Dual Axis Web Tension Transducer

FEATURES

- Capacities from 2k to 20k lb (9 to 89 kN)
- Dual axis transducer design enables measurement of resultant force in all directions without limitation to horizontal or vertical components
- Functional to 250°F (121°C)
- Sealed to IP67 – field proven design
- Low profile – direct load cell replacement with simple retrofit installation
- Factory calibrated for minimum start-up time

DESCRIPTION

Patented HTU Web Tension Transducers measure web tension forces applied across a roll, using integral horizontal and vertical axis sensors. This innovative and exclusive two-dimensional approach to web tension force measurement enables accurate determination of the true resultant force, as well as the applied angle. Not only does this permit installation and measurement at any mounting angle or roll orientation, it also combines to form an expert diagnostics system that produces the highest level of web tension measurement confidence available today.

The Model HTU is machined from a high strength corrosion resistant stainless steel to yield a low profile single piece construction that incorporates tubular sensing sections at each end. Two full Wheatstone Bridges are mounted internally to each sensor and provide output signals in the X and Y plane that are externally, vectorially summed to determine the magnitude and direction of the resultant force. Each bridge is functional to 250°F (121°C), and dead weight calibrated for precision accuracy. The cylindrical sensing sections are sealed to meet IP67 requirements. Environmental sealing ensures long-term reliability for humid, wet, or washdown locations.

APPLICATIONS

Paper and Roofing Machines

Strip Mill Force Measurement

BLH NOBEL
A VPG Brand

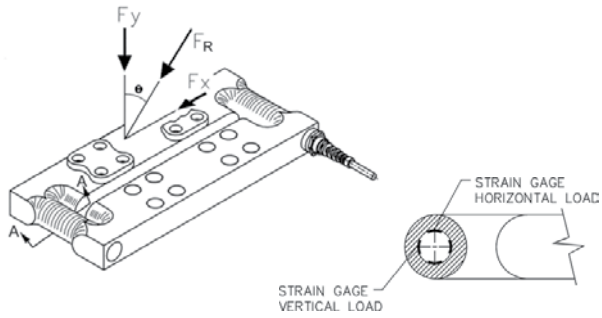
Dual Axis Web Tension Transducer

HTU DESIGN ADVANTAGES

The HTU Load Cell incorporates a symmetrical, universal design that measures the resultant force F_R and angle θ of any web tension system, independent of wrap angle, with a horizontal or vertical installation. Special orientation or the selection of a horizontal or vertical transducer is not required.

Force sensing elements located on each end of the transducer measure the components F_x and F_y of F_R applied along the X and Y axes. Resultant output signals can be used to determine the magnitude and direction (θ) of the overall force (F_R) applied by the web. Two full Wheatstone Bridges are mounted internally to each tubular cross section to provide independent sensing for each axis as well as protection from hostile environments.

HTU transducers are typically installed beneath the pillow blocks using top and bottom adapter plates. These plates mount on integral loading surfaces designed to produce shear forces in the sensing element. Loading surfaces are located on either side of the longitudinal center slot and include drilled and counterboard holes to maintain a low profile assembly.

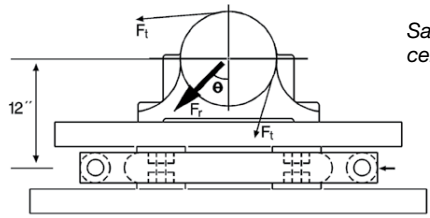


Force sensing gage diagram (for both ends of module)

SPECIFICATIONS

PARAMETER	VALUE
PERFORMANCE (% RATED OUTPUT)	
Available Capacities	2k, 6k, 10k, 20k lb (9, 27, 45, and 89 kN)
Rated Output (RO)	2.0 mV/V (X and Y bridges)
Repeatability	0.02% RO
Combined Error (best fit)	0.10% RO
Zero Balance	1.0% RO
Creep (20 Minutes)	0.05% RO
Temperature Effects: Zero Balance	0.0025% RO/°F (0.0044%/°C)
Output – % Reading	0.0050% RO/°F (0.0089/°C)
ELECTRICAL	
Excitation Voltage	10 VAC-DC recommended 15 VAC-DC maximum
Input Resistance	185 ±10.0 Ω (all channels)
Output Resistance	500 ±5.0 Ω (per channel)
Connection	high temperature, 6-cond. cable, 33 ft (10 m)
TEMPERATURE	
Safe Temperature	±0 to +300°F (–18 to +149°C)
Service Temperature	±0 to +250°F (–18 to +121°C)

PARAMETER	VALUE
ADVERSE LOAD RATINGS	
Safe Load	150% rated capacity
Ultimate Load	300% rated capacity
Safe Sideload	100% capacity @12 in (304 mm) C/L height
Ultimate Sideload	300% rated capacity
MATERIAL	
HTU Cell	17-4PH stainless steel
Adapter Plates	mild or stainless steel
SEALING	
Environmental Rating	IEC IP67
DEFLECTION	
2000 lb Unit	0.007 in (0.17 mm)
All others	0.035 in (0.89 mm)
WEIGHT AND MOUNTING	
Weight	all capacities – 18 lb (8.2 kg)
Mounting	horizontal or vertical



