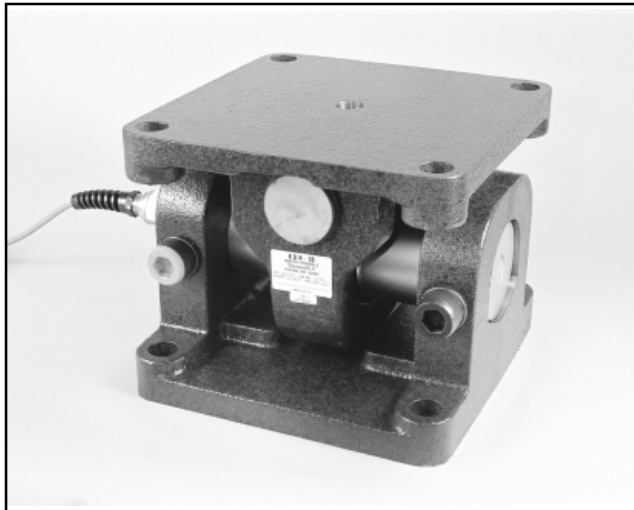


## KDH-1B High Capacity Weigh Module



### FEATURES

- Available in Capacities of 200,000 and 300,000 Pounds
- Low Profile and Low Deflection with Symmetrical Mounting Bolt Pattern for Easy Installation
- Floating Design Allows for Thermal Expansion and Contraction
- Seismic and Wind Resistant Self-Checking Design
- FM and CSA Approved for Hazardous Locations

Vishay BLH is an ISO 9001 Registered Company

### DESCRIPTION

KDH-1B series weigh modules use a unique double-ended shear beam design that produces a compact, high strength, inventory or process weighing sensor. For use on large inventory and process vessels, the modules offer checkless (no check or stay rods) design, low profile, and symmetrical bolt spacing.

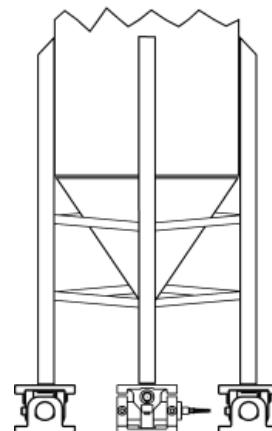
The floating top plate and yoke arrangement allows the module to accommodate vessel thermal expansion and contraction without measurement errors. Sideload resistance provides high accuracy on systems subjected to wind loads and vibration. The integral conduit fitting and potted cavities give superior humidity and hose-down protection.

Ideally suited for weighed structures requiring inherent 'overdesign', KDH modules bolster the engineering task of meeting or exceeding UBC (Uniform Building Code) and ANSI/ASCE 7-98 standards. KDH-1B modules excel where adverse forces are created by wind, thermal expansion, and earthquakes.

### CHARACTERISTICS

### APPLICATIONS

- Product Inventory Weighing/Control
- Large Outdoor Silos
- Conveyor Belt Force Measurement



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# Inventory Weighing Systems

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KDH-1B Weigh Module Design Features

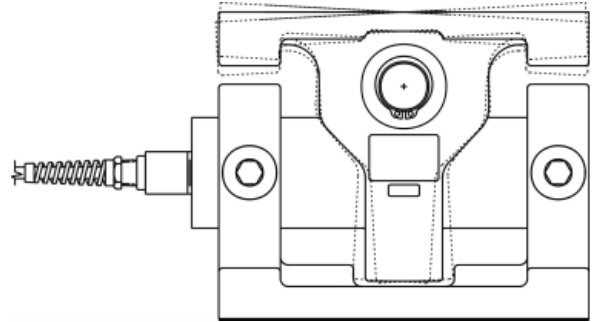


The cylindrical double-ended shear beam module is designed to measure shear stresses induced by an applied load without errors caused by thermal expansion. The combination beam and mounting hardware are ideally suited for use on large outdoor storage vessels where temperature, wind, and possibly seismic forces are encountered.

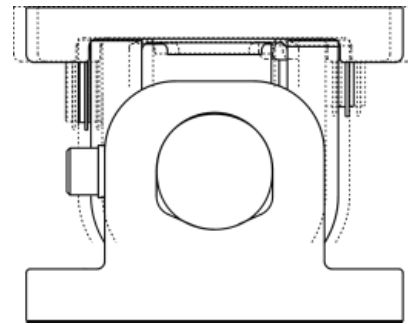
The cylindrical tube-type transducer offers several advantages over rectangular shear beam designs. Superior resistance to moisture contamination is accomplished by eliminating gaged pockets on the outside of the beam. Instead, the KDH uses strain gages applied to the inside wall of the tube. In addition, the cable entry is equipped with a conduit fitting for cable protection and is internally potted.

Structurally, the cylindrical tube is equally strong in both the vertical and horizontal planes. Unlike rectangular shear beams that are typically weaker in the horizontal plane, KDH modules are less affected by sideloads induced by vibration, wind, or process dynamics.

