

Kreg Jig® HD Railing Force Test



Test Results:
The chart represents results from third party testing on Kreg Jig® HD Deck Railing applications. The first column indicates the Joint type used. We used two common wood types of material, cedar and ACQ pressure treated wood.

The second column represents the direction of force. The type of pressure represented here correlates with the images below – showing which direction the force was applied.

The third column represents the Average Maximum Force that was applied before the joint failed. International Residential Code (IRC) requires that each joint be able to handle 200 lbs of pressure prior to failure – a milestone which was met with each and every joint in our test.

Be sure to check with your local building code authority before using the Kreg Jig® HD to construct load bearing objects such as interior walls or deck railings. Building codes differ from area to area. Please reference applications in user manual or www.kregtool.com for more information.

* Our testing of the Kreg Jig® HD for Deck Railing construction has shown the Kreg Jig® HD (utilizing the methods and techniques described in the user manual) have met or exceeded the load requirements laid out in the 2009 International Residential Code (IRC) for deck guardrail systems. See below for details.

International Residential Code Guardrail Requirements

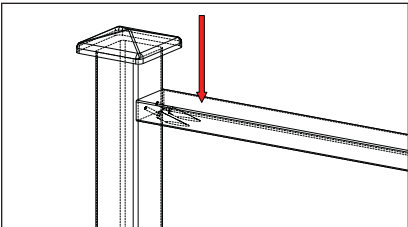
Whether manufactured or site-built, guardrail systems must be constructed and installed to meet IRC live-load requirements. To be compliant, guardrails must withstand a 200 lb. load applied in any direction. Compared to manufactured guardrail systems, site-built guardrails constructed of typical dimensional lumber are not as easy to build with certainty that the live-load requirement is met. The Code sets performance standards but does not provide prescriptive detailing for guardrail design. It is the responsibility of the designer, builder, and local code official to verify if a given guardrail design meets the requirements. (For more information go to www.iccsafe.org)

Guardrail connections of the three styles shown here, constructed using the Kreg Jig® HD and Kreg Jig® HD Screws, meet the live load requirements specified in the IRC. (Testing covers only the connection of railing members to posts, not the connection of the posts to the deck structure.) To meet requirements, builders must execute these connections exactly as shown and use only structurally sound materials. Materials with splits or excessive knots must not be used.

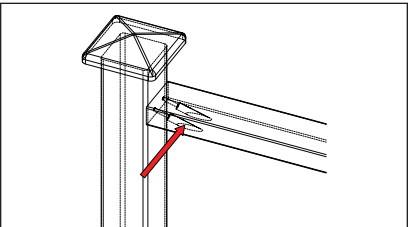
Guardrail materials and fasteners are exposed to the weather and are subject to degradation over time. It is the homeowner's responsibility to periodically inspect the guardrail and perform any maintenance required to ensure continued compliance with IRC live-load requirements.

Joint Type	Direction of Force	Average Max Force	
		Cedar	ACQ
Type 1	Top Pressure	1,361	1,352
	Side Pressure	1,196	1,082
	Bottom Pressure	410	414
Type 2	Inside Pressure	1,325	1,246
	Top Pressure	1,025	1,112
	Outside Pressure	460	500
Type 3	Side Pressure	1,154	1,297
	Bottom Pressure	1,025	1,130
Type 4	Bottom Pressure	1,961	2,612

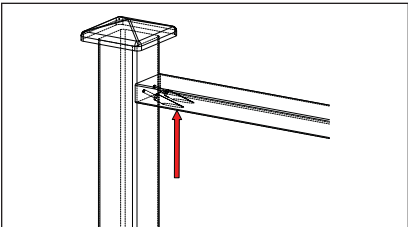
Type 1, Top Pressure



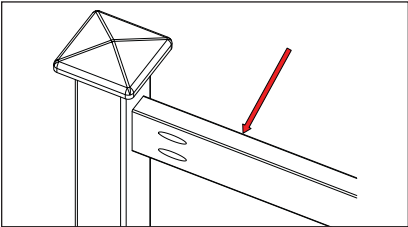
Type 1, Side Pressure



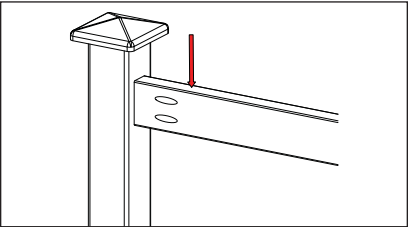
Type 1, Bottom Pressure



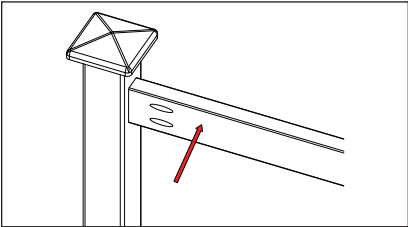
Type 2, Inside Pressure



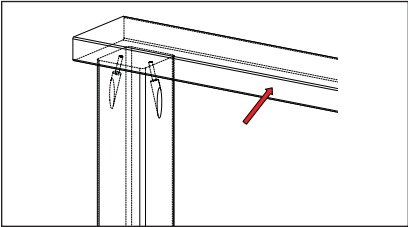
Type 2, Top Pressure



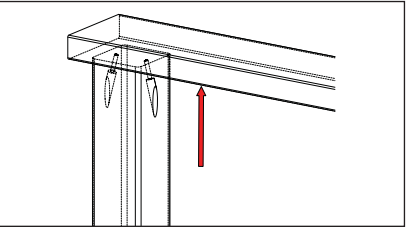
Type 2, Outside Pressure



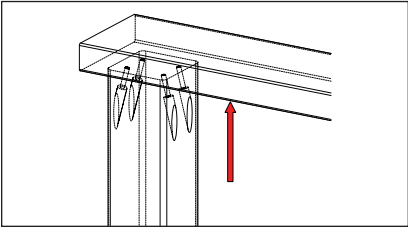
Type 3, Side Pressure



Type 3, Bottom Pressure



Type 4, Bottom Pressure





RADCO TEST REPORT

Test Report No. RAD-5178

Project No. C2310A

Lab No. TL-3516

Pocket-Hole Joint Testing in accordance with ASTM D1761-06

Prepared for

KREG TOOL COMPANY

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by

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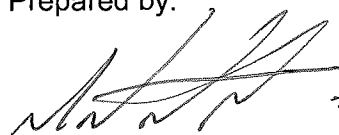
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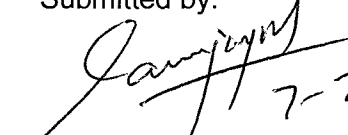
Prepared by:



7/2/2012

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7-2-2012

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Issued: July 2, 2012

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APPENDIX

Test data index (1 page)
Testing machine generated data (36 pages total)



1.0 INTRODUCTION

At the request of Kreg Tool Company, three (4) configurations of pocket-hole joints were evaluated in accordance with ASTM D1761-06, *Standard Test Methods for Mechanical Fasteners in Wood*.

2.0 MATERIAL DESCRIPTION

All materials for testing were selected by The Kreg Tool Company facility in Huxley, IA and shipped to RADCO's testing facility in Long Beach, California. The samples were assembled by Kreg personnel at RADCO's testing facility in Long Beach, California.

3.0 OBJECTIVE

To evaluate the physical properties of Kreg Tool Company pocket-hole joints.

4.0 TEST PROCEDURES & RESULTS

CONDITIONING:

All materials used in fabricating the test specimens were conditioned at standard laboratory conditions of 73 °F (22.8 °C) and 50% relative humidity for a minimum of 40 hours before assembling the test specimens.

TEST SPECIMENS

Each joint was assembled as a Post (4x4) and Rail (2x4) system, with the load applied in the following configurations. In addition, each configuration was tested with Cedar as well as ACQ treated lumber.

Joint Configuration		Direction of Force	
Type 1	Post and Rail form a 90 degree angle, with two (2) pocket holes, and the short sides of the Rail are flush with the sides of the Post. Ten (10) specimens tested for each configuration.	Top Pressure	Force applied to the long side of the rail, opposite the holes.
		Side Pressure	Force applied to the short side of the rail.
		Bottom Pressure	Same as Top Pressure, except same side as the holes.
Type 2	Same as Type 1, but with the Rail rotated 90 degrees, longitudinally. Ten (10) specimens tested for each configuration.	Inside Pressure	Force applied to the long side of the rail, opposite the holes.
		Top Pressure	Force applied to the short side of the rail.
		Outside Pressure	Same as Top Pressure, except same side as the holes.

Joint Configuration		Direction of Force	
Type 3	Post and Rail form a T shape, with one (1) pocket hole centered on opposite sides of the Post. Ten (10) specimens tested for each configuration.	Bottom Pressure	Uplift force applied to the post.
		Side Pressure	Shear Force applied to the short side of the rail, centered below the post.
Type 4	Post and Rail form a T shape, with two (2) pocket holes centered on opposite sides of the Post. Five (5) specimens tested for each configuration.	Bottom Pressure	Uplift force applied to the post.

TEST PROCEDURE

The test was conducted on a United Table Model Electromechanical Universal Testing Machine (model number TM-20) equipped with an electronic load cell and a computerized data acquisition system.

In each Type 1 and Type 2 connection, a 2 inch wide and 1 inch thick steel block was placed on the rail two inches from the post/rail connection.

Load was applied to the center of this block with a loading nose that had a 1/8" diameter steel rod welded to the supports.

For the Type 3 side pressure connection, a 2 inch wide and 8 inch long 1/2 inch thick steel plate was placed on the rail and the same loading fixture was used to apply the load. For the Type 3 and Type 4 bottom pressure connection, a steel bolt was inserted into the post and eye bolts were utilized to hook the steel bolt and apply the load. A universal joint ensured connected to the load cell ensured that the load was evenly distributed.

The rate of load application was 0.10 in / min (2.54 mm/min) +/- 25% for all tests.

TEST RESULTS

The average ultimate load from each load configuration is shown below. The individual testing machine generated data sheets and load vs. deflection curves are attached in the appendix.

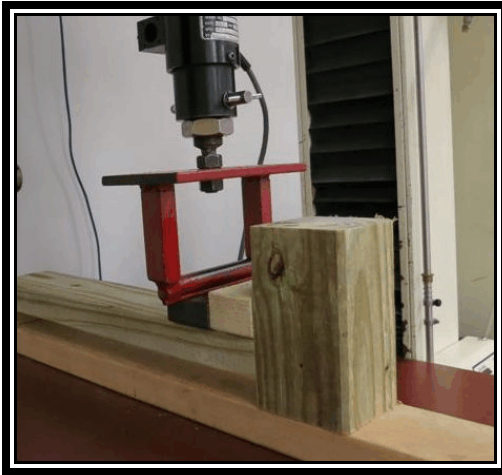
Joint Type	Direction of Force	Average Max Force (lbs)	
		Cedar	ACQ
Type 1	Top Pressure	1,361	1,352
	Side Pressure	1,196	1,082
	Bottom Pressure	410	414
Type 2	Inside Pressure	1,325	1,246
	Top Pressure	1,025	1,112
	Outside Pressure	460	500
Type 3	Side Pressure	1,154	1,297
	Bottom Pressure	1,025	1,130
Type 4	Bottom Pressure	1,961	2,612

Mode of Failure: Fastener pull-through (wood failure). Failure was similar in all tests.

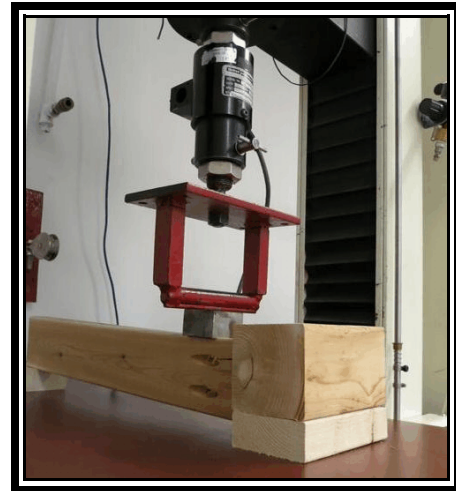
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5.0 PHOTOGRAPHS

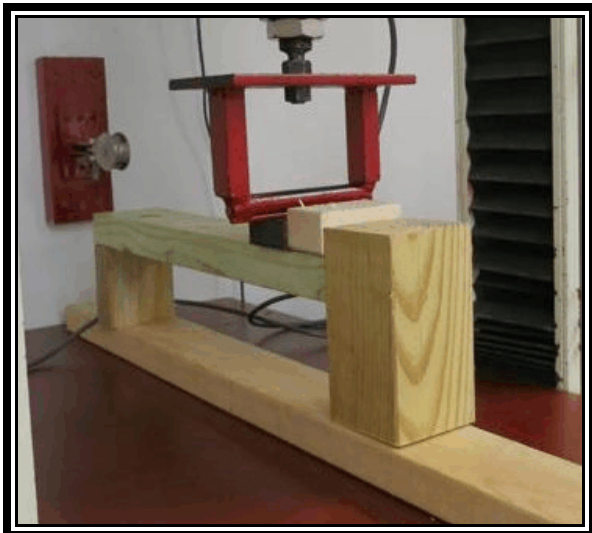
Type 1, Top Pressure



Type 1, Side Pressure



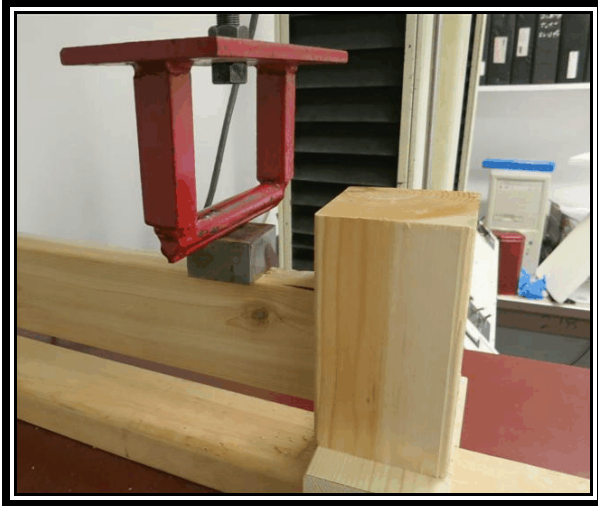
Type 1, Bottom Pressure



Type 2, Inside Pressure



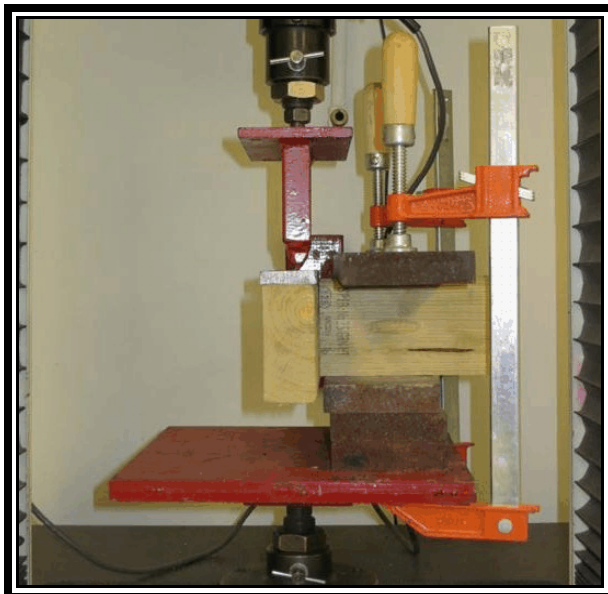
Type 2, Top Pressure



Type 2, Outside Pressure



Type 3, Side Pressure

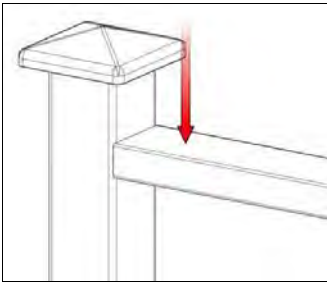


Type 3, Bottom Pressure (Same for Type 4)

