KIS Beam Technology

Market Solutions

SMART SOLUTIONS FOR
DEMANDING INDUSTRIES

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Discover the Advantage

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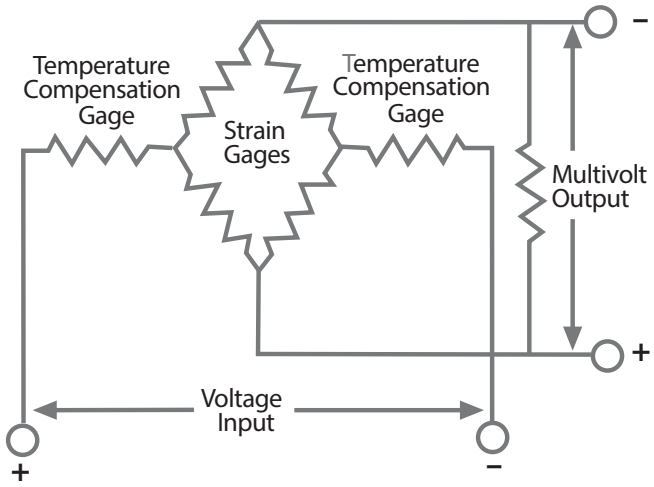
The KIS Double Cantilever Advantage

Start with the best gages and the best gage configuration

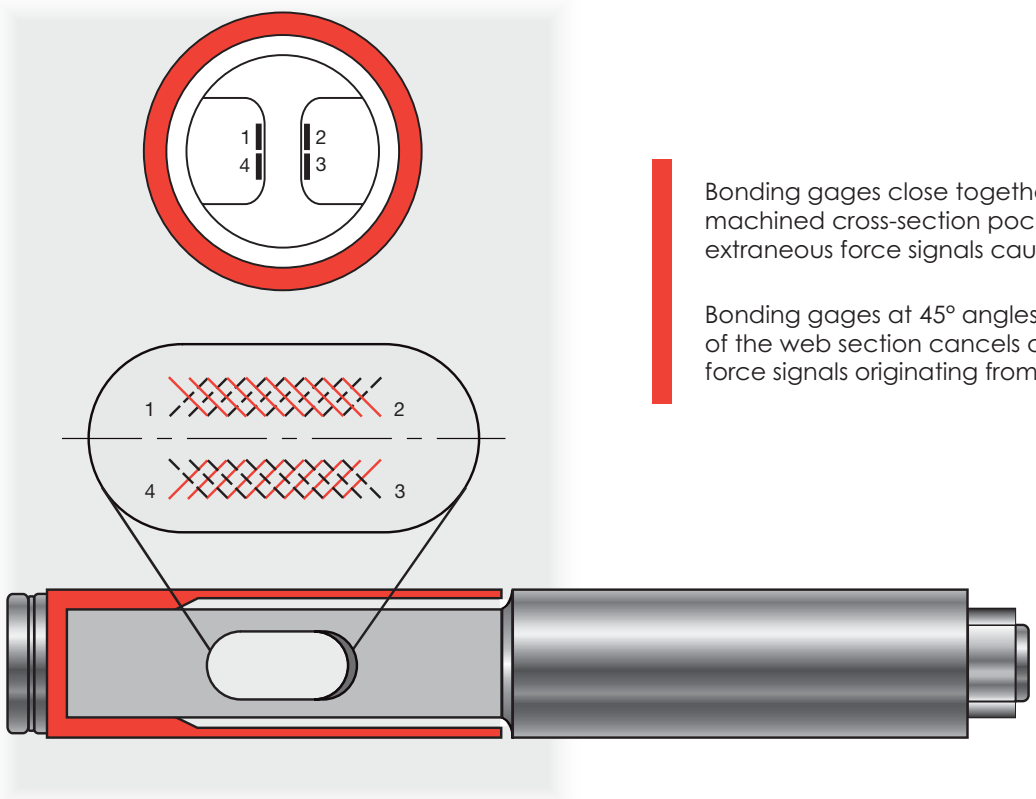
KIS Beam technology incorporates SR-4® foil strain gages connected as a full Wheatstone bridge that is temperature-compensated and calibrated to deliver accuracy and reliability. And because all KIS Beams are factory-calibrated, installation and setup are quick and easy with no need for on-site calibration (unless mechanical obstructions prevent a "freestanding" vessel).

