

# Working Load Limits = Safe Working Loads

**M**anufacturers sometimes describe their chain with different terminology. In chain literature you'll read about "Working Load Limit" and "Safe Working Load." They mean the same thing, although they may not refer to the same ratio in relation to breaking strength. Working loads are generally taken to mean one-fourth to one-fifth of breaking strength. According to Acco, working load limit is the maximum load in pounds that should ever be applied to any part of the chain at any time, under any condition, even if it's new. John Doyle of Acco says that people in the chain industry don't like to print figures for ultimate breaking strength, lest people be tempted to sneak close to those limits when sizing chain. That would certainly be a case of penny-wise, pound foolish: Don't skimp on chain size. Even so, boats rarely even get near the working load limits of their chains. A medium-sized displacement boat might be expected to exert just a few hundred pounds of pull on its chain in a moderate breeze. Gales and hurricanes, of course, are another matter, especially when a chain is pulled taut and then subjected to the jerking, shock-loading action of big waves. If the links in the chain are reduced in diameter by corrosion, the safety limits will of course change, sometimes dramatically. Most of us have seen mooring chain reduced to a diameter that would be dangerous on a kindergarten swing.

MOORING CHAIN LOADS			
BOAT LENGTH	20 feet	30 feet	40 feet
MOORING'S TOP CHAIN	3/8 inch	3/8 inch	1/2 inch
ESTIMATED PERMANENT MOORING LOADS	1,080 lbs.	2,100 lbs.	3,600 lbs.
WORKING LOAD LIMIT (Acco Grade 30 Proof Coil)	2,650 lbs.	2,650 lbs.	4,500 lbs.

*Above is a breakdown of the estimated normal mooring loads based on Table 1 "Design Loads for Sizing Deck Hardware," found in section H-40 "Anchoring, Mooring and Strong Points," of the ABYC's Standards and Technical Reports. Chain working load limits are based on Acco data. The right chain size can vary greatly depending on the boat, harbor and other factors.*