fit straight line through zero, including the effects of non-linearity, hysteresis and non-repeatability.
[2] Values noted are typical values but fall within the static error band.

General Information (See Appendix)

How to order (See Pg. AP-19)

Load cell selection flow chart (See Pg. LO-1)

Model 45 (Fatigue Rated) is standard without a pull plate. On Ultra Precision Model 47, the load cell and pull plate are calibrated as a unit. Internal amplifiers are available for all ranges. Internal amplification for ranges <12,500 lbs. (“H” dimension <1.80") may increase height. Using an in-line amplifier for ranges <12,500 lbs. will avoid this height increase.

Options: A.S.T.M. E74 calibration; Overload stops, compression only, engage at approximately 125% of cell capacity—requires pull plate. Internal amplifiers; 2a; 2b; 2c; 2j; 2q. Note: Some specs may vary with amplifier options, consult Sensotec for details.

Premium Options: Signature calibration 53e (Model 45 only) Intrinsically safe amp CENELEC Approved 2n.

Accessories: Mating connectors and connector/cable assemblies; Load Buttons (See Appendix).