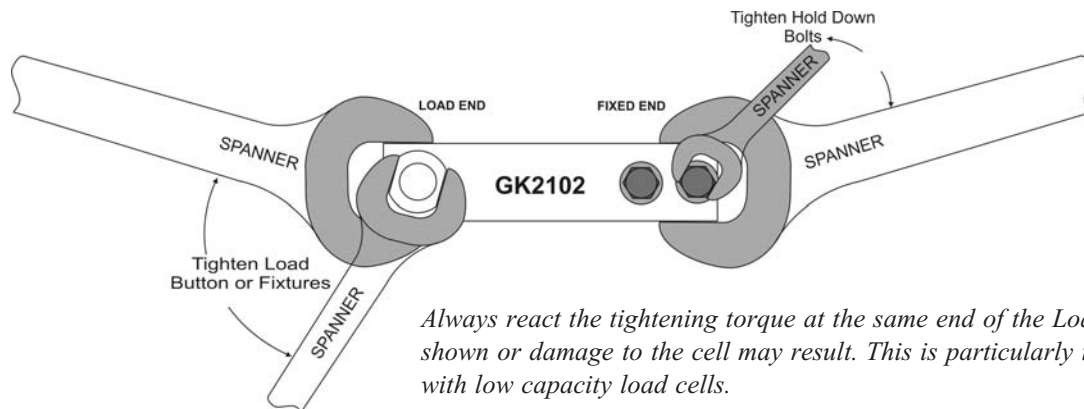


MOUNTING BOLT SELECTION, TORQUE and CLAMPING FORCE.

This Installation Note contains recommendations for fixing GK2102 Shear Beam Load Cells to Mounting Structures using two bolts at the mounting locations in the cell. The note applies whether the cells are mounted on base plates or mounted on part of a structure. The cantilever nature of Shear Beam Load Cells results in high bending moments which produce high tensile forces in the mounting bolts, especially in the higher capacity cells. Great care must be taken to use high quality bolts. The table shows the required minimum thread engagement of an 8.8 grade bolt in a steel base plate made of 240MPa material (low carbon content steel). As a general rule 1.5x the bolt diameter is considered a "good" length of thread engagement however the required clamping force can, in some cases, be attained with less engagement - as shown in the table.

If higher grade bolts are used threaded into higher strength bases then less thread engagement can be considered. If using through hole mounting with NUTS you will need to ensure the NUTS are sufficiently large and strong so the threads in the NUTS will not strip at the required torque.



WARNING - THE INFORMATION BELOW IS A GUIDE ONLY. YOU SHOULD VERIFY THE INFORMATION AND MAKE SURE IT IS APPROPRIATE FOR YOUR INSTALLATION. ALWAYS USE A PLAIN WASHER AND SINGLE COIL SPRING WASHER WITH THE MOUNTING BOLTS.

USING LOWER GRADE BOLTS, LESS THREAD ENGAGEMENT, LOWER STRENGTH BASE PLATE MATERIALS OR HIGHER TORQUE VALUES MAY RESULT IN BROKEN BOLTS OR STRIPPED THREADS OCCURRING DURING INSTALLATION OR SERVICE.

In the table below, the values of Proof Stress used for bolts are:- Grade 8.8 590MPa; Grade 10.9 830MPa and Grade 12.9 Cap Screws 970MPa. The clamping forces shown in the table are calculated using the 150% overload rating of the load cells. Tightening torque is given for coarse pitch Metric threads.

GK2102 Model Capacity kg / t	Size & /MINIMUM Bolt Grade	Torque Bolts to		Actual Clamping Force at listed torque kg	Min Clamping Force per Bolt at 0.20 K Factor kg	Min Thread in 250MPa Yield Material mm
		kg-m	N-m			
125 & 250	M8x1.25P / 8.8	2	19	1,230	400	12
500 & 1,000	M10x1.5P / 8.8	4	40	2,030	1,400	15
2.5t & 5t	M20x2.5P / 8.8	26	250	6,500	5,600	20
10t	M24x3P / 8.8	64	630	13,300	12,000	25
20t	M30x3.5 / 10.9	191	1,880	32,000	29,000	60

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