



TEST REPORT

EN 1335-2:2018

Office furniture — Office work chair Part 2: Safety requirements

Report Reference No.: 08.09.24.0208.01

Compiled by (+ signature).....: David Xu

Approved by (+ signature).....: Frant Chiu

Date of issue: 2024-05-13



Testing Laboratory: Anxin Product Test Service Co., Ltd

Address: Floor 2, Yuanjing Building, No.899, Sanyuanli Dadao, Guangzhou

Applicant's name: Sharkoon Technologies GmbH

Address: Grüninger Weg 48, 35415 Pohlheim, Germany

Test specification:

Standard: EN 1335-1:2020 + A1:2022, EN 1335-2:2018

Test procedure: SCT

Non-standard test method.....: N/A

Test Report Form No.: EN 1335-1:2020 + A1:2022, EN 1335-2:2018

Test Report Form(s) Originator: SCT

Master TRF: 2024-05

Test item description: Office Chair

Trade Mark: N/A

Manufacturer: Sharkoon Technologies GmbH

Address: Grüninger Weg 48, 35415 Pohlheim, Germany

Factory: Sharkoon Technologies GmbH

Address: Grüninger Weg 48, 35415 Pohlheim, Germany

Model/Type reference: OfficePal C20

Rating(s).....: Type C



Copy of marking plate:

Sharkoon Technologies GmbH
Office Chair
Model: OfficePal C20
Type C
EN 1335-1:2020 + A1:2022, EN 1335-2:2018
Grüninger Weg 48, 35415 Pohlheim, Germany

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.
Throughout this report a point is used as the decimal separator.

Summary of testing:

The submitted sample was complied with EN 1335-1:2020 + A1:2022, EN 1335-2:2018

Possible test case verdicts:

- test case does not apply to the test object: N/A
- test object does meet the requirement.....: P(Pass)
- test object does not meet the requirement.....: F(Fail)

Testing

Date of receipt of test item: 2024-04-19
Date (s) of performance of tests: 2024-04-19 to 2024-05-13



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Clause	Requirement - Test	Result - Remark	Verdict
4	Definitions of measurements		—
	The definitions of dimensions are specified in ISO 24496:2017.		P
5	Measurement conditions		—
5.1	General The measurement conditions shall be as specified in ISO 24496:2017, Clause 4 with the derogation in 5.2 of the present document.		P
5.2	Decision rule for measurement uncertainty		P
	The decision rule to judge if a result is compliant is when the measured value is within the requirement (i.e. less than or equal to an upper limit, greater than or equal to a lower limit), without taking into consideration the measurement uncertainty.		P
	Table D.1 in Annex D (informative) contains values for the maximum measurement uncertainties.		P
6	Test equipment including CMD		—
	The test equipment shall be as specified in ISO 24496:2017, Clause 5.		P
7	Measurement methods and procedures		—
	The chair shall be set up as specified in ISO 24496:2017, 6.2.1.		P
	The CMD shall be placed in the chair as specified in ISO 24496:2017, 6.2.2 and 6.2.3.		P
	The chair dimensions shall be determined in the sequence specified in Table 1.		P



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Clause	Requirement - Test	Result - Remark	Verdict
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Table 1 — Sequence of determining measurements and measurement procedure					P
Sequence	Dimension	Dimension description	ISO 24496:2017 reference	Chair configuration	
1	f max	Maximum vertical height of the lumbar support See footnote "a"	6.3.1.1, C a	Seat in maximum height, backrest and lumbar adjustments such as the lumbar support is at the greatest height that can be attained. All other adjustments in mid-position	
2	f min	Minimum vertical height of the lumbar support See footnote "a"	6.3.1.1, D a 6.3.1.1, E a	Seat in maximum height, backrest and lumbar adjustments such that the lumbar support is at the least height that can be attained. All other adjustments in midposition	
3	f range	Lumbar support height adjustment range fmax - fmin, For chairs with mechanical moving backrests and/or lumbar devices, also measure "Vertical lumbar adjustment mechanism travel". Then report the higher of the two values.	6.3.1.1 Paragraph immediately below Table 2 6.3.1.1 E a	as above	



