Mount Assembly Comparison			
Feature	Conventional	Flexmount®*	Paramounts®
Stainless steel load cell	Optional	Optional	Standard
Hermetically-sealed gauge area; increases load cell life	Optional	Optional	Standard
Hermetically-sealed cable entry; increases load cell life	Optional	No	Standard
Field-replaceable load cell cable; reduces service cost	No	No	Standard
Matched outputs; reduces installation time	No	Standard	Standard
Matched outputs on replacement cells preserve system calibration, reduce process downtime and waste	No	No	Standard
Conduit adaptor	Optional	Optional	Optional
Self-checking design; requires no check rods	Optional	Standard	Standard

*Information current as of September 1, 2010

Flexmount is a registered trademark of MettlerToledo Inc.

Warranty

Warranty policy and replacement programs are an important consideration in equipment purchases. Paramounts not only come with Rice Lake Weighing Systems' after-sale support, but have the inherent quality advantages shown above, which promote longevity. We are so confident that your Paramounts system will perform consistently over the life of your process that we cover the *EP and HS with a 1-year limited warranty and the HE with a 2-year limited warranty. Should your Paramounts fail due to a defect in materials or workmanship, we will replace or repair it at no cost to you.

Visit www.ricelake.com/lcwm for additional technical reference information on load cells and weigh modules.

**Paramout EP weigh modules use the Flintec SBS load cell*

Your Rice Lake Weighing Systems distributor is:

RICE LAKE WEIGHING SYSTEMS
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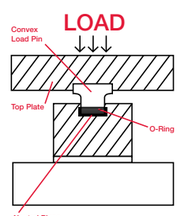
Technical Sheet

Paramounts®

Superior Element Construction... Loading Method Enhances Accuracy

All Flintec SB4/SB10 load cells incorporate a blind hole for load introduction. A load is introduced to the cell via a convex loading pin. The convex surface allows the mount's top plate to rock without twisting the cell. The load pin is centered in the load hole by a pliable polymer O-ring. Conventional mounting assemblies using through-hole and threaded-hole load cells will always have side load errors, as precise load alignment is impossible. The bottom of the blind hole is located on the neutral plane of the Flintec SB4/SB10's sensing section. Therefore, torsional effects are virtually eliminated.



NTEP Load Cells... Accuracy You Can Count On

Optional NTEP-certified load cells are offered in Paramounts tank weighing systems in capacities from 1125 lb to 11,250 lb, for accuracy traceable to NIST. These cells have an NTEP rating of Class III at 5,000 divisions (CC #90-086).

Not Just a Load Cell Mounting Assembly, a True System

Paramounts systems consist of three different tank mount designs, unlike conventional mounting assemblies which use a single design repeated at each tank leg or suspension point. Vessels move. The reasons are many: thermal expansion or vibration from a mixer, auger or feeder. The manner in which your weighing system handles this activity is crucial to the accuracy of your process. Conventional mounting configurations do not offer the range of unhindered movement afforded by Paramounts' three-mount system. Each assembly is designed to transfer force from a vessel to the load cell in a manner that greatly reduces eccentric and torsional loads. Three separate mount designs—Fixed Pin, Free Sliding and Side Stop—make up the system. Each weighing system must include one Fixed Pin mount, one Side Stop mount and one or more Free Sliding mounts.

Fixed Pin Mount

With the Fixed Pin mount, the load is transferred from the top plate to the load cell via a load pin which enters a counterbore in the top plate and load cell. The pin acts as a pivot point and only allows the top plate to rotate while fixing that support point.

Free Sliding Mount

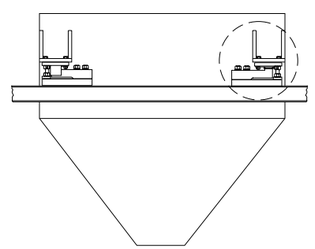
With the Free Sliding mount, the load pin has a flat top surface on which the top plate is free to slide in all directions. To minimize friction, the top surface of the pin is PTFE coated and slides on a smooth stainless steel slider plate. The cleanliness of these two surfaces is assured by a neoprene suction seal.

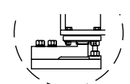
Side Stop Mount

The Side Stop mount uses the same PTFE-coated pin and stainless steel slide plate, but in addition, it has side bumpers. These bumpers check the top plate movement in one direction. The top plate is only free to move in the direction of the longitudinal axis of the load cell.

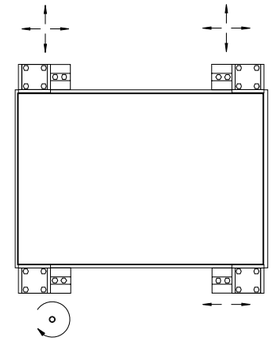
Safety Check Screw

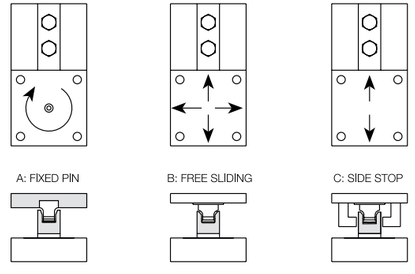
A safety check screw is incorporated into each mount to prevent tipping. The combination of Fixed Pin, Side Stop mount and safety check screw makes this mount self checking in all directions. The safety check screw may also be used for jacking up an empty vessel for maintenance purposes.