- Full temperature compensation eliminates drift
- Matched outputs provide simple replacement
- Factory calibration for repeatability, reliability, and low installation cost
- 0.01% repeatability: 0.02% combined error



Full Wheatstone bridge electronic configuration

Then bond the Wheatstone bridge configuration to a think web cross-section of the sensing element …



- Bonding gages close together, inside of a machined cross-section pocket, eliminates (nulls) extraneous force signals caused by side loads
- Bonding gages at 45° angles on opposite sides of the web section cancels out (nulls) extraneous force signals originating from end loads

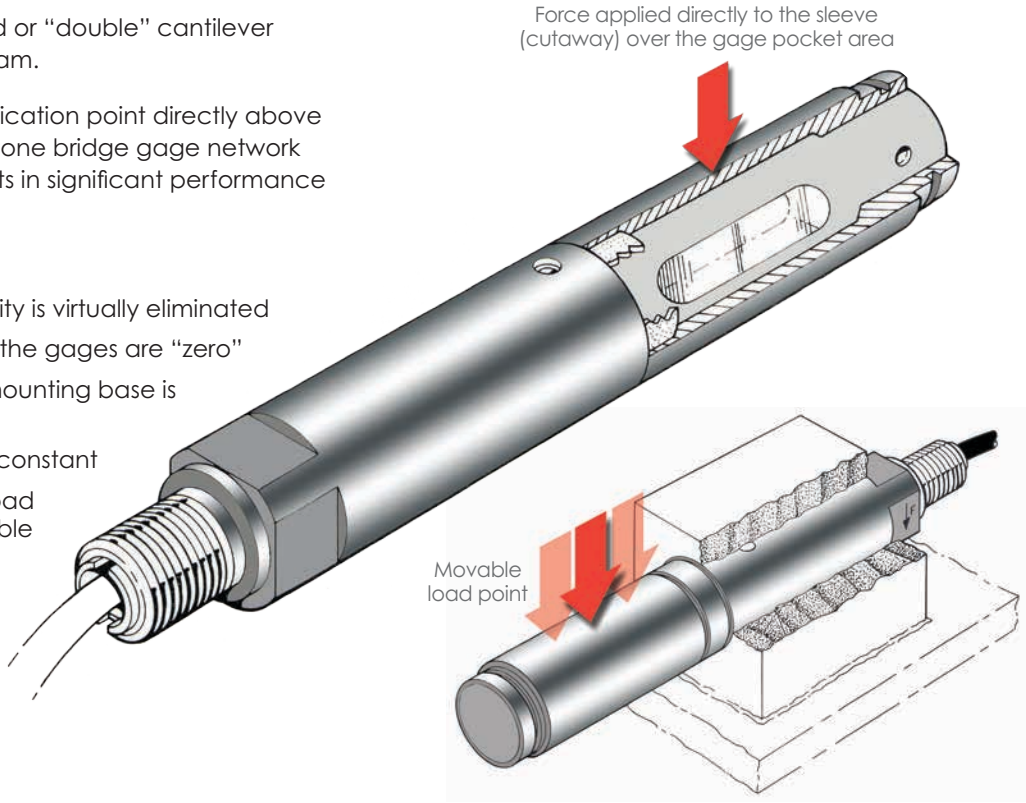
… and …

… place the load right over the gages

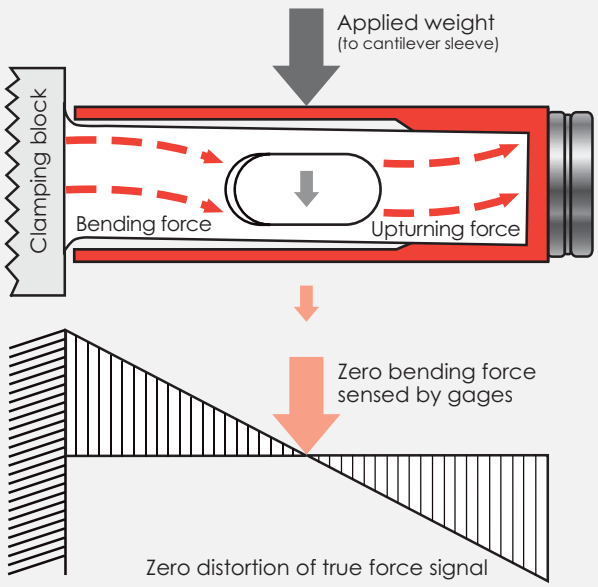
KIS Beam design adds a second or "double" cantilever sleeve over the actual load beam.

