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| Prüfbericht-Nr.: <i>Test Report No.:</i> | 50172125-001 | Auftrags-Nr.: <i>Order No.:</i> | 154334770 | Seite 1 von 15 <i>Page 1 of 15</i> | |
| Kunden-Referenz-Nr.: <i>Client Reference No.:</i> | N/A | Auftragsdatum: <i>Order date:</i> | 09.08.2018 | | |
| Auftraggeber: <i>Client:</i> | Guangzhou Jing Sheng Machine Co.,LTD/N0100 East Wreath Road Luojia Village Shiji Town Panyu Guangzhou China Gu 511450 | | | | |
| Prüfgegenstand: <i>Test item:</i> | 6" center locking caster | | | | |
| Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i> | Article No.:KKC607CL | | | | |
| Auftrags-Inhalt: <i>Order content:</i> | Mechanical test report according to client's requirements | | | | |
| Prüfgrundlage: <i>Test specification:</i> | EN12531-1999 Castors and wheels - Medical castors | | | | |
| Wareneingangsdatum: <i>Date of receipt:</i> | 09.08.2018 |  | | | |
| Prüfmuster-Nr.: <i>Test sample No.:</i> | A000788800-001, 002 | | | | |
| Prüfzeitraum: <i>Testing period:</i> | 09.08.2018 - 17.08.2018 | | | | |
| Ort der Prüfung: <i>Place of testing:</i> | Shanghai | | | | |
| Prüflaboratorium: <i>Testing laboratory:</i> | TÜV Rheinland (Shanghai) Co., Ltd. | | | | |
| Prüfergebnis*: <i>Test result*:</i> | Pass | | | | |
| geprüft von / tested by: | <i>Ricky</i> | | | | kontrolliert von / reviewed by: |
| 17.08.2018 Ricky Wang/ PE | | 17.08.2018 Tu Feng / Reviewer | | | |
| Datum <i>Date</i> | Name / Stellung <i>Name / Position</i> | Unterschrift <i>Signature</i> | Datum <i>Date</i> | Name / Stellung <i>Name / Position</i> | Unterschrift <i>Signature</i> |
| Sonstiges / Other: Acc. to client's request, the evaluation of EN12531-1999 cl. 7 Marking was not performed. | | | | | |
| Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i> | | | Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i> | | |
| <p>* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet</p> <p>Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested</p> | | | | | |
| <p>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i></p> | | | | | |

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Produktbeschreibung
Product description

| | | |
|----------|----------------------------------------------------------------|-------------------------------|
| 1 | Produktdetails <i>Product details</i> | 6" center locking caster |
| 2 | Maße / Gewicht <i>Dimensions / Weight</i> | Weight: 1.29kg |
| 3 | Bedienelemente <i>Operating elements</i> | N/A |
| 4 | Ausstattung / Zubehör <i>Equipment / Accessories</i> | N/A |
| 5 | Verwendete Materialien <i>Used materials</i> | N/A |
| 6 | Sonstiges <i>Other</i> | Load capacity: 150kg (1500N). |

Castor

Castor removed the plastic housing



Locking device worked

Stem



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|---|----------------------|
| 1 | Scope |
| 2 | Normative references |
| 3 | Definitions |
| 4 | Dimension |

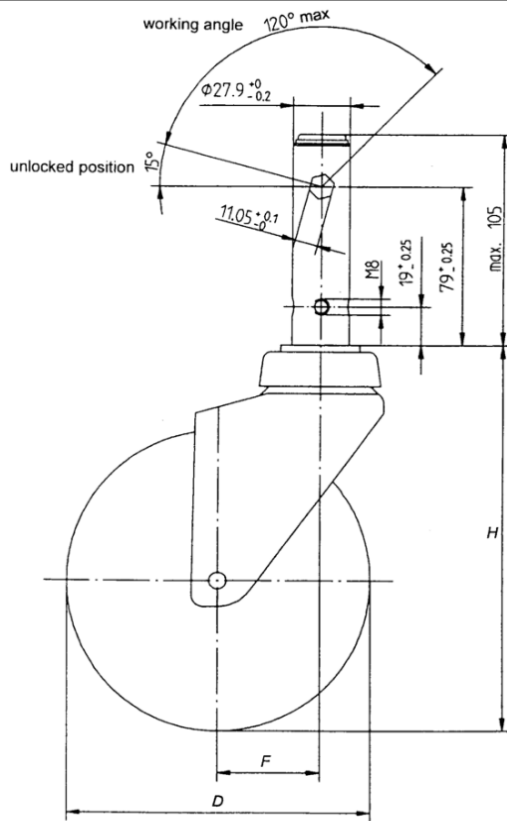


Table 1 — Principal dimensions of swivel castors for hospital beds

Dimensions in millimetres

| Wheel diameter (D) | Overall height (H) | Offset (F) |
|-----------------------|-----------------------|---------------|
| Tolerance: ± 1 % | max. | max. |
| 100 | 150 | 46 |
| 125 | 175 | 56 |
| 150 | 200 | 65 |
| 200 | 250 | 70 |
| 250 | 300 | 80 |

