

## Test Report

No.: SDHL1603002661FT

Date: Mar.18, 2016

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WENCHEN FURNITURE LIMITED  
5, GEGAO GONGYE LU, LONGJIANG, SHUNDE, FOSHAN, GUANGDONG, CHINA

The following sample(s) was / were submitted and identified on behalf of the client as:

Sample Description : HIGH BACK CHAIR  
Style / Item No. : H2133  
Manufacturer : WENCHEN FURNITURE LIMITED  
Sample Receiving Date : Mar.09, 2016  
Test Performing Date : Mar.09, 2016 to Mar.18, 2016

### Test Result Summary

Test(s) Requested	Result(s)
BS EN 12520:2015 excluding Clause 5.2.3	PASS

#### Summary:

1. For further details, please refer to the following page(s).

Signed for and on behalf of  
Shunde Branch  
SGS-CSTC Co., Ltd.



Bill Wang  
Approved signatory



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SGS-CSTC Standards Technical Services Co., Ltd.  
Shunde Branch

1/F, 1<sup>st</sup> Building, European Industrial Park, No.1 Shunhenan Road, Wusha Section, Daikang Town, Shunde, Foshan, Guangdong, China 528333 t (86-757)22805888 f (86-757)22805858 www.sgs.com.cn  
中国·广东·佛山市顺德区大良街道办事处五沙顺和南路1号欧洲工业园一号厂房首层 邮编: 528333 t (86-757)22805888 f (86-757)22805858 e [sgs.china@sgs.com](mailto:sgs.china@sgs.com)

**TESTS AND RESULTS**

**Test Conducted:**

BS EN 12520:2015 Furniture — Strength, durability and safety -- Requirements for domestic seating excluding Clause 5.2.3

**No. of Sample:**

1 piece (Sample 1). For more sample information and pictures, please refer to the following page.

Test and Requirements	Test Results
<b>5 Constructional requirements</b>	
<b>5.1 General requirements</b>	
<ul style="list-style-type: none"> <li>- Edges of the seat, back rest and arm rests, which are in contact with the user when sitting are rounded or chamfered. All other edges accessible during use shall be free from burrs and/or sharp edges;</li> <li>- Ends of hollow components are closed or capped.</li> <li>- Movable and adjustable parts shall be designed so that injuries and inadvertent operation are avoided.</li> <li>- It shall not be possible for any load bearing part of the seating to come loose unintentionally.</li> <li>- All parts which are lubricated to assist sliding shall be designed to protect users from lubricant stains when in normal use.</li> </ul>	PASS
<b>5.2 Shear and squeeze points</b>	
<b>5.2.1 Shear and squeeze points when setting up and folding</b>	
<p>Unless 5.2.2 or 5.2.3 are applicable, shear and squeeze points, that are created only during setting up and folding, including tipping seat, are acceptable, because the user can be assumed to be in control of his/her movements and to be able to cease applying the force immediately upon experiencing pain. The edges of parts moving relative to each other and creating shear and squeeze points shall be as specified in 5.1.</p>	PASS
<b>5.2.2 Shear and squeeze points under the influence of powered mechanisms</b>	
<p>With the exception of tipping seats there shall be no shear and squeeze points created by parts of the seating under powered mechanisms, e.g. springs and gas lifts. <i>NOTE Electrically operated seating is covered by EEC Directives for EMC, Machinery, Low Voltage or Medical Devices.</i></p>	PASS
<b>5.2.3 Shear and squeeze points during use</b>	
<p>There shall be no shear and squeeze points created by loads applied during normal use. The loads applied during normal use can be found in Table 1. Shear and squeeze points are not acceptable if a hazard is created by the weight of the user during normal movements and actions, e.g. attempting to move the seating by lifting the seat or by adjusting the backrest. <i>NOTE This hazard is best prevented by the use of automatic locking mechanisms.</i></p>	N/R
<b>5.3 Stability (With reference to BS EN 1022:2005).</b>	
The seating shall not overturn when tested as below.	



