


Prüfbericht-Nr.: <i>Test Report No.:</i>	50172126-001	Auftrags-Nr.: <i>Order No.:</i>	154334770	Seite 1 von 18 <i>Page 1 of 18</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>	BS EN12530-1999 (w/o 4.1.3, 4.3&7) Castors and wheels - Castors and wheels for manually propelled institutional applications				
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 EN12530-1999 cl. 4.1.3 single bolt fixing, cl. 4.3 wheel & cl. 7 Marking were 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>		
* 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 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					
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>					

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Liste der verwendeten Prüfmittel
List of used test equipment

Prüfmittel <i>Test equipment</i>	Prüfmittel-Nr. / ID-Nr. <i>Equipment No. / ID-No.</i>	Nächste Kalibrierung <i>Next calibration</i>
List of used test equipment could be traceable and provided separately upon request.		

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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



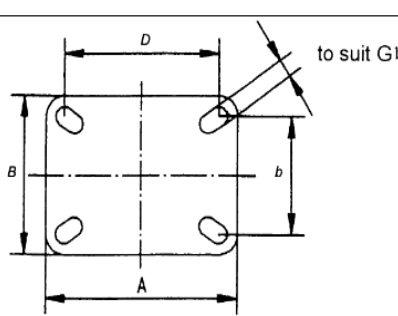
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1	Scope
2	Normative references
3	Definitions
4	Dimension and classification

