Prüfbericht-Nr.: *Test Report No.*:	**50172129-001**	**Auftrags-Nr.:** *Order No.*:	154334770	Seite 1 von 12 *Page 1 of 12*
Kunden-Referenz-Nr.: *Client Reference No.*:	N/A	**Auftragsdatum:** *Order date*:	09.08.2018	
Auftraggeber: *Client*:	Guangzhou Jing Sheng Machine Co.,LTD/N0100 East Wreath Road Luojia Village Shiji Town Panyu Guangzhou China Gu 511450			
Prüfgegenstand: *Test item*:	6'' center locking caster			
Bezeichnung / Typ-Nr.: *Identification / Type No.*:	Article No.:KKC607CL			
Auftrags-Inhalt: *Order content*:	Mechanical test report according to client's requirements			
Prüfgrundlage: *Test specification*:	ISO 22882:2004(E) (w/o cl.7) Castors and wheels *-Requirements for castors for hospital beds*			

Wareneingangsdatum: *Date of receipt*:	09.08.2018
Prüfmuster-Nr.: *Test sample No.*:	A000788800-001, 002
Prüfzeitraum: *Testing period*:	09.08.2018 - 17.08.2018
Ort der Prüfung: *Place of testing*:	Shanghai
Prüflaboratorium: *Testing laboratory*:	TÜV Rheinland (Shanghai) Co., Ltd.
Prüfergebnis*: *Test result**:	Pass

geprüft von / *tested by*:

17.08.2018	Ricky Wang/ PE	
Datum *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*

kontrolliert von / *reviewed by*:

17.08.2018	Tu Feng / Reviewer	
Datum *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*

Sonstiges / *Other*:
Acc. to client's request, the evaluation of ISO 22882:2004(E) cl. 7 Marking was not performed.

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: *Test item complete and undamaged*

* 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*

V04

Prüfbericht-Nr.: 50172129-001
Test Report No.:

Liste der verwendeten Prüfmittel
List of used test equipment

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

Produktbeschreibung
Product description

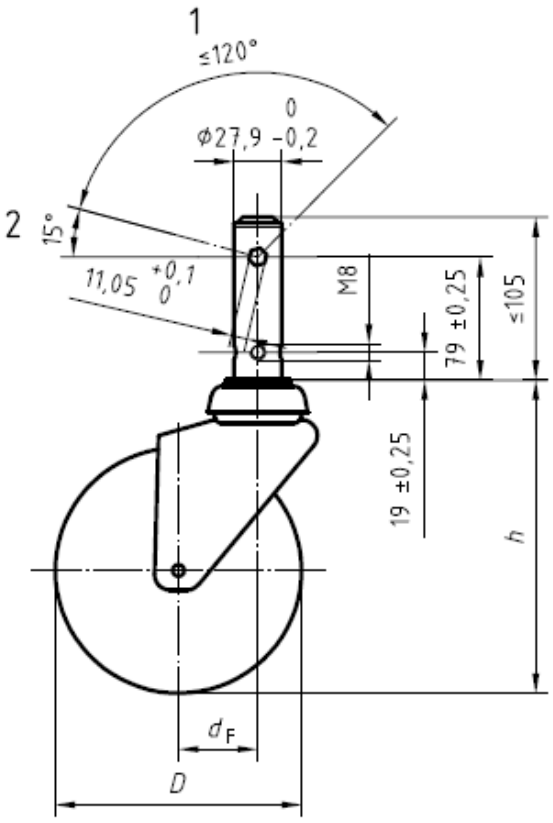
1	**Produktdetails** *Product details*	6'' center locking caster
2	**Maße / Gewicht** *Dimensions / Weight*	Weight: 1.29kg
3	**Bedienelemente** *Operating elements*	N/A
4	**Ausstattung / Zubehör** *Equipment / Accessories*	N/A
5	**Verwendete Materialien** *Used materials*	N/A
6	**Sonstiges** *Other*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