Figure 1 — Principal dimensions of the central locking fixing

| | | | |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|---|
| 4.1 | <p>Fixing system</p> <ul style="list-style-type: none"> • Wheel diameter • Overall height • Offset • Stem length • Stem diameter • Distance of the threaded hole centre from the stem collar • Thread size • Distance of the hexagon hole centre from the stem collar • Dimension of the hexagon hole • Working angle of the hexagon hole | <p>D: 150.46mm H: 192.60mm F: 43.03mm 98.31mm 27.89mm 19.17mm</p> <p>M8 79.14mm</p> <p>11.10mm 82.35°</p> | P |
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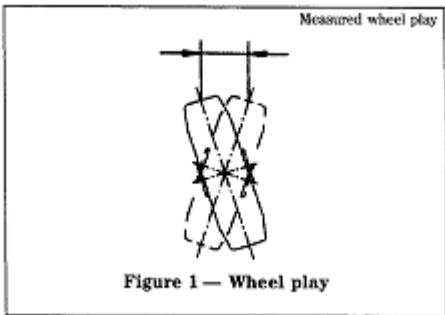
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| 4.2 | Load capacity Maximum load, in N, which can be carried by a wheel or a castor so as to fully comply to the required acceptance criteria. | Claim load: 1500N | P |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---|

| | | | |
|---|--------------------|--|--|
| 5 | Requirement | | |
|---|--------------------|--|--|

| | | | |
|-----|---------------------------|--|--|
| 5.1 | Standard condition | | |
|-----|---------------------------|--|--|

| 5.2 | <p>Initial wheel play</p> <p style="text-align: center;">Table 3 — Initial wheel play Dimensions in millimetres</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Wheel diameter (D)</th> <th>Maximum initial wheel play (W₁)</th> </tr> </thead> <tbody> <tr><td>100</td><td>0,50</td></tr> <tr><td>125</td><td>0,62</td></tr> <tr><td>150</td><td>0,75</td></tr> <tr><td>200</td><td>1,00</td></tr> <tr><td>250</td><td>1,25</td></tr> </tbody> </table> <p>EN 12527 Cl. 4.2.4 Procedure</p> <div style="text-align: center;">  </div> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Symbol</th> <th>Meaning of the symbol</th> </tr> </thead> <tbody> <tr> <td>W₁</td> <td>maximum initial wheel play</td> </tr> <tr> <td>W₂</td> <td>maximum wheel wear play</td> </tr> </tbody> </table> <p>The measurements shall be taken with the wheel and axle bush assembled as during test (original product). The fork of the castor is rigidly clamped in a vertical position ensuring that the fork width is maintained and the movement of the wheel is not impaired. The wheel play shall not include any side movement of the wheel on the axle. Wheel play shall be in mm and measured as in figure 1. To determine the wear play subtract the initial wheel play from the final wheel play.</p> | Wheel diameter (D) | Maximum initial wheel play (W ₁) | 100 | 0,50 | 125 | 0,62 | 150 | 0,75 | 200 | 1,00 | 250 | 1,25 | Symbol | Meaning of the symbol | W ₁ | maximum initial wheel play | W ₂ | maximum wheel wear play | <p><i>Requirement :</i> Wheel dia.: 150mm W1: Max 0.75mm</p> <p><i>Result:</i> W1: 0.17mm</p> | P |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------|-----|------|-----|------|-----|------|-----|------|-----|------|--------|-----------------------|----------------|----------------------------|----------------|-------------------------|-----------------------------------------------------------------------------------------------------------|---|
| Wheel diameter (D) | Maximum initial wheel play (W ₁) | | | | | | | | | | | | | | | | | | | | |
| 100 | 0,50 | | | | | | | | | | | | | | | | | | | | |
| 125 | 0,62 | | | | | | | | | | | | | | | | | | | | |
| 150 | 0,75 | | | | | | | | | | | | | | | | | | | | |
| 200 | 1,00 | | | | | | | | | | | | | | | | | | | | |
| 250 | 1,25 | | | | | | | | | | | | | | | | | | | | |
| Symbol | Meaning of the symbol | | | | | | | | | | | | | | | | | | | | |
| W ₁ | maximum initial wheel play | | | | | | | | | | | | | | | | | | | | |
| W ₂ | maximum wheel wear play | | | | | | | | | | | | | | | | | | | | |

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5.3

Initial swivel play

The tolerances are:

- of the swivel play: lever of 200 mm use to measure the play: ± 2 mm;
- angle of rotation of swiveling by 90° : $\pm 5^\circ$.