This is a typical mounting arrangement. Note that the vessel is allowed to expand outward in all directions from the Fixed Pin corner while causing minimal side loading on the cells. These mounts are ideal for high accuracy systems and/or those subjected to extreme thermal expansion/ contraction.





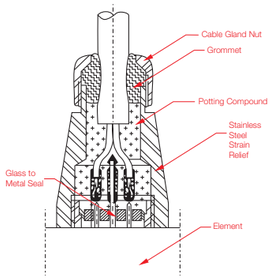
The arrows indicate the directions in which the top plate can move relative to the base plate. These mounts are available in mild steel or stainless steel.

Flintec SB4/SB10 Built Tough to Last!

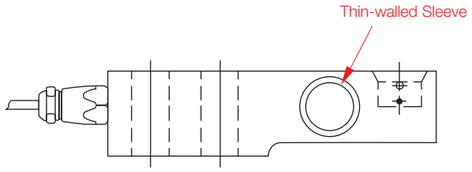
Machined from stainless steel, Flintec SB4/SB10 load cells are built from the ground up to withstand chemical and water contamination. They offer true protection against contamination of the strain gauge area: total hermetic sealing! Other load cells boast hermetic seals that only seal the strain gauge area, leaving the cable entrance susceptible to moisture. Flintec SB4/SB10's are hermetically sealed at both the strain gauge area and the cable entry.

Cable Entry

Traditionally a "weak link" in load cell construction, the SB4/ SB10 cable entry is sealed with a glass-to-metal header. This means the cable wires don't extend into the load cell, as in other designs. Cable wires terminate at the point of connection to the load cell, where they are soldered to hermetically sealed leads which carry signals to the strain gauge area. There are no means for water or other contaminants to wick up into the load cell, as the cable terminates at the point of entry. For further protection, the cable connection is housed in a stainless steel assembly threaded onto the load cell. When filled with a moisture-preventative gel, this area is also protected.



Strain Gauge Area



Most "hermetically sealed" beam load cells are sealed with thin walled cups welded to the load cell element. The Flintec SB4/SB10 uses a unique thin-walled sleeve. This is much more compliant, causes less load reinforcement and achieves greater measuring accuracy.

Field Replaceable Cable

Physically damaged or contaminated cables are one of the most frequent causes of load cell failure, requiring return of the load cell to the factory for repair. Most tank mount designs require that the process is shut down and traditional service performed to replace the load cell with the damaged cable, assuming a replacement load cell is available. The Paramounts design allows the vessel to be supported by the jacking screw at the damaged load cell location, and the load cell removed temporarily for replacement of the cable on site. The Flintec SB4/SB10's unique cable entry design and a cable replacement Thin-walled Sleeve kit allow for easy and reliable cable replacement, minimizing process downtime, service expense and eliminating replacement load cell costs.

mV/V/Ohm Calibration

Matched mV/V, or mV/V/Ohm outputs, are not new. Other manufacturers use similar calibration concepts to make their load cells interchangeable. However, the Flintec SB4/SB10 single ended beam has taken mV/V/Ohm calibration one step further. Flintec SB4/ SB10 load cells not only ensure corner adjustment without trimming, but also retain system calibration when a load cell is replaced! All Flintec SB4/SB10 load cells can be wired into any existing Paramounts system without the need for recalibration, providing capacity and cable length are identical.

Example of Other Manufacturers' mV/V/Ohm Calibration:

A three-cell vessel weighing system using the traditional approach to mV/V/Ohm calibration, calibrated for 10,000 lb capacity with a 2 lb graduation size and 20 mV full scale output, must have a load cell replaced. Even though both cells have matched outputs, there could be a small variation in the new cell's source resistance when comparing it to the original. A small deviation such as 2% in the cell's source resistance would result in a ±0.66% change in the overall system signal output read by the weight indicator. This 0.66% change in system signal output results in a full scale signal of 20.132 mV rather than the 20 mV expected, resulting in a 66 lb error in a full scale reading

The table and formula below show what effect a range of source resistance changes will have on 3- and 4-cell systems. The formula for determining the net system effect is also provided.