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Clause	Requirement - Test		Result - Remark		Verdict
	4	γ	Angle between seat and back See also footnote "a" in Table 3	6.3.1.2, Go through the full sequence in Table 3 Check that $\gamma \geq 90^\circ$	Seat in maximum height, all other adjustments in midposition
	5	l	Backrest inclination range	6.3.1.2 -Table 3 Start with sequence 1 in Table 3 Pull back the backrest until it comes to a stop then record the angle of the backrest segment from vertical	Seat in maximum height, all other adjustments in midposition
	6	e (min.)	Seat pad angle adjustable / Seat pad angle fixed: minimum	6.3.1.2 – Table 3 Go through the full sequence in Table 3 then take the minimum.	Seat in maximum height and, if inclinable, in its rear inclined position, with the back in the most rearward position; all other adjustments in mid-position
	7	e (max.)	Seat pad angle adjustable / Seat pad angle fixed: maximum	6.3.1.2 – Table 3 Go through the full sequence in Table 3 then take the maximum.	Seat in maximum height and, if inclinable, in its forward inclined position, with the back in the most upright position; all other adjustments in midposition
	8	a (min.)	Seat height, minimum. For chairs with seat pad angles zero or greater (+)	6.3.2.1 6.3.2.2	If independently adjustable: lumbar protrusion at minimum; lumbar height at midpoint; seat most horizontal; backrest most vertical; all other components including seat and backrest at minimum position



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Clause	Requirement - Test			Result - Remark	Verdict	
	9	a (min)	Sitting height, minimum. Sitting heights are only applicable for chairs with seat pad angles less than 0 (rearwards slope)	6.3.2.1 6.3.2.2 Measure sitting height	as above	P
	10	b (min.)	Adjustable depth of the seat / Fixed depth of the seat	6.3.2.3	as above	
	11	h (min.)	Backrest height	6.3.2.4	as above	
	12	q (max.)	Maximum distance from the backrest to the front of the armrests	6.3.2.5 In derogation to ISO 24496:2017, the dimension shall be 214 mm instead of 180mm	everything adjusted to their minimum position	
	13	p (min.)	Height of armrests adjustable / Height of armrests not adjustable	6.3.2.7	as above	
	14	a (max.)	Seat height maximum For chairs with seat pad angles zero or greater (+)	6.3.3.1 6.3.3.2	Re-adjust the chair according to 6.3.3. If independently adjustable: lumbar protrusion to minimum; lumbar height at midpoint; seat most horizontal; backrest most vertical; all other components including seat and backrest at maximum position	



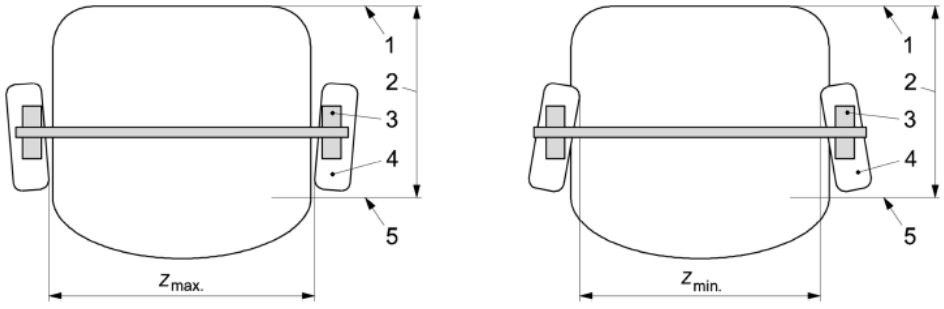
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Clause	Requirement - Test			Result - Remark	Verdict	
	15	a (max)	Sitting height max Sitting heights are only applicable for chairs with seat pad angles less than 0 (rearwards slope)	6.3.3.1 6.3.3.2 Measure sitting height	as above	P
	16	b (max.)	Adjustable depth of the seat / Fixed depth of the seat	6.3.3.3	as above	
	17	h (max.)	Backrest height	6.3.3.4	as above	
	18	p (max.)	Height of armrests adjustable / Height of armrests not adjustable	6.3.3.6	as above	
	19	d	Seat pad width	Remove the CMD and carry out according to 6.3.4.2	as above	
	20	c	Seat pad depth	6.3.4.3	as above	
	21	j	Backrest width	6.3.4.4 In derogation to ISO 24496:2017, measure the backrest width at the midposition of the lumbar zone as defined in 3.18	as above	
	22	k	Radius of backrest	6.3.4.5	as above	
	23	n	Armrest length	6.3.4.6	as above, armrest pad in the most horizontal position	
	24	o	Armrest width	6.3.4.7	as above	