Test and Requirements	Test Results
<p><b>EN 1022, 6.2 Forwards overbalancing, all seating</b> Apply a force <math>F_v = 600</math> N vertically (for multiple sitting places to a maximum of 2 places) by means of the loading pad acting at those points 60 mm behind the front edge of the load bearing structure most likely to result in overturning. At each loaded position apply a force <math>F_H = 20</math> N for at least 5 s horizontally outwards along a horizontal line extended forward from the point where the base of the loading pad meets the upper surface of the seat.</p>	PASS
<p><b>EN 1022, 6.3 Forwards overturning for seating with footrest</b> For seating with footrests repeat the procedure in 6.2 applying the vertical and horizontal loads to the footrests. For footrests of tubular construction the loads shall be applied along the centre line of the tube.</p>	N/A
<p><b>EN 1022, 6.4 Sideways overbalancing, all seating without arms</b> Apply a force <math>F_v = 600</math> N vertically by means of the loading pad at those points 60 mm behind the edge of the load bearing structure of the side nearest the stopped feet most likely to result in overturning. Apply a sideways force <math>F_H = 20</math> N horizontally outwards for at least 5 s along a line from the point where the base of the loading pad meets the upper surface of the seat.</p>	N/A
<p><b>EN 1022, 6.5 Sideways overbalancing, all seating with arms</b> Apply a vertical force <math>F_1 = 350</math> N by means of the loading pad at a position on the centre line of the arm up to a maximum 40 mm inwards from the outer edge of the arm structure at the most adverse position along its length. Apply a vertical force <math>F_2 = 250</math> N at a point 100 mm to the side of the fore and aft centre line of the seat which is nearest the stopped feet and at the same distance from the backrest as the arm loads. Apply a horizontal force <math>F_H = 20</math> N outwards, and perpendicular to the line joining the stopped feet, for at least 5 s, at the upper surface of the armrest in line with the vertical arm force and on the side with stopped feet.</p>	PASS
<p><b>EN 1022, 6.6 Rearwards overbalancing, all seating with backs</b> All adjustable backs shall be set in their most upright position. Apply a vertical force <math>F_v = 600</math> N to the seat by means of the loading pad at the seat loading point (A) determined by the loading point template. Determine the distance (H) in millimeters between the loaded seat and the floor.</p> <ul style="list-style-type: none"> <li>- For seating having a value of <math>H \geq 720</math> mm uses a force <math>F_H = 80</math> N.</li> <li>- For seating having a value of <math>H &lt; 720</math> mm calculate the force F, in newtons, required from the following formula: <math>F_H = 0, 2857 (1000-H)</math>. Where: H is in millimeters; F is in newtons.</li> </ul> <p>Apply the force F horizontally for at least 5 s in a rearward direction to the back of the seating at the point (B) determined by the loading point template, or at the top edge of the back rest, whichever is the lower. When the seating has more than one sitting place, carry out the procedure on two most adverse sitting places simultaneously.</p>	PASS
<p><b>EN 1022, 7.3 Tilting chairs</b> The test method applies to all values of <math>\theta \geq 10^\circ</math> and values of <math>\gamma</math> between <math>90^\circ</math> and <math>170^\circ</math>. If the seating has a locking system it shall be set in the fully tilted position. Load the seat with 11 loading discs (10 kg) so that the discs are firmly settled against the back rest.</p>	PASS
<p><b>EN 1022, 7.4 Rocking chairs</b> Load the chair with 8 loading discs (10 kg) so that the discs rest against the chair back. Rock the chair forwards as far as is practicable or until the back is vertical. Allow the chair to rock rearwards freely under gravity.</p>	N/A



