



# Load Stand II®

A load cell for weighing large vessels which becomes an integral part of your vessel structure for rugged, maintenance free, weight measurements with full UBC wind and seismic ratings.

## TECHNICAL SPECIFICATIONS



The Kistler-Morse® Load Stand II® is a direct vessel-to-foundation structural member designed to be your dependable and accurate continuous inventory monitoring and control solution. The Load Stand II system is ideal for vessels with loads of 100,000 lbs (45,000 kg) or more and is available for loads of 25,000 to 1,000,000 lbs (11,000 to 453,000 kg) per support point.

The monolithic design becomes an integral part of the vessel structure for maintenance free weight measurements with full IBC wind and seismic ratings. The sensing elements are field replaceable without taking the vessel out of service.

The mechanical design of the Load Stand II lends to simplified design of the mounting, whether by legs or gussets. Simple, rugged, and easy to match end-mounting plates yield minimum design time and easy installations.

## FEATURES AND BENEFITS

### Monolithic Design

Provides simplified installation and lower cost as no external vessel tie downs are needed as with other load cells.

### High Output

Higher output for greater noise immunity and longer cable runs.

### Multiple Weight Ranges

25,000 lbs to 1,000,000 lbs covers bulk applications, meets all IBC codes and has FM approval.

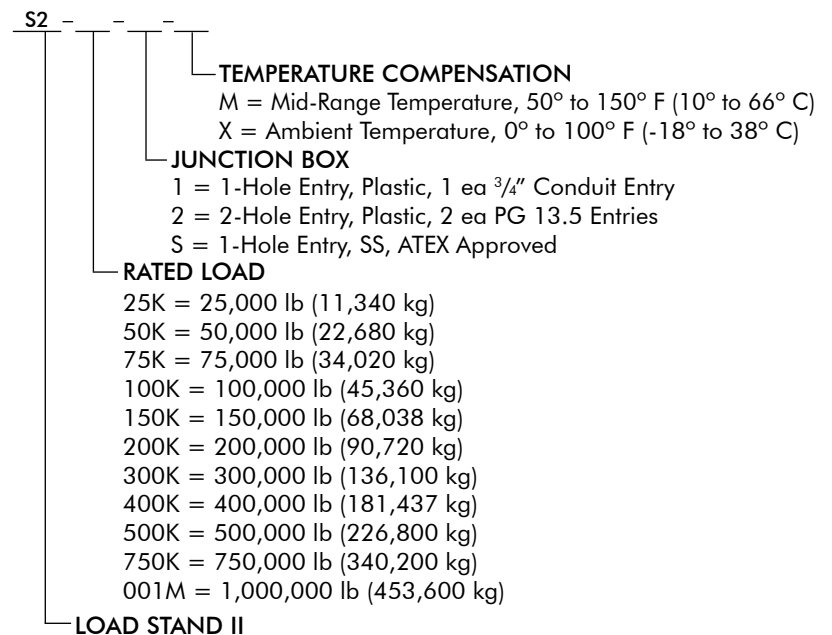
### Solid State Strain Sensors

No summing boxes required, cuts costs and allows field replacement of sensing elements.

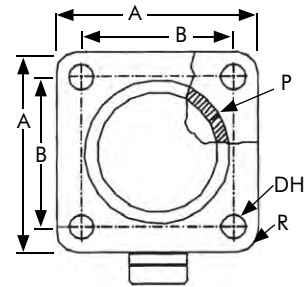
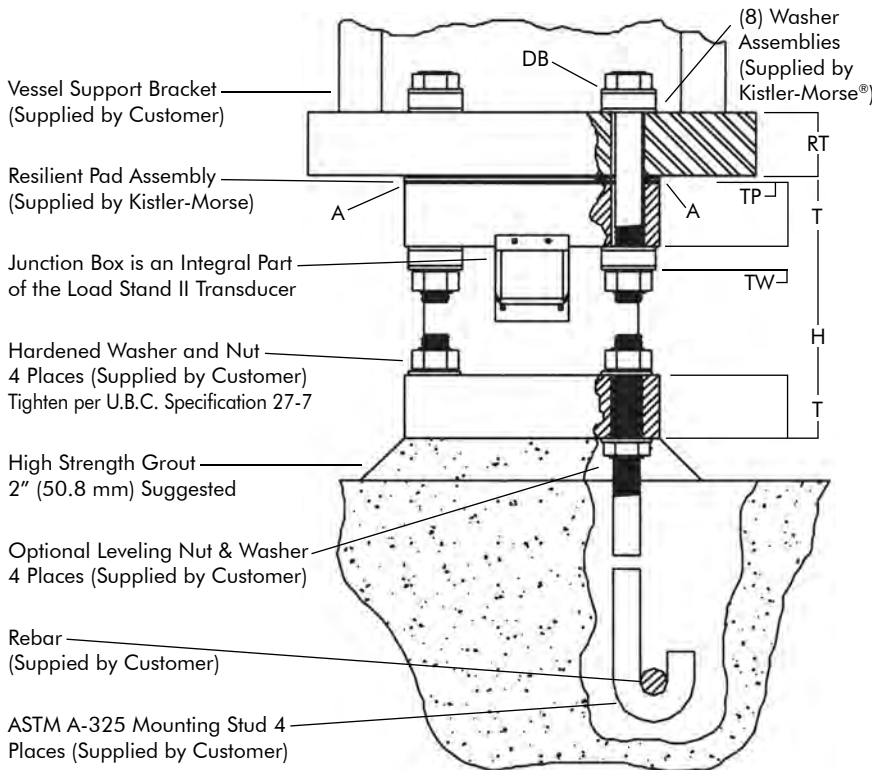
### Limited Down Time

