



Performance Testing Services

PTS Test Report: 5709

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Revision: Release

Test Report Date: 08/05/19 Sample Receipt Date: 07/16/19 Sample Receipt Cond.: Normal Test Start Date: 07/17/19 Test Completion Date: 08/01/19

Customer:Kessebohmer Ergonomie of America Inc.3900 Linden Avenue SE – Suite A
Grand Rapids, MI 49548

1.0 Scope

To validate the Kessebohmer Andern & Luften Pneumatic Lift Tables to the applicable test sections of ANSI/BIFMA X5.5-2014 Desk/Table Products – Tests.

2.0 Product Descriptions

Sample	Sample Description	Qty.
ID		
5709-1	Kessebohmer Progress Mono Andern Table with Glides and 48" x 30" worksurface. Adjustment height range	1
	(floor to top of worksurface) = 28.0° - 46.0° .	
5709-2	Kessebohmer Progress Mono Andern Table with Casters and 48" x 30" worksurface. Adjustment height range	1
	(floor to top of worksurface) = 29.0° - 47.0° . Same sample as 5709-1 but with casters.	
5709-3	Kessebohmer Progress Twin Luften Table with Glides and 60" x 30" worksurface. Adjustment height range (floor	1
	to top of worksurface) = 28.0° - 46.0° .	
5709-4	Kessebohmer Progress Twin Luften Table with Glides and 60" x 30" worksurface. Adjustment height range (floor	1
	to top of worksurface) = 28.0° - 46.0° .	
5709-5	Kessebohmer Progress Twin Luften Table with Casters and 60" x 30" worksurface. Adjustment height range	1
	(floor to top of worksurface) = 29.0° - 47.0° . Same sample as 5709-4 but with casters.	





5709-1/5709-2 (Andern)

5709-3/5709-4/5709-5 (Luften)

3.0 Summary

-Sample 5709-1 met the requirements for all of the applicable ANSI/BIFMA X5.5-2014 Test Sections 4.3, 4.6, 5.2, 5.3, 5.4, 5.5, 6.0, 7.0, 8.0 and 15.0.

-Sample 5709-2 met the requirements for all of the applicable ANSI/BIFMA X5.5-2014 Test Sections 4.3, 4.4, 4.6, 5.2, 5.3, 5.4, 5.5, 6.0, 8.0 and 18.0.

-Sample 5709-3 met the requirements for ANSI/BIFMA X5.5-2014 Test Sections 4.3, 4.6, 5.2, 5.3, 5.4, 5.5. Sample 5709-3 <u>did not meet the</u> requirements for the Section 15 Work Surface Vertical Adjustment Test.

-Sample 5709-4 met the requirements for ANSI/BIFMA X5.5-2014 Test Sections 6.0, 7.0, 8.0 & 15.

-Sample 5709-5 met the requirements for all of the applicable ANSI/BIFMA X5.5-2014 Test Sections 4.3, 4.4, 4.6, 5.2, 5.3, 5.4, 5.5, 6.0, 8.0 and 18.0.