The design of the mounting hardware eliminates the need for pins and/or bolts to attach the beam. This reduces the adverse effects of varying edge and point stresses and makes the overall module less susceptible to calibration changes. Low profile design and symmetrical mounting bolt patterns make KDH modules easy to install on new or existing structures and vessels.

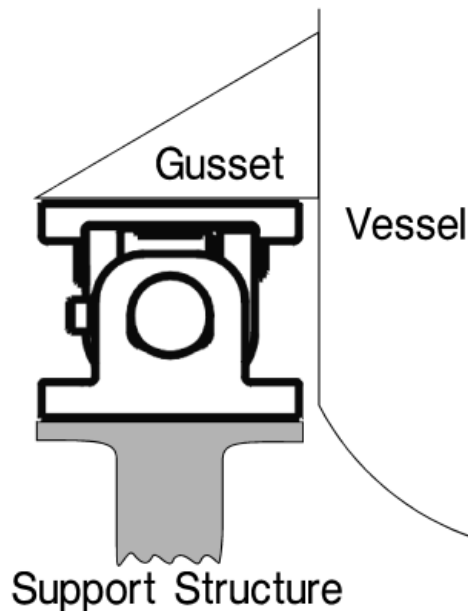
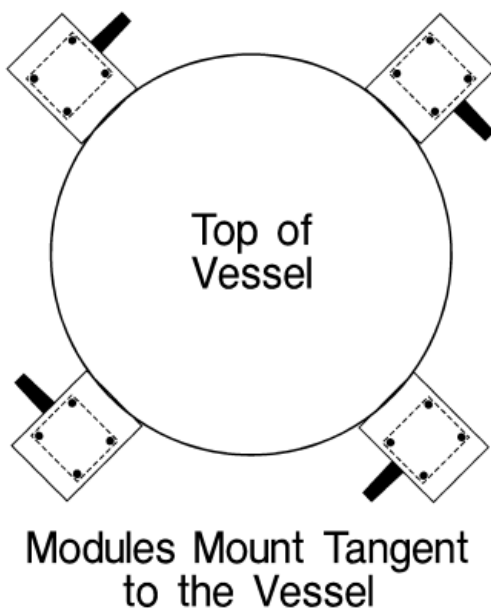


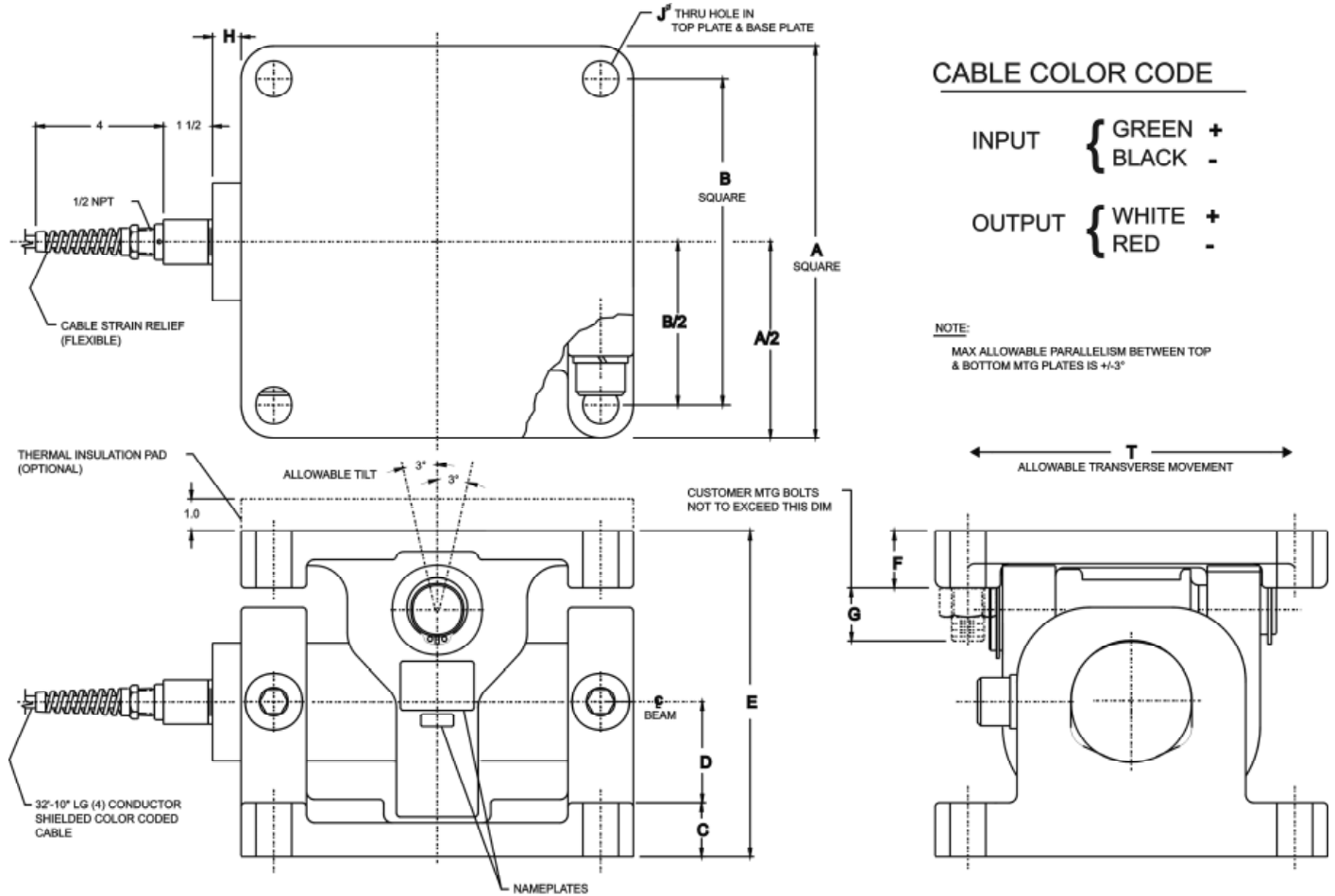
Accommodates construction variations +/-3°