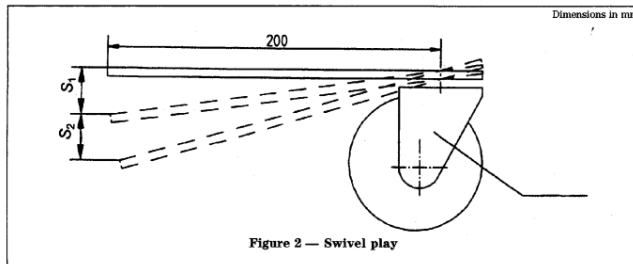
5.3.3 Acceptance criteria

The measured initial swivel play shall not exceed the value (S_1).

| Symbol | Value | Description |
|--------|-------|-----------------------------|
| S_1 | 4 mm | maximum initial swivel play |

EN 12527 Cl. 4.3.4 Procedure

| Symbol | Meaning of the symbol |
|--------|-----------------------------|
| S_1 | maximum initial swivel play |
| S_2 | maximum swivel wear play |



The measurements shall be taken with the wheel and axle bush assembled as during test (original product). The fork of the castor is rigidly clamped in a vertical position ensuring that the fork width is maintained and the movement of the swivel is not impaired. A mark shall be made on the fixed and swivelling parts of the castor. The swivel play shall be measured at 200 mm from the swivel axis of the castor when

- the marks are aligned;
- the mounting plane is rotated through 90° ;

Swivel play shall be in mm and measured as in figure 2. The larger of these two values shall be taken. To determine the swivel play subtract the initial swivel play from the final swivel play

Requirement :
Wheel dia.: 150mm
 S_1 : max 4mm

Result:
 S_1 : 0.69mm

P

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| <p>5.4</p> | <p>Electrical resistance test</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Symbol</th> <th style="width: 20%;">Value</th> <th style="width: 65%;">Description</th> </tr> </thead> <tbody> <tr> <td>L_1</td> <td>variable</td> <td>load capacity</td> </tr> <tr> <td>L_{17}</td> <td>10 % of L_1</td> <td>test load</td> </tr> <tr> <td>R</td> <td>variable</td> <td>measured electrical resistance</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 20%;">Symbol</th> <th colspan="2" style="width: 80%;">Tolerance</th> </tr> <tr> <th style="width: 40%;">Unit</th> <th style="width: 40%;">Acceptable</th> </tr> </thead> <tbody> <tr> <td>L_1</td> <td>N</td> <td>+2 0 %</td> </tr> <tr> <td>L_{17}</td> <td>N</td> <td>+2 0 %</td> </tr> </tbody> </table> <p>The resistance R of the sample tested shall be:</p> <ul style="list-style-type: none"> • conductive castor(s) or wheel(s): $R \leq 10^4 \Omega$; • antistatic castor(s) or wheel(s): $10^5 \leq R \leq 10^7 \Omega$ <p>EN 12527 Cl. 4.4.4 Procedure</p> <p>Place the castor and/or wheel on a metal plate that is insulated from the floor. Between the metal plate and the castor a piece of wet blotting paper of the size of the contact area can be added if furniture castors or swivel chair castors are tested. Keep the tread in contact with the metal plate by applying with a load of 5 to 10 of the nominal load on the castor or wheel as given in 4.1.3</p> <p>Using the insulation tester measure the resistance between the mounting plane of the castor or axle of the wheel and the metal plate. It is necessary to take three readings each with a different part of the tread in contact with the metal plate.</p> | Symbol | Value | Description | L_1 | variable | load capacity | L_{17} | 10 % of L_1 | test load | R | variable | measured electrical resistance | Symbol | Tolerance | | Unit | Acceptable | L_1 | N | +2 0 % | L_{17} | N | +2 0 % | <p>Conductive castor(s) or wheel(s): $R \leq 10^4 \Omega$</p> <p>Result: 1136Ω</p> <p>Test load: 10% claim load=150.0N</p> | <p>P</p> |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------|-------------|-------|----------|---------------|----------|---------------|-----------|-----|----------|--------------------------------|--------|-----------|--|------|------------|-------|---|-----------|----------|---|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Symbol | Value | Description | | | | | | | | | | | | | | | | | | | | | | | | |
| L_1 | variable | load capacity | | | | | | | | | | | | | | | | | | | | | | | | |
| L_{17} | 10 % of L_1 | test load | | | | | | | | | | | | | | | | | | | | | | | | |
| R | variable | measured electrical resistance | | | | | | | | | | | | | | | | | | | | | | | | |
| Symbol | Tolerance | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Unit | Acceptable | | | | | | | | | | | | | | | | | | | | | | | | |
| L_1 | N | +2 0 % | | | | | | | | | | | | | | | | | | | | | | | | |
| L_{17} | N | +2 0 % | | | | | | | | | | | | | | | | | | | | | | | | |

