

# interface

ADVANCED FORCE MEASUREMENT

## Low Profile™ Load Cells



**World Leading Performance With Improved  
Linearity, Hysteresis, Creep & Thermal Specifications**

**Interface Inc. pioneered the first Low Profile™ load cell in 1969 and is the largest producer of them in the world.**

**We guarantee that our load cells will out perform our competitors...PERIOD.**

## **Interface Blue... Setting the Standard in Force Measurement**

### **In-house CNC machining**

- Total control of manufacture & quality standards

### **Moment compensated during production**

- Reduces the effects of off-axis loads

### **TRUE fatigue specification**

- Fully reversed cycles through zero at full capacity

### **Class leading performance**

- Published Accuracy (Static Error Band) specification as low as  $\pm 0.02\%FS$  and actual performance as low as  $\pm 0.01\%FS$  on a regular basis
- Will never be less accurate than published spec

### **High quality threads**

- 0.002" perpendicularity and
- 0.003" concentricity

### **Proprietary high output Strain Gages**

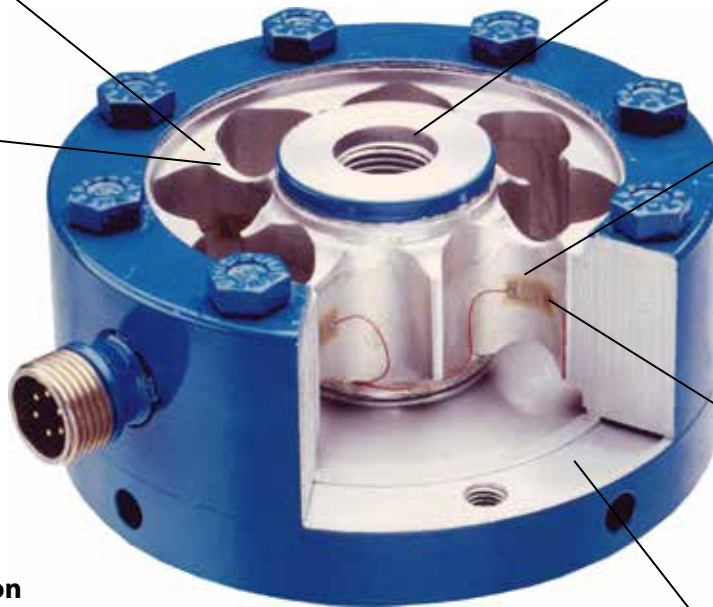
- Matched to flexure for best performance
- 8-16 Strain Gages per bridge

### **Temperature compensated Strain Gages**

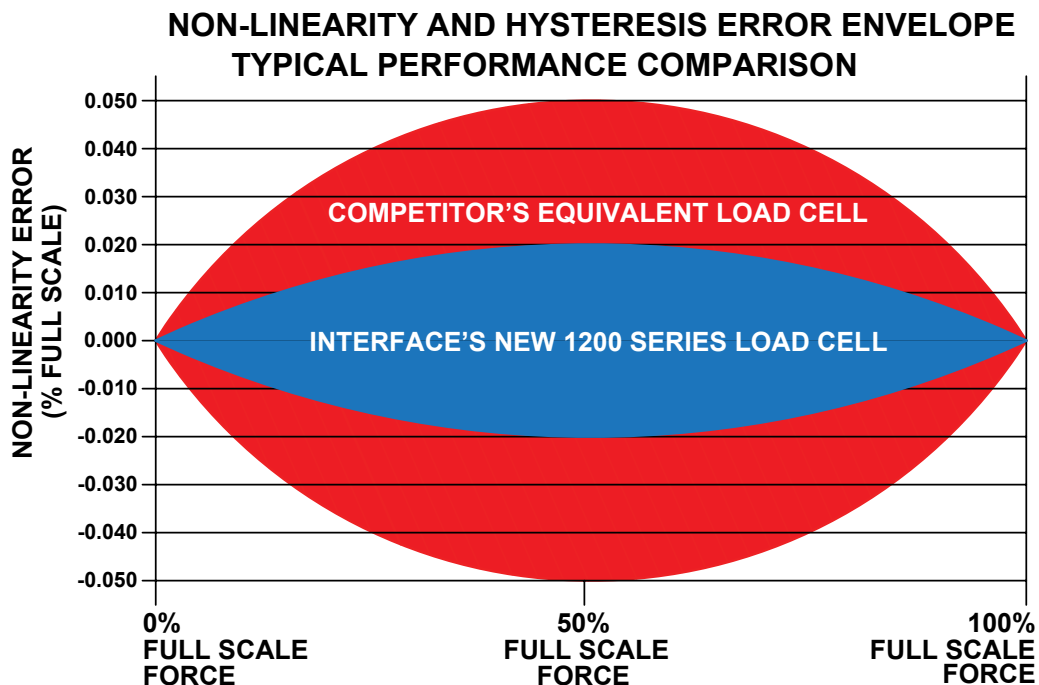
- No signal loss from compensation resistors
- Measures temperature at the strain gage