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4.0 Test Results

Sample	ANSI/BIFMA X5.5-2014	Met	Comments/Notes
ID	Test Description and	Criteria	
	Acceptance Criteria	?	
5709-1	Section 4.3 Stability Under	Yes	Checked front & rear center positions and corner position without any
5709-2	Vertical Load Test	Yes	issues observed.
	The unit shall not tip over.		-125 los. used on a 12 diameter disk, 1 in from the edge. Table Length $= 48.0^{\circ}$
			-Tested at maximum heights $(46.0^{\circ} \& 47.0^{\circ})$
5709-3	Section 4.3 Stability Under	Yes	Checked front & rear center positions and corner position without any
5709-4	Vertical Load Test	Yes	issues observed.
0105		100	
	The unit shall not tip over.		-125 lbs. used on a 12" diameter disk, 1" in from the edge.
	Ĩ		-Table Length = $60.0^{\circ\circ}$.
5700.0		NZ	-Tested at maximum heights $(46.0\% \& 47.0\%)$.
5709-2	Section 4.4 Horizontal Force	Yes	Met the requirements.
5709-5	Stability for Desks/Tables with	res	Force/Angle to Tin
	Casters.		5709-2 Back to Front = 12.1 lbf/8.8°.
	The unit shall not tip over (10 lbf or 10°		5709-2 Front to Back = 18.2 lbf/13.1°.
	minimum)		$5709-5$ Back to Front = 18.4 lbf/ 9.0° .
			5709-5 Front to Back = $25.1 \text{ lbf}/12.3^{\circ}$.
			-Tested at maximum heights (47.0").
5709-1	Section 4.6 Force Stability Test for	Yes	<u>Table Tipping Force (lbf)/Degrees to Tip</u> Laft Front = 21.6 lbf/18.6°
	Tall Desk/Table Products		$\frac{1}{1000} = 21.0 \frac{101}{10.0}$ Right Front = 21.8 lbf/18.6°
			Left Rear = $17.8 \text{ lbf}/16.2^{\circ}$
	The unit shall not tip over (40 lbf or 10		Right Rear = $17.9 \text{ lbf}/16.2^{\circ}$
	loss of serviceability		-Tested at maximum height (46.0").
5709-2	Section 4.6 Force Stability Test for	Yes	Table Tipping Force (lbf)/Degrees to Tip
	Tall Desk/Table Products		Left Front = $18.7 \text{ lbf}/17.8^{\circ}$
			Right Front = $18.8 \text{ lbf}/17.8^{\circ}$
	The unit shall not tip over (40 lbf or 10		Left Rear = $16.3 \text{ lbf}/14.4^{\circ}$
	degrees minimum), and there shall be no		Right Rear = $16.1 \text{ lbf}/14.4^{\circ}$
	loss of serviceability.		- Tested at maximum height (47.0).
5709-3	Section 4.6 Force Stability Test for	Yes	Table Tipping Force (lbf)/Degrees to Tip
	Tall Desk/Table Products		Left Front = $27.1 \text{ lbf}/18.5^\circ$
			$ \text{Kight From} = 27.2 \text{ lof}/16.3 $ $ \text{Left Rear} = 25.5 \text{ lbf}/16.1^{\circ} $
	The unit shall not tip over (40 lbf or 10		Right Rear = $25.4 \text{ lbf}/16.1^{\circ}$
	aegrees minimum), and there shall be no		-Tested at maximum height (46.0").
5709-5	Section 4 6 Force Stability Test for	Yes	Table Tipping Force (lbf)/Degrees to Tip
5107-5	Tall Desk/Table Products	103	Left Front = $25.4 \text{ lbf}/16.5^{\circ}$
	I un Desty Lable I Loudes		Right Front = $25.6 \text{ lbf}/16.5^{\circ}$
	The unit shall not tip over (40 lbf or 10		Left Rear = $21.5 \text{ lbf}/14.6^{\circ}$
	degrees minimum), and there shall be no		Right Rear = $21.6 \text{ lbf}/14.6^{\circ}$
	loss of serviceability.		-Tested at maximum height (47.0").
5709-1	Section 5.2 Concentrated	Yes	1 x 200 lbs. – 60 minutes - OK.
5709-2	Functional Load Test	Yes	-Table Length = 48.0° .
			-Tested at the front edge, center of span.
	There shall be no loss of serviceability		-Tables tested and set to a 38.0" height.
5709-3	Section 5.2 Concentrated	Yes	1 x 200 lbs. – 60 minutes - OK.
5709-5	Functional Load Test	Yes	-Table Length = 60.0 ".
			-Tested at the front edge, center of span.
1	There shall be no loss of serviceability		-Tables tested and set to a 38.0" height.