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| <p>5.5</p> <p>Fatigue test for braking and/or locking device 5.5.2 Test values The test values are listed below.</p> <table border="1"> <thead> <tr> <th>Symbol</th> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>E_1</td> <td>10 000</td> <td>number of locking actions</td> </tr> <tr> <td>E_2</td> <td>10</td> <td>cycles per min</td> </tr> <tr> <td>L_3</td> <td>800 N</td> <td>minimum load</td> </tr> </tbody> </table> <p>5.5.3 Tolerances The tolerances are:</p> <table border="1"> <thead> <tr> <th rowspan="2">Symbol</th> <th colspan="2">Tolerance</th> </tr> <tr> <th>Unit</th> <th>Acceptable</th> </tr> </thead> <tbody> <tr> <td>E_1</td> <td></td> <td>+1 0 %</td> </tr> <tr> <td>E_2</td> <td>cycles/min</td> <td>0 -2</td> </tr> </tbody> </table> <p>EN 12527 Cl. 4.5.4 Procedure</p> <table border="1"> <thead> <tr> <th>Symbol</th> <th>Meaning of the symbol</th> </tr> </thead> <tbody> <tr> <td>E_1</td> <td>number of locking actions</td> </tr> <tr> <td>E_2</td> <td>frequency of locking actions in cycles per minute</td> </tr> <tr> <td>L_3</td> <td>load</td> </tr> </tbody> </table> <p>The castor loaded with L_3 is placed in the apparatus and the braking/locking actions are carried out in accordance with E_1 and E_2.</p> | Symbol | Value | Description | E_1 | 10 000 | number of locking actions | E_2 | 10 | cycles per min | L_3 | 800 N | minimum load | Symbol | Tolerance | | Unit | Acceptable | E_1 | | +1 0 % | E_2 | cycles/min | 0 -2 | Symbol | Meaning of the symbol | E_1 | number of locking actions | E_2 | frequency of locking actions in cycles per minute | L_3 | load | <p><i>No failure was found with braking/locking</i></p> | <p>P</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|---------------------------|-------------|-------|--------|---------------------------|-------|----|----------------|-------|-------|--------------|--------|-----------|--|------|------------|-------|--|-----------|-------|------------|---------|--------|-----------------------|-------|---------------------------|-------|---------------------------------------------------|-------|------|---------------------------------------------------------|-----------------|
| Symbol | Value | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E_1 | 10 000 | number of locking actions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E_2 | 10 | cycles per min | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L_3 | 800 N | minimum load | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Symbol | Tolerance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Unit | Acceptable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E_1 | | +1 0 % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E_2 | cycles/min | 0 -2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Symbol | Meaning of the symbol | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E_1 | number of locking actions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E_2 | frequency of locking actions in cycles per minute | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L_3 | load | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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5.6 Efficiency check of wheel braking and/or locking device

5.6.2 Test values

The test values are listed below.

| Symbol | Value | Description |
|--------|---------------|----------------------------|
| L_1 | variable | load capacity as test load |
| K_1 | 40 % of L_1 | horizontal tractive force |

5.6.3 Tolerances

The tolerances are:

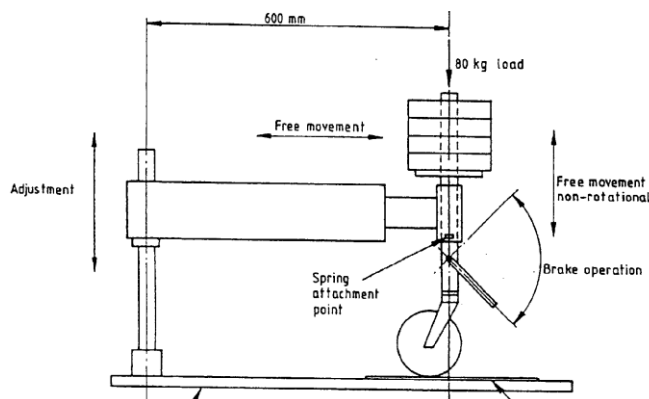
| Symbol | Tolerance | |
|--------|-----------|------------|
| | Unit | Acceptable |
| L_1 | N | +2 0 % |
| K_1 | N | +4 0 % |

The tolerance of the time of application of force K_1 (10 s) is: -0s, +2s

No revolving movement of the wheel around its axis is allowed when the force K_1 is applied.

EN 12527 Cl. 4.6.4 Procedure

The castor is placed on a horizontal smooth steel surface, clean from visible dirt. The braking and/or locking device is engaged. Apply to the mounting plane of the castor a load L_1 . Then gradually apply a horizontal tractive force (K_1) in line with the running direction of the wheel. The force K_1 shall be applied for 10 s then released. Gradually apply the force K_1 once more for 10 s and monitor if the wheel revolves around its axle. Repeat the above procedure applying the force in the opposite direction. If during the application of the force K_1 the wheel skids on the floor. Change the surface material to a higher grip and repeat the test.