### **Accurate machined base (0.0002" flatness)**

- Provides excellent mounting surface



# Interface is Raising the Bar In High Performance Force Measurement



**A 20% improvement in performance based on over 2 years of extensive engineering development**

**Improved linearity & hysteresis • Improved creep • Improved thermal performance**

**UNPARALLELED RELIABILITY**

## Other Performance Parameters That Set Us Apart From Our Competitors

- **Creep.** Interface is  $\pm 0.025\%/20$  minutes
- **Symmetry.** Interface is less than 0.1% in comparing included T&C calibration data
- **Minimum shift in zero balance.** Toggle from complete cycle of tension & compression
- **Parallelism.** 0.002" between top and bottom load surfaces
- **Concentricity.** 0.003" variance between top thread and base thread
- **Surface flatness.** Interface load cell and base maintains 0.0002" flatness

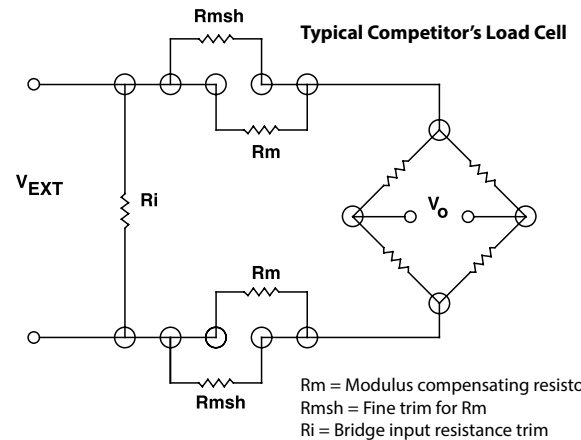
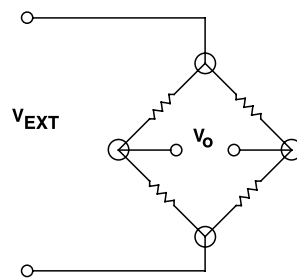


*LP Base*

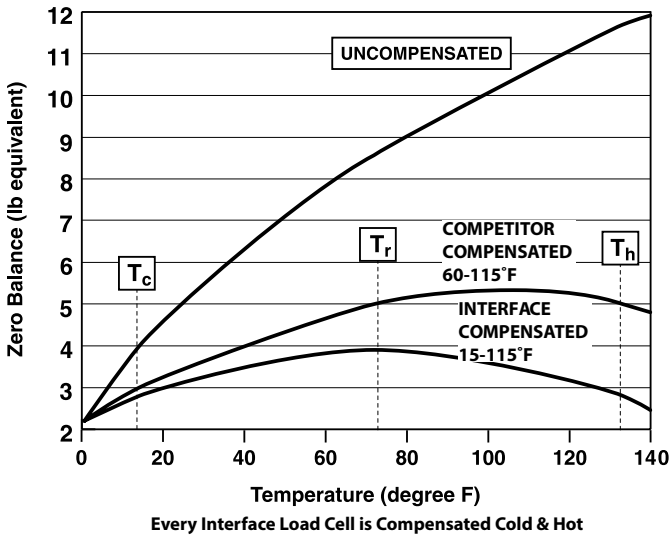
## Proprietary Strain Gages

- Higher output
- Higher signal to noise ratio
- Higher resolution
- Superior fatigue life

INTERFACE LOAD CELL



COMPENSATED vs NON-COMPENSATED  
Temperature Effect on Zero Compensation  
2000 lbf Load Cell Example

