Switch Ratings
The issue of switch ratings for engine starting is a tricky one. The reason is that Underwriter’s Laboratories (UL), the only agency that establishes standards for marine battery switch ratings, does not establish a standard appropriate to engine starting situations. There are two ratings in the UL marine battery switch standard, Intermittent and Continuous. Intermittent is a 5 minute rating and is based on temperature rise of various sections of the switch as the rated current is applied over a 5 minute period. The Continuous rating is the same, but the time period is 1 hour.

As these standards demonstrate, there are three variables involved in rating battery switches: time, current and temperature. For any given switch the relationship of the variables is \( \text{Temperature} = \text{Time} \times \text{Current} \). Clearly, neither of these ratings is applicable to engine starting situations where the current draw is very high but the time period is very short, typically 10 seconds or less. You will see some manufacturers rating their switches at very high amperages, but close inspection will show that they either fail to specify the time period or the time period is very short.

To correct this problem Blue Sea Systems has created an additional standard to which its battery switches are rated. This standard is called the Engine Start Standard and consists of ten 10-second cycles with a 2 second rest between each cycle. The first .25 seconds of the cycle is the Inrush Current and the last 9.75 seconds of the cycle is the Cranking Current. The Engine Start Standard is designed to represent a worst case engine starting event in which the engine is cranked for 10 seconds, the ignition switched off for 2 seconds to rest the battery and then repeated another 9 times.

Guarantee
Any Blue Sea Systems product with which a customer is not satisfied may be returned for a refund or replacement at any time.