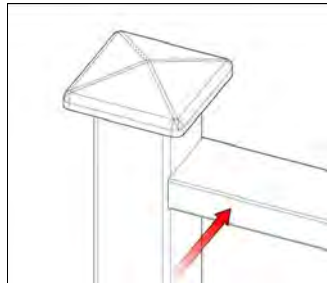


6.0 Drawings

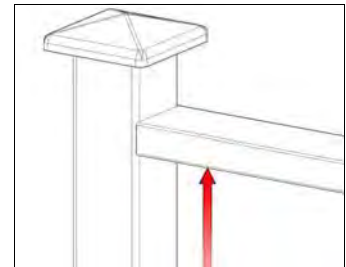
Type 1, Top Pressure



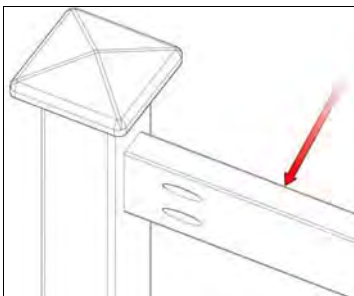
Type 1, Side Pressure



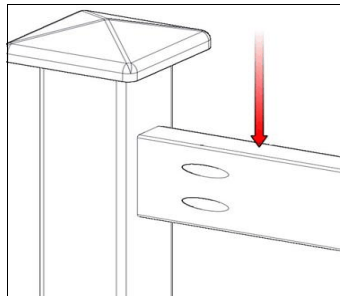
Type 1, Bottom Pressure



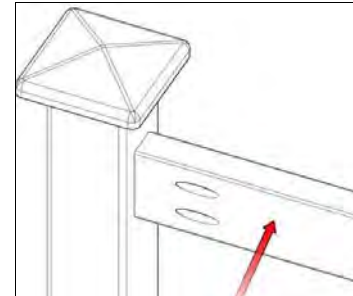
Type 2, Inside Pressure



Type 2, Top Pressure



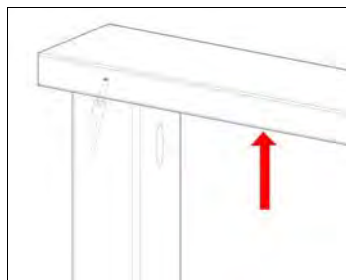
Type 2, Outside Pressure



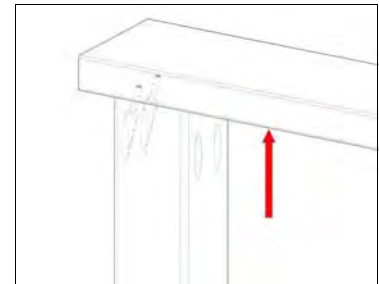
Type 3, Side Pressure



Type 3, Bottom Pressure



Type 4, Bottom Pressure





RAD-5178

APPENDIX

Test data index (1 page)

Testing machine generated data (36 pages total)



RAD-5178

Test Data Index

Joint Type	Direction of Force	Report Number	
		Cedar	ACQ
Type 1	Top Pressure	9185	9182
	Side Pressure	9187	9183
	Bottom Pressure	9184	9181
Type 2	Inside Pressure	9193	9190
	Top Pressure	9192	9189
	Outside Pressure	9194	9191
Type 3	Side Pressure	9200	9199
	Bottom Pressure	9196	9195
Type 4	Bottom Pressure	9197	9198



Jul 2, 2012

Pocket hole joint

Report No. 9184

Test Date 13-Jun-12 Testing Machine STM-20

Customer Name Kreg Tools

Operator Javier Camacho

Size of Specimen 2" X 4"

Direction: Joint Type 1

ASTM: D1761

Work Order C-2310A

Fastener type #14 X 2 1/2 #3PH-SQ RWH

Species of Wood Cedar

Template 270

Load Cell (01457) Capacity (-Lbs) 20000

Preload Value (-Lbs) 5

Crosshead Speed (-Inches / min) 0.1

Extension or Position Measured XHD_100 (XHD100)

Notes Bottom Pressure.

Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37318	1-1	0.000	46.616	53.482	92.239	155.334	262.604	362.396	94.223	374.985
37319	1-2	0.000	78.125	85.678	174.026	181.656	285.187	373.077	133.896	421.295
37320	1-3	0.000	5.035	5.035	72.632	176.620	273.666	380.096	248.032	465.851
37321	1-4	0.000	5.035	5.035	56.152	120.163	217.590	298.843	177.765	361.938
37322	1-5	0.000	16.403	21.667	61.111	97.961	189.133	288.773	147.324	376.434
37323	1-6	0.000	10.376	16.556	51.575	114.441	186.844	276.184	80.948	350.113
37324	1-7	0.000	22.430	26.550	59.814	122.452	248.108	282.516	96.970	359.039
37325	1-8	0.000	15.640	20.065	64.240	175.400	231.018	324.326	81.863	369.415
37326	1-9	0.000	5.112	5.112	68.207	156.403	243.759	364.914	103.226	486.145
37327	1-10	0.000	53.101	59.052	123.749	167.694	309.448	444.260	539.093	539.093
	Mean	0.000	25.787	29.823	82.375	146.812	244.736	339.536	170.334	410.431
	Median									
	Std Dev	0.000	25.050	27.329	38.631	30.292	39.945	54.396	139.614	65.151
	Maximum	0.000	78.125	85.678	174.026	181.656	309.448	444.260	539.093	539.093
	Minimum	0.000	5.035	5.035	51.575	97.961	186.844	276.184	80.948	350.113
	Range	0.000	73.090	80.643	122.452	83.694	122.604	168.076	458.145	188.980

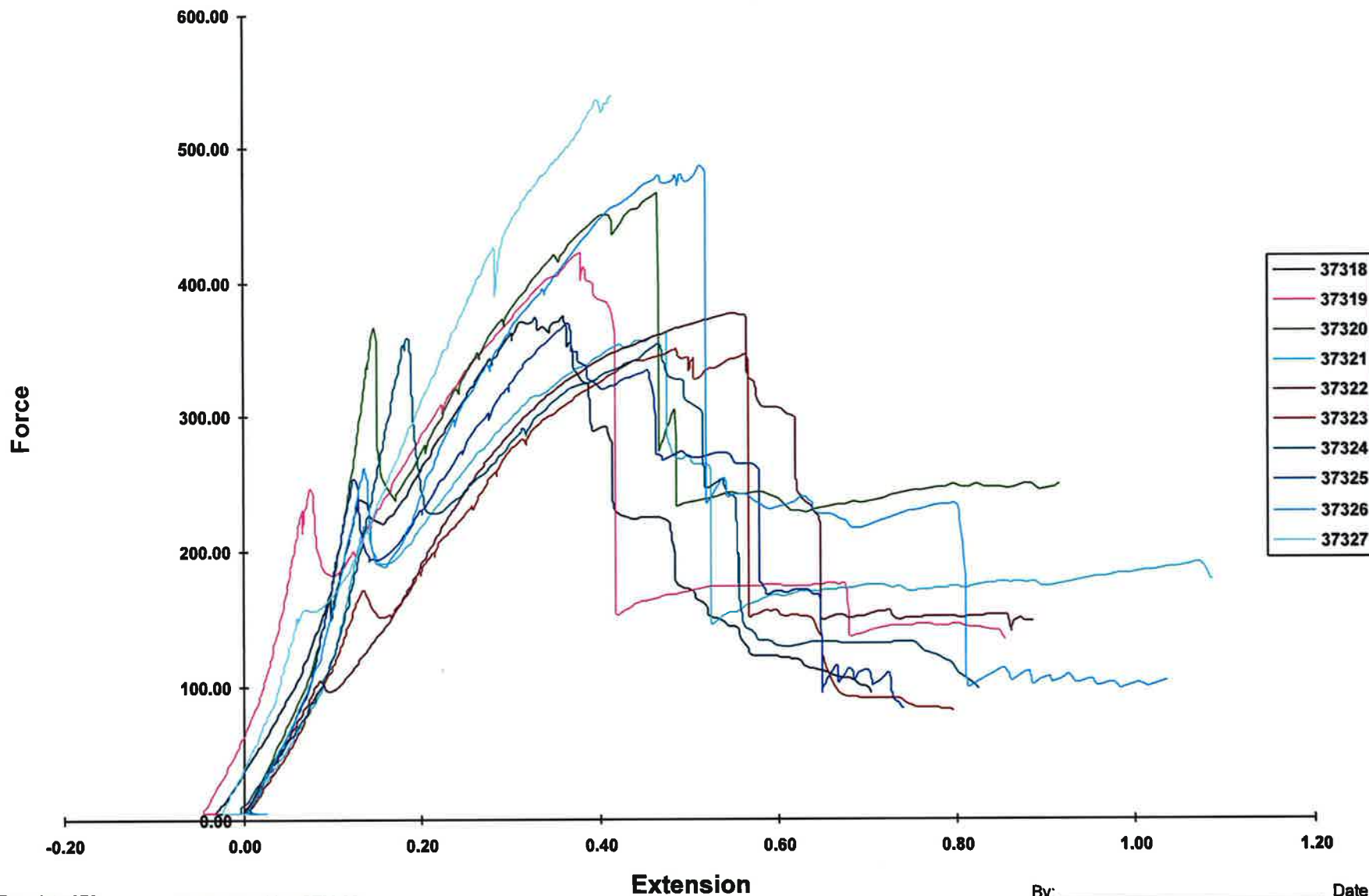
By: _____ Date: _____



Report No 9184

Pocket hole joint

Force (-Lbs) vs Extension (%)





Jun 26, 2012

Report No. 9187

Pocket hole joint

Test Date 14-Jun-12 Testing Machine STM-20

Customer Name: Kreg Tools

Operator: Javier Camacho

Size of Specimen: 2" X 4"

Direction: Joint Type 1

ASTM: D1781

Work Order: C-2310A

Fastener type: #14 X 2 1/2" #3PH-SQ RWH

Species of Wood: Cedar

Template: 270

Load Cell (01457) Capacity (-Lbs) 20000

Preload Value (-Lbs) 5

Crosshead Speed (-Inches / min) or 0.1

Extension or Position Measured by XHD_100 (XHD100)

Notes		Side Pressure.								
Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37338	1-1	0.000	68.588	85.373	174.103	357.056	760.422	1,150.131	1,140.060	1,536.179
37339	1-2	0.000	68.130	76.218	181.046	356.903	572.433	702.286	357.208	1,009.674
37340	1-3	0.000	113.907	136.566	260.086	509.186	911.484	1,087.265	313.797	1,242.599
37341	1-4	0.000	5.035	5.035	5.035	17.929	306.396	584.641	515.900	1,302.185
37342	1-5	0.000	102.234	122.681	255.508	501.938	779.419	1,014.252	910.187	1,367.416
37343	1-6	0.000	99.945	114.746	234.909	453.110	751.190	897.369	860.901	1,121.216
37344	1-7	0.000	99.106	107.117	228.577	444.565	727.463	870.590	234.070	1,086.655
37345	1-8	0.000	5.188	5.188	5.188	16.556	287.857	583.954	268.860	1,058.121
37346	1-9	0.000	68.207	76.141	171.967	355.301	647.812	834.579	229.263	1,145.782
37347	1-10	0.000	93.155	102.615	205.765	415.115	648.651	787.277	256.348	1,094.894
Mean		0.000	72.350	83.168	172.218	342.766	639.313	851.234	508.659	1,196.472
Median										
Std Dev		0.000	38.903	45.521	93.583	180.523	202.113	195.275	336.576	164.172
Maximum		0.000	113.907	136.566	260.086	509.186	911.484	1,150.131	1,140.060	1,536.179
Minimum		0.000	5.035	5.035	5.035	16.556	287.857	583.954	229.263	1,009.674
Range		0.000	108.871	131.531	255.051	492.630	623.627	568.177	910.797	526.505

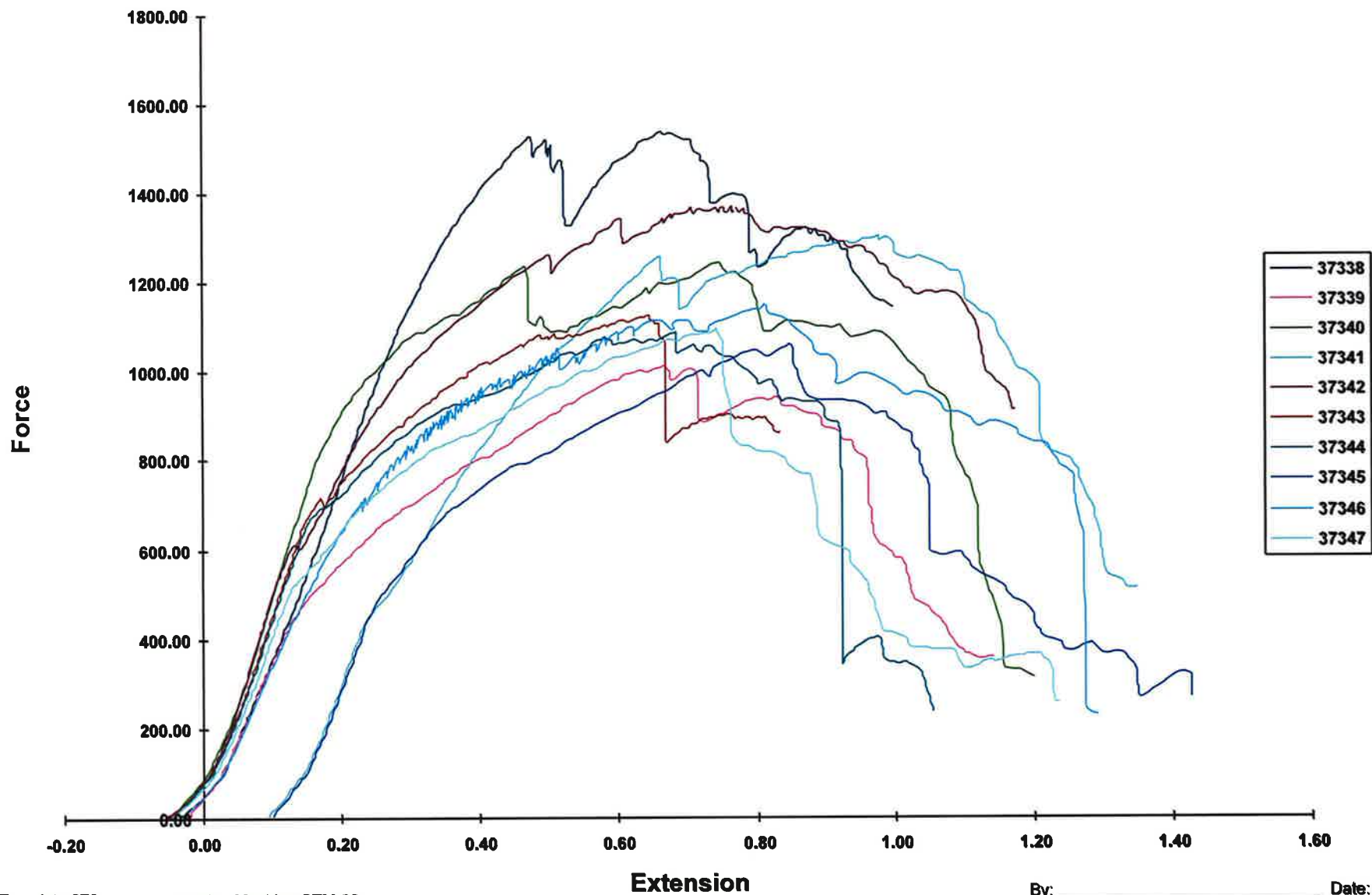
By: *Javier Camacho* Date: *6/14/21*



Report No 9187

Pocket hole joint

Force (-Lbs) vs Extension (%)



Template 270

Testing Machine STM-20

By: _____ Date: _____

Jun 26, 2012

RADCO, INC. 3220 E. 59th Street Long Beach, CA 90805

TEL (562)272-7231 FAX (562)529-7513



Jul 2, 2012

Pocket hole joint

Report No. 9185

Test Date 13-Jun-12 Testing Machine STM-20

Customer Name Kreg Tools

Operator Javier Camacho

Size of Specimen 2" X 4"

Direction: Joint Type 1

ASTM: D1761

Work Order C-2310A

Fastener type #14 X 2 1/2" #3PH-SQ RWLH

Species of Wood Cedar

Template 270

Load Cell (01457) Capacity (-Lb: 20000

Preload Value (-Lbs 5

Crosshead Speed (-Inches / min) 0.1

Extension or Position Measured XHD_100 (XHD100)

Notes Top Pressure.

Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37328	1-1	0.000	228.806	240.173	400.162	751.572	1,138.611	1,311.951	941.772	1,374.664
37329	1-2	0.000	203.705	223.083	391.617	718.613	1,133.575	1,349.411	924.149	1,397.552
37330	1-3	0.000	26.703	39.291	128.937	283.203	758.438	1,268.005	516.434	1,678.162
37331	1-4	0.000	48.218	63.782	174.179	340.729	878.067	1,226.425	416.718	1,303.101
37332	1-5	0.000	54.932	54.932	149.918	305.023	757.523	1,142.731	899.963	1,435.928
37333	1-6	0.000	44.937	54.398	158.920	314.636	784.149	931.396	594.940	1,091.232
37334	1-7	0.000	59.052	59.052	157.242	299.683	814.667	1,144.409	247.269	1,256.790
37335	1-8	0.000	46.539	59.662	140.762	290.070	775.070	1,365.204	784.760	1,591.568
37336	1-9	0.000	174.408	191.345	305.862	528.793	890.045	1,057.739	882.111	1,139.297
37337	1-10	0.000	39.139	49.210	138.550	282.974	708.389	1,026.764	916.672	1,343.460
	Mean	0.000	92.644	103.493	214.615	411.530	863.853	1,182.404	712.479	1,361.176
	Median									
	Std Dev	0.000	77.242	80.285	107.950	185.496	153.613	146.493	250.415	181.762
	Maximum	0.000	228.806	240.173	400.162	751.572	1,138.611	1,365.204	941.772	1,678.162
	Minimum	0.000	26.703	39.291	128.937	282.974	708.389	931.396	247.269	1,091.232
	Range	0.000	202.103	200.882	271.225	468.597	430.222	433.807	694.504	586.929

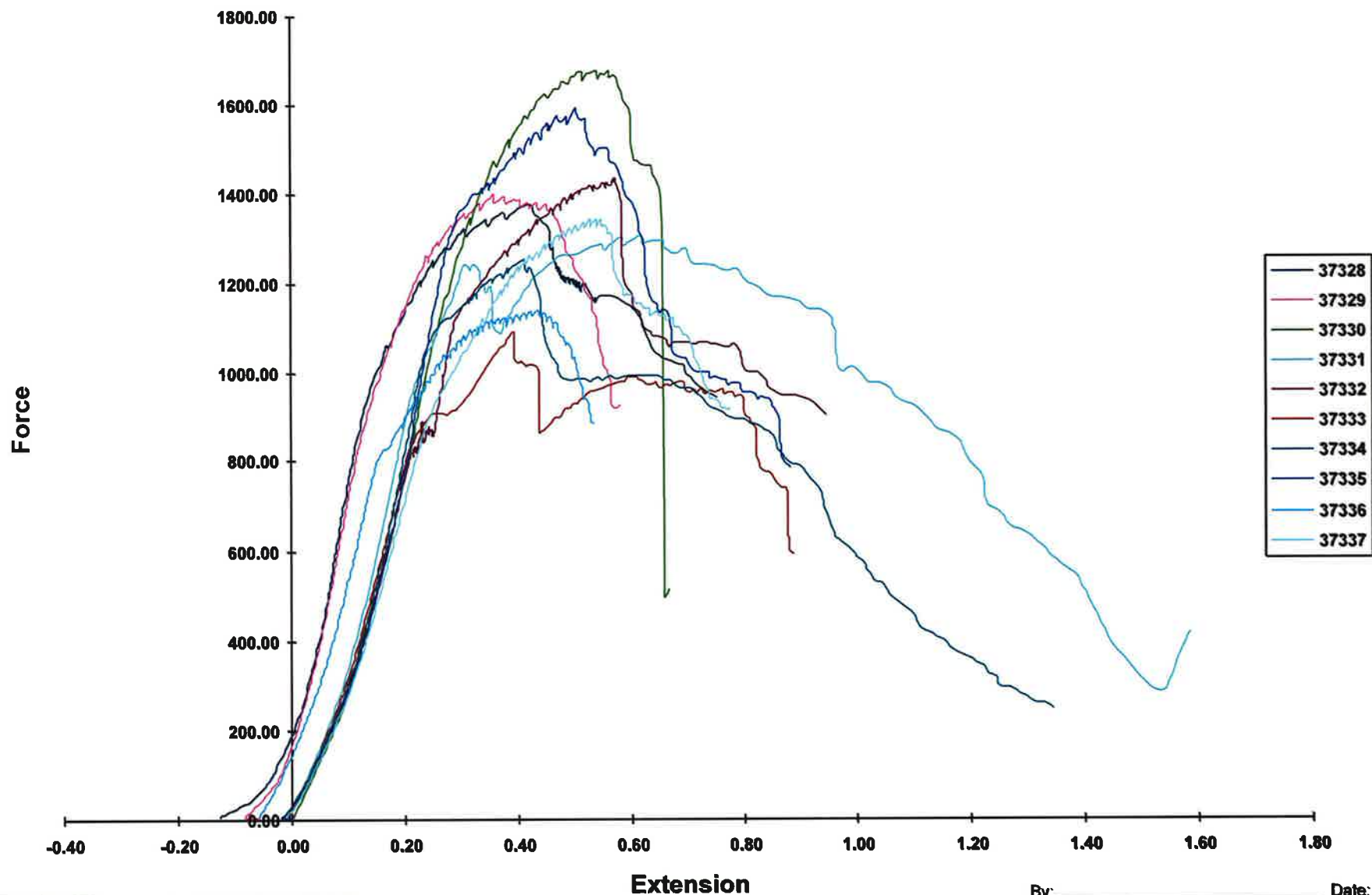
By: _____ Date: _____



Report No 9185

Pocket hole joint

Force (-Lbs) vs Extension (%)





Jul 2, 2012

Pocket hole joint

Report No. 9181

Test Date 12-Jun-12 Testing Machine STM-20

Customer Name Kreg Tools

Operator Javier Camacho

Size of Specimen 2" X 4"

Direction: Joint Type 1

ASTM: D1761

Work Order C-2310A

Fastener type #14 X 2 1/2" #3PH-SQ RWH

Species of Wood ACQ

Template 270

Load Cell (01457) Capacity (-Lbs) 20000

Preload Value (-Lbs) 5

Crosshead Speed (-Inches / min) 0.1

Extension or Position Measured XHD_100 (XHD100)

Notes Bottom Pressure.

Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37288	1	0.000	5.112	20.599	108.719	214.996	373.077	468.903	144.424	475.998
37289	1-2	0.000	74.844	85.297	119.095	183.182	345.688	474.472	94.376	492.554
37290	1-3	0.000	5.035	14.267	70.877	126.190	249.023	332.565	68.054	360.947
37291	1-4	0.000	12.817	23.727	91.705	138.550	275.421	385.361	125.504	436.325
37292	1-5	0.000	20.599	29.831	96.130	124.359	225.830	308.304	69.504	367.661
37293	1-6	0.000	5.112	5.112	81.940	132.828	255.051	361.328	84.534	444.641
37294	1-7	0.000	34.943	41.122	107.727	127.640	247.040	352.173	71.106	376.282
37295	1-8	0.000	23.193	26.321	66.452	153.809	240.173	313.644	67.902	359.879
37296	1-9	0.000	28.763	40.588	119.476	171.204	309.296	416.107	119.095	464.783
37297	1-10	0.000	5.035	5.035	38.452	116.119	237.808	337.601	170.517	360.107
	Mean	0.000	21.545	29.190	90.057	148.888	275.841	375.046	101.501	413.918
	Median									
	Std Dev	0.000	21.699	23.377	25.955	31.755	50.170	60.216	36.553	54.005
	Maximum	0.000	74.844	85.297	119.476	214.996	373.077	474.472	170.517	492.554
	Minimum	0.000	5.035	5.035	38.452	116.119	225.830	308.304	67.902	359.879
	Range	0.000	69.809	80.261	81.024	98.877	147.247	166.168	102.615	132.675

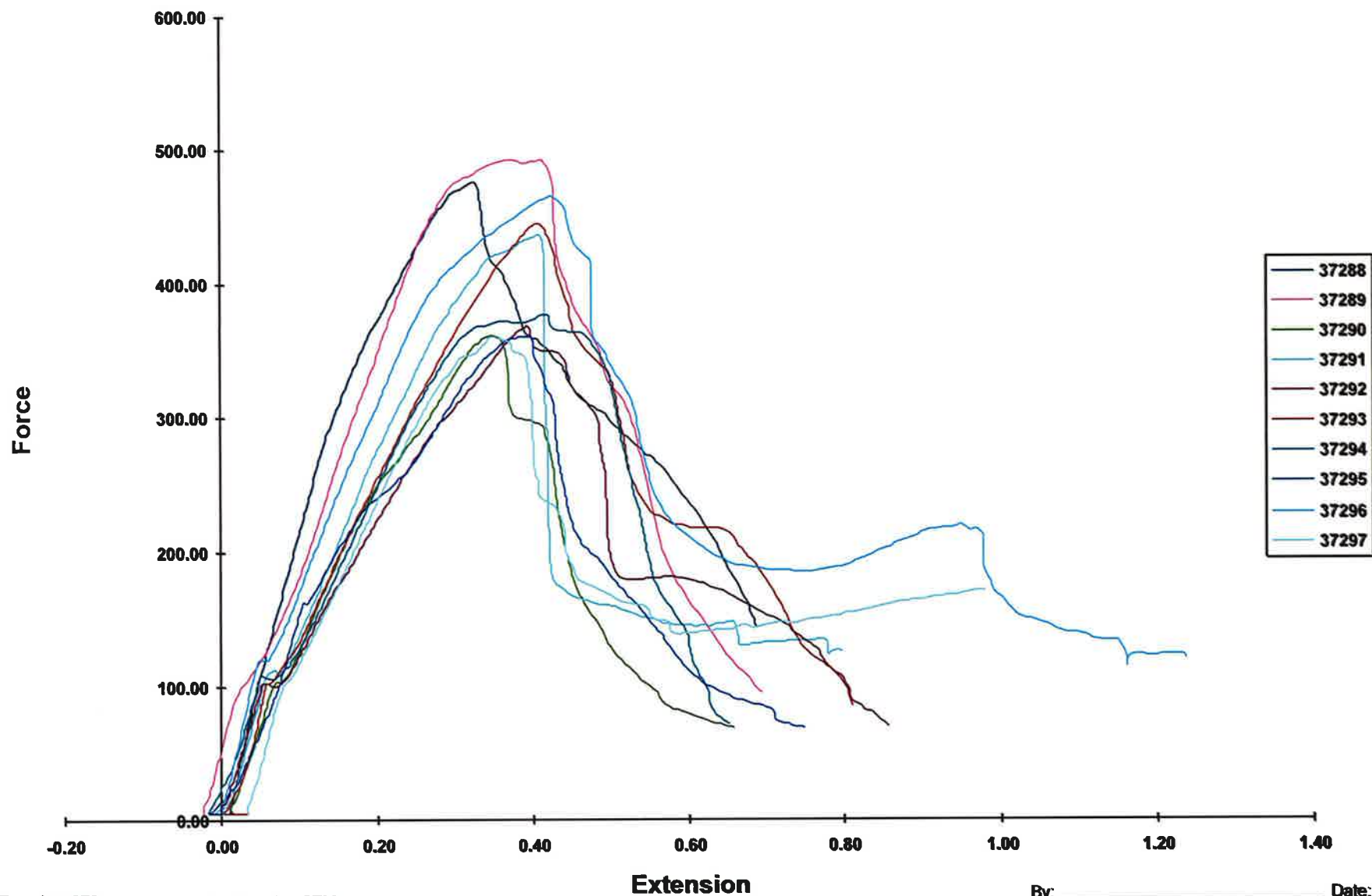
By: _____ Date: _____



Report No 9181

Pocket hole joint

Force (-Lbs) vs Extension (%)





Jun 26, 2012

Report No. 9183

Pocket hole joint

Test Date 13-Jun-12 Testing Machine STM-20

Customer Name: Kreg Tools
Operator: Javier Camacho
Size of Specimen: 2" X 4"
Direction: Joint Type 1
ASTM: D1761

Work Order: C-2310A
Fastener type: #14 X 2 1/2" #3PH-SQ RWH
Species of Wood: ACQ
Template: 270

Load Cell (01457) Capacity (-Lbs) 20000
Preload Value (-Lbs) 5

Crosshead Speed (-Inches / min) or 0.1
Extension or Position Measured by XHD_100 (XHD100)

Notes		Side Pressure.								
Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37308	1-1	0.000	93.994	113.907	246.201	392.380	669.022	862.350	219.879	1,122.818
37309	1-2	0.000	90.179	105.438	205.231	367.355	529.480	678.558	367.813	914.154
37310	1-3	0.000	5.112	5.112	43.259	178.757	382.843	615.387	811.081	1,015.854
37311	1-4	0.000	61.646	69.809	154.343	331.345	593.796	848.846	771.332	1,080.551
37312	1-5	0.000	77.133	90.561	202.408	335.388	573.502	740.509	840.378	1,063.614
37313	1-6	0.000	87.738	96.512	207.596	338.593	618.820	885.162	878.601	1,285.477
37314	1-7	0.000	70.648	78.125	177.917	372.009	591.202	753.632	746.231	859.375
37315	1-8	0.000	78.659	87.509	205.154	395.660	687.180	917.969	692.139	1,203.918
37316	1-9	0.000	5.035	5.035	23.575	115.585	355.759	570.526	851.212	1,144.257
37317	1-10	0.000	78.354	93.689	167.999	260.468	503.616	697.403	727.844	1,134.720
Mean		0.000	64.850	74.570	163.368	308.754	550.522	757.034	690.651	1,082.474
Median										
Std Dev		0.000	32.879	38.680	73.123	94.655	110.619	118.643	219.813	127.817
Maximum		0.000	93.994	113.907	246.201	395.660	687.180	917.969	878.601	1,285.477
Minimum		0.000	5.035	5.035	23.575	115.585	355.759	570.526	219.879	859.375
Range		0.000	88.959	108.871	222.626	280.075	331.421	347.443	658.722	426.102