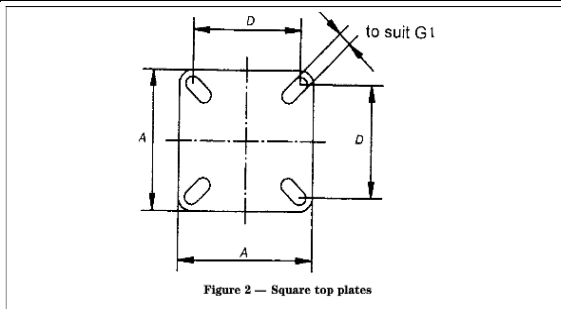
4.1 Fixing system

4.1.1	<p>Top plate</p> <p>Top plates are identified by classification and include rectangular and square plates with four fixing holes.</p> <p style="text-align: center;">Table 1 — Rectangular top plates</p> <p style="text-align: right; font-size: small;">Dimensions in millimetres</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Class</th> <th style="width: 15%;">Maximum plate dimensions (A × B)</th> <th style="width: 15%;">Bolt hole spacing (a × b)</th> <th style="width: 10%;">Bolt diameter (G₁)</th> <th style="width: 10%;">Corresponding wheel diameter (D)</th> </tr> </thead> <tbody> <tr> <td>R21</td> <td>75 × 60</td> <td>55 × 40</td> <td>6</td> <td>50 63 75/80 100</td> </tr> <tr> <td>R22</td> <td>90 × 70</td> <td>60 × 50</td> <td>8</td> <td>75/80 100 125 150/160 200</td> </tr> <tr> <td>R23</td> <td>115 × 85</td> <td>80 × 60</td> <td>8</td> <td>100 125 150/160 200</td> </tr> </tbody> </table> <div style="text-align: center; margin: 10px 0;">  <p>Figure 1 — Rectangular top plate</p> </div> <p style="text-align: center;">Table 2 — Square top plates</p> <p style="text-align: right; font-size: small;">Dimensions in millimetres</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Class</th> <th style="width: 15%;">Maximum plate dimensions (A × A)</th> <th style="width: 15%;">Bolt hole spacing (a × a)</th> <th style="width: 10%;">Bolt diameter (G₁)</th> <th style="width: 10%;">Corresponding wheel diameter (D)</th> </tr> </thead> <tbody> <tr> <td>S21</td> <td>50 × 50</td> <td>35 × 35</td> <td>6</td> <td>50 63 75/80</td> </tr> <tr> <td>S22</td> <td>65 × 65</td> <td>45 × 45</td> <td>6</td> <td>50 63 75/80 100 125</td> </tr> <tr> <td>S23</td> <td>80 × 80</td> <td>60 × 60</td> <td>8</td> <td>63 75/80 100 125 150/160 200</td> </tr> <tr> <td>S24</td> <td>100 × 100</td> <td>80 × 80</td> <td>8</td> <td>75/80 100 125 150/160 200</td> </tr> </tbody> </table>	Class	Maximum plate dimensions (A × B)	Bolt hole spacing (a × b)	Bolt diameter (G ₁)	Corresponding wheel diameter (D)	R21	75 × 60	55 × 40	6	50 63 75/80 100	R22	90 × 70	60 × 50	8	75/80 100 125 150/160 200	R23	115 × 85	80 × 60	8	100 125 150/160 200	Class	Maximum plate dimensions (A × A)	Bolt hole spacing (a × a)	Bolt diameter (G ₁)	Corresponding wheel diameter (D)	S21	50 × 50	35 × 35	6	50 63 75/80	S22	65 × 65	45 × 45	6	50 63 75/80 100 125	S23	80 × 80	60 × 60	8	63 75/80 100 125 150/160 200	S24	100 × 100	80 × 80	8	75/80 100 125 150/160 200	<p><i>No top plate.</i></p>	<p>N/A</p>
Class	Maximum plate dimensions (A × B)	Bolt hole spacing (a × b)	Bolt diameter (G ₁)	Corresponding wheel diameter (D)																																												
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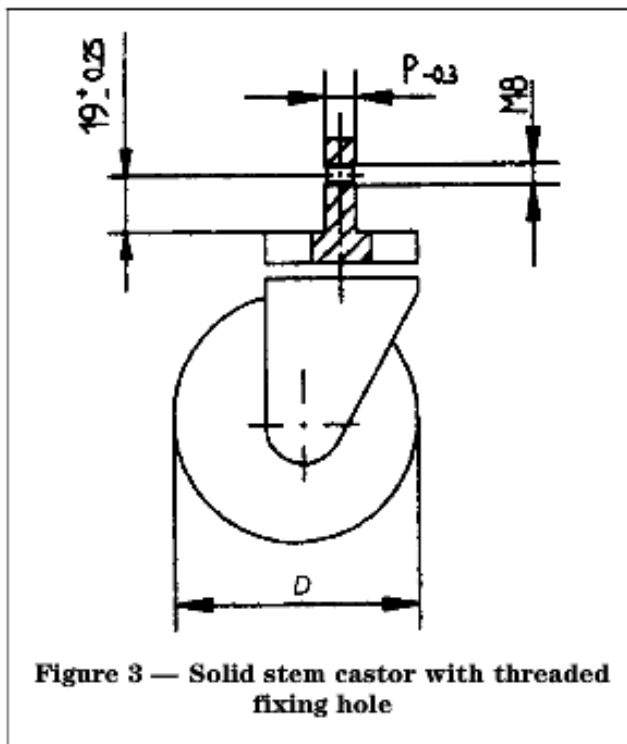
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4.1.2 Solid stem

Solid stem fitting are required to suit various tube sizes which have not been defined. The length of the solid stem shall be equal or greater than 1.5 times its diameter. In those cases where the solid stem is supplied with a cross hole for fixing to a tubular structure, the axis of such hole shall be at $19\text{mm} \pm 0.25\text{mm}$ from the collar of the stem and threaded M8 as illustrated in figure 3.



Wheel diameter: 150mm
Stem diameter : 27.89mm
Stem length: 98.31mm
Thread size:M8
Distance of the threaded hole centre from the stem collar : 19.17mm

