

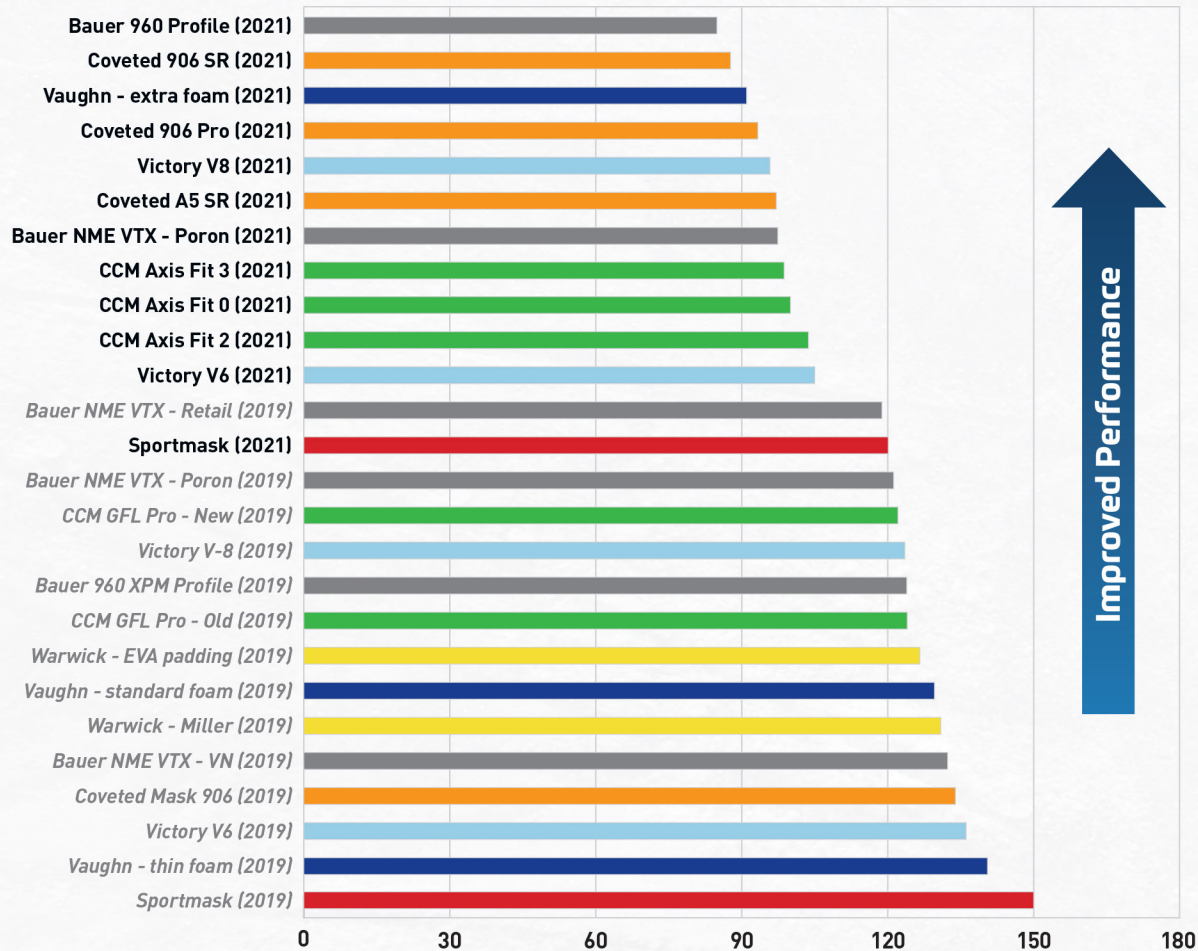


# GOALIE MASK IMPACT TESTING

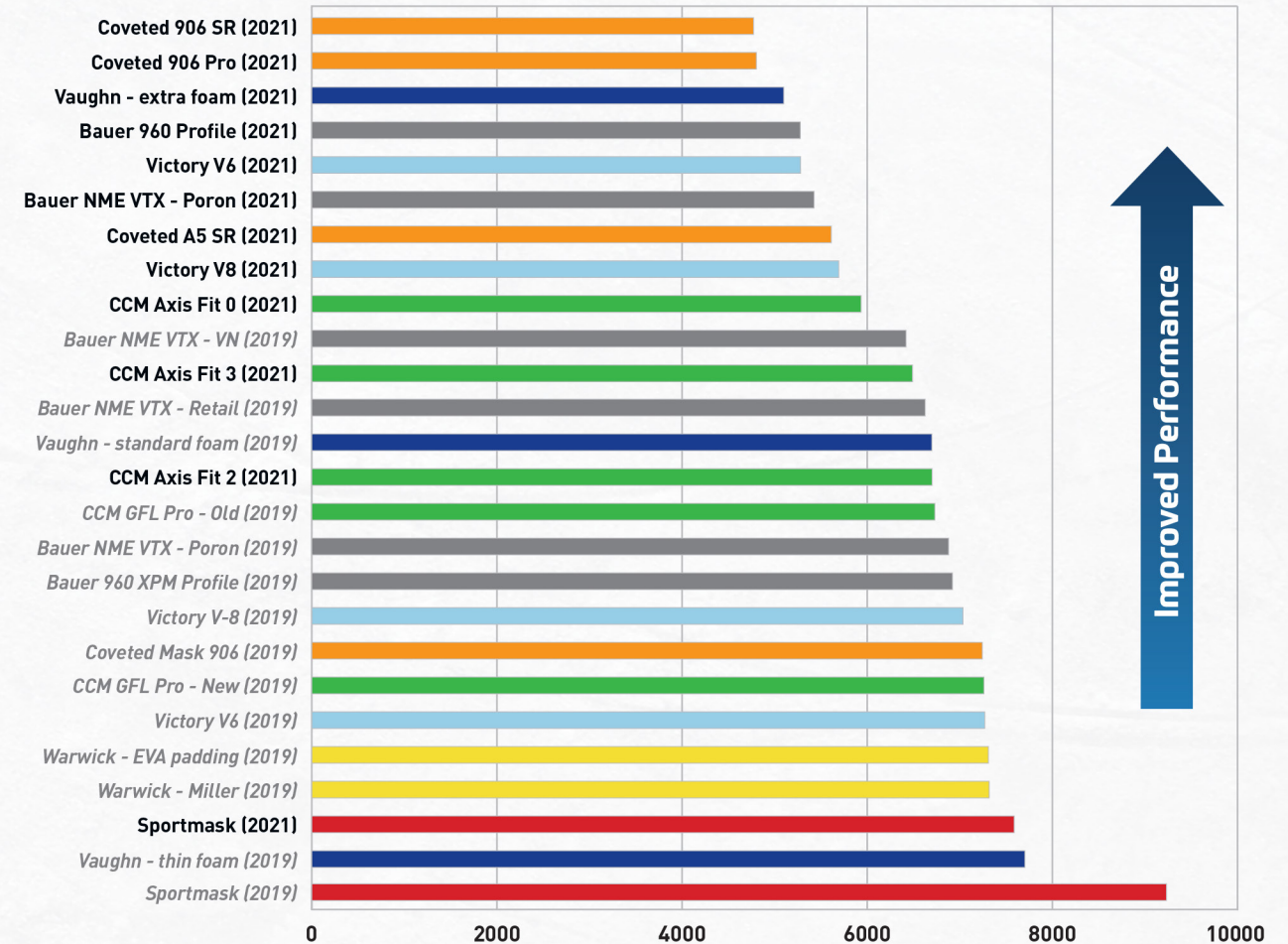


## LINEAR IMPACT METHOD

### LINEAR ACCELERATION (g)

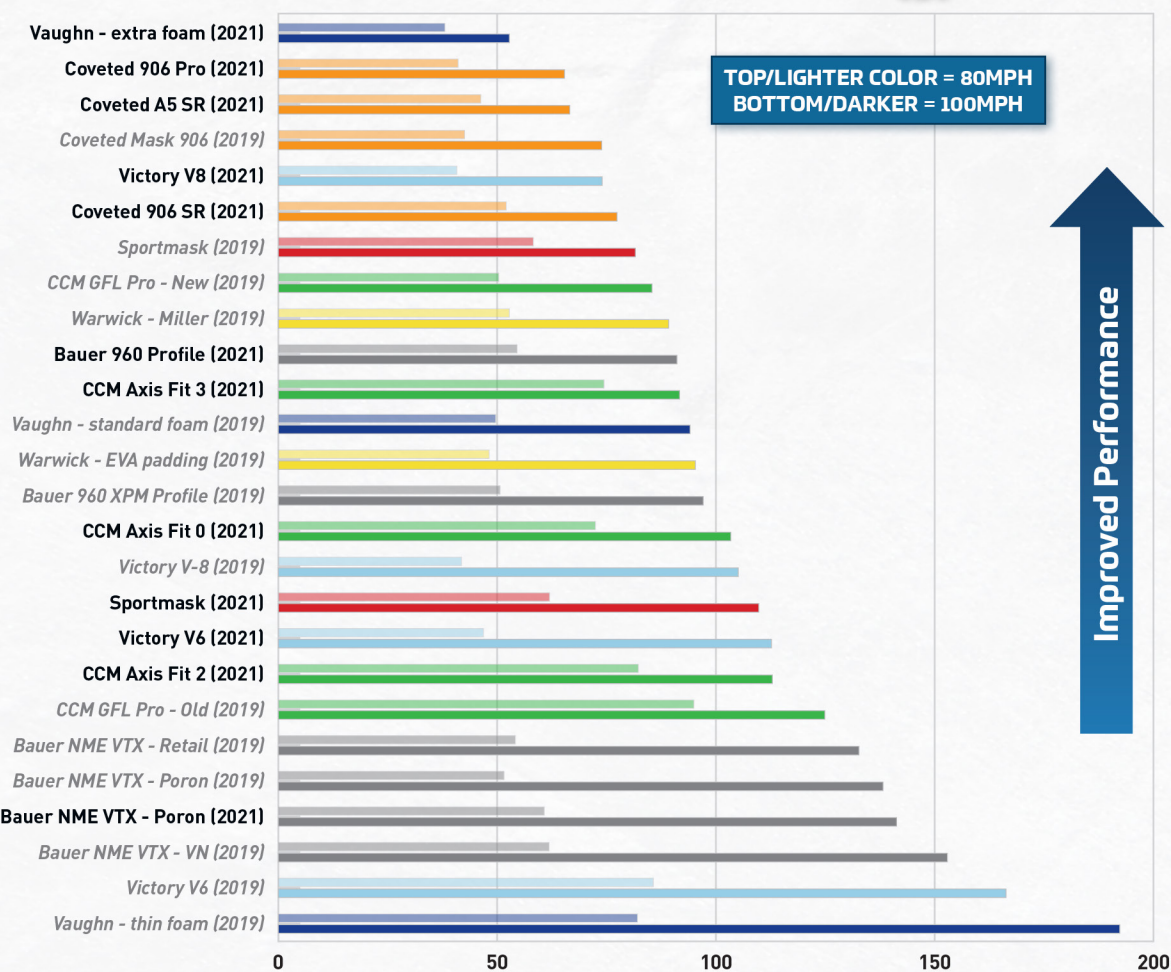


### ROTATIONAL ACCELERATION (rad/sec<sup>2</sup>)

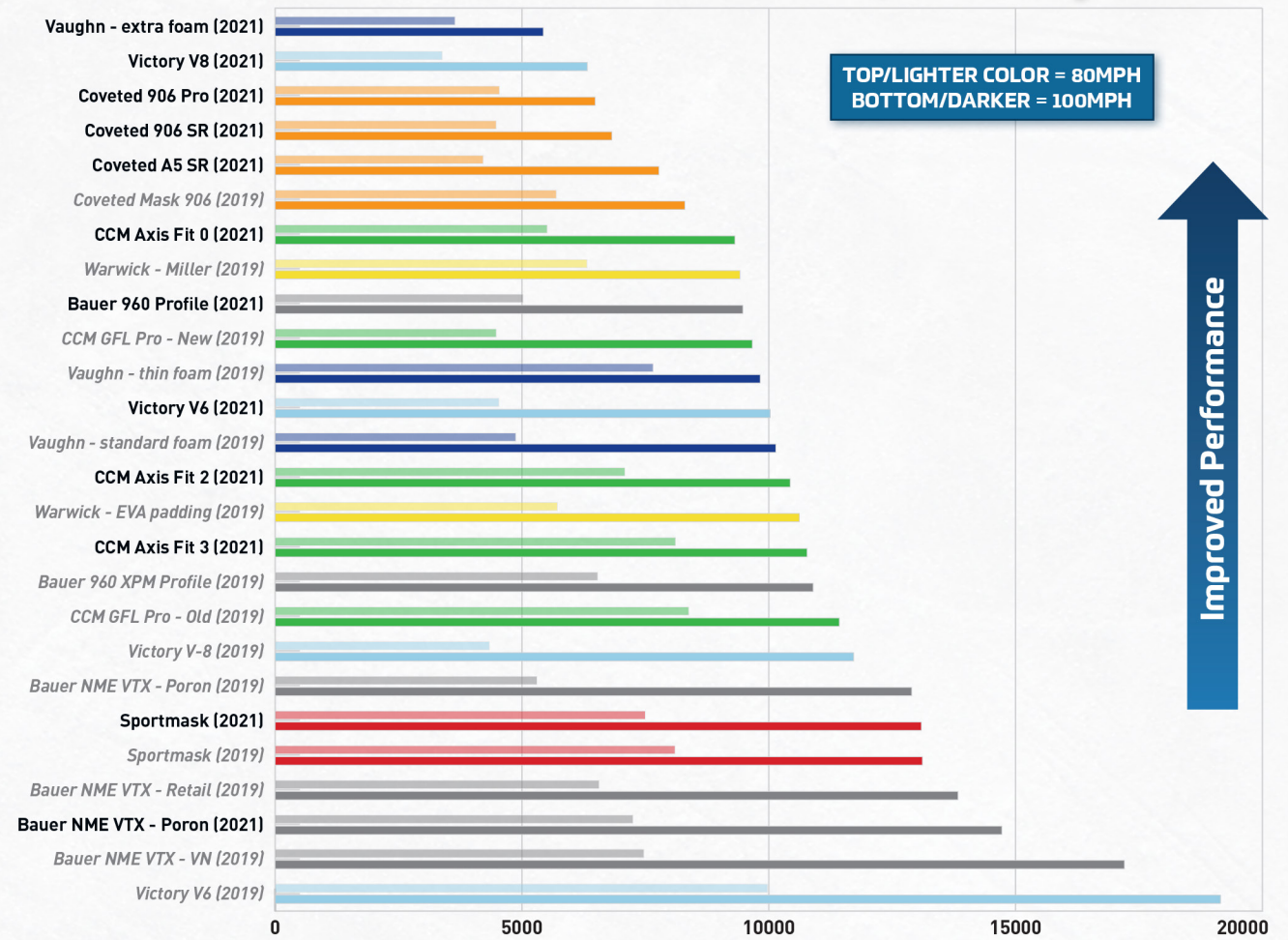


## PUCK IMPACT METHOD

### LINEAR ACCELERATION (g)



### ROTATIONAL ACCELERATION (rad/sec<sup>2</sup>)



### ABOUT THE TESTING:

The NHL, in collaboration with the NHLPA, engaged biomechanical engineers to conduct laboratory testing to measure the forces resulting from impacts to the goalie masks under controlled laboratory conditions, and to evaluate the relative performance of such masks pursuant to such testing. The engineers subjected the goalie masks to impacts