No revolving movement of the wheel around its axis

Test load:
40% claim load=600N

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| <p>5.7</p> <p>Efficiency check of swivel braking and/or locking device</p> <p>5.7.2 Test values The test values are listed below.</p> <table border="1"> <thead> <tr> <th>Symbol</th> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>L_1</td> <td>variable</td> <td>load capacity as test load</td> </tr> <tr> <td>K_2</td> <td>40 % of L_1</td> <td>horizontal tractive force</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th rowspan="2">Symbol</th> <th colspan="2">Tolerance</th> </tr> <tr> <th>Unit</th> <th>Acceptable</th> </tr> </thead> <tbody> <tr> <td>L_1</td> <td>N</td> <td>+2 0 %</td> </tr> <tr> <td>K_2</td> <td>N</td> <td>+4 0 %</td> </tr> </tbody> </table> <p>The tolerance of the time of application of force K_2 (10 s) is:-0s,+2s</p> <p>No swivelling movement is detected during the second application of the force K_2.</p> <p>EN 12527 Cl. 4.7.4 Procedure</p> <p>The castor is placed on a horizontal smooth steel surface, clean from visible dirt. The braking and or locking device is engaged. Apply to the mounting plane of the castor a load L_1. Then gradually apply a horizontal tractive force(K_2) at 90 to the running direction of the wheel. The force K_2 shall be applied for 10 s then released. Gradually apply the force K_2 once more for 10 s and monitor if swivelling movement is detected. Repeat the above procedure applying the force in the opposite direction. If during the application of the force K_2 the wheel skids on the floor, change the surface material to a higher grip and repeat the test.</p> | Symbol | Value | Description | L_1 | variable | load capacity as test load | K_2 | 40 % of L_1 | horizontal tractive force | Symbol | Tolerance | | Unit | Acceptable | L_1 | N | +2 0 % | K_2 | N | +4 0 % | <p><i>No swiveling movement is detected</i></p> <p><i>Test load:</i></p> <p><i>40% claim load=600N</i></p> | <p>P</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------|-------------|-------|----------|----------------------------|-------|---------------|---------------------------|--------|-----------|--|------|------------|-------|---|-----------|-------|---|-----------|------------------------------------------------------------------------------------------------------------|-----------------|
| Symbol | Value | Description | | | | | | | | | | | | | | | | | | | | |
| L_1 | variable | load capacity as test load | | | | | | | | | | | | | | | | | | | | |
| K_2 | 40 % of L_1 | horizontal tractive force | | | | | | | | | | | | | | | | | | | | |
| Symbol | Tolerance | | | | | | | | | | | | | | | | | | | | | |
| | Unit | Acceptable | | | | | | | | | | | | | | | | | | | | |
| L_1 | N | +2 0 % | | | | | | | | | | | | | | | | | | | | |
| K_2 | N | +4 0 % | | | | | | | | | | | | | | | | | | | | |

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5.8

Static test

The test values are listed below.

| Symbol | Value | Description |
|--------|----------|----------------------------------|
| L_1 | variable | load capacity as test load |
| y_1 | 3 | load factor |
| y_2 | 1 h | time of application of load |
| y_3 | 24 h | elapsed time prior to inspection |

5.8.3 Tolerances

The tolerances are:

| Symbol | Tolerance | |
|--------|-----------|--------------|
| | Unit | Acceptable |
| L_1 | N | +2 0 % |
| y_2 | h | +15 0 min |
| y_3 | h | ±1 h |

5.8.4 Acceptance criteria

The test is passed if there is no permanent deformation of the sample, which adversely affects its performance.

EN 12527 Cl. 4.9.4 Procedure

| Symbol | Meaning of the symbol |
|--------|----------------------------------|
| L_1 | load capacity |
| L_6 | test load |
| y_1 | load factor |
| y_2 | time of application of the load |
| y_3 | elapsed time prior to inspection |

The castor or wheel is placed in the test apparatus with a correct fitting on a horizontal smooth steel surface.

EXAMPLE: Fitted with all fixing bolts, and correctly tightened.

Apply the test load (either L_1 multiplied by y_1 or L_6) as 4.1.3 for a period of time y_2
Readings must be taken after a time y_3 from when the load is removed.