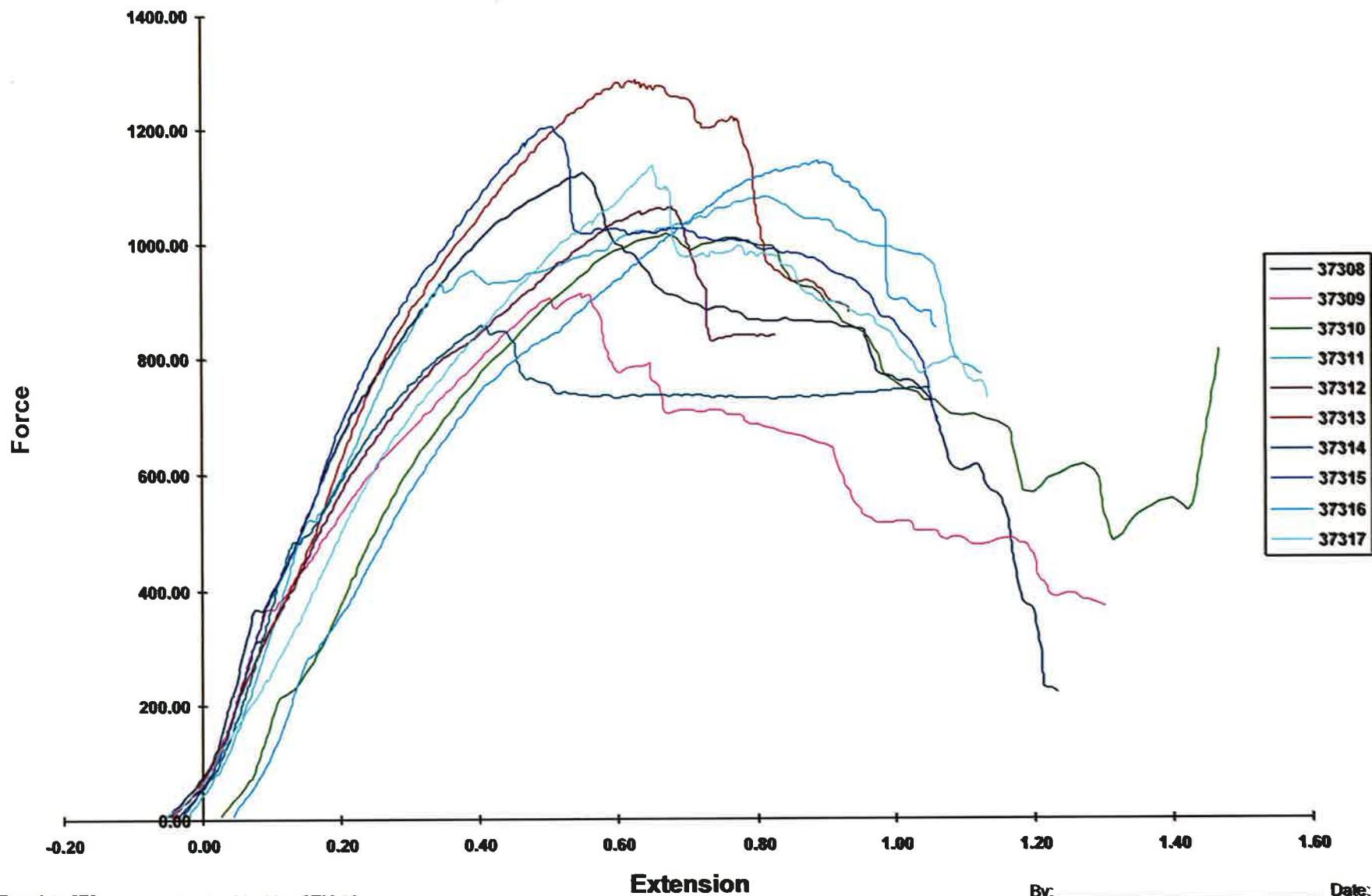
By: *Javier Camacho* Date: *6/13/12*



Report No 9183

Pocket hole joint

Force (-Lbs) vs Extension (%)





Jul 2, 2012

Pocket hole joint

Report No. 9182

Test Date 12-Jun-12 Testing Machine STM-20

Customer Name Kreg Tools

Operator Javier Camacho

Size of Specimen 2" X 4"

Direction: Joint type 1

ASTM: D1761

Work Order C-2310A

Fastener type #14 X 2 1/2" #3PH-SQRWH

Species of Wood ACQ

Template 270

Load Cell (01457) Capacity (-Lbs) 20000

Preload Value (-Lbs) 5

Crosshead Speed (-Inches / min) 0.1

Extension or Position Measured XHD_100 (XHD100)

Notes		Top Pressure.								
Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37298	1-1	0.000	47.073	54.703	152.359	293.274	646.744	907.593	1,236.267	1,241.455
37299	1-2	0.000	200.653	212.631	317.841	517.654	1,014.175	1,373.444	1,030.655	1,708.298
37300	1-3	0.000	47.455	59.280	154.572	311.813	744.324	1,068.268	716.476	1,325.989
37301	1-4	0.000	46.005	54.474	154.572	327.988	709.305	918.655	582.428	1,061.935
37302	1-5	0.000	167.542	182.037	280.151	499.802	991.211	1,331.406	1,685.257	1,685.257
37303	1-6	0.000	149.460	158.386	261.078	439.987	839.005	1,106.949	1,008.606	1,366.882
37304	1-7	0.000	68.130	85.907	178.604	322.800	624.619	898.132	721.130	1,202.850
37305	1-8	0.000	154.495	169.983	273.361	491.104	848.312	1,028.748	983.505	1,168.060
37306	1-9	0.000	175.476	190.659	339.966	599.976	1,142.654	1,354.599	543.518	1,500.854
37307	1-10	0.000	140.457	151.520	263.443	493.240	983.353	1,201.553	773.239	1,258.392
Mean		0.000	119.675	131.958	237.595	429.764	854.370	1,118.935	928.108	1,351.997
Median										
Std Dev		0.000	60.612	61.792	71.305	107.414	174.270	187.574	344.370	216.606
Maximum		0.000	200.653	212.631	339.966	599.976	1,142.654	1,373.444	1,685.257	1,708.298
Minimum		0.000	46.005	54.474	152.359	293.274	624.619	898.132	543.518	1,061.935
Range		0.000	154.648	158.157	187.607	306.702	518.036	475.311	1,141.739	646.362

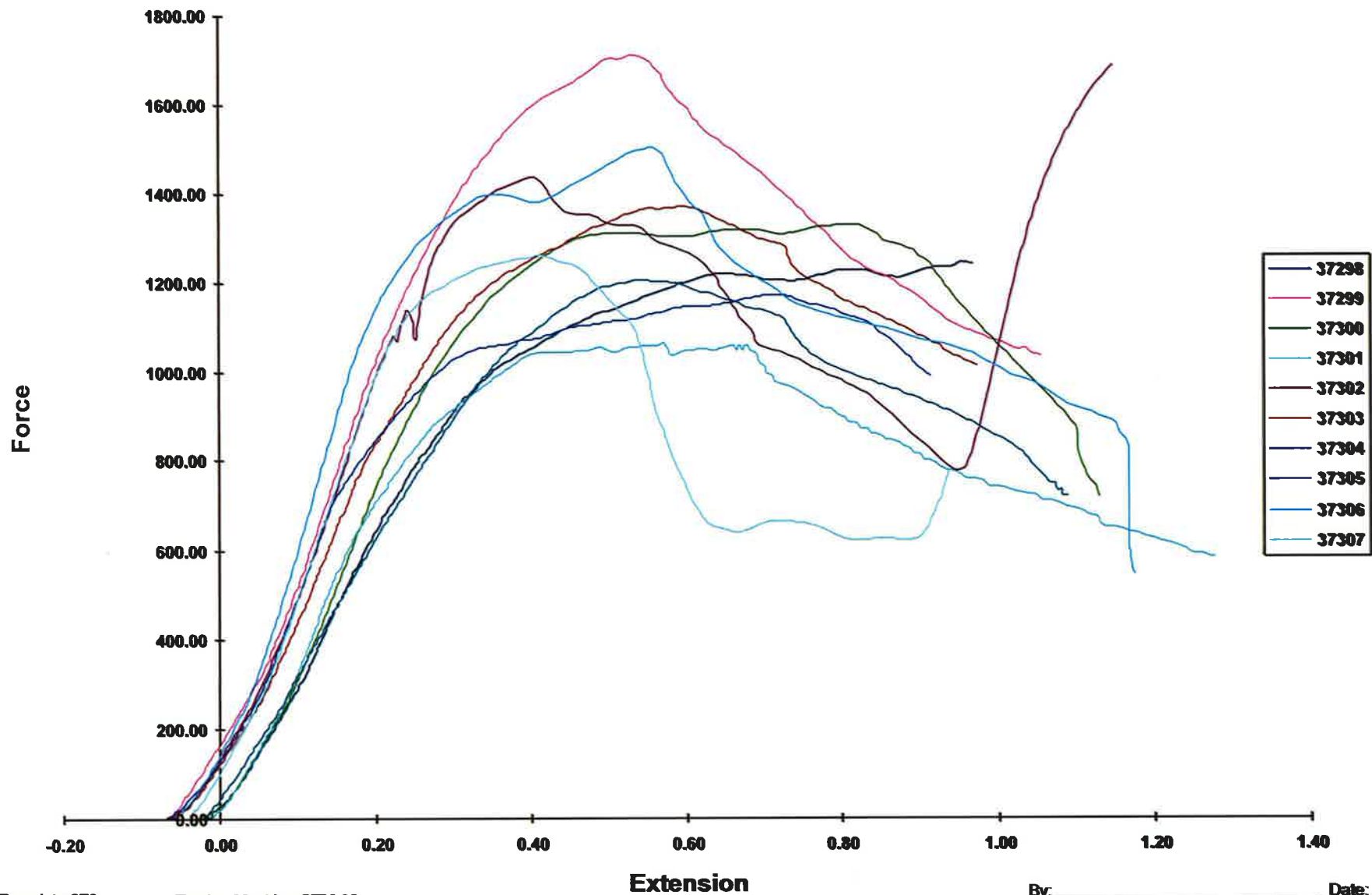
By: _____ Date: _____



Report No 9182

Pocket hole joint

Force (-Lbs) vs Extension (%)



Template 270

Testing Machine STM-20

By: _____ Date: _____

Jun 26, 2012

RADCO, INC. 3220 E. 59th Street Long Beach, CA 90805

TEL (562)272-7231 FAX (562)529-7513



Jun 26, 2012

Report No. 9192

Pocket hole joint

Test Date 18-Jun-12 Testing Machine STM-20

Customer Name: Kreg Tools

Operator: Javier Camacho

Size of Specimen: 2" X 4"

Direction: Joint type 2

ASTM: D1761

Work Order: C-2310A

Fastener type: #14 X 2 1/2" #3PH-SQ RWH

Species of Wood: Cedar

Template: 270

Load Cell (01457) Capacity (-Lbs) 20000

Preload Value (-Lbs) 5

Crosshead Speed (-Inches / min) or 0.1

Extension or Position Measured by XHD_100 (XHD100)

Notes		Top pressure.								
Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37384	1-1	0.000	36.316	51.575	105.667	192.719	406.723	603.943	482.178	1,020.966
37385	1-2	0.000	27.466	40.512	141.983	282.822	574.875	786.819	592.575	989.456
37386	1-3	0.000	29.602	40.817	118.866	233.307	487.747	683.594	190.964	975.037
37387	1-4	0.000	47.684	47.684	159.531	309.296	570.908	784.225	250.473	1,272.583
37388	1-5	0.000	24.948	35.095	115.738	245.132	509.033	714.340	234.680	1,194.382
37389	1-6	0.000	23.117	32.654	107.651	211.563	470.734	688.095	291.595	933.151
37390	1-7	0.000	27.924	40.588	131.302	258.942	522.766	743.866	226.974	1,095.200
37391	1-8	0.000	57.297	70.343	176.849	353.241	607.071	743.027	544.510	1,009.140
37392	1-9	0.000	63.400	72.556	147.247	269.547	519.333	702.667	172.653	879.440
37393	1-10	0.000	37.537	48.828	160.065	294.342	532.761	719.604	460.739	885.239
Mean		0.000	37.529	48.065	136.490	265.091	520.195	717.018	344.734	1,025.459
Median										
Std Dev		0.000	14.081	13.664	24.521	47.684	57.517	53.485	157.983	128.278
Maximum		0.000	63.400	72.556	176.849	353.241	607.071	786.819	592.575	1,272.583
Minimum		0.000	23.117	32.654	105.667	192.719	406.723	603.943	172.653	879.440
Range		0.000	40.283	39.902	71.182	160.522	200.348	182.877	419.922	393.143

By:

Javier Camacho

Date:

6/18/12

RADCO, INC. 3220 E. 59th Street Long Beach, CA 90805

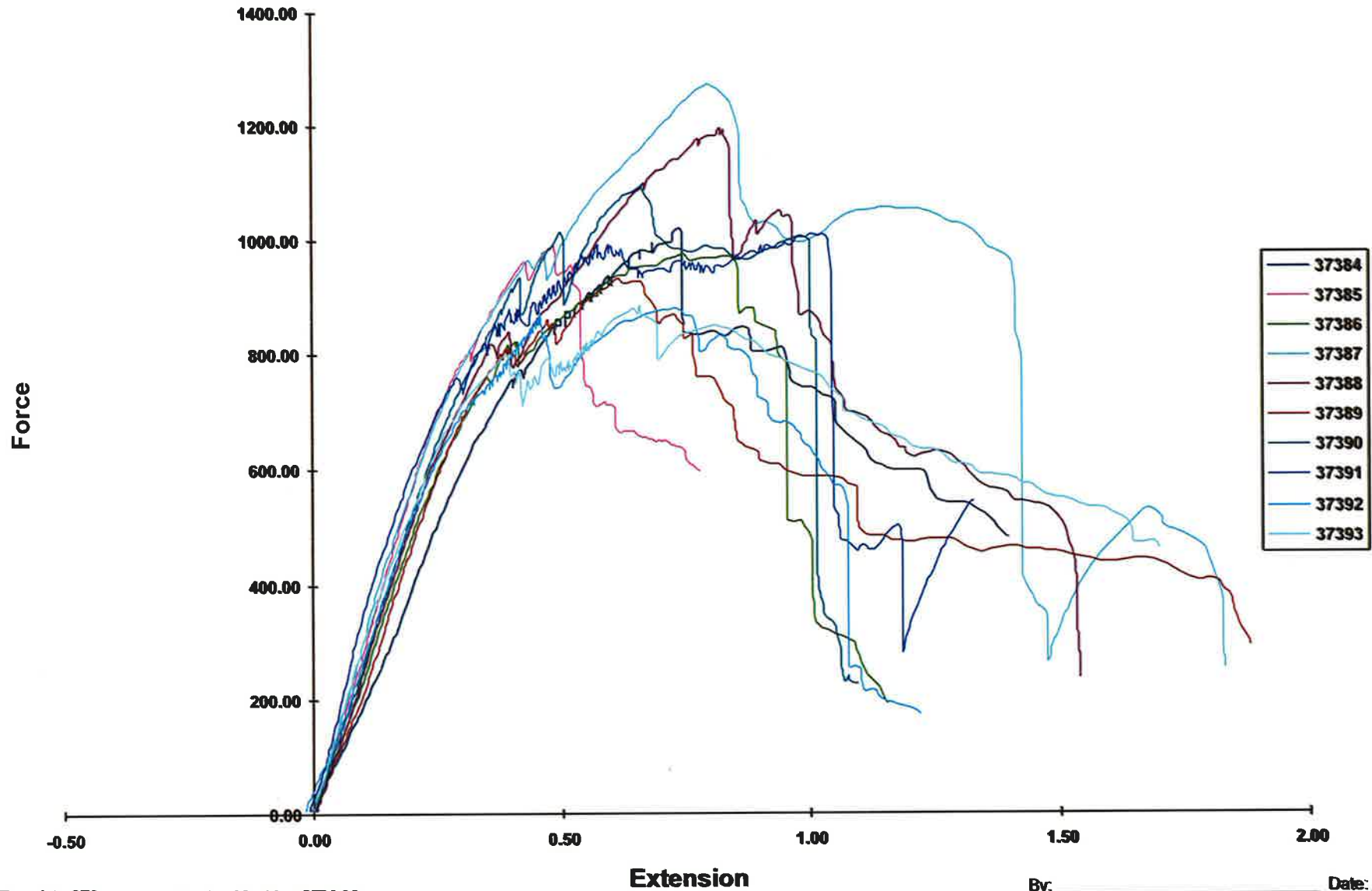
Tel (562)272-7231 FAX (562)529-7513



Report No 9192

Pocket hole joint

Force (-Lbs) vs Extension (%)





Jun 26, 2012

Report No. 9193

Pocket hole joint

Test Date 18-Jun-12 Testing Machine STM-20

Customer Name: Kreg tools
Operator: Javier Camacho
Size of Specimen: 2" X 4"
Direction: Joint type 2
ASTM: D1761

Work Order: C-2310A
Fastener type: #14 x 2 1/2" #3PH-SQ RWH
Species of Wood: Cedar
Template: 270

Load Cell (01457) Capacity (-Lbs) 20000
Preload Value (-Lbs) 5

Crosshead Speed (-Inches / min) or 0.1
Extension or Position Measured by XHD_100 (XHD100)

Notes Inside pressure.

Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37394	1-1	0.000	204.010	215.454	344.772	590.897	1,104.660	1,340.332	1,008.835	1,509.018
37395	1-2	0.000	196.381	211.258	370.026	651.016	1,154.480	1,266.327	845.413	1,476.669
37396	1-3	0.000	181.274	192.261	322.189	567.169	1,038.437	1,182.327	262.604	1,275.330
37397	1-4	0.000	50.659	61.798	143.051	310.669	803.299	1,122.284	308.609	1,199.341
37398	1-5	0.000	105.133	115.433	207.443	390.854	741.348	922.470	224.838	1,101.303
37399	1-6	0.000	141.144	152.359	271.301	483.093	859.299	1,016.683	227.814	1,160.202
37400	1-7	0.000	161.819	174.484	301.971	520.172	912.781	1,135.712	266.418	1,317.673
37401	1-8	0.000	165.787	177.002	301.285	525.131	1,092.300	1,286.316	258.713	1,304.245
37402	1-9	0.000	146.561	157.852	271.530	507.050	958.405	1,216.202	320.816	1,380.386
37403	1-10	0.000	205.688	219.193	359.497	602.493	1,157.074	1,367.645	400.772	1,531.677
Mean		0.000	155.846	167.709	289.307	514.854	982.208	1,185.831	412.483	1,325.584
Median										
Std Dev		0.000	48.496	49.266	70.424	101.659	149.461	141.010	278.718	148.544
Maximum		0.000	205.688	219.193	370.026	651.016	1,157.074	1,367.645	1,008.835	1,531.677
Minimum		0.000	50.659	61.798	143.051	310.669	741.348	922.470	224.838	1,101.303
Range		0.000	155.029	157.394	226.974	340.347	415.726	445.175	783.997	430.374

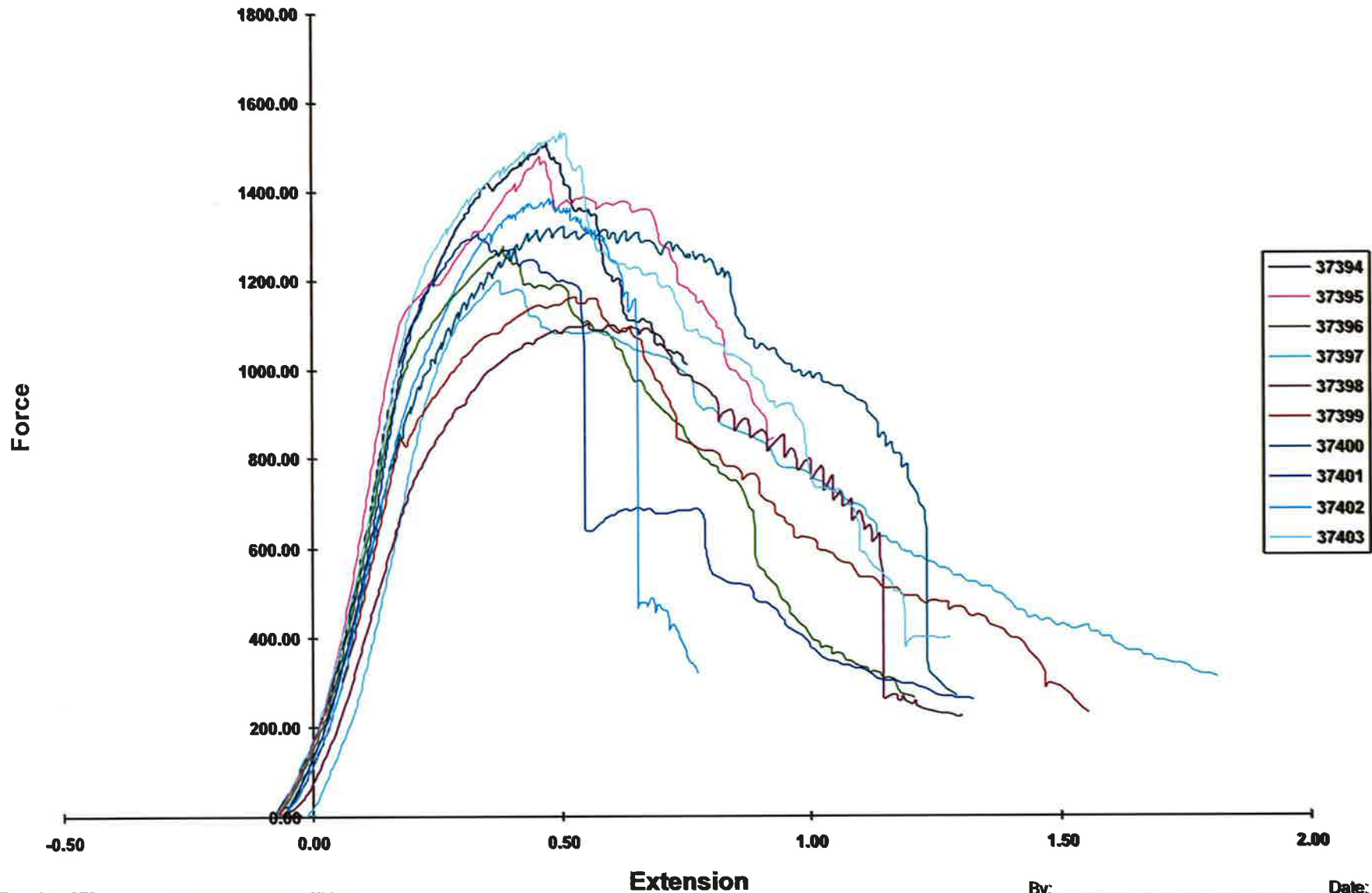
By:  Date: 6/18/12



Report No 9193

Pocket hole joint

Force (-Lbs) vs Extension (%)





Jun 26, 2012

Report No. 9194

Pocket hole joint

Test Date 19-Jun-12 Testing Machine STM-20

Customer Name: Kreg Tools
Operator: Javier Camacho
Size of Specimen: 2" X 4"
Direction: Joint Type 2
ASTM: D1761

Work Order: C-2310A
Fastener type: #14 X2 1/2" #3PH-SQ RWH
Species of Wood: Cedar
Template: 270

Load Cell (01457) Capacity (-Lbs) 20000
Preload Value (-Lbs) 5

Crosshead Speed (-Inches / min) or 0.1
Extension or Position Measured by XHD_100 (XHD100)

Notes		Out side pressure.								
Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37404	1-1	0.000	24.643	31.967	81.787	155.029	261.536	375.061	85.449	434.952
37405	1-2	0.000	16.327	23.041	77.744	143.358	272.980	358.505	75.607	380.478
37406	1-3	0.000	33.493	33.493	80.490	162.125	281.219	386.810	90.256	467.453
37407	1-4	0.000	28.915	38.223	105.743	213.623	334.930	423.737	91.248	454.559
37408	1-5	0.000	25.024	35.248	107.956	168.076	290.756	372.925	84.076	407.181
37409	1-6	0.000	26.321	36.316	106.201	208.358	372.772	515.823	114.212	591.583
37410	1-7	0.000	31.891	41.199	120.544	217.896	343.857	505.905	269.165	589.218
37411	1-8	0.000	5.112	5.112	5.112	104.980	225.601	344.238	74.005	390.167
37412	1-9	0.000	19.684	29.373	92.545	148.392	282.822	407.333	126.114	492.477
37413	1-10	0.000	19.302	26.627	82.779	145.264	256.271	318.985	80.719	388.336
Mean		0.000	23.071	30.060	86.090	166.710	292.274	400.932	109.085	459.641
Median										
Std Dev		0.000	8.374	10.307	31.947	36.311	45.010	65.118	58.646	78.105
Maximum		0.000	33.493	41.199	120.544	217.896	372.772	515.823	269.165	591.583
Minimum		0.000	5.112	5.112	5.112	104.980	225.601	318.985	74.005	380.478
Range		0.000	28.381	36.087	115.433	112.915	147.171	196.838	195.160	211.105

By: 

Date: 6/19/12

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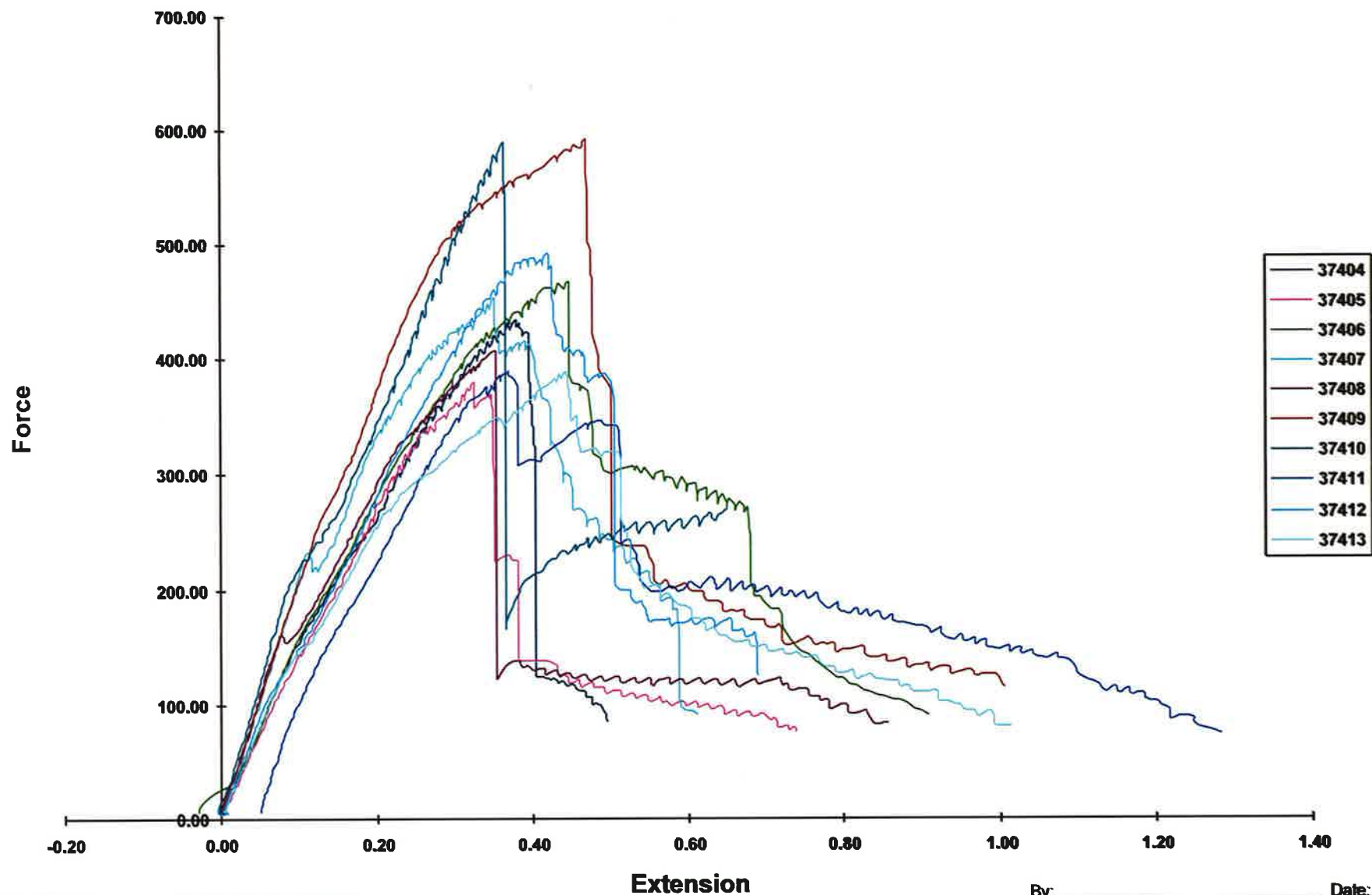
Tel (562) 272-7231 FAX (562) 529-7513



Report No 9194

Pocket hole joint

Force (-Lbs) vs Extension (%)





Jun 26, 2012

Report No. 9189

Pocket hole joint

Test Date 16-Jun-12 Testing Machine STM-20

Customer Name: Kreg Tools
Operator: Javier Camacho
Size of Specimen: 2" X 4"
Direction: Joint Type 2
ASTM: D1761

Work Order: C-2310A
Fastener type: #14 X 2 1/2" #3PH-SQ RWH
Species of Wood: ACQ
Template: 270

Load Cell (01457) Capacity (-Lbs) 20000
Preload Value (-Lbs) 5

Crosshead Speed (-Inches / min) or 0.1
Extension or Position Measured by XHD_100 (XHD100)

Notes		Top pressure.								
Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37354	1-1	0.000	101.166	112.915	188.751	275.803	524.445	772.324	204.697	1,044.235
37355	1-2	0.000	22.964	34.561	135.193	280.609	569.687	771.484	1,354.218	1,354.218
37356	1-3	0.000	5.035	5.035	106.659	210.571	445.023	672.913	672.760	1,198.349
37357	1-4	0.000	5.035	5.035	5.035	109.100	288.010	467.987	708.542	930.481
37358	1-5	0.000	46.539	46.539	136.261	264.282	496.140	667.953	768.280	1,015.625
37359	1-6	0.000	78.201	89.722	166.702	286.789	543.060	679.016	707.855	872.269
37360	1-7	0.000	24.490	35.629	109.558	219.116	470.810	685.577	735.703	1,059.952
37361	1-8	0.000	86.746	103.989	164.795	280.075	549.545	779.724	977.402	1,031.876
37362	1-9	0.000	106.583	112.839	175.323	300.522	549.545	734.482	855.637	1,134.567
37363	1-10	0.000	146.637	156.250	237.427	391.464	760.193	1,000.137	1,339.417	1,473.618
Mean		0.000	62.340	70.251	142.570	261.833	519.646	723.160	832.451	1,111.519
Median										
Std Dev		0.000	48.555	51.734	62.065	72.717	117.798	132.851	335.780	185.840
Maximum		0.000	146.637	156.250	237.427	391.464	760.193	1,000.137	1,354.218	1,473.618
Minimum		0.000	5.035	5.035	5.035	109.100	288.010	467.987	204.697	872.269
Range		0.000	141.602	151.215	232.391	282.364	472.183	532.150	1,149.521	601.349

By:

Javier Camacho

Date:

