The centralizer algebra of the symmetric group action on a tensor space, also known as the Type A Schur algebra, has a geometric construction as functions on the double flag variety. This construction has a Type B/C analogue by Bao-Kujawa-Li-Wang (2018) using the double orthogonal flag variety. In this setting, the Type B hyperoctahedral Schur algebra, $S$, is a quotient of $U$, an algebra generated by explicit functions on this variety with a known list of relations. Some relations in the kernel of $U \to S$ are stated in BKLW. In the classical case, we extend these to a full list of relations, and give presentations of $S$. We also give an explicit isomorphism between $U$ and a 2-block Levi subalgebra of the universal enveloping algebra $U(\mathfrak{gl}_n(\mathbb{C}))$. (Received January 27, 2019)