Field repairable. Custom mounting plates available for different mounting configurations.

## HOW TO ORDER



# Load Stand II®



Install top bolts in oversized holes (DH) and tighten nuts 1½ turns past fingertight. Apply locknut, adhesive or spoil threads to prevent loosening.

## LEGEND

A	Outside Dimension
B	Hole Dimension
DB	Bolt Size
DH	Hole Diameter
DW	Washer Outside Diameter
H	Installed Height
P	Pipe Size
R	Corner Radius
RT	Recommended Thickness
T	Plate Thickness
TP	Pad Thickness
TW	Washer Thickness

## DIMENSIONS

Load Rating lb (kg)	P	A in (mm)	B in (mm)	ØDB <sup>1</sup> in (mm)	DH in (mm)	R in (mm)	H in (mm)	T in (mm)	TP in (mm)	DW in (mm)	TW in (mm)	Weight lb (kg)	RT in (mm)	XX <sup>2</sup> in (mm)
25,000 (11,339)	3.5 SCH 40	6.25 (158.7)	4.25 (107.9)	.625 (15.9)	.875 (22.2)	1.00 (25.4)	7.37 (187.2)	1.25 (31.7)	.37 (9.5)	1.30 (33.0)	.44 (11.2)	31 (14.1)	1.25 (31.7)	.187 (4.7)
50,000 (22,679)	4 SCH 120	7.00 (177.8)	4.75 (120.6)	.75 (19.0)	1.00 (25.4)	1.12 (28.4)	9.37 (238)	1.50 (38.1)	.37 (9.5)	1.48 (37.5)	.65 (16.5)	50 (22.7)	1.50 (38.1)	.187 (4.7)
75,000 (34,020)	6 SCH 120	9.80 (248.9)	6.75 (171.4)	1.00 (25.4)	1.25 (31.7)	1.50 (38.1)	12.37 (314.2)	2.00 (50.8)	.37 (9.5)	2.00 (50.8)	.77 (19.6)	127 (57.7)	2.00 (44.5)	.187 (4.7)
100,000 (45,359)	6 SCH 120	9.80 (248.9)	6.75 (171.4)	1.00 (25.4)	1.25 (31.7)	1.50 (38.1)	12.37 (314.2)	2.00 (50.8)	.37 (9.5)	2.00 (50.8)	.77 (19.6)	128 (58.1)	2.00 (50.8)	.187 (4.7)
150,000 (68,040)	8 SCH 120	12.20 (312.4)	8.50 (215.9)	1.25 (31.7)	1.50 (38.1)	1.90 (48.2)	15.37 (390.4)	2.50 (63.5)	.37 (9.5)	2.50 (63.5)	1.03 (26.2)	154 (69.9)	2.50 (50.8)	.187 (4.7)
200,000 (90,718)	8 SCH 160	12.20 (312.4)	8.50 (215.9)	1.25 (31.7)	1.50 (38.1)	1.90 (48.2)	15.37 (390.4)	2.50 (63.5)	.37 (9.5)	2.50 (63.5)	1.03 (26.2)	262 (119.0)	2.50 (63.5)	.187 (4.7)
300,000 (136,077)	12 SCH 140	16.50 (419.1)	12.40 (314.9)	1.75 (44.4)	2.00 (50.8)	1.68 (42.6)	22.00 (558.8)	3.00 (76.2)	.75 (19.1)	3.37 (85.5)	1.05 (26.7)	619 (281.0)	3.00 (76.2)	.187 (4.7)
400,000 (181,440)	14 SCH 140	17.50 (444.5)	13.50 (342.9)	2.00 (50.8)	2.25 (57.2)	2.00 (50.8)	22.75 (577.8)	3.00 (76.2)	.75 (19.1)	3.75 (95.3)	1.05 (26.7)	719 (326.5)	3.00 (76.2)	.187 (4.7)
500,000 (226,796)	16 SCH 140	18.50 (469.9)	14.75 (374.6)	2.00 (50.8)	2.25 (57.2)	1.87 (47.4)	24.50 (622.3)	3.50 (88.9)	.75 (19.1)	3.75 (95.3)	1.05 (26.7)	758 (344.1)	3.50 (88.9)	.187 (4.7)
750,000 (340,194)	20 SCH 140	24.00 (609.6)	19.00 (482.6)	2.50 (63.5)	2.75 (69.8)	2.50 (63.5)	30.00 (76.2)	3.50 (88.9)	.75 (19.1)	4.50 (114.3)	1.05 (26.7)	1,725 (783.2)	3.50 (88.9)	.187 (4.7)
1,000,000 (453,592)	24 SCH 120	27.00 (685.8)	21.50 (546.1)	3.00 (76.2)	3.25 (82.5)	2.75 (69.8)	35.50 (901.7)	4.00 (101.6)	.75 (19.1)	5.50 (139.7)	1.05 (26.7)	2,525 (1,146.4)	4.00 (101.6)	.187 (4.7)