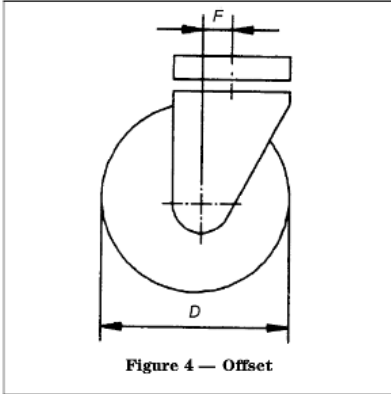
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<p>4.1.3</p>	<p>Single bolt fixing</p> <p>Table 3 specifies the bolt diameters (G_2) for single bolt fixing corresponding to the wheel diameter (D).</p> <p>Table 3 — Bolt diameters for single bolt fixing Dimensions in millimetres</p> <table border="1"> <thead> <tr> <th>Wheel diameter (D)</th> <th>Bolt diameter (G_2)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">50</td> <td>8</td> </tr> <tr> <td>10</td> </tr> <tr> <td rowspan="2">63</td> <td>8</td> </tr> <tr> <td>10</td> </tr> <tr> <td rowspan="3">75/80</td> <td>8</td> </tr> <tr> <td>10</td> </tr> <tr> <td>12</td> </tr> <tr> <td rowspan="3">100</td> <td>8</td> </tr> <tr> <td>10</td> </tr> <tr> <td>12</td> </tr> <tr> <td rowspan="4">125</td> <td>8</td> </tr> <tr> <td>10</td> </tr> <tr> <td>12</td> </tr> <tr> <td>16</td> </tr> <tr> <td rowspan="2">150/160</td> <td>12</td> </tr> <tr> <td>16</td> </tr> <tr> <td rowspan="2">200</td> <td>12</td> </tr> <tr> <td>16</td> </tr> </tbody> </table>	Wheel diameter (D)	Bolt diameter (G_2)	50	8	10	63	8	10	75/80	8	10	12	100	8	10	12	125	8	10	12	16	150/160	12	16	200	12	16	<p><i>Not tested acc. to client's request.</i></p> <p><i>This product is not fully applicable to EN 12530.</i></p>	<p>N/T</p>
Wheel diameter (D)	Bolt diameter (G_2)																													
50	8																													
	10																													
63	8																													
	10																													
75/80	8																													
	10																													
	12																													
100	8																													
	10																													
	12																													
125	8																													
	10																													
	12																													
	16																													
150/160	12																													
	16																													
200	12																													
	16																													

<p>4.2</p>	<p>Offset</p> <p>Table 4 specifies the minimum and maximum offset values (F) for the swivel castors, corresponding to the wheel diameter (D), as in Figure 4.</p>  <p>Figure 4 — Offset</p> <p>Table 4 — Offset Dimensions in millimetres</p> <table border="1"> <thead> <tr> <th rowspan="2">Wheel diameter (D)</th> <th colspan="2">Offset (F)</th> </tr> <tr> <th>Maximum</th> <th>Minimum</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>30</td> <td rowspan="10">20 % of the wheel diameter</td> </tr> <tr> <td>63</td> <td>40</td> </tr> <tr> <td>75</td> <td>50</td> </tr> <tr> <td>80</td> <td>50</td> </tr> <tr> <td>100</td> <td>60</td> </tr> <tr> <td>125</td> <td>70</td> </tr> <tr> <td>150</td> <td>80</td> </tr> <tr> <td>160</td> <td>85</td> </tr> <tr> <td>200</td> <td>100</td> </tr> </tbody> </table>	Wheel diameter (D)	Offset (F)		Maximum	Minimum	50	30	20 % of the wheel diameter	63	40	75	50	80	50	100	60	125	70	150	80	160	85	200	100	<p><i>Wheel dia.: 150mm</i> <i>F: 43.03mm</i></p>	<p>P</p>
Wheel diameter (D)	Offset (F)																										
	Maximum	Minimum																									
50	30	20 % of the wheel diameter																									
63	40																										
75	50																										
80	50																										
100	60																										
125	70																										
150	80																										
160	85																										
200	100																										

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4.3

Wheel

The characteristics of a wheel are:
-diameter
-hub width
-bore diameter
-load capacity

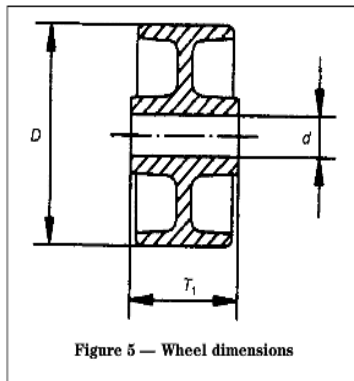


Table 5 — Wheel dimensions

Dimensions in millimetres

Wheel diameter (D)	Hub width* (T ₁)	Bore diameters (d)
50	20/25	6
		8
63	20/25	6
		8
	25	10
75/80	30/35	8
		10
	40/45	10
		12
100	30/35	8
		10
	40/45	10
		12
125	30/35	8
		10
	40/45	10
		12
150/160	40/45	12
200	40/45	12

*NOTE Preferred dimensions are 20 mm, 30 mm and 40 mm.