Thermal expansion/contraction compensation

## Typical KDH-1B Weigh Module Mounting Arrangements





CAPACITY (lbs)	A	B	C	D	E	F	G	H	J	T
200,000	12.00	10.00	1.65	3.11	9.99 <sup>+/-0.035</sup>	1.75	1 5/8	7/8	1 3/32	.47
300,000	14.00	11.00	1.90	3.49	10.85 <sup>+/-0.035</sup>	1.75	2.0	.60	1 5/8	.75

Dimensions shown in inches

# Inventory Weighing Systems

Vishay BLH

KDH-1B Weigh Module Specifications



## General

Capacity	200,000 lb	300,000 lb
Loading Specs in %R.O.		
Safe Load	150%	150%
Ultimate Load	300%	300%
Safe Uplift	100%	100%
Ultimate Uplift	110%	155%
Safe Sideload (Axial)	20%	50%
Ultimate Sideload (Axial)	40%	105%
Safe Sideload (Trans.)	85%	55%
Ultimate Sideload (Trans.)	170%	110%

## Electrical

Input Resistance	700 ohms +/- 7 ohms
Output Resistance	700 ohms +/-7 ohms
Recommended Excitation	10 V ac or dc (20 V max.)

## Performance

Rated Output (R.O.)	2.0 mV/V +/- 0.1% mV/V
Zero Balance	1% R.O.
Combined Error (best fit)	0.10% R.O.
Creep (20 minutes)	0.03% R.O.
Repeatability	0.02% R.O.

## Temperature

Safe Range	-34.4 to 104.4°C (-30 to 220°F)
Compensated Range	-1 to 54°C (30 to 130°F)
Temperature Effects	(30 -130°F)
Zero Balance	0.0025% R.O. per °F
Span	0.0015% Reading per °F

## Material

Beam	ultra high strength steel
Brackets	ductile iron
Environmental Class	NEMA 6, IEC IP 67
Moisture Protection	IEC 68-2-4 test D, 200 cycles (min)

## Deflection Under Load and Unit Weight

CAPACITY	DEFLECTION	WEIGHT
200,000 lb	0.029 in.	250 lb
300,000 lb	0.050 in.	300 lb

## Corrosion Protection

KDH-1B	zinc chromate beam painted hardware
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## Termination

200K, 300K	10 m (32', 10") cable with conduit fitting
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## Approvals

FM (Factory Mutual)	3611 (Class I, II, III; Div.1,2; Groups A-G)
CSA	C22.2 (Class I, II,III; Div.1,2; Groups A-G)

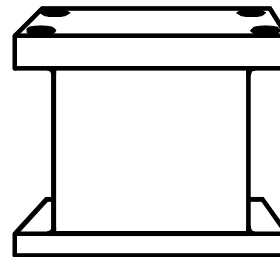
BLH is continually seeking to improve product quality and performance. Specifications may change accordingly.

## Weigh Module Accessories



### Thermal Insulation Pads

Thermal insulation pads reduce heat conducted from a heated vessel. The pads are made of rigid laminate with extremely low thermal conductivity. BLH recommends using insulation pads if the vessel mounting surface temperature exceeds 52C (130F). Pads are 1 inch thick with bolt spacing identical to module top plates.



### Simulated Weigh Module

Optional simulated modules are used in place of actual KDH Weigh Modules during the installation process. Using simulated modules eliminates the risk of damaging the KDH transducer while welding or positioning the weigh vessel. All critical simulated module dimensions are identical to actual KDH outline specifications.