Castor	Castor removed the plastic housing
	
Locking device worked	**Stem**
	

Absatz *Clause*	**ISO 22882:2004(E) (w/o cl.7)** Anforderungen - Prüfungen / *Requirements - Tests*	Messergebnisse - Bemerkungen *Measuring results - Remarks*	Bewertung *Evaluation*
1	**Scope** This International Standard specifies the technical requirements, the appropriate dimensions and the requirements for testing of swivel castors for hospital beds with a wheel diameter of 100mm or more, and which have a central locking device. Swivel castors may be used with the main principal dimensions.		
2	**Normative references** The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. ISO 22877, *Castors and wheels — Vocabulary, symbols and multilingual terminology* ISO 22878:2004*, Castors and wheels — Test methods and apparatus* ISO 22881*, Castors and wheels — Requirements for use on manually propelled equipment for institutional applications*		
3	**Terms and definitions** For the purposes of this document, the terms and definitions given in ISO 22877 apply. Symbols are given in ISO 22878:2004, Annex A.		
4	**Dimensions and characteristics** 4.1 Characteristics The characteristics of a castor are — wheel diameter, — overall height, — offset, — fixing system, and — load capacity. 4.2 Dimensions The dimensions listed in Table 1 and shown in Figure 1 shall be used. For dimensions of non-central locking castors used in hospital beds, refer to relevant tables in ISO 22881.	*D: 150.46mm* *H: 192. 60mm* *F: 43. 03mm* *150kg*	**P**

Absatz	**ISO 22882:2004(E) (w/o cl.7)**	Messergebnisse - Bemerkungen	Bewertung
Clause	Anforderungen - Prüfungen / *Requirements - Tests*	*Measuring results - Remarks*	*Evaluation*

Dimensions in millimetres



Key
1 working angle
2 unlocked position

Figure 1 — Principal dimensions of the central locking fixing system

Table 1

Dimensions in millimetres

Wheel diameter[a] D	**Overall height**[b] h	**Offset**[b] d_F
100	150	46
125	175	56
150	200	65
200	250	70
250	300	80

[a] Tolerance ± 1 %.
[b] Maximum.

Absatz *Clause*	**ISO 22882:2004(E) (w/o cl.7)** Anforderungen - Prüfungen / *Requirements - Tests*	Messergebnisse - Bemerkungen *Measuring results - Remarks*	Bewertung *Evaluation*
4.3	**Fixing system** The principal dimensions of the fixing system with the central locking are — 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, and — working angle of the hexagon hole.	 *98.31mm* *27.89mm* *19. 17mm* *M8* *79.14mm* *11.10mm* *82.35 °*	**P**
4.4	**Load capacity** This is the maximum load, in newtons, which can be carried by a wheel or a castor so as to fully comply with the required acceptance criteria.		
5	**Requirements for testing**		
5.1	**General** Test methods and apparatus shall be as specified in ISO 22878.		
5.2	**Standard conditions**		
5.3	**Initial wheel play** 5.3.1 Test objectives, apparatus and procedures These shall be as specified in ISO 22878:2004, 4.2. 5.3.2 Acceptance criteria The measured initial wheel play shall not exceed the value (d_{W1}) shown in Table 3.	*Requirement :* *Wheel dia.: 150mm* *W1: Max. 0.75mm* *Result:* *W1: 0.17mm*	**P**

Table 3

Dimensions in millimetres

Wheel diameter D	Maximum initial wheel play d_{W1}
100	0,50
125	0,62
150	0,75
200	1,00
250	1,25

Absatz *Clause*	**ISO 22882:2004(E) (w/o cl.7)** Anforderungen - Prüfungen / *Requirements - Tests*	Messergebnisse - Bemerkungen *Measuring results - Remarks*	Bewertung *Evaluation*
5.4	**Initial swivel play** 5.4.1 Test objectives, apparatus and procedures These shall be as specified in ISO 22878:2004, 4.3. 5.4.2 Acceptance criteria The measured initial swivel play shall not exceed the value (d_{S1}) given Table 4. **Table 4** **Symbol** | **Value** | **Description** d_{S1} | 4 mm | maximum initial swivel play	*Requirement :* *Wheel dia.: 150mm* *S1: max 4mm* *Result:* *S1: 0.69mm*	**P**
5.5	**Electrical resistance test** 5.5.1 Test objectives, apparatus and procedures These shall be as specified in ISO 22878:2004, 4.4. 5.5.2 Test values The test values shall be as listed in Table 5. **Table 5** **Symbol** | **Value** | **Description** F_{max} | variable | load capacity F_{17} | 10 % of F_{max} | test load R | variable | electrical resistance 5.5.3 Tolerances The tolerance shall be as shown in Table 6. **Table 6** **Symbol** | **Unit** | **Tolerance** (Acceptable | Unit) F_{17} | N | $^{+2\ \%}_{0}$ | N 5.5.4 Acceptance criteria The resistance *R* of the sample tested shall be — R ≤10^5 Ω for conductive castors or wheels, and — 10^5 Ω < R ≤ 10^7 Ω for antistatic castors or wheels.	*Conductive castor(s) or wheel(s): R ≤10^5 Ω* *Result: 1136Ω* *Test load:* *10% claim load=150. 0N*	**P**