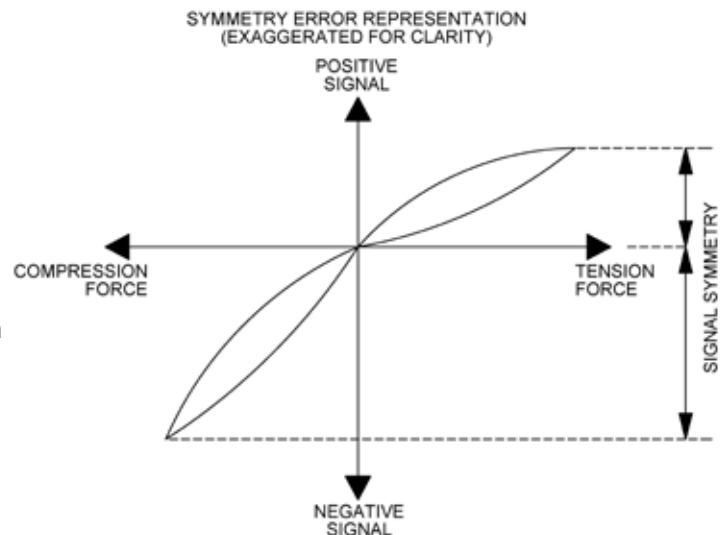


## Temperature Effects

- Industry leading temperature performance (0.0004-0.0008%RO/°F)
- Hot & cold temperature compensation to reduce thermal effects
- We test and adjust each sensor at each temperature extreme
- Multiple runs in temperature chamber to validate adjusted final accuracy

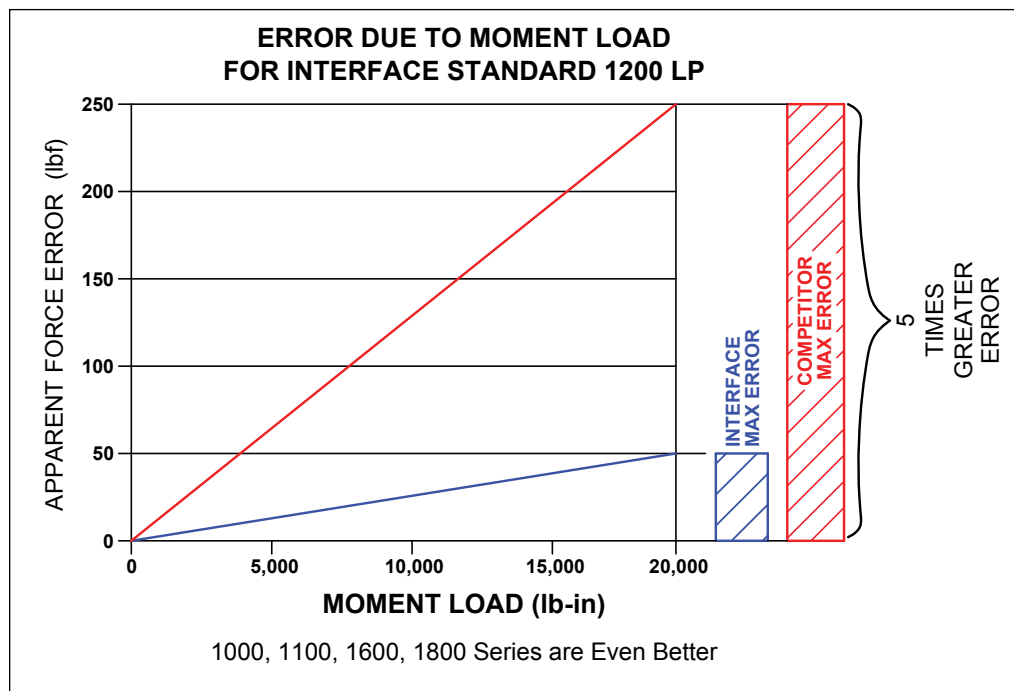
## Calibration

- Every Low Profile™ load cell is individually calibrated in tension and compression with no additional charge
- Allows for the comparison of rated output in tension to the rated output in compression
- We do system calibrations of most load cell brands



## Interface Moment Compensation

- Every Low Profile™ load cell is mechanically compensated for moment loads
- Minimizes effect of eccentric loading and installation orientation
- Maximizes the operating life and minimizes the error
- Most load cell manufacturers do not compensate or have a specification for eccentric load sensitivity