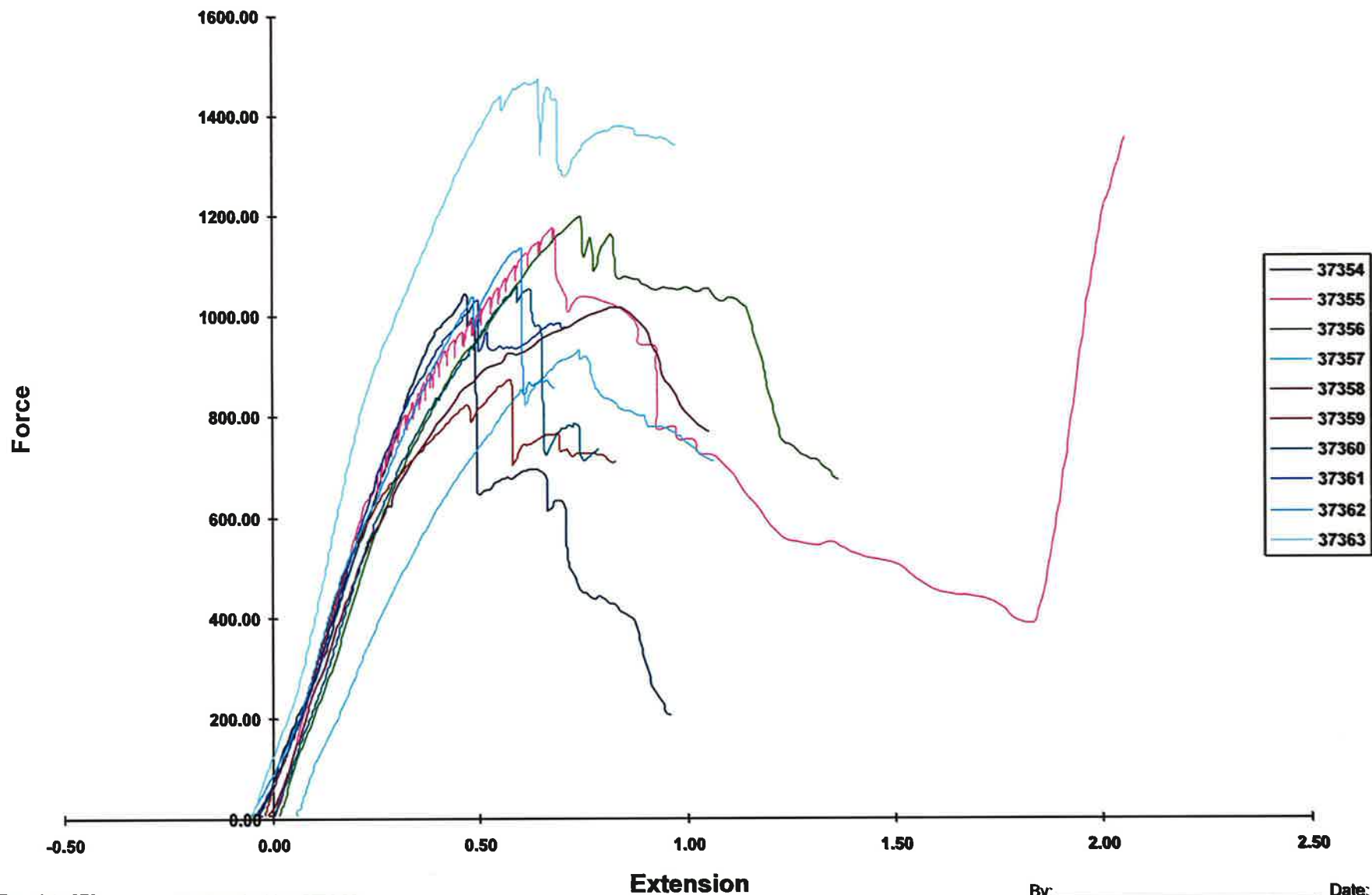
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Report No 9189

Pocket hole joint

Force (-Lbs) vs Extension (%)





Jun 26, 2012

Pocket hole joint

Report No. 9190

Test Date 16-Jun-12 Testing Machine STM-20

Customer Name: Kreg Tools
Operator: Javier Camacho
Size of Specimen: 2" X 4"
Direction: Joint Type 2
ASTM: D1761

Work Order: C-2310A
Fastener type: #14 X 2 1/2" #3PH-SQ RWH
Species of Wood: ACQ
Template: 270

Load Cell (01457) Capacity (-Lbs) 20000
Preload Value (-Lbs) 5

Crosshead Speed (-Inches / min) or 0.1
Extension or Position Measured by XHD_100 (XHD100)

Notes		Inside pressure.								
Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37364	1-1	0.000	200.577	212.402	331.802	549.850	1,024.475	1,261.826	304.947	1,374.207
37365	1-2	0.000	31.281	42.114	142.212	290.451	780.945	1,119.614	1,249.771	1,429.749
37366	1-3	0.000	139.847	149.841	260.010	458.679	824.585	1,004.944	1,147.690	1,231.003
37367	1-4	0.000	155.869	165.863	271.912	473.404	902.328	1,042.175	662.537	1,144.943
37368	1-5	0.000	181.580	202.942	319.214	547.562	937.500	1,080.856	979.843	1,219.940
37369	1-6	0.000	163.651	172.501	308.685	553.284	905.304	994.797	821.936	1,068.573
37370	1-7	0.000	152.664	162.277	257.263	446.091	847.092	1,022.263	697.708	1,190.109
37371	1-8	0.000	143.681	154.495	260.391	478.592	924.988	1,165.695	707.474	1,365.204
37372	1-9	0.000	135.040	155.258	245.590	438.461	848.846	976.715	221.481	1,111.145
37373	1-10	0.000	37.460	48.904	137.558	295.258	770.187	1,160.889	266.495	1,323.090
Mean		0.000	134.163	146.660	253.464	453.163	876.625	1,082.977	715.988	1,245.796
Median										
Std Dev		0.000	56.176	57.156	66.523	94.895	77.620	92.348	365.471	122.138
Maximum		0.000	200.577	212.402	331.802	553.284	1,024.475	1,261.826	1,249.771	1,429.749
Minimum		0.000	31.281	42.114	137.558	290.451	770.187	976.715	221.481	1,068.573
Range		0.000	169.296	170.288	194.244	262.833	254.288	285.110	1,028.290	361.176

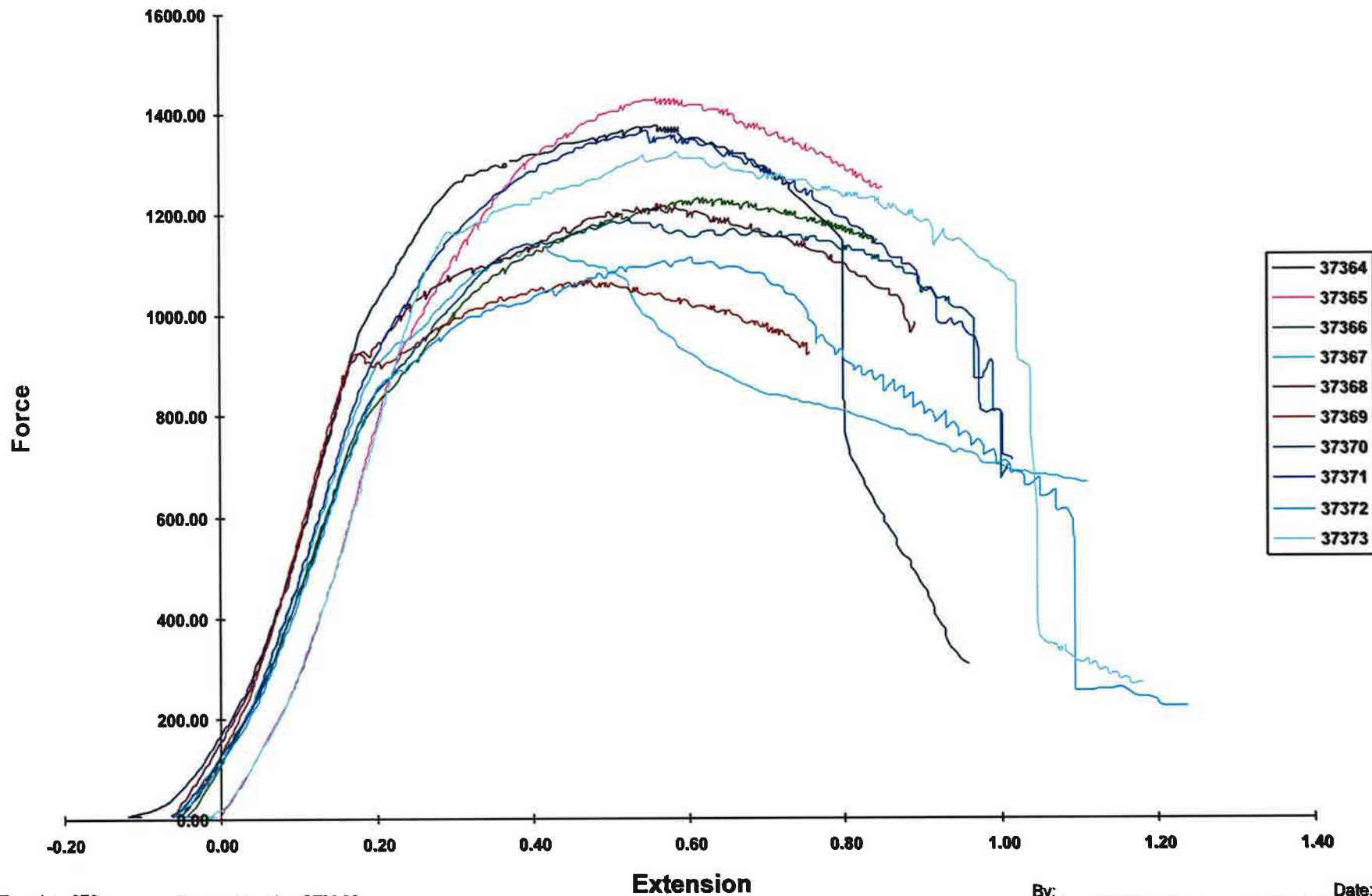
By: Javier Camacho Date: 6/16/12



Report No 9190

Pocket hole joint

Force (-Lbs) vs Extension (%)



Template 270

Testing Machine STM-20

By: _____ Date: _____

Jun 26, 2012

RADCO, INC. 3220 E. 59th Street Long Beach, CA 90805

TEL (562)272-7231 FAX (562)529-7513



Jun 26, 2012

Report No. 9191

Pocket hole joint

Test Date 18-Jun-12 Testing Machine STM-20

Customer Name: Kreg Tools
Operator: Javier Camacho
Size of Specimen: 2" X 4"
Direction: Joint Type 2
ASTM: D1761

Work Order: C-2310A
Fastener type: #14 X 2 1/2"
Species of Wood: ACQ
Template: 270

Load Cell (01457) Capacity (-Lbs) 20000
Preload Value (-Lbs) 5

Crosshead Speed (-Inches / min) or 0.1
Extension or Position Measured by XHD_100 (XHD100)

Notes Out side pressure.

Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37374	1-1	0.000	35.934	40.359	86.823	189.514	270.538	395.813	107.117	535.736
37375	1-2	0.000	26.245	33.112	91.858	184.097	311.966	357.590	71.335	363.235
37376	1-3	0.000	5.112	5.112	62.637	135.651	257.950	384.827	119.324	605.164
37377	1-4	0.000	5.035	5.035	68.685	132.751	286.331	400.467	100.632	502.853
37378	1-5	0.000	5.112	13.657	76.370	149.918	307.007	434.647	102.768	509.644
37379	1-6	0.000	25.177	34.485	109.634	207.214	356.369	479.660	134.964	554.810
37380	1-7	0.000	5.264	5.264	84.915	142.517	289.536	405.579	91.019	446.777
37381	1-8	0.000	5.035	51.727	112.457	222.168	282.440	398.560	94.147	482.025
37382	1-9	0.000	23.270	32.425	91.171	157.547	266.495	380.630	92.545	465.012
37383	1-10	0.000	5.035	5.035	70.877	151.749	326.309	483.017	102.615	533.752
Mean		0.000	14.122	22.621	85.541	167.313	295.494	412.079	101.646	499.901
Median										
Std Dev		0.000	12.098	17.687	16.624	31.319	30.226	41.411	17.083	66.387
Maximum		0.000	35.934	51.727	112.457	222.168	356.369	483.017	134.964	605.164
Minimum		0.000	5.035	5.035	62.637	132.751	257.950	357.590	71.335	363.235
Range		0.000	30.899	46.692	49.820	89.417	98.419	125.427	63.629	241.928

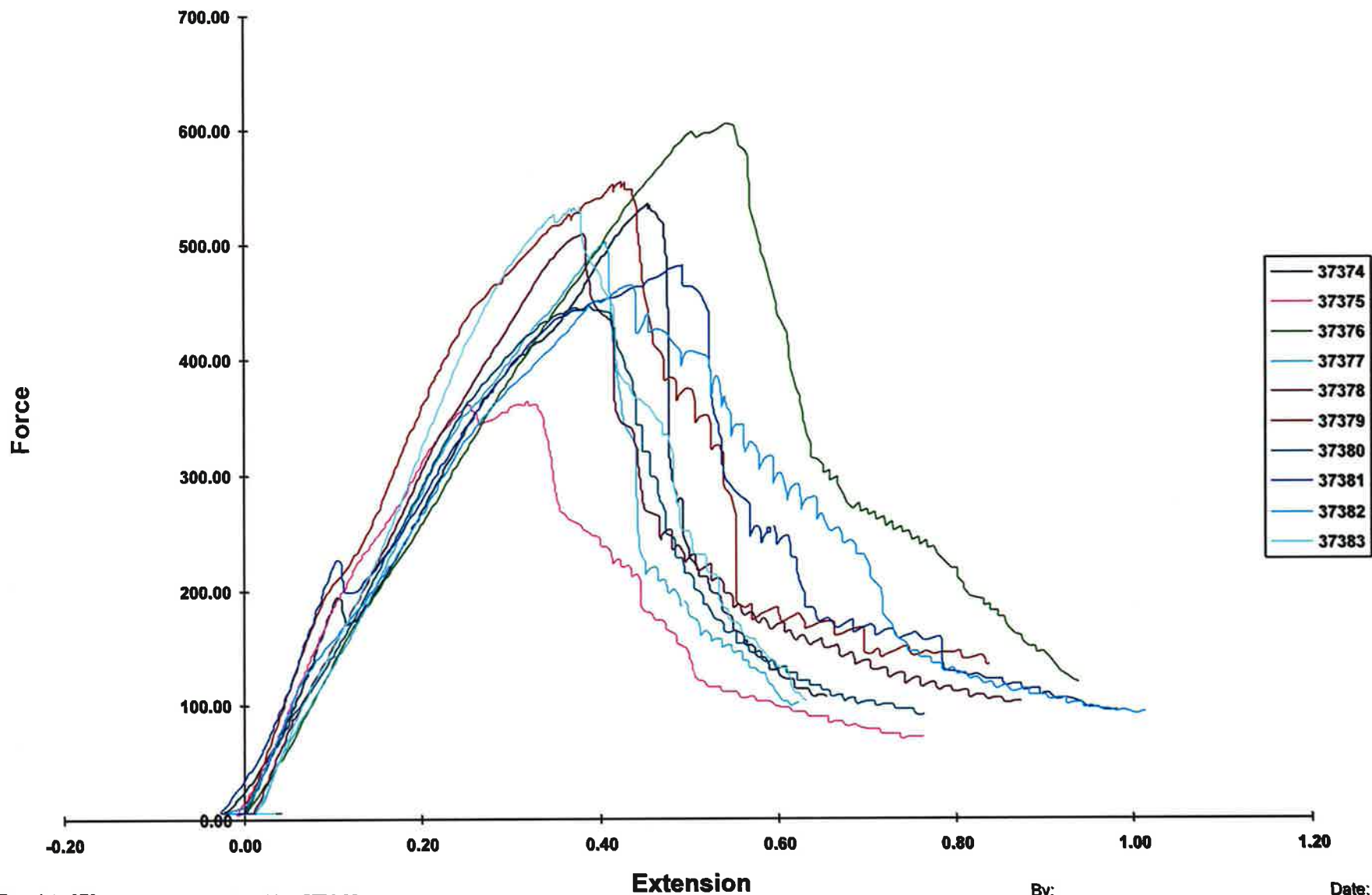
By: *Javier Camacho* Date: 6/18/12



Report No 9191

Pocket hole joint

Force (-Lbs) vs Extension (%)





Jun 22, 2012

Pocket hole joint

Report No. 9200

Test Date 22-Jun-12 Testing Machine STM-20

Customer Name: Kreg Tools

Operator: Javier Camacho

Size of Specimen: 2" X 4"

Direction: Joint Type 3

ASTM: D1761

Work Order: C-2310A

Fastener type: #14 X 2 1/2" #3PH-SQ RWH

Species of Wood: Cedar

Template: 270

Load Cell (01457) Capacity (-Lbs) 20000

Preload Value (-Lbs) 5

Crosshead Speed (-Inches / min) or 0.1

Extension or Position Measured by XHD_100 (XHD100)