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Clause	Requirement - Test			Result - Remark	Verdict	
	25	r	Minimum clearance between armrest assembly when armrests are in their widest position	6.3.4.8	as above, armrests in their widest possible position	P
	26	Z max Z min	Adjustable clear distance between armrest pads / Fixed clear distance between armrest pads See footnote "b"	6.3.4.9 In derogation to ISO 24496:2017, adjust the armrest pads as wide as possible whilst ensuring the usable armrest area templates are parallel to the median plane. Measure the minimum gap between the edges of the armrest pads (5mm below the top) within the armrest measurement zone as defined in ISO 24496:2017, 3.5 Adjust the armrest pads as narrow as possible whilst ensuring the usable armrest area templates are parallel to the median plane. Measure the minimum gap between the edges of the armrest pads (5mm below the top) within the armrest measurement zone as defined in ISO 24496:2017, 3.5. See also Figure 2 in this document	as above, 1st with armrest pads at their widest possible position apart 2nd with armrest pads at their narrowest possible position apart	
	27	s	Offset of the underframe	6.3.4.10	as above	

Clause	Requirement - Test	Result - Remark	Verdict
	 <p>Key 1 Line at the front of the seat 2 Armrest measurement zone 3 Usable armrest area template 4 Armrest pad 5 Rear line of the seat surface width zone</p> <p>Figure 2 — Minimum and maximum gap between armrest pads</p>		P
8	Dimensional requirements		—
	The dimensions of Types Ax, A, B and C office work chairs shall be as specified in Tables 2 and 3.		P
	Some functions shall be lockable in order that the chair can fulfil its functions.		P
	It shall be possible to adjust the chair while sitting on it.		P
	For adjustable functions, the minimum and maximum values shall be obtained, with the exception of dimension f, “adjustable height of lumbar support”.		P
	When a range is specified, the chair shall fulfil this requirement too.		P
	Column “Allow (-)”: If there is a “yes”, dimensions less than the minimum requirement are accepted. If there is a “no”, the dimension shall not be less than the minimum required dimension.		P
	Column “Allow (+)”: If there is a “yes”, dimensions more than the maximum dimension requirement are accepted. If there is a “no”, the dimension shall not be more than the maximum required dimension.		P
	In addition to conventional backrests, those with a mesh support can be measured using this standard.		P
	However, if they do not have a mechanically moving lumbar device, they are classified as having a fixed height lumbar support.		P



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Clause	Requirement - Test	Result - Remark	Verdict
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Table 2 — Dimensional requirements								P
			Allow (-)	min	max	Allow (+)	Minimum range	
a ^a b	Seat height and sitting height x	Type Ax	yes	400	540	yes	160	
		Type A	yes	400	520	yes	130	
		Type B	yes	420	510	yes	100	
		Type C	yes	430	480	yes	80	
b	Adjustable depth of the seat	Type Ax	yes	380	430	yes	70	
		Type A	yes	425	450	yes	70	
		Type B	yes	425	445	yes	50	
		Type C	yes	425	-	yes	-	
	Fixed depth of the seat	Type Ax	no					
		Type A	no					
		Type B	no	425	485	no	fixed	
		Type C	no	425	-	yes	fixed	
f	Adjustable height of lumbar support	Type Ax	yes	170	300	yes	Minimum 70 within the range	
		Type A	yes	170	300	yes	Minimum 70 within the range	
		Type B	yes	170	300	yes	Minimum 50 within the range	
		Type C	yes	170	300	yes	-	
		Fixed height of lumbar support	Type Ax	no				
			Type A	no				
			Type B	no	170	300	no	-
			Type C	no	170	300	no	-
	q ^c	Maximum distance from the backrest to the front of the armrests	Type Ax	yes	-	200	no	-
			Type A	yes	-	300	no	-
			Type B	yes	-	350	no	-
			Type C	yes	-	400	no	-



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Clause	Requirement - Test				Result - Remark				Verdict	
	r ^d	Hip breadth clearance when armrests are in Widest position	Type Ax	no	480	-	yes	-	P	
			Type A	no	480	-	yes	-		
			Type B	no	460	-	yes	-		
			Type C	no	460	-	yes	-		
	z ^{de}	Adjustable clear distance between armrest pads	Type Ax	yes	410	510	yes	-		
			Type A	yes	410	510	yes	-		
			Type B	yes	460	510	yes	-		
			Type C	yes	460	510	yes	-		
		Fixed clear distance between armrest pads	Type Ax	no						
			Type A	no						
			Type B	no	460	510	no	-		
			Type C	no	460	-	yes	-		
	p	Height of armrests adjustable	Type Ax	yes	200	290	yes	100		
			Type A	yes	200	290	yes	100		
			Type B	yes	225	250	yes	50		
			Type C	yes	200	250	yes	-		
		Height of armrests not adjustable	Type Ax	no						
			Type A	no						
			Type B	no	225	275	no	-		
			Type C	no	200	250	no	-		
	d	Seat pad width	Type Ax	no	400	-	yes	-		
			Type A	no	400	-	yes	-		
			Type B	no	400	-	yes	-		
			Type C	no	400	-	yes	-		
	c	Seat pad depth	Type Ax	no	380	-	yes	-		
			Type A	no	380	-	yes	-		
			Type B	no	380	-	yes	-		
			Type C	no	380	-	yes	-		
h	Backrest height	Type Ax	no	360	-	yes	-			
		Type A	no	360	-	yes	-			
		Type B	no	360	-	yes	-			
		Type C	no	360	-	yes	-			



