Fire Ring Versus O-Ring

We frequently get asked the question, what is the difference between O-Ringing or Fire-Ringing my cylinder head.

Here is our best explanation:

O-Ringing:

O-Ringing is cutting or machining a narrow circular groove in your cylinder head surface, then tapping or pressing in a stainless steel wire. The stainless wire protrudes from the surface of the head. When installed on the block, this wire lines up with the steel ring in the head gasket. After torquing your cylinder head down, this wire puts additional pressure on the steel ring, allowing for a better head-to-block combustion seal. These setups work very well for mild builds up to 750HP, with 70PSI or less boost.

Fire Ringing:

Fire ringing is cutting or machining a circular groove in your cylinder head OR block surface, or sometimes both surfaces. The groove is generally machined in the head in most street uses.

Once the groove is cut, a circular mild steel ring is set on the block in the grooves that were cut. In the case of having the head cut, we generally glue the rings to the head to ensure proper positioning with the cylinder when you install the cylinder head. With fire ringing, the stock steel fire ring in the Cummins gasket is removed and instead replaced with the mild steel "fire rings". This allows for a stronger seal than o-ringing. When the head is torqued, the steel rings will crush, allowing a strong seal.

This application will hold upwards of 100PSI of boost when using the correct fasteners. When you machine both the head and block, about half the recommended machining depth is used on the head and block, this way, the rings are set in both the head and the block with even less chance of them shifting when re-installing the head.

On most of our high performance competition builds, we only fire ring the block, then we use either 14mm head studs or H-11 or 625 heavy duty 12mm head studs.