

MAXIMUM LOAD TESTING of STRONG-ENDER LADDER RACK

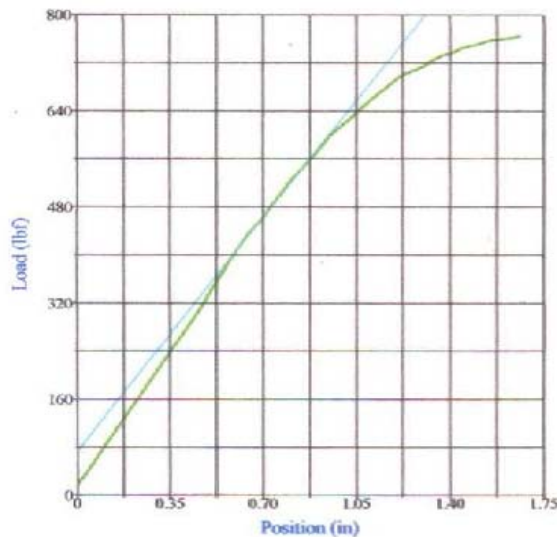
Ladder racks are commonly tested through static load testing. A commonly accepted industry-wide standard is that truck ladder racks should be able to withstand at least 3 times the static load as the rated load they are assigned. This provides a 3 to 1 safety margin.

U.S. Rack pickup ladder racks are tested at the Hayward, California facilities of Anamet, Inc. a respected independent materials testing laboratory. Each truck ladder rack is tested in a machine that simultaneously measures vertical load applied to the rack as well as material deflection (bending). Since all materials bend a tiny amount when even the slightest load is applied, it is possible to measure the maximum strength of materials by measuring load and deflection. In the graph below, the curved line represents the actual deflection of the rack as the load is increased. The straight line represents the theoretical deflection of the material. The upper point where the straight line and curved lines diverge is called the "limit of elastic deflection". Beyond this point the material will fail and the rack will be permanently bent. Anamet labs provided the below data.

STRONG-ENDER LADDER RACK, manufactured by U.S. Rack:

Load Rating for one structural frame section of the rack is **125 lbs.**

Actual tested material failure point was about **610 lbs.** nearly a 5 to 1 safety margin.



Test Results	
Position at Peak Load:	1.6504 in
Load at Peak Load:	764,0000 lbf
Load at Break:	764,0000 lbf
Position at Break:	1.6588 in
Young's Modulus:	555,8196 lbf / in
Load at Offset:	399,5459 lbf

Test Summary

Counter: 9967
Elapsed Time: 00:03:19
Anamet Job Number: 5004.1089
Specimen Identification: Side-mount leg frame#14
Operator: ea/bck
Comments: Center Beam
Procedure Name: Compression Load
Start Date: 12/17/2007
Start Time: 1:59:56 PM
End Date: 12/17/2007
End Time: 2:03:15 PM
Workstation: Anamet
Tested By: Ed

WARNING: This data is provided for information only. DO NOT ASSUME BECAUSE LABORATORY TEST RESULTS INDICATE THIS PRODUCT WILL CARRY MORE THAN THE LOAD LIMIT THAT YOU CAN SAFELY EXCEED THIS LIMIT IN ACTUAL USE. STATIC LOADS ARE NOT THE SAME AS THE DYNAMIC LOADS OCCURING DURING USE. OTHER FACTORS, INCLUDING ADDITIONAL LOADING CAUSED BY BRAKING, ACCELERATING, TURNING AND TRAVELING ON SLOPED OR BUMPY SURFACES AMPLIFY FORCES IN ALL DIRECTIONS AND CAN LEAD TO MATERIAL FATIGUE OR FAILURE OF THE RACK OR THE TRUCK BED IF PUBLISHED LOAD LIMITS ARE EXCEEDED. DO NOT EXCEED LOAD RATING.



TEST APPARATUS WITH STRONG-ENDER LADDER RACK DURING TEST



BENT STRUCTURAL FRAME of THE STRONG-ENDER RACK SHOWN AFTER TEST AT OVER 610 LBS.

NOTE: During this test the receiver section of the rack proved to be stronger than the structural frame.