## Options available for a variety of applications

- Fatigue Rated
- Internally Amplified
- Axial Torsion
- Multi-Axis
- 25 lbf to 2 million lbf
- 2 Wire Amp
- Flange Mount
- High Temperature
- IP67
- Intrinsically Safe
- Hermetically Sealed
- Calibration Grade
- Dual Range
- Custom Designs
- Overload Protection
- Adapters - Male/Female
- Vacuum Rated
- Cables





**1000  
Fatigue Rated**

250 lbf to 100K lbf  
1.25 kN to 450 kN



T&C

**1000 Fatigue Rated,  
High-Capacity**

135K lbf to 1,000K lbf  
600 kN to 4,500 kN



T&C

**1100 Ultra Precision  
Very High Accuracy**

300 lbf to 200K lbf  
1.5 kN to 900 kN



T&C

**1101 Ultra Precision  
Compression Only**

1K lbf to 50K lbf  
5 kN to 250 kN



**1200  
Precision**

300 lbf to 200K lbf  
1.5 kN to 900 kN



T&C

**1200 Precision  
High Capacity**

270K lbf to 2,000K lbf  
1200 kN to 9,000 kN



T&C

**1200  
Internal Amplifier**

300 lbf to 200K lbf  
1.5 kN to 900 kN



T&C

**1200 Flange Mount**

50 kN to 3,300 kN



T&C

**1201 Precision  
Compression Only**

1K lbf to 400K lbf  
5 kN to 1,800 kN



**1331 Compact  
Compression Only**

100K lbf  
450 kN



**1500 Compact  
Low Capacity**

25 lbf to 300 lbf  
125 N to 1,500 N



T&C

**1600 Gold Standard®  
Calibration**

500 lbf to 200K lbf  
2.2 kN to 900 kN



T&C

**1601 Gold Standard®  
Compression Only Calibration**

1K lbf to 100K lbf  
4.5 kN to 450 kN



**1606 Gold Standard®  
Low Capacity Calibration**

50 lbf to 300 lbf  
0.25 kN to 1.50 kN



T&C

**1700 Flange Mount**

550 lbf to 14K lbf  
2.5 kN to 63 kN



T&C

**1800 Platinum Standard®  
Calibration, Integral Stud**

1.1K lbf to 110K lbf  
5 kN to 500 kN



T&C

**2101  
Dual Range**

5/1K to 270/100K lbf  
25/5kN to 1200/450kN



T&C

**2400  
Stainless Steel**

100 lbf to 300K lbf



T&C

**2451 & 2461 Stainless Steel,  
Compression Only**

50K lbf to 200K lbf



**2404 Stainless Steel  
2-Wire, 4-20 mA**

50 lbf to 20K lbf



T&C

**3200 Precision Hermetic  
Stainless Steel**

5K lbf to 270K lbf



T&C

**3201 Stainless Steel  
Compression Only**

5K lbf to 200K lbf



**3331 Amplified Stainless Steel  
Compression Only**

100K lbf



**3400 Intrinsically Safe  
ATEX Approved**



20K lbf to 100K lbf



T&C

**BPL Ultra Low Height (.88")  
Compression Only**

50 lbf to 500 lbf  
250 N to 2,500 N



**A4600 Tank Weighing  
Stainless Steel**

2.5 lbf to 50K lbf



**1216  
Axial Torsion**

250 lbf / 125 lb-in  
to 2K lbf / 1K lb-in



T&C

**1516  
Axial Torsion**

100 lbf / 50 lb-in



T&C

**2816  
Axial Torsion**

3.3K lbf / 2K lb-in  
to 15K lbf / 7.5K lb-in  
16 kN / 220 Nm  
to 63 kN / 900 Nm



T&C

**5200 Three Axis  
Fz, Mx, My**

1K lbf to 100K lbf



T&C



*Our Interface Three-Building Campus*



- **Over \$7 million in inventory**
- **More than 150 items guaranteed in stock**
- **Delivery capabilities beyond the competition**



## We Recalibrate ALL Manufacturers' Load Cells

- **Hydraulic systems use a reversing actuator to apply tension and compression in the same setup**
- **Industry's most complete and accurate calibration certificate**
- **Quick turnaround – consistent 3 to 5 day turnaround (2-day expedited service available)**
- **50 grams to one million lbf**
- **A2LA Accredited laboratory**
- **18 fully automated calibration systems**

