Let $W$ be a twisted I-bundle over a Klein bottle fibered trivially and $V$ be a type-$(p, q)$ exceptionally fibered solid torus. Since $\partial V$ and $\partial W$ is a torus, we may form a quotient space $N$ by identifying the boundaries via a fiber preserving homeomorphism. Then, $N$ is a Seifert fiber space with one exceptional fiber of type-$(p, q)$. Such the quotient space is known as a prism manifold. Moreover, $N$ is double covered by a symmetric lens space $L$, which gives a geometric structure on $N$.

Let $Isom_l(N)$ be the subgroup of $Isom(N)$ consisting of isometries which are liftable to $L$. We will completely classify $Isom_l(N)$ and $Isom(N)$.

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