1. Bolts: ASTM A-325, bolt length determined and supplied by the customer.

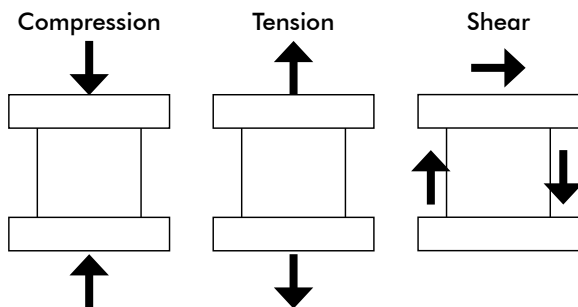
2. XX = Maximum thermal deformation allowed. Computed as shown here: X = DH - DB - 1/16" (1.6 mm).

# ULTIMATE FRAME LOADS

Based on Material Strength

Model No.	Load Rating lbs, kg	Ultimate Compression	Ultimate Tension	Ultimate Shear
<b>S2-025K</b>	25,000 lbs 11,338 kg	93,202 lbs 42,268 kg	48,597 lbs 22,039 kg	15,305 lbs 6,941 kg
<b>S2-050K</b>	50,000 lbs 22,676 kg	193,950 lbs 87,959 kg	69,979 lbs 31,736 kg	27,100 lbs 12,290 kg
<b>S2-075K</b>	75,000 lbs 34,014 kg	372,140 lbs 168,771 kg	124,407 lbs 56,420 kg	58,621 lbs 26,585 kg
<b>S2-100K</b>	100,000 lbs 45,351 kg	372,140 lbs 168,771 kg	124,407 lbs 56,420 kg	58,621 lbs 26,585 kg
<b>S2-150K</b>	150,000 lbs 68,027 kg	620,424 lbs 281,371 kg	170,088 lbs 77,137 kg	87,621 lbs 39,737 kg
<b>S2-200K</b>	200,000 lbs 90,703 kg	764,056 lbs 346,511 kg	170,088 lbs 77,137 kg	87,621 lbs 39,737 kg
<b>S2-300K</b>	300,000 lbs 136,054 kg	1,429,682 lbs 648,382 kg	333,372 lbs 151,189 kg	146,880 lbs 66,612 kg
<b>S2-400K</b>	400,000 lbs 181,406 kg	1,743,392 lbs 790,654 kg	432,000 lbs 195,198 kg	189,000 lbs 85,714 kg
<b>S2-500K</b>	500,000 lbs 226,757 kg	2,291,943 lbs 1,039,430 kg	435,425 lbs 197,472 kg	187,740 lbs 85,143 kg
<b>S2-750K</b>	750,000 lbs 340,136 kg	3,496,344 lbs 1,585,644 kg	588,000 lbs 266,667 kg	283,500 lbs 128,571 kg
<b>S2-1M</b>	1,000,000 lbs 453,515 kg	4,402,358 lbs 1,996,534 kg	768,000 lbs 348,299 kg	324,000 lbs 146,939 kg

Note: The loads listed above are the ultimate (critical) loads based on the weakest element of the load stand. The loads for tension and shear assume mounting hardware is A325 minimum (provided by customer). All ultimate loads were calculated per AISC 13th Edition. The above loads are considered to be for information only. A similar chart is provided for use with ASD load combinations as found in IBC 2006, IBC 2009, ASCE 7-05 or other building codes.