No visible permanent deformation was found

Test load:
3 time of claim load=4500N

P

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| Clause | Anforderungen - Prüfungen / Requirements - Tests | Measuring results - Remarks | Evaluation |

| <p>5.9</p> <p>Dynamic test</p> <p>5.9.2 Test values The test values are listed below.</p> <table border="1"> <thead> <tr> <th>Symbol</th> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>L_1</td> <td>variable</td> <td>load capacity as test load</td> </tr> <tr> <td>v_1</td> <td>1,1 m/s (4 km/h)</td> <td>average speed</td> </tr> <tr> <td>v_2</td> <td>1,1 m/s (4 km/h)</td> <td>speed at impact</td> </tr> <tr> <td>h_1</td> <td>height of obstacles for wheels with: — tread hardness $\geq 90^\circ$ Shore A: 2,5 % of D — tread hardness $< 90^\circ$ Shore A: 5,0 % of D</td> <td>height of obstacles</td> </tr> <tr> <td>c</td> <td>1 to 3 m</td> <td>distance between obstacles</td> </tr> <tr> <td>n</td> <td>1 000</td> <td>number of obstacles</td> </tr> <tr> <td>r_1</td> <td>30 000</td> <td>number of wheel revolutions</td> </tr> <tr> <td>z_1</td> <td>3 min</td> <td>running period</td> </tr> <tr> <td>z_2</td> <td>max. 1 min</td> <td>pause period</td> </tr> <tr> <td>D</td> <td>variable</td> <td>wheel diameter</td> </tr> </tbody> </table> <p>5.9.3 Tolerances The tolerances are:</p> <table border="1"> <thead> <tr> <th rowspan="2">Symbol</th> <th colspan="2">Tolerance</th> </tr> <tr> <th>Unit</th> <th>Acceptable</th> </tr> </thead> <tbody> <tr> <td>L_1</td> <td>N</td> <td>+2 0 %</td> </tr> <tr> <td>v_1</td> <td>m/s</td> <td>+5 0 %</td> </tr> <tr> <td>v_2</td> <td>m/s</td> <td>+5 0 %</td> </tr> <tr> <td>h_1</td> <td>mm</td> <td>0 -5 %</td> </tr> <tr> <td>n</td> <td></td> <td>+1 0 %</td> </tr> <tr> <td>r_1</td> <td></td> <td>+1 0 %</td> </tr> <tr> <td>z_1</td> <td>min</td> <td>± 10 s</td> </tr> <tr> <td>z_2</td> <td>min</td> <td>± 10 s</td> </tr> </tbody> </table> <p>The tolerances are:</p> <ul style="list-style-type: none"> of the obstacle width (100 mm): ± 2 mm; of the angle of obstacles to line of motion of $45^\circ \pm 3^\circ$. <p>5.9.4 Acceptance criteria The test is passed if there is no permanent deformation of the sample, which adversely affects its performance. The reduction of the wheel diameter shall not exceed 2 % of the measured diameter at the commencement of the test sequence.</p> | Symbol | Value | Description | L_1 | variable | load capacity as test load | v_1 | 1,1 m/s (4 km/h) | average speed | v_2 | 1,1 m/s (4 km/h) | speed at impact | h_1 | height of obstacles for wheels with: — tread hardness $\geq 90^\circ$ Shore A: 2,5 % of D — tread hardness $< 90^\circ$ Shore A: 5,0 % of D | height of obstacles | c | 1 to 3 m | distance between obstacles | n | 1 000 | number of obstacles | r_1 | 30 000 | number of wheel revolutions | z_1 | 3 min | running period | z_2 | max. 1 min | pause period | D | variable | wheel diameter | Symbol | Tolerance | | Unit | Acceptable | L_1 | N | +2 0 % | v_1 | m/s | +5 0 % | v_2 | m/s | +5 0 % | h_1 | mm | 0 -5 % | n | | +1 0 % | r_1 | | +1 0 % | z_1 | min | ± 10 s | z_2 | min | ± 10 s | <p><i>No permanent deformation was found after dynamic test</i></p> <p><i>Before dynamic test of wheel diameter: 150.46mm</i></p> <p><i>After dynamic test of wheel diameter: 150.21mm < 2 % of the measured diameter</i></p> <p><i>Test load: 150kg</i></p> | <p>P</p> |
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| Symbol | Value | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L_1 | variable | load capacity as test load | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| v_1 | 1,1 m/s (4 km/h) | average speed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| v_2 | 1,1 m/s (4 km/h) | speed at impact | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| h_1 | height of obstacles for wheels with: — tread hardness $\geq 90^\circ$ Shore A: 2,5 % of D — tread hardness $< 90^\circ$ Shore A: 5,0 % of D | height of obstacles | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| c | 1 to 3 m | distance between obstacles | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| n | 1 000 | number of obstacles | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| r_1 | 30 000 | number of wheel revolutions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| z_1 | 3 min | running period | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| z_2 | max. 1 min | pause period | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | variable | wheel diameter | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Symbol | Tolerance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Unit | Acceptable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L_1 | N | +2 0 % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| v_1 | m/s | +5 0 % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| v_2 | m/s | +5 0 % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| h_1 | mm | 0 -5 % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| n | | +1 0 % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| r_1 | | +1 0 % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| z_1 | min | ± 10 s | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| z_2 | min | ± 10 s | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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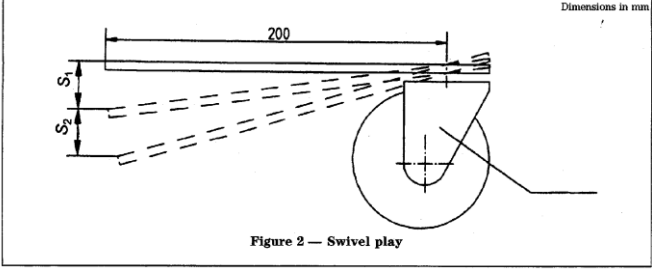
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| (5.9) | <p>EN 12527 Cl. 4.8.4 Procedure The castor or wheel is placed in the test apparatus with a correct fitting EXAMPLE: Fitted with all fixing bolts, and correctly tightened The test consists of a continuous running period with a duration of Z1, which may be followed by a pause Z2. The direction of travel must be reversed at the commencement of each new running period when either of the circular track dynamic test machines is used. The castor shall be made to run, under load, until it has passed a number of obstacles n. When the total number of revolutions r1 specified exceed the revolutions required with obstacle contact the obstacles are removed and the test proceeds until all necessary revolutions are completed. The obstacles shall be removed in a period of time not exceeding Z1.</p> | See previous page. | -- | | | | | | | | | | | | | | | | | | | | |
| 5.10 | <p>(5.6) Efficiency check of wheel braking and/or locking device 5.6.2 Test values The test values are listed below.</p> <table border="1" data-bbox="288 1227 879 1339"> <thead> <tr> <th>Symbol</th> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>L_1</td> <td>variable</td> <td>load capacity as test load</td> </tr> <tr> <td>K_1</td> <td>40 % of L_1</td> <td>horizontal tractive force</td> </tr> </tbody> </table> <p>5.6.3 Tolerances The tolerances are:</p> <table border="1" data-bbox="284 1433 935 1624"> <thead> <tr> <th rowspan="2">Symbol</th> <th colspan="2">Tolerance</th> </tr> <tr> <th>Unit</th> <th>Acceptable</th> </tr> </thead> <tbody> <tr> <td>L_1</td> <td>N</td> <td>+2 0 %</td> </tr> <tr> <td>K_1</td> <td>N</td> <td>+4 0 %</td> </tr> </tbody> </table> <p>The tolerance of the time of application of force K_1 (10 s) is:-0s,+2s No revolving movement of the wheel around its axis is allowed when the force K_1 is applied.</p> | Symbol | Value | Description | L_1 | variable | load capacity as test load | K_1 | 40 % of L_1 | horizontal tractive force | Symbol | Tolerance | | Unit | Acceptable | L_1 | N | +2 0 % | K_1 | N | +4 0 % | <p>No revolving movement of the wheel around its axis</p> <p>Test load: 40% claim load=600N</p> | P |
| Symbol | Value | Description | | | | | | | | | | | | | | | | | | | | | |
| L_1 | variable | load capacity as test load | | | | | | | | | | | | | | | | | | | | | |
| K_1 | 40 % of L_1 | horizontal tractive force | | | | | | | | | | | | | | | | | | | | | |
| Symbol | Tolerance | | | | | | | | | | | | | | | | | | | | | | |
| | Unit | Acceptable | | | | | | | | | | | | | | | | | | | | | |
| L_1 | N | +2 0 % | | | | | | | | | | | | | | | | | | | | | |
| K_1 | N | +4 0 % | | | | | | | | | | | | | | | | | | | | | |