% Change in Source Resistance

# of cells in the system	±.5%	±1%	±2%	±3%	±4%
3 Cells	±.0017V	±.0033V	±.0066V	±.0098V	±.013V
4 Cells	±.0012V	±.0025V	±.0049V	±.0073V	±.0097V

In order to see how much source resistance error affects your weighing system, use the following equation:

$$\text{Change in system Calibration (mV/V)} = \frac{N}{\frac{R_{S0}}{R_{S1}} + (N - 1)} - 1$$

Where N = # of cells total in system

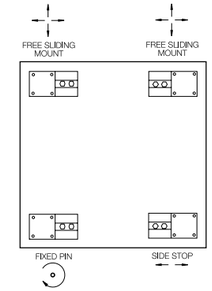
R_{S0} = source resistance of load cell to be replaced

R_{S1} = source resistance of load cell added

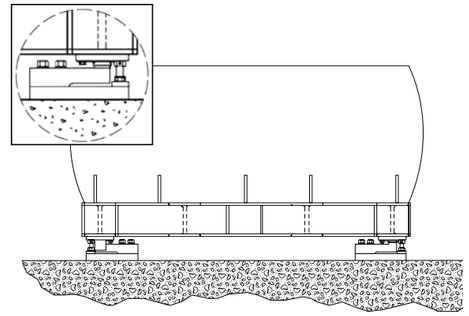
When solved, multiply your answer by your excitation voltage and the result is the difference between your old full scale reading and your new full scale reading in millivolts.

If the system in this example had been installed with Paramounts (using SB4/SB10 load cells), the resulting full-scale signal output would still be 20 mV, and system calibration would have been maintained.

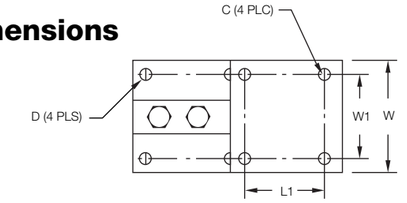
Paramounts Configuration Example

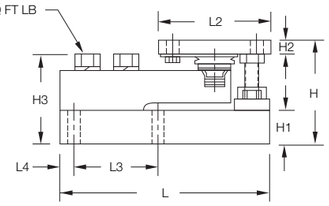


Typical mounting configuration uses one Side Stop, one Fixed Pin and one or more Free Sliding mounts



Paramounts Dimensions

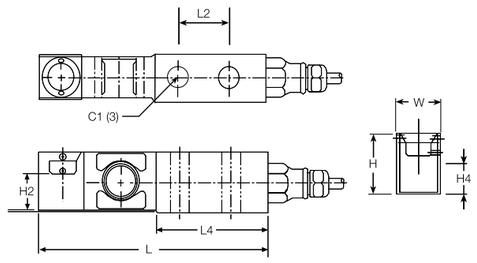




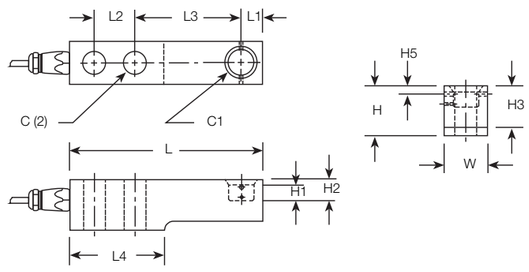
DIMENSIONS—INCHES (Ft.lb)															
RATED CAPACITY	C	D	H	H1	H2*	H2**	H3	L	L1	L2	L3	L4	W	W1	Q
520 lb (2.3 KN)	.375	.437	3.49	1.00	.50	.75	2.98	7.51	3.00	4.00	3.00	.50	4.00	3.00	65
1,125 lb (5 KN) – 5,200 lb (23 KN)	.437	.437	3.58	1.25	.50	.75	3.06	7.51	3.00	4.00	3.00	.50	4.00	3.00	65
11,250 lb (50 KN)	.562	.562	4.66	1.50	.62	1.00	4.09	9.19	3.87	5.00	3.87	.56	5.00	3.87	295
22,500 lb (100 KN)	.658	.688	6.41	2.00	.75	1.25	5.73	11.46	4.75	6.00	4.75	.69	6.00	4.75	515

*Side Stop and Free Sliding units **Fixed Pin units KN = Kilonewtons

Single Ended Beam Specifications



SB10 520 lb (2.3 KN)



SB4 1125 lb – 22,500 lb (5 KN – 100 KN)

DIMENSIONS—INCHES														
RATED CAPACITY	C	C1	C2	H	H1	H2	H3	H4	H5	L	L1	L2	L3	L4	W
520 lb (2.3 KN)	–	.520*	–	1.58	–	.99	–	.81	–	6.10	–	1.387	–	2.98	.59
1125 lb (5 KN) – 5200 lb (23 KN)	.53	.709	–	1.42	.39	.59	1.19	–	.16	6.10	.59	1.38	3.15	2.98	1.18
11,250 lb (50 KN)	.85	.984	–	1.93	.58	.81	1.62	–	.31	7.48	.83	1.57	4.13	3.66	1.69
22,500 lb (100 KN)	1.06	1.181	–	2.87	.82	1.21	2.43	–	–	9.65	1.19	1.97	5.31	4.72	2.36

*±.005

NTEP-certified load cells available: Class III, 5,000 divisions, multiple cell; capacities 1125 lb, 2250 lb, 5200 lb, and 11,250 lb.