Absatz *Clause*	**ISO 22882:2004(E) (w/o cl.7)** Anforderungen - Prüfungen / *Requirements - Tests*	Messergebnisse - Bemerkungen *Measuring results - Remarks*	Bewertung *Evaluation*

5.6 **Fatigue test for locking/braking device**

No failure was found with braking/locking

P

5.6.1 Test objectives, apparatus and procedures
These shall be as specified in ISO 22878:2004, 4.5.

5.6.2 Test values
The test values shall be as listed in Table 7.

Table 7

Symbol	Value	Description
n_E	10 000	number of locking actions
f_E	10 cycles/min	frequency of locking actions
F_3	800 N	test load

5.6.3 Tolerances
The tolerances shall be as shown in Table 8.

Table 8

Symbol	Unit	Tolerance	
		Acceptable	Unit
n_E	—	$^{+1\ \%}_{0}$	—
f_E	cycles/min	$^{0}_{-2}$	cycles/min
F_3	N	$^{+2\ \%}_{0}$	N

5.6.4 Acceptance criteria
There shall be no wear and/or permanent deformation that adversely affects the performance of the sample.

5.7 **Efficiency check of wheel braking and/or locking device**

No revolving movement of the wheel around its axis

Test load:
40% claim load=600N

P

5.7.1 Test objectives, apparatus and procedures
These shall be as specified in ISO 22878:2004, 4.6.

5.7.2 Test values
The test values shall be as listed in Table 9.

Table 9

Symbol	Value	Description
F_{max}	variable	load capacity
F_{11}	equal to F_{max}	test load
F_{K1}	40 % of F_{max}	horizontal tractive force

5.7.3 Tolerances
The tolerances shall be as shown in Table 10.

Table 10

Symbol	Unit	Tolerance	
		Acceptable	Unit
F_{11}	N	$^{+2\ \%}_{0}$	N
F_{K1}	N	$^{+4\ \%}_{0}$	N

5.7.4 Acceptance criteria
The wheel shall have no revolving movement around its axis during the second application of the force F_{K1}.

Absatz *Clause*	**ISO 22882:2004(E) (w/o cl.7)** Anforderungen - Prüfungen / *Requirements - Tests*	Messergebnisse - Bemerkungen *Measuring results - Remarks*	Bewertung *Evaluation*

5.8 **Efficiency check of swivel braking and/or locking devices**

No swiveling movement is detected

Test load:
40% claim load=600N

P

5.8.1 Test objectives, apparatus and procedures
These shall be as specified in ISO 22878:2004, 4.7.

5.8.2 Test values
The test values shall be as listed in Table 11.

Table 11

Symbol	Value	Description
F_{max}	variable	load capacity
F_{11}	equal to F_{max}	test load
F_{K2}	40 % of F_{max}	horizontal tractive force

5.8.3 Tolerances
The tolerances shall be as shown in Table 12.

Table 12

Symbol	Unit	Tolerance	
		Acceptable	Unit
F_{11}	N	$^{+2\ \%}_{0}$	N
F_{K2}	N	$^{+4\ \%}_{0}$	N

5.8.4 Acceptance criteria
No swivelling movement shall be detected during the second application of the force F_{K2}.

5.9 **Static test**

No visible permanent deformation was found

Test load:
3 time of claim load=4500N

P

5.9.1 Test objectives, apparatus and procedures
These shall be as specified in ISO 22878:2004, 4.9.

5.9.2 Test values
The test values shall be as listed in Table 13.

Table 13

Symbol	Value	Description
F_{max}	variable	load capacity
y_1	3	load factor
F_6	$F_{max} \times y_1$	test load
t_{y1}	1 h	time of application of the load
t_{y2}	24 h	time elapsed prior to inspection

5.9.3 Tolerances
The tolerances shall be as shown in Table 14.

Table 14

Symbol	Unit	Tolerance	
		Acceptable	Unit
F_6	N	$^{+2\ \%}_{0}$	N
t_{y1}	h	$^{+15}_{0}$	min
t_{y2}	h	$\pm$ 1	h