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| 5.11 | <p>(5.7) Efficiency check of wheel braking and/or locking device 5.7.2 Test values The test values are listed below.</p> <table border="1" data-bbox="287 616 925 734"> <thead> <tr> <th>Symbol</th> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>L_1</td> <td>variable</td> <td>load capacity as test load</td> </tr> <tr> <td>K_2</td> <td>40 % of L_1</td> <td>horizontal tractive force</td> </tr> </tbody> </table> <table border="1" data-bbox="279 750 933 945"> <thead> <tr> <th rowspan="2">Symbol</th> <th colspan="2">Tolerance</th> </tr> <tr> <th>Unit</th> <th>Acceptable</th> </tr> </thead> <tbody> <tr> <td>L_1</td> <td>N</td> <td>+2 0 %</td> </tr> <tr> <td>K_2</td> <td>N</td> <td>+4 0 %</td> </tr> </tbody> </table> <p>The tolerance of the time of application of force K_2 (10 s) is: -0s,+2s No swivelling movement is detected during the second application of the force K_2.</p> | Symbol | Value | Description | L_1 | variable | load capacity as test load | K_2 | 40 % of L_1 | horizontal tractive force | Symbol | Tolerance | | Unit | Acceptable | L_1 | N | +2 0 % | K_2 | N | +4 0 % | <p>No swiveling movement is detected</p> <p>Test load: 40% claim load=600N</p> | P |
| Symbol | Value | Description | | | | | | | | | | | | | | | | | | | | | |
| L_1 | variable | load capacity as test load | | | | | | | | | | | | | | | | | | | | | |
| K_2 | 40 % of L_1 | horizontal tractive force | | | | | | | | | | | | | | | | | | | | | |
| Symbol | Tolerance | | | | | | | | | | | | | | | | | | | | | | |
| | Unit | Acceptable | | | | | | | | | | | | | | | | | | | | | |
| L_1 | N | +2 0 % | | | | | | | | | | | | | | | | | | | | | |
| K_2 | N | +4 0 % | | | | | | | | | | | | | | | | | | | | | |
| 5.12 | <p>Final wheel play Table 4 — Wheel wear play Dimensions in millimetres</p> <table border="1" data-bbox="271 1232 909 1473"> <thead> <tr> <th>Wheel diameter (D)</th> <th>Maximum wheel wear play (W₂)</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>0,50</td> </tr> <tr> <td>125</td> <td>0,62</td> </tr> <tr> <td>150/160</td> <td>0,75</td> </tr> <tr> <td>200</td> <td>1,00</td> </tr> <tr> <td>250</td> <td>1,25</td> </tr> </tbody> </table> <p>EN 12527 Cl. 4.2.4 Procedure</p> <p>The measurements shall be taken with the wheel and axle bush assembled as during test (original product). The fork of the castor is rigidly clamped in a vertical position ensuring that the fork width is maintained and the movement of the wheel is not impaired. The wheel play shall not include any side movement of the wheel on the axle. Wheel play shall be in mm and measured as in figure 1. To determine the wear play subtract the initial wheel play from the final wheel play.</p> | Wheel diameter (D) | Maximum wheel wear play (W ₂) | 100 | 0,50 | 125 | 0,62 | 150/160 | 0,75 | 200 | 1,00 | 250 | 1,25 | <p>Requirement: Wheel dia.: 150mm W2: Max 0.75mm</p> <p>Result: W2: 0.23mm</p> | P | | | | | | | | |
| Wheel diameter (D) | Maximum wheel wear play (W ₂) | | | | | | | | | | | | | | | | | | | | | | |
| 100 | 0,50 | | | | | | | | | | | | | | | | | | | | | | |
| 125 | 0,62 | | | | | | | | | | | | | | | | | | | | | | |
| 150/160 | 0,75 | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 1,00 | | | | | | | | | | | | | | | | | | | | | | |
| 250 | 1,25 | | | | | | | | | | | | | | | | | | | | | | |