Test and Requirements	Test Results
<p><b>EN 1022, 7.5 Reclining chairs with footrest</b>                      The test method applies to all values of <math>\theta \geq 10^\circ</math> and values of <math>\gamma</math> between <math>90^\circ</math> and <math>170^\circ</math>. With the chair in the fully reclined configuration, load the back of the chair with 8 loading discs (10 kg) by means of the support device and place 3 loading discs (10 kg) onto the footrest at a distance Z from the intersection of the seat and back.</p>	<p>N/A</p>
<p><b>EN 1022, 7.6 Footrest test</b>                      In some cases the forward stability test cannot be carried out on a reclining chair because the footrest folds up. In this case, the forward stability test shall be applied with the footrest in the folded condition only. However, in those cases where the footrest does not fold as the sitter's weight is moved towards the footrest (e.g. lever operated chairs) the forward stability test shall be applied to the footrest in its fully extended position.</p>	<p>N/A</p>
<p><b>EN 1022, 7.7 Reclining chairs without footrest</b>                      The test method applies to all values of <math>\theta \geq 10^\circ</math> and values of <math>\gamma</math> between <math>90^\circ</math> and <math>170^\circ</math>. Load the back of the chair with 8 loading discs (10 kg) by means of the support device and place three loading discs onto the front of the seat of the chair at a distance X from the intersection of the seat and back.</p>	<p>N/A</p>
<p><b>5.4 Strength and durability (With reference to the test methods of EN 1728:2012/AC:2013 D/E/F)</b>                      Seating shall be tested for strength and durability according to and in the order as below. The strength and durability requirements are fulfilled when during and after testing as below.                      a) there are no fractures of any member, joint or component;                      b) there are no loosening of joints intended to be rigid;                      c) seating fulfils its functions after removal of the test loads;                      d) seating fulfils the stability requirements.</p>	
<p><b>EN 1728, 6.4 Seat and Back Static Load Test</b>                      Apply the downward force <math>F_v</math> at the seat loading position. With the downward force maintained, apply the back force <math>F_H</math> at back loading position. Remove the back load and then the seat load. Seating with a fixed back position, and seating with reclining mechanisms that cannot be locked into a fixed position, shall be tested for the number of 10 cycles; Seating with reclining mechanisms that can be set or locked in a number of positions shall be tested for 5 cycles in the most upright position, and 5 cycles in the most adverse reclined position. The force <math>F_v</math> and <math>F_H</math> are decided by following rules:                      When <math>\theta_{min} \geq 70^\circ</math>, <math>F_v = 1300N</math>, <math>F_H = 450N</math>;                      When <math>55^\circ \leq \theta_{min} &lt; 70^\circ</math>,  <math>F_v = 1300N \times \sin\theta_{min}</math>  <math>F_H = (\theta/60^\circ - 0.1666) \times 1300N \times \cos\theta_{min}</math>                      When <math>\theta_{min} &lt; 55^\circ</math>,  <math>F_v = 975N</math>  <math>F_H = 975N \times \cos\theta_{min}</math>   <i>Note: Only the vertical seat static force shall be applied to items without a back rest.                      Minimum back force, 410 N.                      Load applied to seats not being tested, 750 N.</i></p>	<p>PASS</p>