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Clause	Requirement - Test				Result - Remark				Verdict
	j	Backrest width	Type Ax	no	360	-	yes	-	P
			Type A	no	360	-	yes	-	
			Type B	no	360	-	yes	-	
			Type C	no	360	-	yes	-	
	k	Radius of backrest	Type Ax	no	400	-	yes	-	
			Type A	no	400	-	yes	-	
			Type B	no	400	-	yes	-	
			Type C	no	400	-	yes	-	
	n	Armrest length	Type Ax	no	150	-	yes	-	
			Type A	no	150	-	yes	-	
			Type B	no	150	-	yes	-	
			Type C	no	150	-	yes	-	
	o	Armrest width	Type Ax	no	50	-	yes	-	
			Type A	no	50	-	yes	-	
			Type B	no	40	-	yes	-	
			Type C	no	40	-	yes	-	
s	Offset of the underframe	Type Ax	yes	-	415	no	-		
		Type A	yes	-	415	no	-		
		Type B	yes	-	415	no	-		
		Type C	yes	-	415	no	-		



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Clause	Requirement - Test	Result - Remark	Verdict						
	Table 3 — Angle requirements						P		
			Allow (-)	min	max	Allow (+)		Minimum range	
	γ ^a	Angle between seat and back	Type Ax	no	90	-		yes	-
			Type A	no	90	-		yes	-
			Type B	no	90	-		yes	-
			Type C	no	90	-		yes	-
	l	Backrest inclination range	Type Ax	Minimum 15 degrees					
			Type A	Minimum 15 degrees					
			Type B	Minimum 15 degrees					
			Type C						
	e ^b	Seat pad angle adjustable	Type Ax	yes	0	-		Yes	-
			Type A	yes	0	-		Yes	-
			Type B	yes	-2	-		Yes	-
			Type C	no	-2	-		Yes	-
		Minimum adjustment range	Type Ax	5					
			Type A	5					
			Type B	5					
			Type C	5					
		Seat pad angle fixed	Type Ax	no					
			Type A	no					
			Type B	no	+2	-5		no	-
			Type C	no	+2	-7		no	-
	9	Information for use						—	
		Information for use shall be available in the language of the country in which it will be delivered to the end user. It shall contain at least the following details:						P	
	a) the Type of chair (Type Ax, Type A, Type B or Type C);		Type C			P			
	b) information regarding the intended use;					P			
	c) instructions for operating the adjusting mechanisms;					P			
	d) assembly instructions, where applicable;					P			
	e) instructions for the care and maintenance of the chair;					P			
	f) if the chair is fitted with castors, Information on the choice of castors in relation to the floor surface;					P			



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Clause	Requirement - Test	Result - Remark	Verdict
	g) the statement: "Warning! Only trained personnel may replace or repair components for height adjustment of seating furniture with energy storage."		P
10	Test report		—
	The test report shall include at least the following information:		P
	a) reference to this document;		P
	b) details of the chair tested and the name of the manufacturer;		P
	c) record of assembly if needed;		P
	d) dimensions according to Clause 8 and the Type of chair (Type Ax, Type A, Type B or Type C);	Type C	P
	e) name and address of the test facility;		P
	f) date of the test;		P
	g) a statement of compliance.		P
Annex A	Rationale for determination of office chair dimensions: comparison of current published dimensions with European anthropometric data		—
	This annex explains the importance of each chair dimension regarding sitting and working. It also points to other factors that has a bearing on accommodate comfortable sitting for a large user group. To follow the same philosophy of ISO 24496:2017 (chair measurement methods) from which the measurement methods of this standard are derived, as much as possible, the chair dimensions given in this standard are linked to the anthropometric dimensions as defined in EN ISO 7250-1:2017.		P
	The following anthropometric data as shown in Table A.1 were considered in determining the dimensions of office work chairs.		P