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| 5.13 | Final swivel play <table border="1" style="width: 100%;"> <thead> <tr> <th>Symbol</th> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>S_2</td> <td>4 mm</td> <td>maximum swivel wear play</td> </tr> </tbody> </table>  <p style="text-align: center;">Figure 2 — Swivel play</p> <p>The tolerances are: of the swivel play: lever of 200 mm use to measure the play: ± 2 mm; angle of rotation of swivelling by $90^\circ \pm 5^\circ$</p> <p>EN 12527 Cl. 4.3.4 Procedure The measurements shall be taken with the wheel and axle bush assembled as during test (original product). The fork of the castor is rigidly clamped in a vertical position ensuring that the fork width is maintained and the movement of the swivel is not impaired. A mark shall be made on the fixed and swivelling parts of the castor. The swivel play shall be measured at 200 mm from the swivel axis of the castor when</p> <ul style="list-style-type: none"> - the marks are aligned; - the mounting plane is rotated through 90° ; <p>Swivel play shall be in mm and measured as in figure 2. The larger of these two values shall be taken. To determine the swivel play subtract the initial swivel play from the final swivel play</p> | Symbol | Value | Description | S_2 | 4 mm | maximum swivel wear play | Requirement: Wheel dia.: 150mm S2: max 4mm Result: S2: 2.64mm | P |
| Symbol | Value | Description | | | | | | | |
| S_2 | 4 mm | maximum swivel wear play | | | | | | | |
| 6 | Conformity The manufacturer declares on request by a certificate of conformity that the castors are in accordance with the requirements as stated in this document. The type of testing machine shall be stated in the conformity document. | <i>Test report was applied only as per client's request.</i> | N/A | | | | | | |
| 7 | Marking | | | | | | | | |
| 7.1 | Product marking All the products shall be permanently and visibly marked with a name and/or trade mark of the manufacturer. | <i>Acc. to client's request not tested.</i> | N/T | | | | | | |
| 7.2 | Marking of electrically conductive castor(s) or wheel(s) All products shall bear on their outer surface a clearly visible yellow mark, and where appropriate and possible should include the word ^a antistatic ^o . | <i>Acc. to client's request not tested.</i> | N/T | | | | | | |