This locates the load force application point directly above the gages. Placing the Wheatstone bridge gage network beneath the applied load results in significant performance advantages:

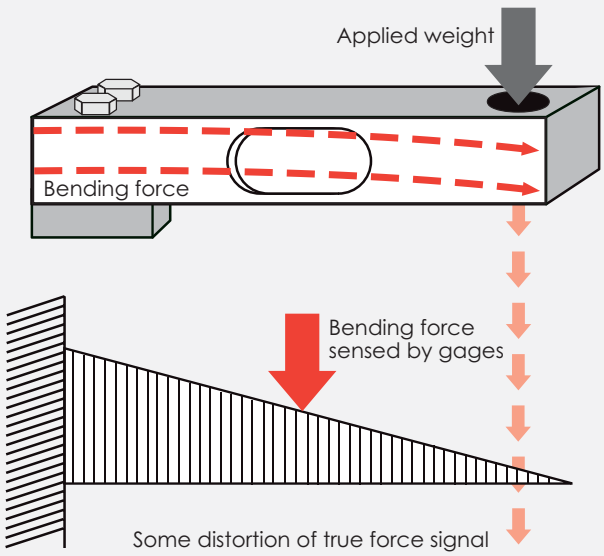
- Side load force sensitivity is virtually eliminated
- Moment stresses upon the gages are "zero"
- Bending stress at the mounting base is reduced by 50%
- Shears stresses remain constant
- Moving or sliding the load point produces negligible effect on output
- The measurement signal represents the only true applied force



Double Cantilever Shear Beam



Single Cantilever Bending Beam



Discover the Advantage

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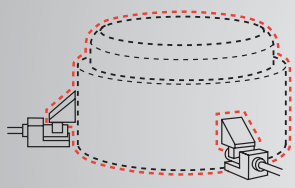
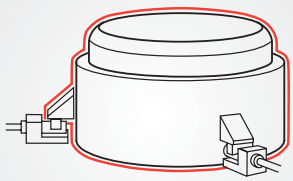
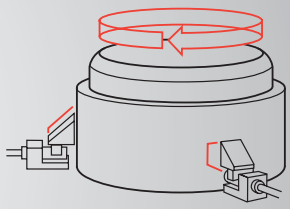
Moving Load