Not tested acc. to client's request.

This product is not fully applicable to EN 12530.

N/T

5

Requirement

5.1

Standard condition

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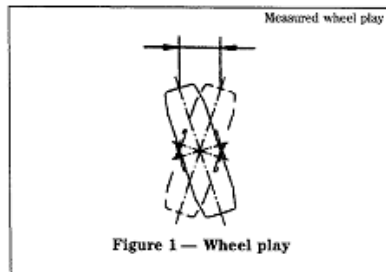
5.2

Initial wheel play

Table 7 — Initial wheel play
Dimensions in millimetres

Wheel diameter (D)	Maximum initial wheel play (W ₁)
50	0,70
63	0,70
75/80	0,80
100	1,00
125	1,25
150/160	1,60
200	2,00

EN 12527 Cl. 4.2.4 Procedure



Symbol	Meaning of the symbol
W ₁	maximum initial wheel play
W ₂	maximum wheel 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 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.

Requirement :
Wheel dia.: 150mm
W1: Max. 1.60mm

Result:
W1: 0.17mm

P

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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° : $\pm 5^\circ$.

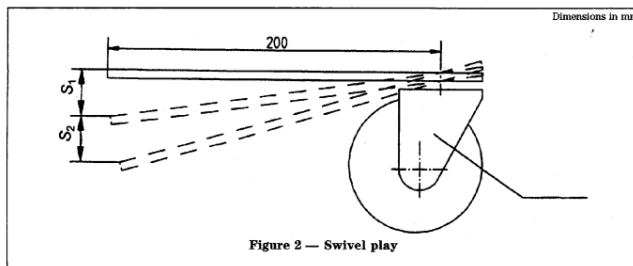
5.3.3 Acceptance criteria

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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5.4	<p>Electrical resistance test</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Symbol</th> <th style="width: 20%;">Value</th> <th style="width: 60%;">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: 30%;">Unit</th> <th style="width: 50%;">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
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</p> <p>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 per min</td> <td>0 -2</td> </tr> <tr> <td>L_1</td> <td>N</td> <td>+2 0 %</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 per min	0 -2	L_1	N	+2 0 %	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 per min	0 -2																																			
L_1	N	+2 0 %																																			
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	20 % of L_1	horizontal tractive force

5.6.3 Tolerances

The tolerances are:

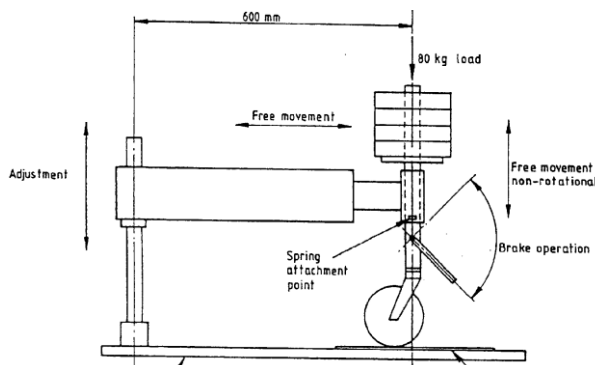
Symbol	Tolerance	
	Unit	Acceptable
L_1	N	+2 0 %
K_1	N	+4 0 %

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:
20% claim load=300N*

P

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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>20 % of L_1</td> <td>horizontal tractive force</td> </tr> </tbody> </table> <p>5.7.3 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>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> <p>EN 12527 Cl. 4.7.4 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_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	20 % 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: 20% claim load=300N</i></p>	<p>P</p>
Symbol	Value	Description																				
L_1	variable	load capacity as test load																				
K_2	20 % of L_1	horizontal tractive force																				
Symbol	Tolerance																					
	Unit	Acceptable																				
L_1	N	+2 0 %																				
K_2	N	+4 0 %																				

