

# Application Guidelines

## Rubber Element with Flange Type 52-05



## Basic function

The basic function of the rubber element is to prevent side forces from affecting load cell performance and at the same time, to keep the load carrier in position. The rubber element is not to be seen as a vibration damper although it has a limited damping effect.

It's sandwich design makes it stiff in vertical direction while relatively weak in horizontal direction.



No side force = centred

Side force acting

A side force acting on the load carrier will push the load carrier to the side and the rubber element deforms (shears) as shown on the figure. When the side force has disappeared, the spring action of the rubber will pull the load carrier back to centred position.

Side forces/movements are created by external or internal reasons. External might be a cart braking on the weigh platform. Internal might be thermal expansions or expansions due to deflection under load.

For high side forces, it is necessary to stop the side movement of the load carrier by an external stop in order to protect the rubber element.

## Installation

For best scale performance the rubber elements in a scale shall be installed accurately centred to the loading holes of the load cells. Below a number of alternative installation methods are shown

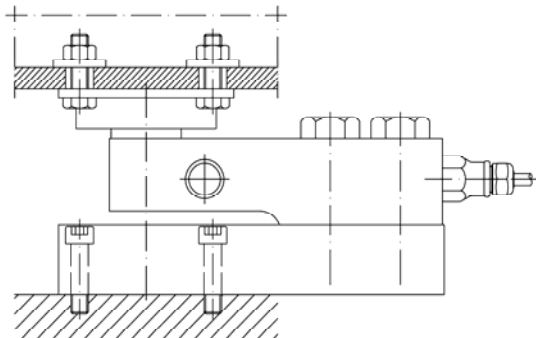


Figure 1

Rubber element mounted directly to load carrier, which has large clearance holes to allow centring, even if holes are not in exact position. Through bolts with large washers on top.

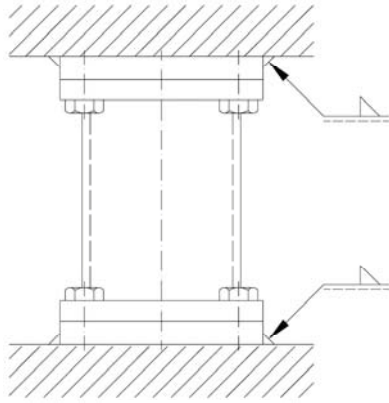


Figure 2.1

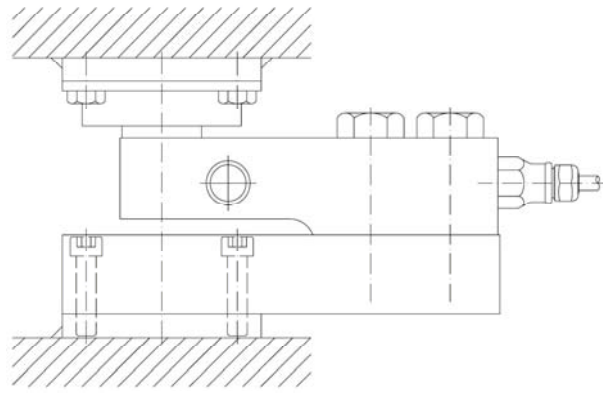


Figure 2.2

Welding plates can be accurately positioned in load carrier and foundation by using Flintec welding fixtures (figure 2.1). After removal of fixture, the load cell, base plate and rubber element can be installed (figure 2.2).

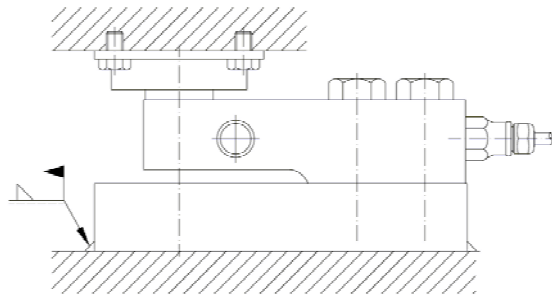


Figure 3.1

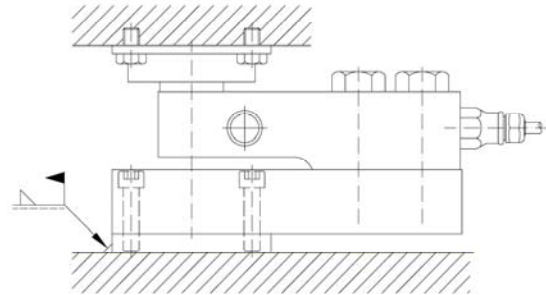


Figure 3.2

Examples where load cell is used as “welding fixture”. Base plate 52-00 welded directly to foundation (figure 3.1). Make sure to ground welding machine in the foundation plate. No current must flow through the load cell. Figure 3.2 shows the same configuration but with a welding plate under the 52-00 base plate.

