

We will focus on studying the ball measure of non-compactness  $\alpha(T)$  for various particular instances of embedding operators in sequence spaces. Our first main goal is to find necessary and sufficient conditions for an identity operator to be maximally non-compact. Next, we will focus on studying Lorentz sequence spaces  $\ell^{p,q}$  and their basic properties. We will characterize the inclusions between Lorentz sequence spaces depending on the values of  $p$  and  $q$ . Then we will try to determine exact values of the norms of the identity operators between these embedded spaces. Lastly, we will determine whether these identity operators are maximally non-compact by using our general theorems.