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Clause	Requirement - Test	Result - Remark	Verdict																																
	<p style="text-align: center;">Table A.1 — Sources of European anthropometric data</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 50%; text-align: center;">France</td><td style="width: 50%; text-align: center;">Peoplesize 2008</td></tr> <tr><td style="text-align: center;">France</td><td style="text-align: center;">Tome I - Les résultats statistiques H-F.2006</td></tr> <tr><td style="text-align: center;">Italy</td><td style="text-align: center;">CEN ISO/TR 7250-2:2011</td></tr> <tr><td style="text-align: center;">Italy</td><td style="text-align: center;">Peoplesize 2008</td></tr> <tr><td style="text-align: center;">England</td><td style="text-align: center;">Peoplesize 2008</td></tr> <tr><td style="text-align: center;">Spain</td><td style="text-align: center;">Dimensiones antropometricas la poblacion laboral espanola 1996</td></tr> <tr><td style="text-align: center;">Germany</td><td style="text-align: center;">Peoplesize 2008</td></tr> <tr><td style="text-align: center;">Germany</td><td style="text-align: center;">CEN ISO/TR 7250-2:2011</td></tr> <tr><td style="text-align: center;">The Netherlands</td><td style="text-align: center;">CEN ISO/TR 7250-2:2011</td></tr> <tr><td style="text-align: center;">The Netherlands</td><td style="text-align: center;">DINED 2004</td></tr> <tr><td style="text-align: center;">The Netherlands</td><td style="text-align: center;">Peoplesize 2008</td></tr> <tr><td style="text-align: center;">Sweden</td><td style="text-align: center;">Peoplesize 2008</td></tr> <tr><td style="text-align: center;">Belgium</td><td style="text-align: center;">Peoplesize 2008</td></tr> <tr><td style="text-align: center;">Denmark (no distinction between female and male)</td><td style="text-align: center;">DS-INF 69-2003</td></tr> <tr><td style="text-align: center;">Belgium (no distinction between female and male)</td><td style="text-align: center;">DINBELG 2005</td></tr> <tr><td style="text-align: center;">Norway</td><td style="text-align: center;">Sintef Unimed 1992-12-04</td></tr> </table>	France	Peoplesize 2008	France	Tome I - Les résultats statistiques H-F.2006	Italy	CEN ISO/TR 7250-2:2011	Italy	Peoplesize 2008	England	Peoplesize 2008	Spain	Dimensiones antropometricas la poblacion laboral espanola 1996	Germany	Peoplesize 2008	Germany	CEN ISO/TR 7250-2:2011	The Netherlands	CEN ISO/TR 7250-2:2011	The Netherlands	DINED 2004	The Netherlands	Peoplesize 2008	Sweden	Peoplesize 2008	Belgium	Peoplesize 2008	Denmark (no distinction between female and male)	DS-INF 69-2003	Belgium (no distinction between female and male)	DINBELG 2005	Norway	Sintef Unimed 1992-12-04		P
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	<p>For each chair dimension, Table A.2 below shows:</p> <ul style="list-style-type: none"> — why it is important; — what needs to be specified; and — additional important information. 		P																																



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Clause	Requirement - Test	Result - Remark	Verdict
	Table A.2 — Rationale for the chair dimensions given in Clause 8: Dimensions		P
	Why important?	What needs to be specified?	Implications and other factors
‘a’ Seat height	<p>A good seat height is important for comfortable sitting and working. It is also of importance in setting the hand position and governs sitting eye height.</p> <p>An adjustable seat height allows different people to work at the same workstation and for individuals to work at different work heights or to fine tune their height to help optimize comfort, health and productivity. Sitting, without muscular activity of the lower leg for more than 30 min, will cause swelling of the legs. The user may feel tingling and discomfort short-term and increases the risk of more serious numbness then DVT (deep vein thrombosis) longer term. This can be counteracted by incorporating a dynamic mode of work chair to promote leg and ankle movement and ensuring that feet can be placed flat on the floor without restriction.</p> <p>If the seat is too low for taller users, there is an increased risk of slouching and less dynamic sitting leading to possible fatigue and discomfort shortterm and potentially more difficulty with ingress and egress.</p>	<p>Minimum height and minimum adjustment range to include shorter and taller ends of the user populations. (popliteal height) he requirement has added 40 mm to the anthropometric figures allowing for shoes</p>	<p>Be aware, when using fixed height desks, users will adjust their chairs so that their lower arm is horizontal and just above desk height.</p> <p>Therefore, short users will raise their seats to achieve this and they cannot rest their feet flat on the floor; they will need footrests.</p> <p>Therefore, adjustment range and min and max height of seat height will be different. Chairs to be used with height adjustable desks the chair will need to adjust the full range for the specified percentiles. Due to very low and very high seat height requirements to cover the 5th to 95th percentile European population range, it may not be possible to have a single gas cylinder, however, percentile fit range can be enlarged by using telescopic gas cylinders.</p> <p>Alternatively, the option of two or more separate gas cylinders could be adopted. This solution can be managed in workplaces where individuals have their own dedicated chairs, but in other workplaces where the workstations are used by different people at any time, careful management of availability and identification (low or high gas cylinders) of chairs will be required.</p>