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<p>5.8</p> <p>Static test</p> <p>5.8.2 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>y_1</td> <td>1.5</td> <td>load factor</td> </tr> <tr> <td>y_2</td> <td>1 h</td> <td>time of application of load</td> </tr> <tr> <td>y_3</td> <td>24 h</td> <td>elapsed time prior to inspection</td> </tr> </tbody> </table> <p>5.8.3 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>$\begin{matrix} +2 \\ 0 \end{matrix} \%$</td> </tr> <tr> <td>$y_2$</td> <td>h</td> <td>$\begin{matrix} +15 \\ 0 \end{matrix} \text{ min}$</td> </tr> <tr> <td>$y_3$</td> <td>h</td> <td>$\pm 1 \text{ h}$</td> </tr> </tbody> </table> <p>5.8.4 Acceptance criteria The test is passed if there is no permanent deformation of the sample, which adversely affects its performance.</p> <p>EN 12527 Cl. 4.9.4 Procedure</p> <table border="1"> <thead> <tr> <th>Symbol</th> <th>Meaning of the symbol</th> </tr> </thead> <tbody> <tr> <td>L_1</td> <td>load capacity</td> </tr> <tr> <td>L_6</td> <td>test load</td> </tr> <tr> <td>y_1</td> <td>load factor</td> </tr> <tr> <td>y_2</td> <td>time of application of the load</td> </tr> <tr> <td>y_3</td> <td>elapsed time prior to inspection</td> </tr> </tbody> </table> <p>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.</p> <p>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.</p>	Symbol	Value	Description	L_1	variable	load capacity as test load	y_1	1.5	load factor	y_2	1 h	time of application of load	y_3	24 h	elapsed time prior to inspection	Symbol	Tolerance		Unit	Acceptable	L_1	N	$\begin{matrix} +2 \\ 0 \end{matrix} \%$	y_2	h	$\begin{matrix} +15 \\ 0 \end{matrix} \text{ min}$	y_3	h	$\pm 1 \text{ h}$	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	<p><i>No visible permanent deformation was found</i></p> <p><i>Test load: 1.5 time of claim load=2250N</i></p>	<p>P</p>
Symbol	Value	Description																																									
L_1	variable	load capacity as test load																																									
y_1	1.5	load factor																																									
y_2	1 h	time of application of load																																									
y_3	24 h	elapsed time prior to inspection																																									
Symbol	Tolerance																																										
	Unit	Acceptable																																									
L_1	N	$\begin{matrix} +2 \\ 0 \end{matrix} \%$																																									
y_2	h	$\begin{matrix} +15 \\ 0 \end{matrix} \text{ min}$																																									
y_3	h	$\pm 1 \text{ h}$																																									
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																																										

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<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>0.83 m/s (3 km/h)</td> <td>average speed</td> </tr> <tr> <td>v_2</td> <td>0.83 m/s (3 km/h)</td> <td>speed at impact</td> </tr> <tr> <td>h_1</td> <td>3 % 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>10 times of D in mm</td> <td>number of obstacles</td> </tr> <tr> <td>r_1</td> <td>not required in this test</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. 3 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	0.83 m/s (3 km/h)	average speed	v_2	0.83 m/s (3 km/h)	speed at impact	h_1	3 % of D	height of obstacles	c	1 to 3 m	distance between obstacles	n	10 times of D in mm	number of obstacles	r_1	not required in this test	number of wheel revolutions	z_1	3 min	running period	z_2	max. 3 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: 150.55mm</i></p> <p><i>After dynamic test of wheel diameter: 150.32mm < 2 % of the measured diameter</i></p> <p><i>Test load: 150kg</i></p>	<p>P</p>
Symbol	Value	Description																																																														
L_1	variable	load capacity as test load																																																														
v_1	0.83 m/s (3 km/h)	average speed																																																														
v_2	0.83 m/s (3 km/h)	speed at impact																																																														
h_1	3 % of D	height of obstacles																																																														
c	1 to 3 m	distance between obstacles																																																														
n	10 times of D in mm	number of obstacles																																																														
r_1	not required in this test	number of wheel revolutions																																																														
z_1	3 min	running period																																																														
z_2	max. 3 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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(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.	--
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5.10	<p>(5.6) Efficiency check of wheel braking and/or locking device</p> <p>5.6.2 Test values The test values are listed below.</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 as test load</td> </tr> <tr> <td>K_1</td> <td>20 % of L_1</td> <td>horizontal tractive force</td> </tr> </tbody> </table> <p>5.6.3 Tolerances The tolerances are:</p> <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>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	20 % 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: 20% claim load=300N</p>	P
Symbol	Value	Description																					
L_1	variable	load capacity as test load																					
K_1	20 % of L_1	horizontal tractive force																					
Symbol	Tolerance																						
	Unit	Acceptable																					
L_1	N	+2 0 %																					
K_1	N	+4 0 %																					