tests using two different testing methodologies – linear impactor and puck impacts. The goalie masks are listed in order of their relative performance under each testing methodology, with shorter bars representing better performance.

Fourteen different models from seven manufacturers were tested in 2019 and each manufacturer had the opportunity to review the results for its products. Six of the manufacturers resubmitted goalie masks for a combined total of 12 different models to be retested in 2021. The results of all of these tests are set forth in this poster.

The linear impactor methodology used a pneumatically-fired piston to strike the goalie mask in four discrete impact locations (front, front boss, side and back). This testing is intended to reflect the resulting impact from player to player contact or player to environment contact. The puck impact testing was conducted at velocities of 80 mph and 100 mph in three impact locations, which included two directly to the shell (front and front boss) and one directly to the cage (mouth). All goalie masks were fitted to a Hybrid III head form and neck assembly that permitted both linear and rotational head kinematics during the impacts. The head form was equipped with sensors that measured the magnitude of the impact forces transmitted to the head. All testing results represent data averaged across the respective impact locations.

The NHL and the NHLPA relied on the engineers to develop the testing methodology and have not confirmed the data produced by the testing. These test results are presented for informational purposes only, to allow you to compare the relative performance of the goalie masks. The results do not measure or predict injury risk and do not necessarily reflect how the tested goalie masks will perform in use, as there may be other considerations associated with injury or on-ice performance that were not part of the testing protocol. In addition, other factors may be important in player selection of protective equipment, such as equipment fit and injury history. Players, in consultation with Club personnel, shall make independent decisions regarding equipment selection. Neither the NHL nor the NHLPA assume responsibility for Player equipment choices. The NHL and NHLPA do not endorse or recommend any one particular goalie mask tested over another.