4.0 Test Results continued

Sample	ANSI/BIFMA X5.5-2014	Met	Comments/Notes	
ID	Test Description and	Criteria		
	Acceptance Criteria	?		
5709-1	Section 5.3 Distributed Functional	Yes	Perimeter = 156.0" x 1.5 = 234.0 lbs 60 minutes.	
5709-2	Load Test	Yes		
			-Table Length = 48.0° .	
	There shall be no loss of serviceability.		-Tested at maximum heights $(46.0^{27} \& 47.0^{27})$.	
5700.2		N7		
5709-3	Section 5.3 Distributed Functional	Yes	Perimeter = $180.0 \times 1.5 = 270.0 \text{ lbs.} - 60 \text{ minutes.}$	
5709-5	Load Test	Yes	-Table Length = 60.0°	
	There shall be no loss of service ability		-Tested at maximum heights $(46.0^{\circ\circ} \& 47.0^{\circ\circ})$	
	There shall be no loss of serviceability.			
5709-1	Section 5.4 Concentrated Proof	Yes	1 x 300 lbs. – 15 minutes – OK	
5709-2	Load Test	Yes		
			-Table Length = 48.0 °.	
	There shall be no sudden and major		-Tested at the front edge, center of span.	
	change in the struct6ural integrity of the		-Tables tested and set to a 38.0" height.	
	product. Loss of serviceability is			
	acceptable.	.		
5709-3	Section 5.4 Concentrated Proof	Yes	$1 \times 300 \text{ lbs.} - 15 \text{ minutes} - \text{OK}$	
5709-5	Load Test	Yes	-Table Length = 60.0°	
			-Tested at the front edge, center of span.	
	There shall be no sudden and major change in the structfural integrity of the		-Tables tested and set to a 38.0" height.	
	product Loss of serviceability is			
	acceptable.			
5709-1	Section 5.5 Distributed Proof Load	Yes	Perimeter = 156.0" x 2.3 = 358.8 lbs 15 minutes.	
5709-2	Test	Yes		
			-Table Length = 48.0° .	
	There shall be no sudden and major		-Tested at maximum heights $(46.0^{27} \& 47.0^{27})$.	
	change in the struct6ural integrity of the			
	product. Loss of serviceability is			
	acceptable.			
5700.3	Section 5.5 Distributed Breaf Load	Vac	Perimeter - 180.0° x 2.3 = 414.0 lbs = 15 minutes	
5709-5	Test	Vas	1 children = 100.0 x 2.5 = 414.0 lbs. = 15 limitutes.	
5709-5	Test	105	-Table Length = 60.0° .	
	There shall be no sudden and major		-Tested at maximum heights (46.0" & 47.0").	
	change in the struct6ural integrity of the			
	product. Loss of serviceability is			
	acceptable.			
	-			
5709-1	Section 6.0 Top Load Ease Cycle	Yes	10,000 cycles completed on each table without issue using 200 lbs.	
5709-2	Test	Yes	Units tostad at Mid Haight (27.0" & 29.0")	
			-Units tested at Mild Height (57.0 & 58.0).	
	There shall be no loss of serviceability to		-rested at the none edge, center of span.	
5700.2	Ine unit.	V	10,000 avalas completed on each table without issue using 200 lbs	
5700 4	Tost	I es Vac	10,000 cycles completed on each lable without issue using 200 lbs.	
5709-4	1050	108	-Units tested at Mid Height (37.0" & 38.0").	
	There shall be no loss of service ability to		-Tested at the front edge, center of span.	
	the unit.			

Performance Testing Services 5241 Edgeway Suite B Allendale, MI 49401 (616) 895-1244 Fax: (616) 895-1244

THIS TEST SUMMARY REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL ONLY WITH PERFORMANCE TESTING SERVICES APPROVAL TEST RESULTS IN THIS TEST SUMMARY REPORT RELATE ONLY TO THE SPECIFIC TEST SAMPLE(S) LISTED!



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4.0 Test Results continued

Sample	ANSI/BIFMA X5.5-2014	Met	Comments/Notes	
ĪD	Test Description and	Criteria		
	Acceptance Criteria	?		
5709-1	Section 7.0 Desk/Table Unit Drop	Yes	5709-1 Weight = 90.1 lbs. = 7.1" drops - both ends without issue.	
5709-4	Test	Yes	5709-3 Weight = 119.1 lbs. = 4.7 " drops - both ends without issue.	
	There shall be no loss of serviceability.		-Units tested at Mid height = 37.0".	
5709-1	Section 8 Leg Strength Test	Yes	Functional and Proof Load Requirements (Category I)	
	Functional Load		FA = 0.5 (90.1) + 50 lbf = 95.0 lbf.	
	No loss of serviceability shall occur as a		FB = 0.5 x FA = 47.5 lbf.	
	result of the application of the functional		$PA = 1.5 \times FA = 142.0 \text{ IDI.}$ $DB = 1.5 \times FB = 71.3 \text{ Ibf}$	
	loads.		$1 D = 1.5 \times 1 D = 71.5 101$	
	<u>Proof Loads</u>		-Unit tested at Mid height = 37.0° .	
	Application of the proof loads shall cause		-Table Weight = 90.1 lbs.	
	no sudden and major change in the		6	
	structural integrity of the product. Loss			
5700.2	Section 8 Log Strongth Test	Vac	Functional and Proof L and Paguiraments (Catagory I)	
5709-2	Section o Leg Strength Test	105	$\frac{1}{1} \frac{1}{1} \frac{1}$	
	<u>Functional Load</u>		FB = 0.5 x FA = 48.0 lbf.	
	No loss of serviceability shall occur as a		PA = 1.5 x FA = 144.1 lbf.	
	result of the application of the functional		PB = 1.5 x FB = 72.0 lbf	
	loads.			
	<u>Proof Loads</u> Application of the proof loads shall equip		-Unit tested at Mid height = 38.0".	
	no sudden and major change in the		-Table Weight = 92.1 lbs.	
	structural integrity of the product. Loss			
	of serviceability is acceptable.			
5709-4	Section 8 Leg Strength Test	Yes	Functional and Proof Load Requirements (Category I)	
	Functional Load		$FA = 0.5 (119.1) + 50 lbf = \frac{109.55 lbf}{100 lbf}$, 100 lbf max allowed.	
	No loss of serviceability shall occur as a		FB = 0.5 x FA = 50 lbf	
	result of the application of the functional		PA = 1.5 x FA (100 lbf) = 150.0 lbf.	
	loads.		PB = 1.5 x FB = 75 lbI	
	Proof Loads		Unit tested at Mid height -37.0 "	
	Application of the proof loads shall cause		-Table Weight = 119.1 lbs.	
	no sudden and major change in the			
	structural integrity of the product. Loss			
5709-5	Section 8 Leg Strength Test	Yes	Functional and Proof Load Requirements (Category I)	
	Functional Load		$FA = 0.5 (120.9) + 50 lbf = \frac{110.45 lbf}{100}$, 100 lbf max allowed.	
	No loss of serviceability shall occur as a		FB = 0.5 x FA = 50 lbf	
	result of the application of the functional		PA = 1.5 x FA (100 lbf) = 150.0 lbf.	
	loads.		PB = 1.5 x FB = 75 lbt	
	Proof Loads		Unit tested at Mid height - 29.0"	
	Application of the proof loads shall cause		-One tested at which length = 30.0° . -Table Weight = 120.9 lbs	
	no sudden and major change in the		rubio (reight = 120.7 105.	
	structural integrity of the product. Loss			
	of serviceability is acceptable.			