Test and Requirements	Test Results
<p><b>EN 1728, 6.5 Seat front edge static load</b>            Apply the vertical force of 1300N using the seat loading pad at a point on the seat centre line 100 mm inwards from the front edge of the structure.            For multiple seating units, the seat front edge static load test shall be carried out simultaneously on the same seats as used for the seat and back static load test (6.4). During the test, load the seat(s) that are not being tested with the specified seat load for parts not undergoing test, applied at the seat loading position. Repeat above operation for 10 cycles.  <i>Note: Load applied to seats not being tested, 750 N.</i></p>	<p>PASS</p>
<p><b>EN 1728, 6.8 Foot rest static load test</b>            Apply the specified downward force to the seat at the seat loading point.            Apply a vertical force of 1000N by means of the local loading pad (D = 100mm) acting 80 mm from front edge of the load bearing structure of the foot rest at those points most likely to cause failure. For round cross section ring shaped footrests, the force shall be applied through the centre of the ring cross section. Repeat above operation for 10 cycles.  <i>Note: This test is only applicable to seating with a seat height greater than 600 mm. Minimum seat force, 750 N.</i></p>	<p>N/A</p>
<p><b>EN 1728, 6.10 Arm rest sideways static load test</b>            For seating with one arm rest, apply an outward force of 300N to the arm rest at the point along the arm rest most likely to cause failure, but not less than 100 mm from the end of the arm rest structure. Apply the force using the local loading pad (D = 100mm). For seating with two arm rests, apply an outward force to each arm rest of the unit simultaneously.            For seating with three or more arm rests, carry out the test on one pair of adjacent arm rests. All different arm rest designs shall be tested.            Repeat above operation for 10 cycles.</p>	<p>PASS</p>
<p><b>EN 1728, 6.11 Arm rest downwards static load test</b>            For seating which only has one arm rest, or which has two arm rests where the distance between the centre of the arm rests is more than 1000 mm, apply the vertical force 700N at the points along the arm rest most likely to cause failure, but not less than 100 mm from the end of the arm rest structure.            For seating with two arm rests, where the distance between the centre of the arm rests is 1 000 mm or less, apply the vertical force simultaneously to both arm rests.            For seating with three or more arm rests, carry out the test on one pair of adjacent arm rests. All different arm rest designs shall be tested. Repeat above operation for 10 cycles.  <i>Note: Loading pad: D = 200 mm or 100mm.</i></p>	<p>PASS</p>



Test and Requirements	Test Results
<p><b>EN 1728, 6.17 Combined seat and back durability test</b>            Apply the downward force <math>F_v</math> at the seat loading position. With the downward force maintained, apply the back force <math>F_H</math> at back loading position. Remove the back load and then the seat load. Seating with a fixed back position, and seating with reclining mechanisms that cannot be locked into a fixed position, shall be tested for the number of 25000 cycles; Seating with reclining mechanisms that can be set or locked in a number of positions shall be tested for 12500 cycles in the most upright position, and 12500 cycles in the most adverse reclined position. The force <math>F_v</math> and <math>F_H</math> are decided by following rules:            When <math>\varnothing_{min} \geq 70^\circ</math>, <math>F_v=1000N</math>, <math>F_H= 300N</math>;            When <math>55^\circ \leq \varnothing_{min} &lt; 70^\circ</math>,  <math>F_v = 1000N \times \sin\varnothing_{min}</math>  <math>F_H = (\varnothing/60^\circ - 0.1666) \times 1000N \times \cos\varnothing_{min}</math>            When <math>\varnothing_{min} &lt; 55^\circ</math>,  <math>F_v = 750N</math>  <math>F_H = 750N \times \cos\varnothing_{min}</math>  <i>Note: The minimum back force is the force that just prevents rearward overturning.            Only the vertical seat durability force shall be applied to items without a back rest.            Load applied to seats not being tested, 750 N.</i></p>	<p>PASS</p>
<p><b>EN 1728, 6.18 Seat front edge durability test</b>            Apply the vertical seat durability force <math>F_v = 800N</math> using the smaller seat loading pad (<math>D=100mm</math>) alternately on two points each 80 mm from the front edge of the seat structure and as near as possible to either side of the seat but not less than 80 mm from the edges. One cycle is one application of the specified force to each load position. For seating where it is not possible to apply the force at two points, the force shall be applied to a single position on the longitudinal axes at a point 80 mm from the front edge of the seat structure. One cycle is two applications of the specified force. Repeat above operation for 20000 cycles.   <i>Note: In derogation of EN 1728:2012 the loading points shall be 80 mm from the relevant edges of the seat.</i></p>	<p>PASS</p>
<p><b>EN 1728, 6.20 Arm rest durability test</b>            The test load of 400 N shall be applied simultaneously on two points for 10000 cycles, at the point most likely to cause failure, but not less than 100 mm from the front or rear edge of the arm rest length and through the centre of the width of the arm rest, but not more than 100 mm from the inner edge of the arm rest.            The force shall be applied at an angle of <math>(10 \pm 1)^\circ</math> to the vertical, and to both arm rests simultaneously for seating with only one seating position and to one arm rest only for seating with multiple seating positions.</p>	<p>PASS</p>
<p><b>EN 1728, 6.15 Leg forward static load test</b>            For seating with a single seat, apply the seat load <math>F_v = 1000 N</math> at the seat loading position. Apply the horizontal force <math>F_H = 400 N</math> (max.) centrally to the rear of the seat, at seat level, in a forward direction, by means of the local loading pad (<math>D=100mm</math>). For seating with multiple seating positions, apply the horizontal force of the most adverse seat position.            For seating with only three legs, one foot on the fore and aft centre line of the item of seating and one other foot shall be restrained by stops.            Repeat above operation for 10 times.</p>	<p>N/A</p>