Notes		Side pressure.								
Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37454	1-1	0.000	97.580	144.653	368.881	515.442	680.084	784.607	213.623	1,093.063
37455	1-2	0.000	86.594	119.247	291.367	418.549	600.052	708.237	233.688	1,189.728
37456	1-3	0.000	28.839	41.199	255.203	497.437	912.323	1,170.959	298.920	1,456.223
37457	1-4	0.000	70.496	86.365	278.778	429.611	585.251	664.749	175.705	900.040
37458	1-5	0.000	131.302	202.866	437.317	626.068	876.236	969.620	259.781	1,319.275
37459	1-6	0.000	95.596	120.163	276.947	425.339	606.842	721.741	175.858	900.879
37460	1-7	0.000	79.575	133.820	355.072	532.913	740.128	853.958	555.344	1,247.253
37461	1-8	0.000	71.335	103.455	305.634	483.246	731.964	905.533	226.746	1,154.633
37462	1-9	0.000	5.112	5.112	5.112	455.017	839.081	798.416	217.590	1,109.009
37463	1-10	0.000	90.942	132.065	336.609	462.036	635.757	732.346	229.416	1,172.791
Mean		0.000	75.737	108.894	291.092	484.566	720.772	831.017	258.667	1,154.289
Median										
Std Dev		0.000	35.834	55.169	114.132	63.024	120.259	152.193	110.350	171.037
Maximum		0.000	131.302	202.866	437.317	626.068	912.323	1,170.956	555.344	1,456.223
Minimum		0.000	5.112	5.112	5.112	418.549	585.251	664.749	175.705	900.040
Range		0.000	126.190	197.754	432.205	207.520	327.072	506.210	379.639	556.183

By:

Javier Camacho

Date:

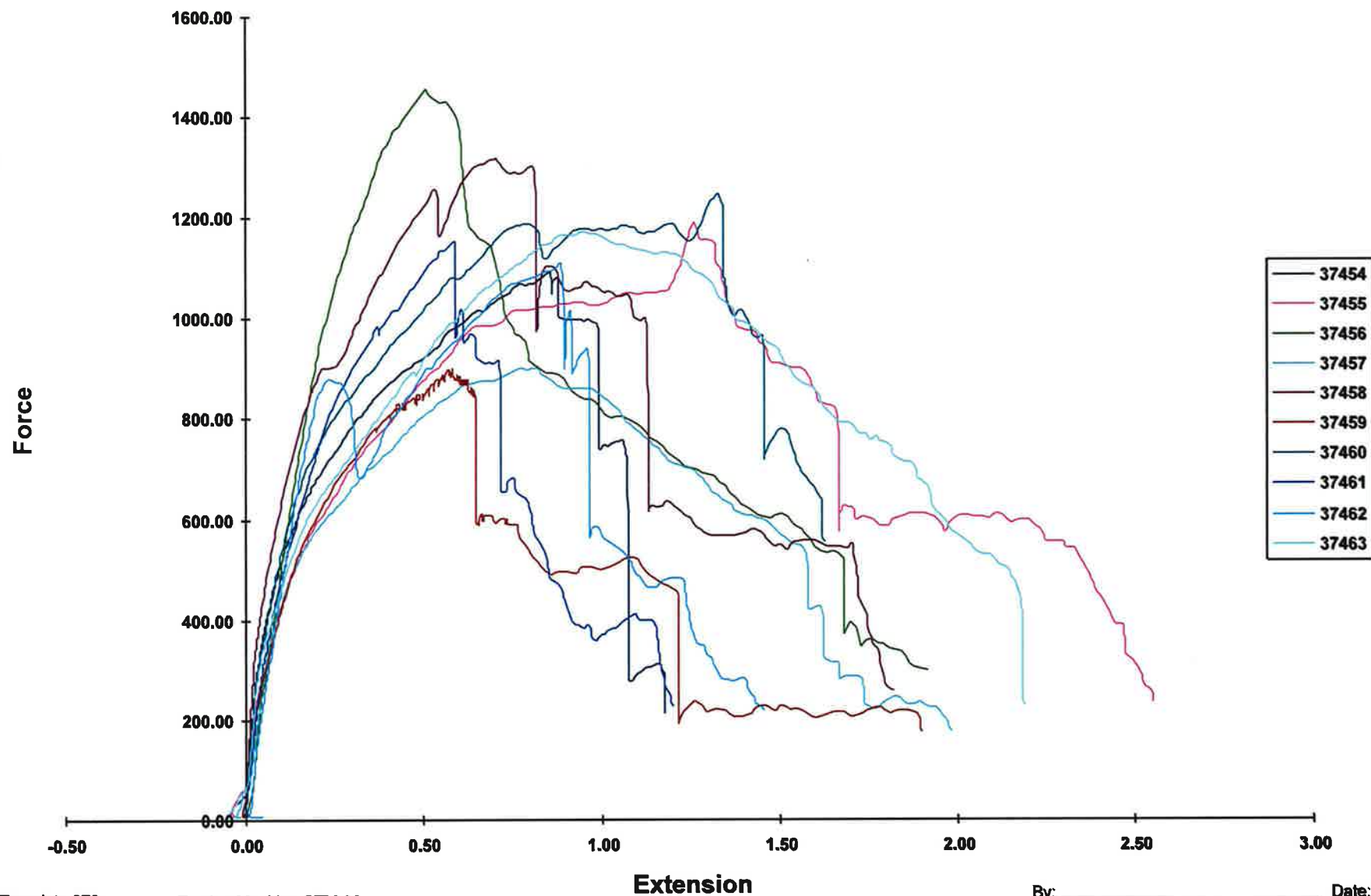
6/22/12



Report No 9200

Pocket hole joint

Force (-Lbs) vs Extension (%)





Jun 20, 2012

Report No. 9196

Pocket hole joint

Test Date 20-Jun-12 Testing Machine STM-20

Customer Name: Kreg tools

Operator: Javier Camacho

Size of Specimen: 2" X 4"

Direction: Joint type 3

ASTM: D1761

Work Order: C-2310A

Fastener type: #14 X 2 1/2" #3PH-SQ RWH

Species of Wood: Cedar

Template: 270

Load Cell (01457) Capacity (Lbs) 20000

Preload Value (Lbs) 5

Crosshead Speed (Inches / min) or Rate 0.1

Extension or Position Measured by XHD_100 (XHD100)

Notes Bottom pressure.

Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37424	1-1	0.000	52.185	85.907	354.691	673.447	880.203	455.475	207.138	881.958
37425	1-2	0.000	5.035	54.779	349.274	695.648	986.404	1,061.554	220.337	1,121.902
37426	1-3	0.000	5.188	5.188	305.939	715.179	1,126.709	630.264	223.694	1,138.763
37427	1-4	0.000	134.125	178.680	488.434	937.195	1,283.188	1,391.602	280.075	1,420.670
37428	1-5	0.000	5.035	5.035	388.565	740.662	679.245	433.884	175.095	895.844
37429	1-6	0.000	106.659	153.046	452.881	774.689	985.031	539.780	192.871	985.031
37430	1-7	0.000	5.035	5.035	428.772	807.648	581.436	519.028	176.849	904.846
37431	1-8	0.000	5.035	5.035	399.170	762.024	643.768	511.322	201.187	1,026.230
37432	1-9	0.000	5.035	98.038	413.513	739.594	886.993	957.413	192.871	985.184
37433	1-10	0.000	82.397	125.351	373.459	664.902	889.511	576.477	174.484	892.487
	Mean	0.000	40.573	71.609	395.470	751.099	894.249	707.680	204.460	1,025.291
	Median									
	Std Dev	0.000	50.078	66.565	53.470	79.282	218.362	319.628	31.884	167.069
	Maximum	0.000	134.125	178.680	488.434	937.195	1,283.188	1,391.602	280.075	1,420.670
	Minimum	0.000	5.035	5.035	305.939	664.902	581.436	433.884	174.484	881.958
	Range	0.000	129.089	173.645	182.495	272.293	701.752	957.718	105.591	538.712

By: Javier Camacho Date: 6/20/12

RADCO, INC. 3220 E. 59th Street Long Beach, CA 90805

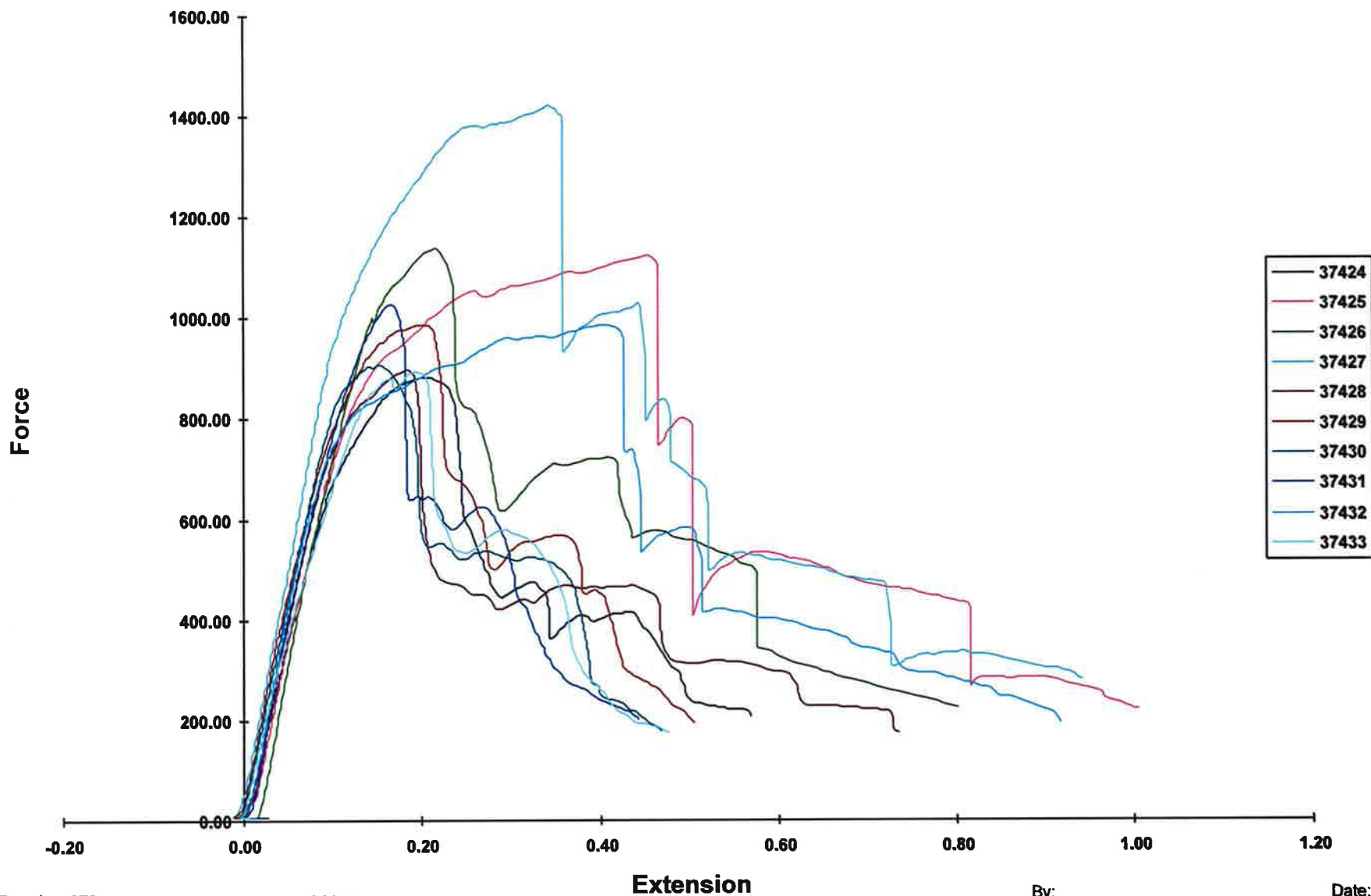
Tel (562)272-7231 FAX (562)529-7513



Report No 9196

Pocket hole joint

Force (-Lbs) vs Extension (%)





Jun 22, 2012

Report No. 9199

Pocket hole joint

Test Date 21-Jun-12 Testing Machine STM-20

Customer Name: Kreg tools

Operator: Javier Camacho

Size of Specimen: 2" X 4"

Direction: Joint type 3

ASTM: D1761

Work Order: C-2310A

Fastener type: #14 X 2 1/2" #3PH-SQ RWH

Species of Wood: ACQ

Template: 270

Load Cell (01457) Capacity (-Lbs) 20000

Preload Value (-Lbs) 5

Crosshead Speed (-Inches / min) or 0.1

Extension or Position Measured by XHD_100 (XHD100)

Notes		Side Pressure.								
Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37444	1-1	0.000	5.035	141.830	408.859	582.504	791.855	914.459	1,146.088	1,235.504
37445	1-2	0.000	284.042	302.353	366.058	449.600	725.479	796.280	270.462	1,115.265
37446	1-3	0.000	5.035	5.035	5.035	261.841	508.270	709.534	494.995	1,299.057
37447	1-4	0.000	73.929	105.286	277.176	418.015	580.826	676.880	334.167	1,342.850
37448	1-5	0.000	5.112	5.112	57.907	291.824	563.126	739.441	247.955	1,261.215
37449	1-6	0.000	134.430	159.531	436.783	668.869	911.484	1,072.083	315.323	1,432.419
37450	1-7	0.000	5.493	5.493	64.163	315.475	612.717	800.171	296.783	1,504.440
37451	1-8	0.000	78.201	100.250	311.432	437.622	636.520	803.757	419.922	1,207.352
37452	1-9	0.000	5.035	5.035	5.035	309.982	616.760	885.925	253.372	1,288.071
37453	1-10	0.000	109.940	159.378	275.650	394.821	574.951	714.035	267.868	1,284.866
Mean		0.000	70.625	98.930	220.810	413.055	652.199	811.256	404.694	1,297.104
Median										
Std Dev		0.000	89.859	97.613	170.520	130.877	122.417	119.105	272.205	110.489
Maximum		0.000	284.042	302.353	436.783	668.869	911.484	1,072.083	1,146.088	1,504.440
Minimum		0.000	5.035	5.035	5.035	261.841	508.270	676.880	247.955	1,115.265
Range		0.000	279.007	297.318	431.747	407.028	403.214	395.203	898.132	389.175

By:

Javier Camacho

Date:

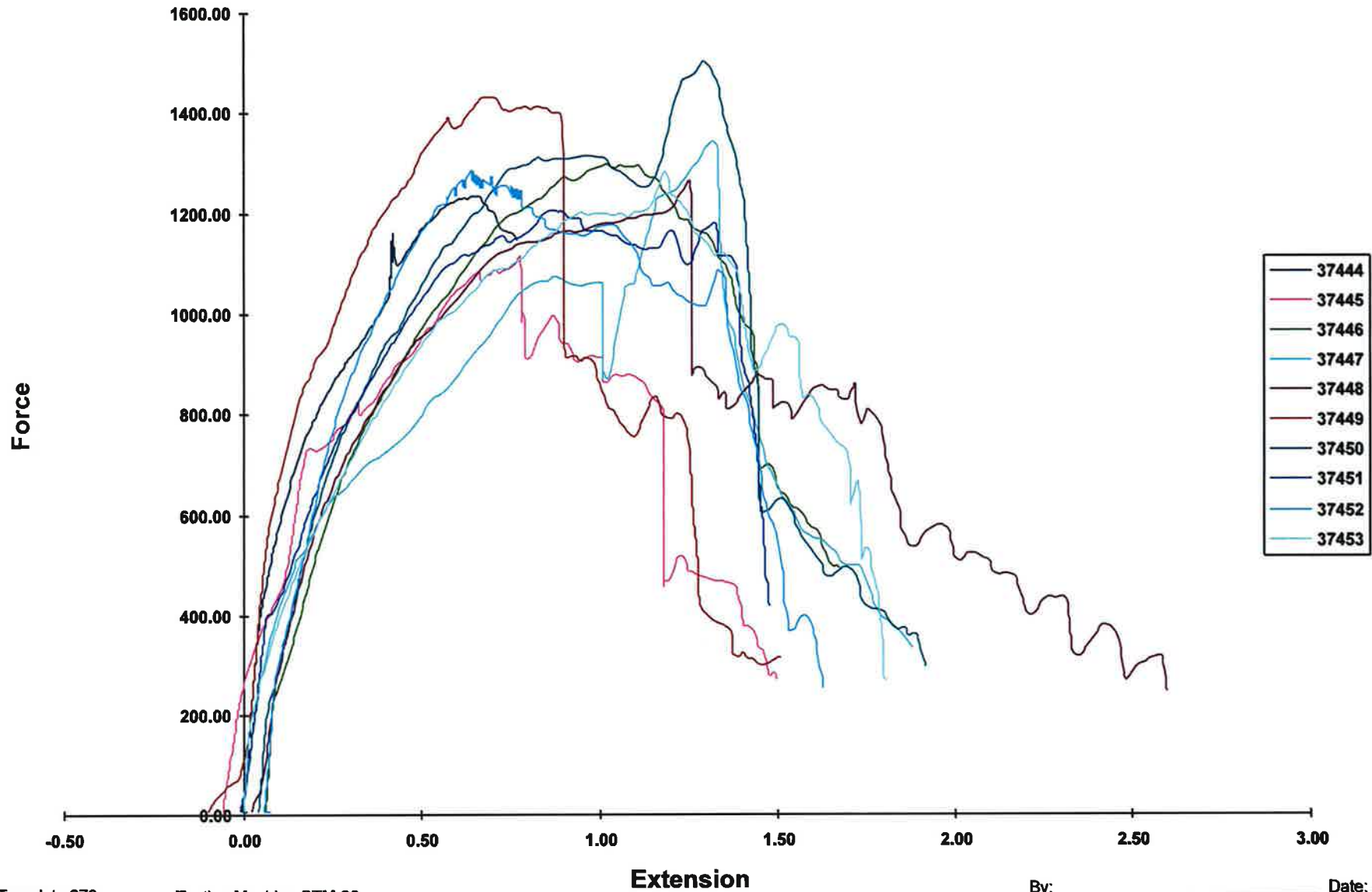
6/21/12



Report No 9199

Pocket hole joint

Force (-Lbs) vs Extension (%)





Jun 20, 2012

Report No. 9195

Pocket hole joint

Test Date 20-Jun-12 Testing Machine STM-20

Customer Name: Kreg Tools
Operator: Javier Camacho
Size of Specimen: 2" X 4"
Direction: Joint type 3
ASTM: D1761

Work Order: C-2310A
Fastener type: #14 X 2 1/2" #3PH-SQ RWH
Species of Wood: ACQ
Template: 270

Load Cell (01457) Capacity (Lbs) 20000
Preload Value (Lbs) 5

Crosshead Speed (Inches / min) or Rate 0.1
Extension or Position Measured by XHD_100 (XHD100)

Notes Bottom pressure.

Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37414	1-1	0.000	74.310	103.149	362.930	727.463	1,092.529	1,182.404	245.590	1,248.322
37415	1-2	0.000	5.112	5.112	448.701	863.342	1,157.227	1,033.401	247.574	1,257.935
37416	1-3	0.000	113.144	140.152	415.497	733.643	914.459	985.424	195.999	1,001.511
37417	1-4	0.000	79.803	110.626	400.925	762.024	812.073	837.708	163.422	838.318
37418	1-5	0.000	5.035	5.035	424.423	801.697	850.449	902.023	190.735	973.816
37419	1-6	0.000	97.885	134.277	410.767	720.825	903.015	961.914	189.743	969.009
37420	1-7	0.000	44.785	79.346	395.813	762.329	996.475	1,058.426	234.222	1,193.008
37421	1-8	0.000	5.035	5.035	435.333	855.331	1,193.314	1,283.340	270.233	1,372.757
37422	1-9	0.000	5.188	5.188	394.516	784.760	1,163.864	1,291.885	276.642	1,308.289
37423	1-10	0.000	123.901	183.182	544.586	993.042	1,096.268	1,129.684	223.389	1,137.924
Mean		0.000	55.420	77.110	423.149	800.446	1,017.967	1,064.621	223.755	1,130.089
Median										
Std Dev		0.000	48.329	67.533	48.707	83.909	140.618	155.250	37.666	175.441
Maximum		0.000	123.901	183.182	544.586	993.042	1,193.314	1,291.885	276.642	1,372.757
Minimum		0.000	5.035	5.035	362.930	720.825	812.073	837.708	163.422	838.318
Range		0.000	118.866	178.146	181.656	272.217	381.241	454.178	113.220	534.439

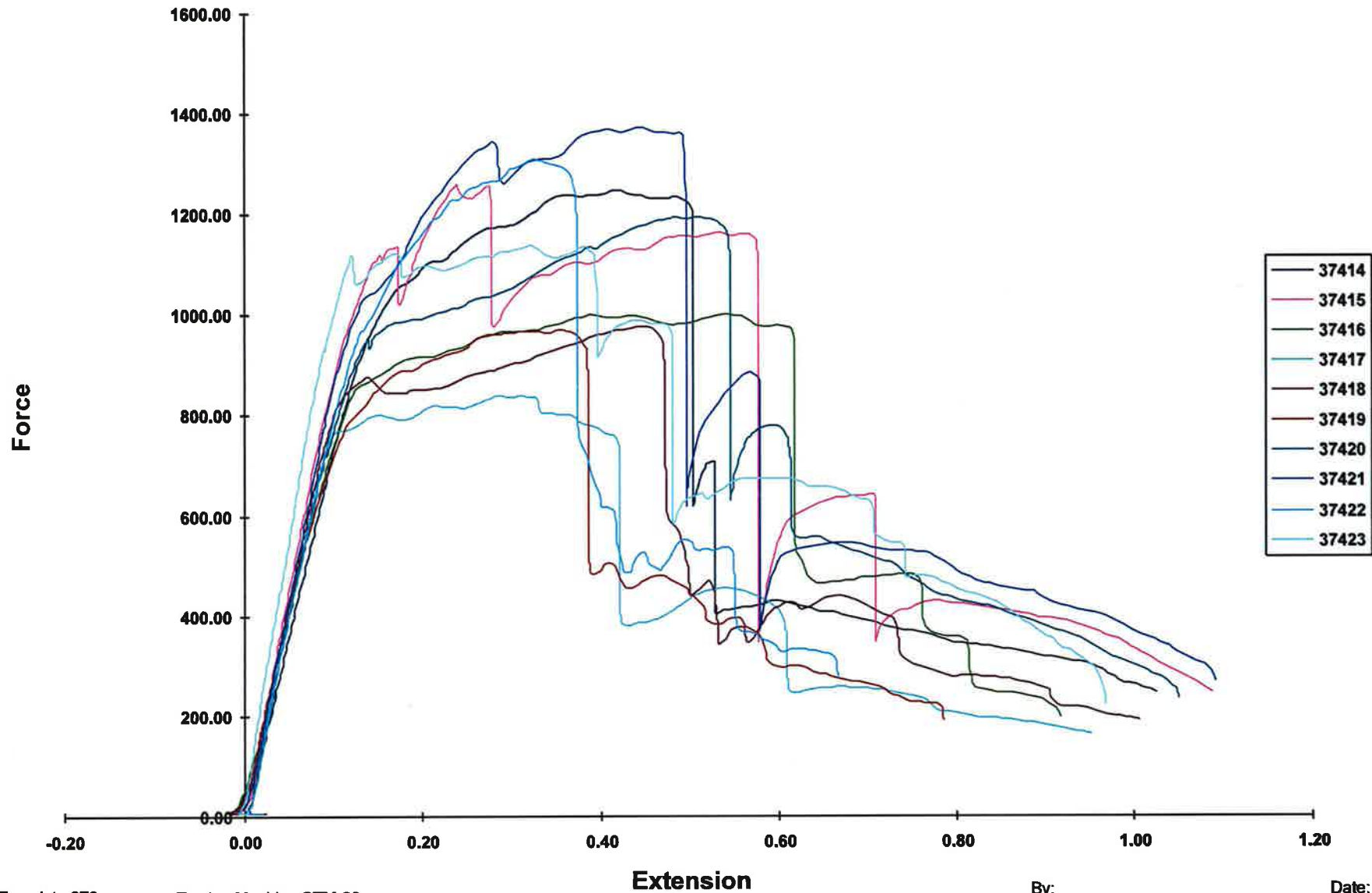
By: Javier Camacho Date: 6/20/12



Report No 9195

Pocket hole joint

Force (-Lbs) vs Extension (%)





Jun 26, 2012

Report No. 9197

Pocket hole joint

Test Date 20-Jun-12 Testing Machine STM-20

Customer Name: Kreg tools
Operator: Javier Camacho
Size of Specimen: 2" X 4"
Direction: Joint type 3
ASTM: D1761

Work Order: C-2310A
Fastener type: #14 X 2 1/2" #3PH-SQ RWH
Species of Wood: Cedar
Template: 270

Load Cell (01457) Capacity (-Lbs) 20000
Preload Value (-Lbs) 5

Crosshead Speed (-Inches / min) or 0.1
Extension or Position Measured by XHD_100 (XHD100)

Notes Bottom pressure w/2 fasteners.

Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37434	1-1	0.000	113.449	150.375	480.194	947.876	1,513.387	1,819.992	489.960	2,114.716
37435	1-2	0.000	5.264	5.264	171.738	616.608	1,146.927	1,577.988	597.076	1,924.057
37436	1-3	0.000	5.035	5.035	5.035	1,062.241	1,683.502	1,936.111	383.606	1,940.613
37437	1-4	0.000	5.035	5.035	5.035	5.035	1,254.196	1,526.337	1,935.349	1,947.632
37438	1-5	0.000	155.029	182.571	402.222	760.880	1,281.815	1,533.813	1,786.957	1,877.136
	Mean	0.000	58.763	69.656	212.845	678.528	1,375.961	1,678.848	1,038.589	1,960.631
	Median									
	Std Dev	0.000	72.238	89.112	221.020	413.519	217.720	187.466	756.498	90.308
	Maximum	0.000	155.029	182.571	480.194	1,062.241	1,683.502	1,936.111	1,935.349	2,114.716
	Minimum	0.000	5.035	5.035	5.035	5.035	1,146.927	1,526.337	383.606	1,877.136
	Range	0.000	149.994	177.536	475.159	1,057.205	536.575	409.775	1,551.743	237.579

By:

Javier Camacho

Date:

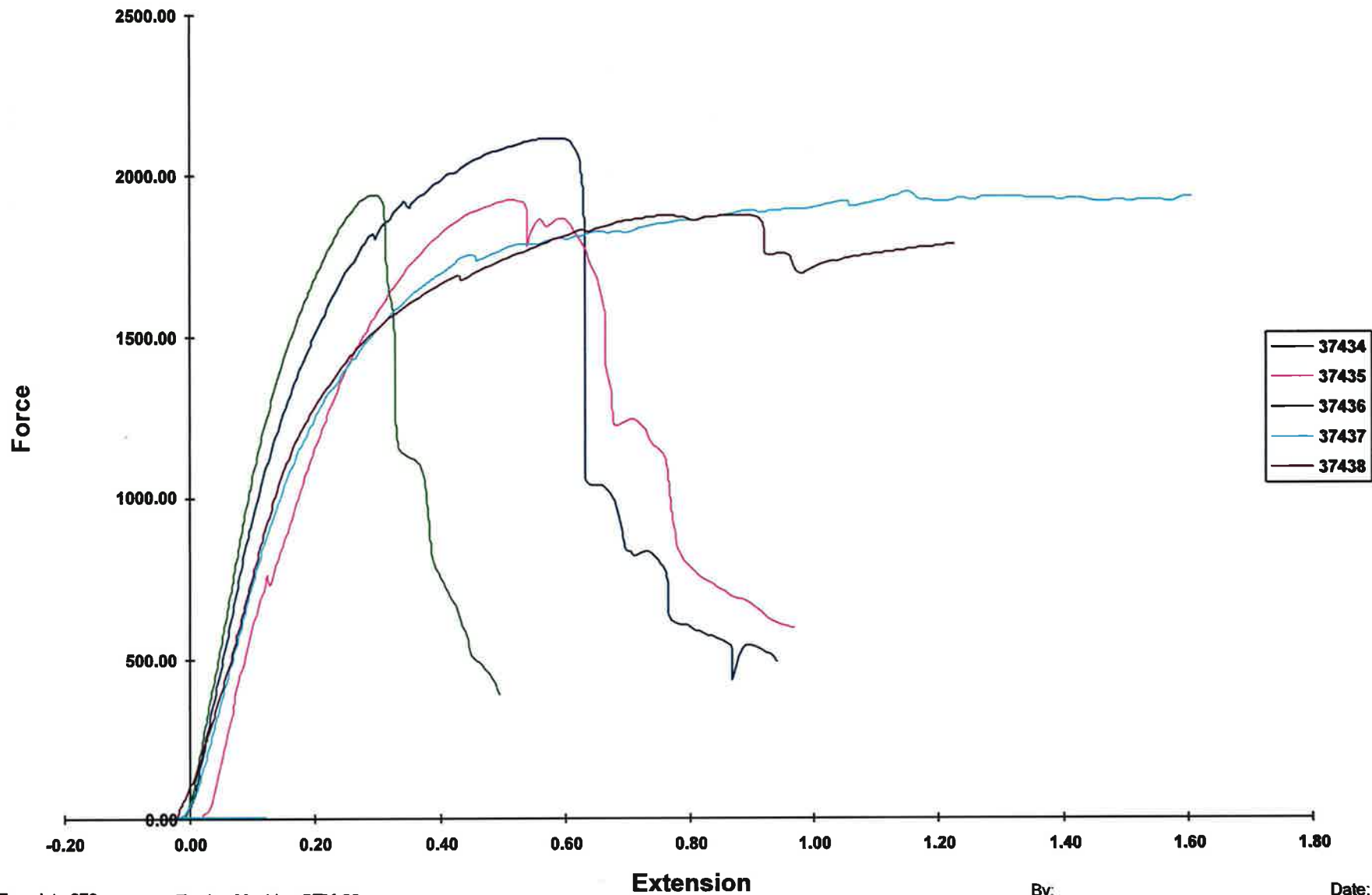
6/20/12



Report No 9197

Pocket hole joint

Force (-Lbs) vs Extension (%)





Jun 21, 2012

Report No. 9198

Pocket hole joint

Test Date 21-Jun-12 Testing Machine STM-20

Customer Name: Kreg tools

Operator: Javier Camacho

Size of Specimen: 2" X 4"

Direction: Joint type 3

ASTM: D1761

Work Order: C-2310A

Fastener type: #14 X 2 1/2" #3PH-SQ RWH

Species of Wood: ACQ

Template: 270

Load Cell (01457) Capacity (Lbs) 20000

Preload Value (Lbs) 5

Crosshead Speed (Inches / min) or Rate 0.1

Extension or Position Measured by XHD_100 (XHD100)

Notes Bottom pressure w/two fasteners.

Test No	Spec ID	Specimen Size (in)	Force @ 0.01" (lbs)	Force @ 0.015" (lbs)	Force @ 0.05" (lbs)	Force @ 0.1" (lbs)	Force @ 0.2" (lbs)	Force @ 0.3" (lbs)	Yield point (lbs)	Max Force (lbs)
37439	1-1	0.000	5.035	5.035	5.035	5.035	1,629.715		1,822.052	1,827.621
37440	1-2	0.000	95.444	138.702	477.600	1,031.342	1,682.892	2,207.489	2,624.741	2,696.228
37441	1-3	0.000	124.054	175.400	548.630	1,126.633	1,924.057	2,535.324	2,255.402	2,912.674
37442	1-4	0.000	5.035	5.035	5.035	5.035	1,736.755	2,449.493	2,784.653	3,527.803
37443	1-5	0.000	5.188	5.188	487.900	998.611	1,590.347	1,833.572	415.421	2,097.397
	Mean	0.000	46.951	65.872	304.840	633.331	1,712.753	2,256.470	1,980.454	2,612.305
	Median									
	Std Dev	0.000	58.212	84.240	275.025	575.478	130.380	314.250	950.245	673.775
	Maximum	0.000	124.054	175.400	548.630	1,126.633	1,924.057	2,535.324	2,784.653	3,527.803
	Minimum	0.000	5.035	5.035	5.035	5.035	1,590.347	1,833.572	415.421	1,827.621
	Range	0.000	119.019	170.364	543.594	1,121.597	333.710	701.752	2,369.232	1,699.982

By: Javier Camacho Date: 6/21/12



Report No 9198

Pocket hole joint

Force (-Lbs) vs Extension (%)