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Test Report Performance Testing Services

4.0 Test Results continued

Sample	ANSI/BIFMA X5.5-2014	Met	Comments/Notes
ID	Test Description and	Criteria	
	Acceptance Criteria	?	
5709-1	Section 15 Work Surface Vertical Adjustment Test There shall be no loss of serviceability to the unit.	Yes	 4,000 cycles total completed without any issues observed using a 100 lb. load on the top right hand side (2,000 cycles) and top left hand side (2,000 cycles) per the standard. -The activating mechanism lever was not cycled independently per the standard and per the customer's request -Adjustment height range (floor to top of worksurface) = 28.0"- 46.0".
5709-3	Section 15 Work Surface Vertical Adjustment Test There shall be no loss of serviceability to the unit.	No	Did not meet the requirements. After 3,741 cycles, the right column bearing pack becoming dislodged from its position and the table would not move in the downward direction without high force. When the bearing pack became dislodged, the table would not naturally drop in the downward direction with the load on the table from the full upward position and the air cylinder used to raise and lower the table loaded on the top of the worksurface and broke the worksurface off. This table had already gone through the strength tests (Sections 5.2-5.5) prior to this test. -The activating mechanism lever was not cycled independently per the standard and per the customer's request -Adjustment height range (floor to top of worksurface) = 28.0"- 46.0".
5709-4	Section 15 Work Surface Vertical Adjustment Test	Yes	4,000 cycles total completed without any issues observed using a 100 lb. load on the top right hand side (2,000 cycles) and top left hand side (2,000 cycles) per the standard.
	There shall be no loss of serviceability to the unit.		-The activating mechanism lever was not cycled independently per the standard and per the customer's request -Adjustment height range (floor to top of worksurface) = 28.0"- 46.0".
5709-2	Section 18 Durability Test for	Yes	2,500 cycles total completed without any issues observed
	Desks and Tables with Casters <i>There shall be no loss of serviceability to</i> <i>a caster or the desk/table.</i>		 -2,500 cycles completed over obstacles without any issues observed. -85 lb. load applied to the center of the table through a 8" diameter disk. Table Weight = 92.1 lbs.
5709-5	Section 18 Durability Test for Desks and Tables with Casters There shall be no loss of serviceability to a caster or the desk/table.	Yes	 1,100 cycles total completed without any issues observed -100 cycles completed over obstacles and 1,000 cycles completed on a flat surface without any issues observed. -85 lb. load applied to the center of the table through a 8" diameter disk. Table Weight = 120.9 lbs.

All testing performed from 07/17/19 to 08/01/19 with the temperature and humidity ranges at 23.6-28.1°C/31-53%RH.

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4.1 Test Photos

Section 4.3



Section 5.3



Section 4.4

Section 5.4

Section 4.6



Section 6.0

Section 5.2

Section 7.0



Section 8.0

Section 15

-----Section 15 Sample 5709-3 Issue-----



Section 18

5.0 Test Equipment Used

Equipment#	Serial Number	Description	Calibration Due
434	PTS	Digital Scale	05/11/20
426	PTS	Measuring Rule – 36"	08/13/20
PTS	PTS	Measuring Tape – 25'	Reference Only
PTS	PTS	2.5, 5, 10, 25, 50 lb. and various weights/bags/paper	06/01/20
402	Y9803D032	Shimpo Digital Force Gauge – 500 lbf	03/15/20
419	31-038-3	Digital Protractor	01/16/21

Nuch

Approved By:__

Kirk Craymer Test Engineer