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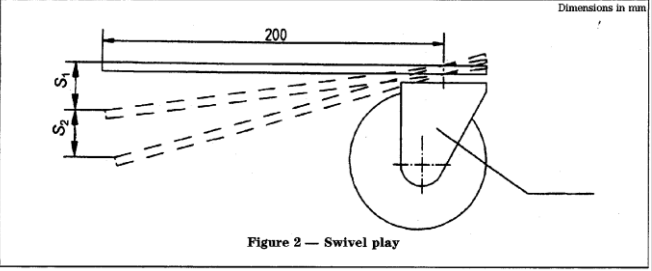
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5.11	<p>(5.7) Efficiency check of wheel braking and/or locking device</p> <p>5.7.2 Test values The test values are listed below.</p> <table border="1"> <thead> <tr> <th>Symbol</th> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>L_1</td> <td>variable</td> <td>load capacity as test load</td> </tr> <tr> <td>K_2</td> <td>20 % 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 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	20 % 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: 20% claim load=300N</p>	P
Symbol	Value	Description																					
L_1	variable	load capacity as test load																					
K_2	20 % 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 8 — Wheel wear play Dimensions in millimetres</p> <table border="1"> <thead> <tr> <th>Wheel diameter (D)</th> <th>Maximum wheel wear play (W₂)</th> </tr> </thead> <tbody> <tr><td>50</td><td>0,40</td></tr> <tr><td>63</td><td>0,50</td></tr> <tr><td>75/80</td><td>0,64</td></tr> <tr><td>100</td><td>0,80</td></tr> <tr><td>125</td><td>1,00</td></tr> <tr><td>150/160</td><td>1,28</td></tr> <tr><td>200</td><td>1,60</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)	50	0,40	63	0,50	75/80	0,64	100	0,80	125	1,00	150/160	1,28	200	1,60	<p>Requirement: Wheel dia.: 150mm W₂: Max. 1.28mm</p> <p>Result: W₂: 0.23mm</p>	P
Wheel diameter (D)	Maximum wheel wear play (W ₂)																		
50	0,40																		
63	0,50																		
75/80	0,64																		
100	0,80																		
125	1,00																		
150/160	1,28																		
200	1,60																		

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<i>Clause</i>	<i>Anforderungen - Prüfungen / Requirements - Tests</i>	<i>Measuring results - Remarks</i>	<i>Evaluation</i>

5.13	<p>Final swivel play</p> <table border="1" style="width:100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 15%;">Symbol</th> <th style="width: 15%;">Value</th> <th style="width: 70%;">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; font-size: small;">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	<p><i>Requirement:</i> Wheel dia.: 150mm S_2: max 4mm</p> <p><i>Result:</i> S_2: 2.64mm</p>	P
Symbol	Value	Description							
S_2	4 mm	maximum swivel wear play							

6	<p>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.</p>	Test report was applied only as per client's request.	N/A
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7	Marking		
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7.1	<p>Product marking All the products shall be permanently and visibly marked with a name and/or trade mark of the manufacturer.</p>	Not tested acc. to client's request.	N/T
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7.2	<p>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 ^aantistatic^o.</p>	Not tested acc. to client's request.	N/T
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