



TEST #032594a

Effect of Column Shape Upon Frontal Damage Resistance

An independent engineering laboratory tested SK2000 racking for the purpose of quantifying several of the design advantages inherent in SK2000 pallet rack. The results of one such test is outlined below.

Steel King's SK2000 series pallet rack frame columns are constructed of closed tubular steel sections. Other rack manufacturers offer open-back, roll-formed columns (**Figure 1**). A test was performed to quantify the difference in the ability of these designs to resist a direct frontal impact.

The SK2000 frame type, and the industry standard frame type, were tested as shown in **Figure 2**. The load was evenly distributed across the face of the column, but was concentrated midway between horizontal braces (this imitates the manner in which many accidental fork lift truck impacts occur). The testing machine applied a continually increasing load weight, and the point at which each assembly yielded (failed) was recorded. The identical procedure was employed in testing both rack frame types.

The industry standard, open-back (roll-formed) frame assembly failed at 3,200# of pressure. When subjected to a similar 3,200# load, the SK2000 assembly exhibited no deflection, nor any visually detectable damage. The SK2000 frame assembly continued to withstand increasingly heavy amounts of pressure, until reaching its own yield point of 4,700# (**Figure 3**).

CONCLUSION: Users of SK2000 rack systems can expect decreased maintenance costs, and improved safety, by taking advantage of the **47% greater strength** proven by this test. This is only one feature of the SK2000 system that gives users more value for their investment.

Figure 1 ————— Cross Section of Frame Column



Figure 2

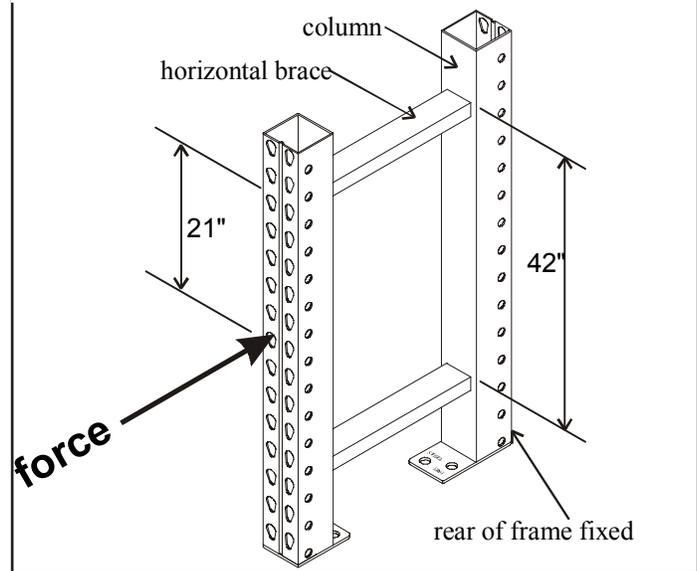
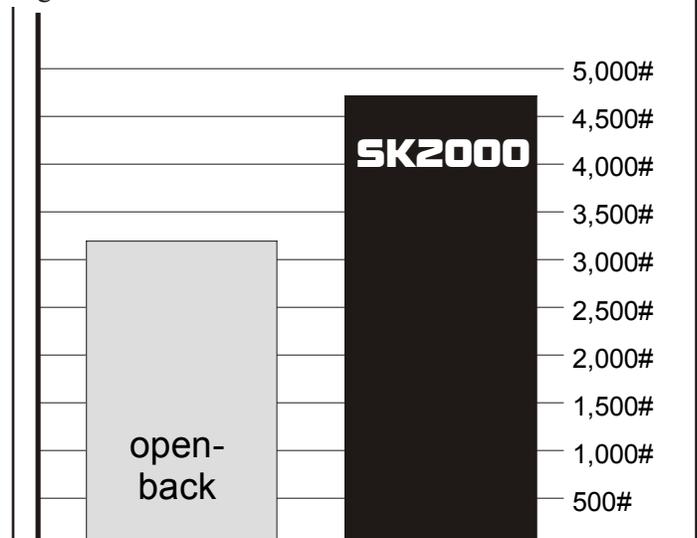


Figure 3



Force Applied, in pounds, to reach yield (failure) of column.