5.9.4 Acceptance criteria
There shall be no permanent deformation of the sample that adversely affects its performance.

Absatz *Clause*	**ISO 22882:2004(E) (w/o cl.7)** Anforderungen - Prüfungen / *Requirements - Tests*	Messergebnisse - Bemerkungen *Measuring results - Remarks*	Bewertung *Evaluation*
5.10	Dynamic test 5.10.1 Test objectives, apparatus and procedures These shall be as specified in ISO 22878:2004, 4.8. 5.10.2 Test values The test values shall be as listed in Table 15. **Table 15** **Symbol** / **Value** / **Description** F_{max} / variable / load capacity v_1 / 1,1 m/s (4 km/h) / average speed of running period v_2 / 1,1 m/s (4 km/h) / speed at impact with obstacles h_1 / height of obstacles for wheels with — tread hardness ⩾ 90 Shore A: 2,5 % of D — tread hardness < 90 Shore A: 5,0 % of D / height of obstacles d_c / 1 m to 3 m / distance between obstacles n / 1 000 / number of obstacles n_{r1} / 30 000 / number of wheel revolutions t_{z1} / 3 min / running period t_{z2} / 1 min / pause D / variable / wheel diameter The actual wheel diameter shall be measured prior to commencement and on completion of the test to establish wear. 5.10.3 Tolerances The tolerances shall be as shown in Table 16. **Table 16** **Symbol** / **Unit** / **Tolerance** (Acceptable / Unit) v_1 / m/s / $^{+5\ \%}_{0}$ / m/s v_2 / m/s / $^{+5\ \%}_{0}$ / m/s h_1 / mm / $^{0}_{-5\ \%}$ / mm n / — / $^{+1\ \%}_{0}$ / — n_{r1} / — / $^{+1\ \%}_{0}$ / — t_{z1} / min / ± 10 / s 5.10.4 Acceptance criteria There shall be no permanent deformation of the sample that 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.	*No permanent deformation was found after dynamic test* *Before dynamic test of wheel diameter: 150.46mm* *After dynamic test of wheel diameter: 150. 21mm < 2 % of the measured diameter* *Test load: 150kg*	**P**
5.11	**Efficiency check of wheel braking and/or locking devices** Repeat test 5.7.	*No revolving movement of the wheel around its axis* *Test load:* *40% claim load=600N*	**P**
5.12	**Efficiency check of swivel braking and/or locking devices** Repeat test 5.8.	*No swiveling movement is detected* *Test load:* *40% claim load=600N*	**P**

Absatz *Clause*	**ISO 22882:2004(E) (w/o cl.7)** Anforderungen - Prüfungen / *Requirements - Tests*	Messergebnisse - Bemerkungen *Measuring results - Remarks*	Bewertung *Evaluation*
5.13	**Final wheel play** 5.13.1 Test objectives, apparatus and procedures These shall be as specified in ISO 22878:2004, 4.2. 5.13.2 Acceptance criteria The wheel wear play shall not exceed the value d_{W2} detailed in Table 17. **Table 17** Dimensions in millimetres **Wheel diameter** D / **Maximum wheel wear play** d_{W2} 100 / 0,50 125 / 0,62 150/160 / 0,75 200 / 1,00 250 / 1,25	*Requirement:* *Wheel dia.: 150mm* *W2: Max. 0.75mm* *Result:* *W2: 0.23mm*	**P**
5.14	**Final swivel play** 5.14.1 Test objectives, apparatus and procedures These shall be as specified in ISO 22878:2004, 4.3. 5.14.2 Acceptance criteria The swivel wear play shall not exceed the value d_{S2} listed in Table 18. **Table 18** **Symbol** / **Value** / **Description** d_{S2} / 4 mm / maximum swivel wear play	*Requirement:* *Wheel dia.: 150mm* *S2: max 4mm* *Result:* *S2: 2.64mm*	**P**
6	**Conformity** On request, the manufacturer shall declare by a certificate of conformity that the castors are in accordance with the requirements as stated in this International Standard. The type of testing machine shall be stated in the conformity document.	Test report was applied only as per client's request.	**N/A**
7	**Marking of the product**		
7.1	**Product marking** All the products shall be permanently and visibly marked with a name and/or trademark of the manufacturer.	*Acc. to client's request not tested.*	**N/T**

Absatz *Clause*	**ISO 22882:2004(E) (w/o cl.7)** Anforderungen - Prüfungen / *Requirements - Tests*	Messergebnisse - Bemerkungen *Measuring results - Remarks*	Bewertung *Evaluation*
7.2	**Marking of electrically conductive or antistatic castors or wheels** All products shall bear, on their outer surface, a clearly visible mark as follows: — antistatic: a white mark and, where appropriate and possible, the word “antistatic”; — conductive: a yellow mark and, where appropriate and possible, the word “conductive”.	*Acc. to client’s request not tested.*	**N/T**

- END OF TEST REPORT-