Vibration from agitation



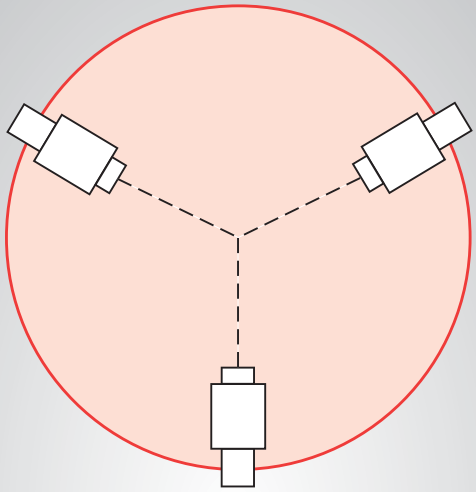
Thermal expansion



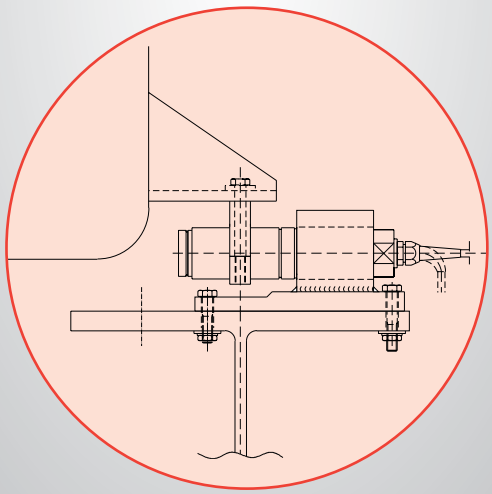
Twisting moment caused by agitator

Standard tank weighing

Force measurement in materials testing



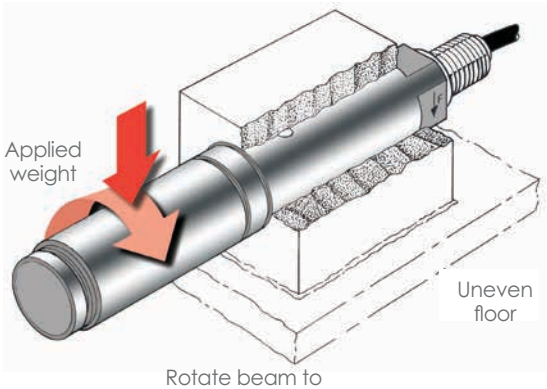
Orienting the load cells towards the center gives a self-locking design that counteracts movement.



Discover the Advantage

Cylindrical Design Provides Top Performance

The second secret of superior KIS performance is the cylindrical design. KIS beams can be rotated within the module hardware to coincide with the exact direction of applied weight. Cylindrical, electro-polished stainless steel provides a nearly frictionless surface for the module yoke to slide on during periods of thermal expansion and contraction.



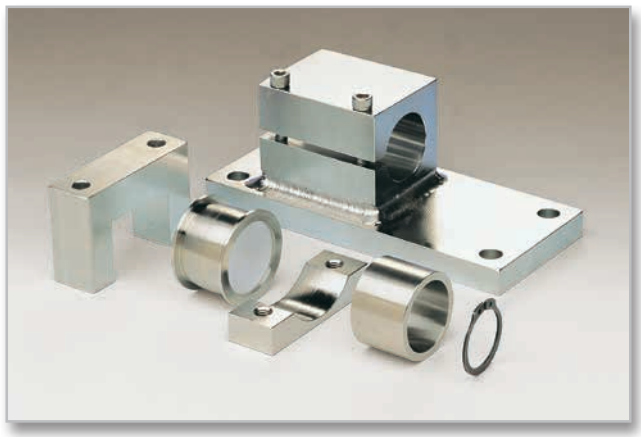
Rotate beam to coincide with applied weight

Make it a Module

Adding a stainless steel split clamping block and mounting yoke completes the KIS Beam package. Easy installation, unbeatable accuracy, and IP67 environmental protection make KIS Weigh Modules the industry standard for demanding applications. Superior KIS specifications include:

- Accuracy of 0.02%
- Repeatability of 0.01%

These specifications apply to the complete module, not just the beam.



Materials and Finishes

Stainless steel version of the KIS are perfect for food and pharmaceutical applications. Mounting hardware is fabricated from austenitic stainless steel, which has excellent corrosion resistance. The electro-polished finish, rounded surfaces, and minimal crevices allow for easy cleaning.

Strong Enough for the Toughest Environments

KIS Weigh Modules, mounted on dynamic process vessels in harsh, washdown areas, know how to "play dirty." In fact, they excel in the roughest environments. Corrosive acids, harsh industrial detergents, caustic vapors, and granulated powders never compromise their superior performance. Here's why:

- 15-5 PH stainless steel construction
- FM and CSA approval Class I, II, III; Div. 1,2 Groups A-G
- ATEX certified versions for use in explosive atmospheres are available: II 1GD
- Design meets ANSI/UBC wind and seismic requirements
- NEMA 4-compliant and IP67-compliant
- NTEP-certified with KIS-3 beam—conforming to the requirements of NIST Handbook 44

Applications

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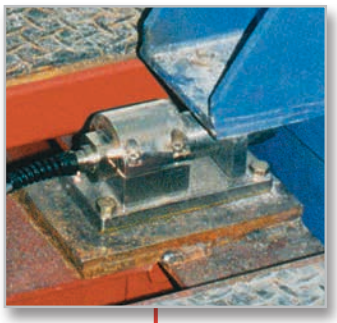
Vessel Passes Through Floor

Orient all modules so that they face radially inward to restrain the vessel in the lateral direction.