Safe sideload at centerline height

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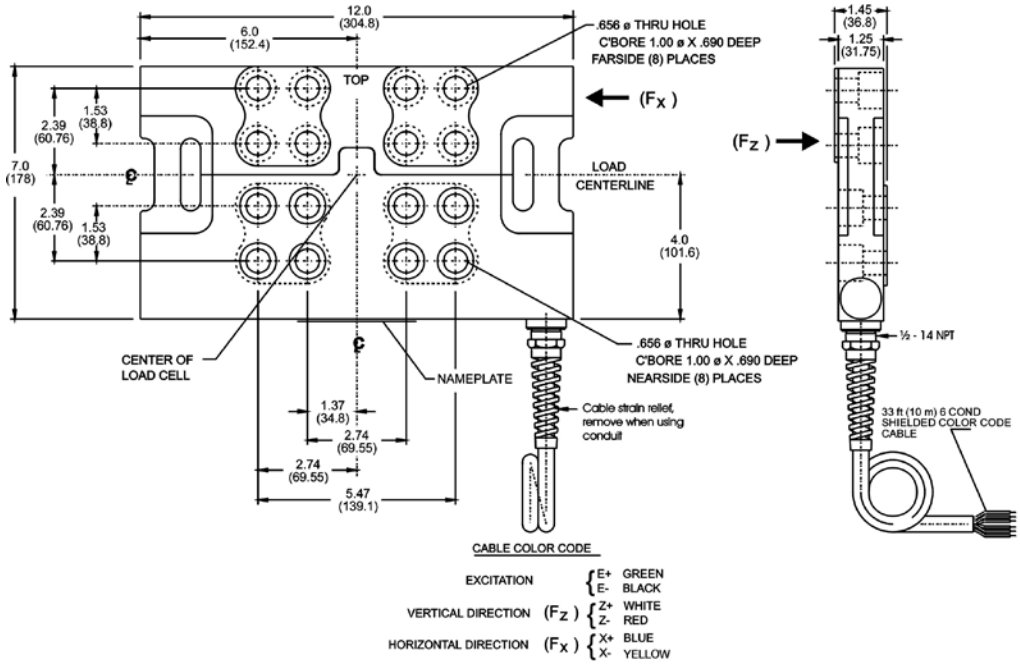
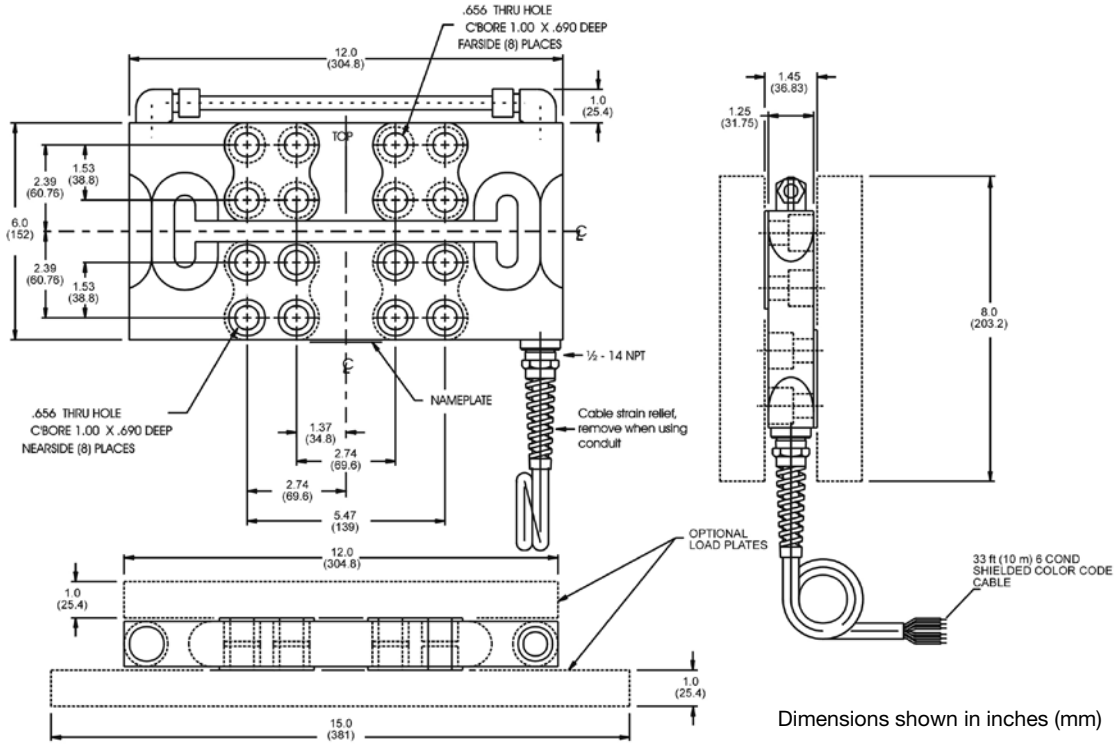
OUTLINE DIMENSIONS – 2000 lb (9 kN) in inches (millimeters)



OUTLINE DIMENSIONS: ALL OTHER CAPACITIES in inches (millimeters)



Dimensions shown in inches (mm)

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