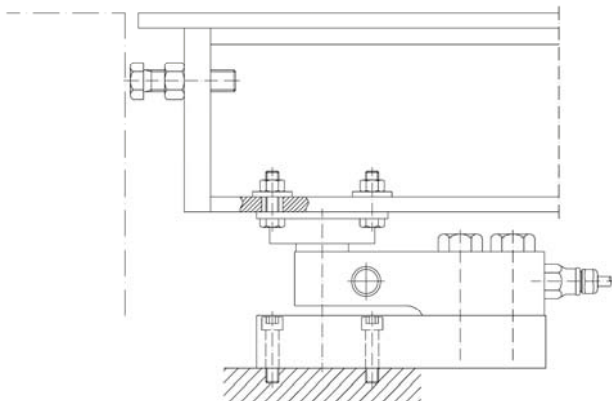


Figure 4

If big side forces, exceeding RF, are expected, side movement stops shall be arranged. For example as shown in figure 4.

## Dimensions and data

The table below shows maximum allowed lateral displacement for the different capacities of rubber elements and the restoring force created by the rubber at this displacement. The force is linearly proportional to the displacement. If side forces exceeding RF are expected, external bumper stops must be arranged.

Load Cell Type	Capacity in kg	L	H1	H2	W1	W2	Mounting bolts D	S <sub>max</sub> **	RF*** at S <sub>max</sub>
SB4/SB5-5/10/20 kN	510/1020/2039	180	63	12	80	58	M8	5 mm	1600 N
SB4/SB5-50 kN	5099	219	78	15	100	76	M10	5 mm	5000 N
SB6-200 N/500N/ 1 kN/2 kN	20.4/51/102/204	150	65*	10	60	44	M6	6 mm	700 N
SB14-500 lb	227	154	54	10	60	44	M6	6 mm	700 N
SB14-1/2.5/5 klb	454/1134/2268	164	60*	12	80	58	M8	5 mm	1600 N
SLB-200 lb/500 lb	91/227	154	55*	10	60	44	M6	6 mm	700 N
SLB-1/2.5/5 klb	454/1134/2268	164	59*	12	80	58	M8	5 mm	1600 N

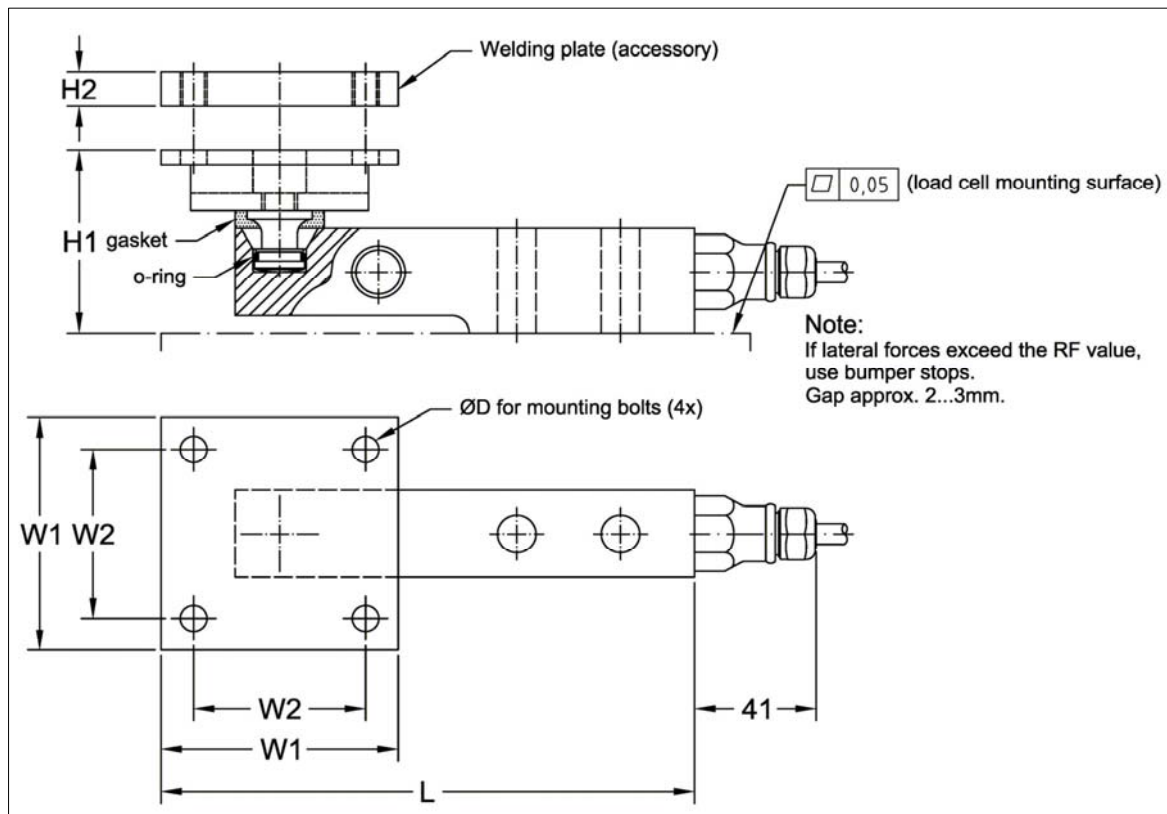
\* Including spacer.

\*\* S<sub>max</sub>=maximum lateral displacement of load carrier.

\*\*\* RF =restoring force at S<sub>max</sub>.

All dimensions in mm. Dimensions and specifications are subject to change without notice.

CAD files for customer's own applications drawings are available on request.



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