Bolt modules to a uniform surface. If located on structural "I" beams, all beams must be both parallel and level.

If thermal insulation pads are not required, bolt the module yoke directly to the vessel gusset.

If thermal insulation pads are required to reduce heat conduction, order optional adapter plates and thermal pads.



Freestanding Upright Vessels

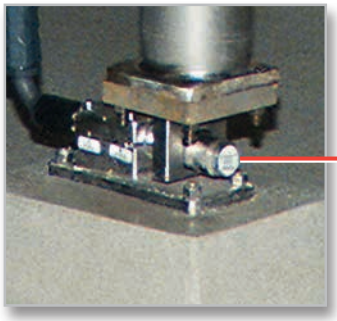
Orient all modules so that they face radially inward to restrain the vessel in the lateral direction.

Bolt modules to a uniform or prepared surface that is both parallel and level. Using concrete grout pads satisfies both requirements.

Optional adapter plates usually are needed to provide support for the vessel legs.

If the vessel is extremely tall, or located out-of-doors, additional lateral restrains might be required to prevent tipping.

Thermal insulation pads prevent heat conduction.

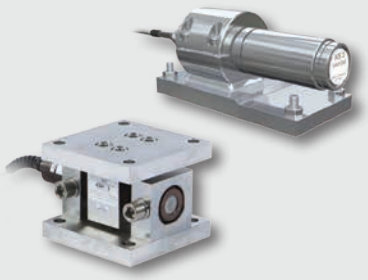


Other Products Offered

Load Cells and Weighing Modules

We offer high-quality load cells and weighing modules. Our standard KIS, KOSD, KIMD and KISD can be customized to meet special requirements.

Standard Load Cells and Weighing Modules

Features		Products	
Easy to install Moveable load point Insensitive to side loads High accuracy Rugged construction IP67 protection ATEX, FM, CSA, OIML and NTEP approved versions		KIS—1, 2, 3, 8, 9, 11, and 12 KISD-6 KOSD-101, -107, and -115 KOSD-40 KIMD-1 KOM-1 Z-Blok KDH-3	EconoMount weigh modules EconoMount level systems Pro-Mount weigh modules EZ-Mount weigh modules Alpha Beam

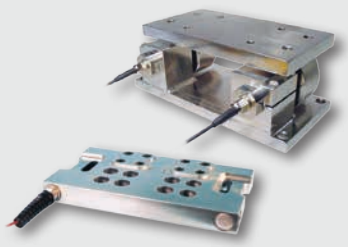
Special Load Cells Products

Customized to meet specific requirements
Moveable load point
Insensitive to side loads
High accuracy
Rugged construction
IP67 protection
ATEX, FM, CSA, OIML and NTEP approved versions
Available with built-in transmitters

KOSD
KIMD
KIS
KISD

Standard and Customized Web Tension Blocks

Easy to install
Models for both low- and high-tension applications
High accuracy
Rugged construction
IP67 protection
ATEX, FM, CSA approved versions



FMU (high tension)
TU-2 (high tension)
PST Tensiometers
Extensometer
HTU (high tension)
HTZ-3 (high tension)
GLT (low tension)
LTT (low tension)
Others

Through VPG Transducers, our sister division, we also offer low-cost, high-accuracy load cells and mounting hardware for use in all kinds of systems:

- Single-point load cells
- Shear beam load cells
- Pin load cells
- Double-ended shear beams
- Damped load cells
- Damped load cells
- Bending-beams
- Compression load cells
- S-type load cells
- Digital load cells
- Mounting hardware

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