



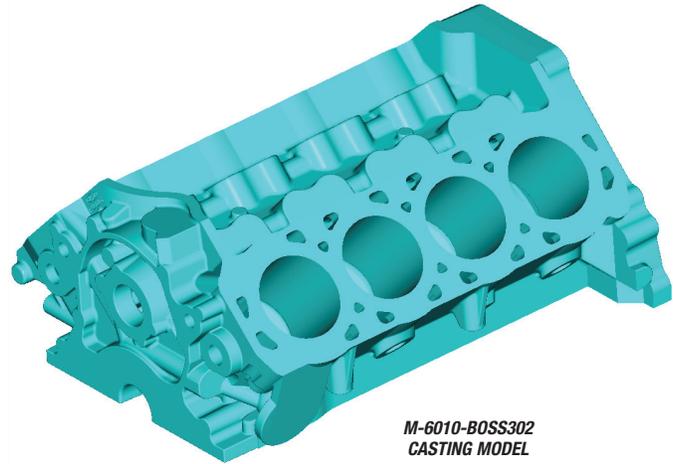
BLOCK CASTING TECH

Ford Racing Performance Parts engineers create cylinder blocks and heads using the latest processes in computer modeling, high-speed machining and casting simulation. These processes were developed while creating components for the NASCAR® racing series. These high-tech processes deliver high-quality components for the track and the street.

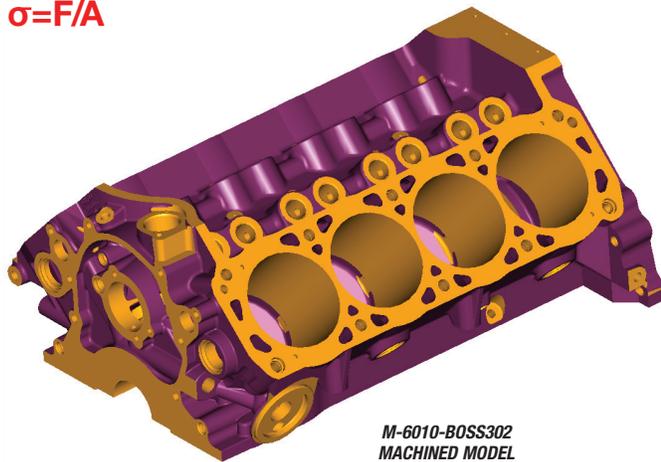
$$v^2=2gh$$

$$\epsilon=\Delta l/l$$

$$\sigma=F/A$$



M-6010-BOSS302
CASTING MODEL

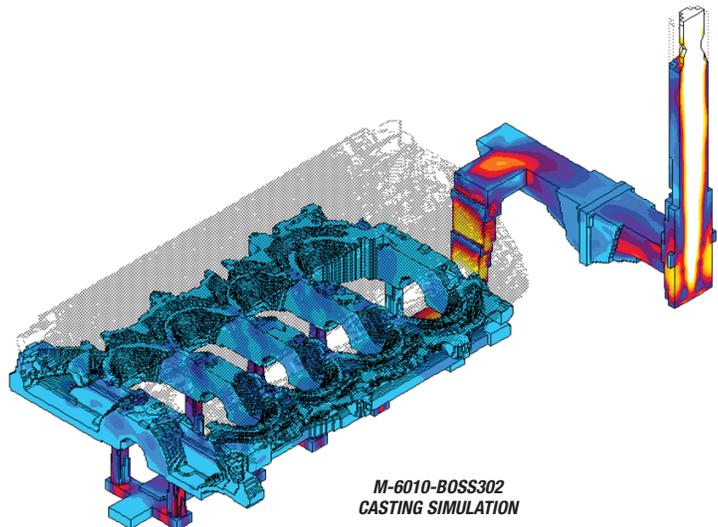


M-6010-BOSS302
MACHINED MODEL

The art of making a high-quality casting involves proper metal filtering, keeping metal velocities low and directional solidification. All of this can be done in the virtual casting world with simulation software.

The final step in creating a new cast engine component is machining the molds. The molds are high-speed machined on CNC (computer numerically controlled) machines. The same CAD model that was used for the previous simulations is used for the machining, creating an exact copy of the virtual part. Liquefied metal is poured into sand cores made from the molds. After cooling, the sand cores are broken off leaving the high-quality FRPP component.

Every new major component at Ford Racing starts out as a detailed solid CAD (computer aided design) model of the casting. The next step is to add the final machining to the model. Once the virtual machining is added to the model, it's ready to be used to determine the mass of the component and to perform CAE (computer aided engineering) analysis. CAE analysis is performed to insure the component isn't over-designed which would create unnecessary weight. The analysis is also used to insure that the component has the required strength and durability for high-performance applications. After the CAE analysis is complete and the results are acceptable, the next step is to insure the component is feasible for casting. This is done with casting simulation software.



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CASTING SIMULATION