Test and Requirements	Test Results
<p><b>EN 1728, 6.16 Leg sideways static load test</b>            Apply the seat load <math>F_v = 1000\text{ N}</math> at any position not more than 150mm from the unload edge of the seat. Apply a horizontal force <math>F_H = 300\text{ N}</math> (max.) centrally to the unrestrained side of the seat, at seat level, in a direction towards the restrained feet. For seating with only three legs, one foot on the fore and aft centre line of the item of seating and one other foot shall be restrained by stops. Repeat above operation for 10 times.</p>	<p>N/A</p>
<p><b>EN 1728, 6.24 Seat Impact Test</b>            Allow the seat impactor to fall freely from the height of 180 mm onto the seat loading position, Repeat the test at one other position considered likely to cause failure, but not less than 100 mm from any edge of the seat. For multiple seating units, apply the test to one end seat and an intermediate seating position. Repeat above operation for 10 times.</p>	<p>PASS</p>
<p><b>EN 1728, 6.28 Backwards Fall Test</b>            Place the unloaded seating on the drop test floor in normal use position. Apply a rearward horizontal load to a point 50 mm below the top of the back rest in the centre of the back rest. Measure the force required to lift the front legs off the floor. If the measured force is less than <math>F_H &lt; 30\text{N}</math>, push the top of the back rest rearwards until it reaches the equilibrium point. Allow it to fall freely on its back, onto the rubber faced test floor, without initial force or velocity. Repeat the operation for 5 cycles.  <i>Note: This test is only for single seating units where the back will be the first part of the structure to strike the floor and the force used to overturn the chair rearwards is <math>F_H &lt; 30\text{ N}</math>.</i></p>	<p>PASS</p>
<p><b>EN 1728, 6.25 Back Impact Test</b>            Prevent the chair from movement by stops against the front leg. Allow the impact hammer (8.5 kg) to fall freely from the height <math>H = 120\text{ mm}</math> or an angle <math>\theta = 28^\circ</math> onto the center of the top outside of the chair back for 10 times. If the item has no back, strike the centre of the seat rear edge. If a stool or bench has no easily determined rear edge, apply the test in the direction most likely to cause failure.  <i>Note: This test is for all seating not tested in accordance with Backward fall test (EN 1728, 6.28).</i></p>	<p>N/A</p>
<p><b>6 Information for use</b>            Information for use shall be available in the language of the country in which it will be delivered to the end user. It shall contain at least the following details:            a) assembly instructions, where applicable;            b) instructions for the care and maintenance of the seating;            c) if the seating is fitted with seat height adjustments with energy accumulators, an additional note is required pointing out that only trained personnel may replace or repair seat height adjustment components with energy accumulators.</p>	<p>PASS (softcopy)</p>

**Remark:**

1. N/A – Not applicable; N/R – Not Requested; N/P – Not provided.
2. For the sample information and pictures, please refer to the following page.



**SAMPLE INFORMATION AND PICTURES**

Sample as Received



View 1



View 2



View 3



View 4



SGS-CSTC Standards Technical Services Co., Ltd.  
Shunde Branch

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\*\*\*End of Report\*\*\*



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