# MAXIMUM LOADS ALLOWED

Per IBC

Model No.	Load Rating lbs, kg	Allowable Compression	Allowable Tension	Allowable Shear
<b>S2-025K</b>	25,000 lbs 11,338 kg	55,810 lbs 25,310 kg	29,100 lbs 13,197 kg	9,165 lbs 4,156 kg
<b>S2-050K</b>	50,000 lbs 22,676 kg	116,138 lbs 52,670 kg	41,904 lbs 19,004 kg	16,227 lbs 7,359 kg
<b>S2-075K</b>	75,000 lbs 34,014 kg	222,838 lbs 101,060 kg	74,495 lbs 33,785 kg	35,102 lbs 15,919 kg
<b>S2-100K</b>	100,000 lbs 45,351 kg	222,838 lbs 101,060 kg	74,495 lbs 33,785 kg	35,102 lbs 15,919 kg
<b>S2-150K</b>	150,000 lbs 68,027 kg	371,511 lbs 168,486 kg	101,849 lbs 46,190 kg	52,468 lbs 23,795 kg
<b>S2-200K</b>	200,000 lbs 90,703 kg	457,519 lbs 207,491 kg	101,849 lbs 46,190 kg	52,468 lbs 23,795 kg
<b>S2-300K</b>	300,000 lbs 136,054 kg	856,097 lbs 388,253 kg	199,624 lbs 90,532 kg	87,952 lbs 39,888 kg
<b>S2-400K</b>	400,000 lbs 181,406 kg	1,043,947 lbs 473,445 kg	258,683 lbs 117,316 kg	113,174 lbs 51,326 kg
<b>S2-500K</b>	500,000 lbs 226,757 kg	1,372,421 lbs 622,413 kg	260,733 lbs 118,246 kg	112,419 lbs 50,984 kg
<b>S2-750K</b>	750,000 lbs 340,136 kg	2,093,619 lbs 949,487 kg	352,096 lbs 159,681 kg	169,760 lbs 76,989 kg
<b>S2-1M</b>	1,000,000 lbs 453,515 kg	2,636,143 lbs 1,195,530 kg	459,880 lbs 208,562 kg	194,012 lbs 87,987 kg

Note: The loads listed above are the maximum ASD loads for the condition listed and are based on AISC 13th Edition. Shear and tension values assume mounting hardware is A325 minimum (provided by customer). Higher strength hardware can be used if desired. All load stands must be selected to resist the combined loading effects for the specific jobsite and building code requirements ASCE 7-05 or other building code.

# RATED OUTPUT TABLE

Model Number	Output (±1%)	Rated Load lbs	Rated Load kg
S2-025K	320 mV	25,000	11,340
S2-050K	320 mV	50,000	22,680
S2-075K	320 mV	75,000	34,020
S2-100K	320 mV	100,000	45,360
S2-150K	320 mV	150,000	68,040
S2-200K	320 mV	200,000	90,720
S2-300K	320 mV	300,000	136,080
S2-400K	320 mV	400,000	181,440
S2-500K	320 mV	500,000	226,800
S2-750K	320 mV	750,000	340,190
S2-1M	320 mV	1,000,000	453,600

Note: For 300K, 400K, 500K, 750K, and 1M Load Stand II's, consult factory for application review.

# SPECIFICATIONS

## FUNCTIONAL

Excitation Voltage - Operating Range	12 VDC - 30 VDC
Current Draw	15.52 mA (70° F, 21° C)
Power Consumption	186.4 mW (70° F, 21° C) at 12 VDC excitation
UBC Allowed Frame and Bolt Loads	Refer to Table
Ultimate Frame and Bolt Design Strength	Refer to Table
Sensor Functional Integrity	200% of rated load

## PERFORMANCE

Rated Output	Refer to Table
No Load Output	± 50 mV
Non-Linearity & Hysteresis	± 0.20% of rated output
Repeatability	± 0.10% of rated output

## PHYSICAL

Temperature Range	Operational: -30° to 150° F (-34° to 66° C); Unit remains operational, however, if the temperature exceeds the compensated range the unit may not perform to specifications Storage: -30° to 150° F (-34° to 66° C) Compensated Std Temperature Range: 0° to 100° F (-18° to 38° C) Compensated Mid Temperature Range: 50° to 150° F (10° to 66° C)
Humidity	100% Non-condensing
Rating	Designed for outdoor applications
Pedestal	ASTM A53 GR B
Flanges	ASTM A36
Junction Box	Noryl
Resilient Pad	Reinforced Rubber
Finish	Polyester Powder Coat
Sensor	Microcell II
Shipping Weight	Refer to Table

## APPROVALS

	ATEX
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**LOAD STAND II**

In use