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Clause	Requirement - Test	Result - Remark	Verdict
	<p>'a' Sitting height</p>	<p>For chairs without backrest lock, the loads on the thoracic part of the CMD may recline the backrest and simultaneously may change the angle of the seat pad (making it tip rearwards) hence increasing the seat height which is measured at the front edge of the seat. Such chairs already exist in the market and comfort or health are not unduly effected so to avoid excluding seats where the angle is less than zero, sitting height instead of seat height can be measured.</p>	
	<p>'b' Seat depth</p>	<p>This dimension is important both to ensure that the legs can be positioned without compression at the back of the knee and to enable the buttocks to be positioned to enable full use of the backrest. The back of the knee has relatively sensitive skin and little padding over the tendons and so the seat depth should be shorter than the buttock to back of knee dimension to allow for this. Allowances for clothing of the buttocks and the popliteal should be included. The seat depth is typically determined by the smallest person in the design range if no adjustability is provided. If the seat is too deep the user increases the risk of slouching to reach the backrest and will lead to discomfort short-term and increases the risk of more serious musculo skeletal issues longer term.</p>	<p>Sufficient stable seat surface to support the users body through the ischial tuberosities (sitting bones) where most of the upper body weight is transmitted and the upper quarter of the thigh.</p> <p>Dimensions and the range of adjustment given in this standard cannot cover the 5th to 95th percentile popliteal length of the European populations. This is due to the technical limitation of the design of chairs and the limitations imposed by the forward stability requirements of EN 1335-2 which inevitably reduces the range of adjustability. If the seat is exceptionally deep there is a risk the chair will fail forward stability tests.</p> <p>Short seats, made with a good waterfront shaped front edge allows for higher sitting than the traditional 90 degree sitting posture. This may be one of many ways to encourage variation of postures during the workday.</p>



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Clause	Requirement - Test	Result - Remark	Verdict		
	<p>'f' Lumbar support</p>	<p>This feature helps to maintain a natural 's' shape spine and reduces the risk of slouching and fatigue short-term and more serious musculo skeletal disorders long term.</p>	<p>A defined protrusion zone and height to correspond with the lumbar area.</p>	<p>If there is no apparent adjustable lumbar zone, the optimal S shape spinal posture can also be achieved by pelvic support, forward tilting seats, adaptable mesh or other flexible materials.</p>	<p>P</p>
<p>'q' Maximum distance from the backrest to the front of the armrests</p>	<p>The maximum distance needs to be specified in line with thinner users (buttock-abdomen depth) to avoid users having to lean forward to reach items at the workstation and losing support from the backrest. Armrest longer than the body thickness will adversely effect the comfortable work position.</p>	<p>Armrests that are lower or away from obstructing the front of the corresponding worksurface and allow postural changes .</p>	<p>If the armrest height can be lowered to 120mm or less (i.e. a small person's thighs thickness) or the arrests can be swung behind the backrest, the desk clearance can be achieved and the armrests can be longer.</p>		
<p>'γ' Angle between seat and back</p>	<p>The seat to back angle is important to aid the feeling of comfort and support while working as well as influencing the line of sight and focal distance from the workstation. Angles less than 95 degrees increase the risk of general discomfort and restricted breathing. The movements of the seat pad and backrest should allow users to vary their posture to suit user comfort and changes to task requirements.</p>	<p>A natural angle to optimize comfort and productivity for the user when working at a desk.</p>	<p>Forward tilting chairs will have an increased seat and potentially back starting angle but the backrest should not be less than 90° to the floor to avoid the sensation of being pushed forward. The movements of the seat pad and backrest can occur independently from each other with one of the two elements fixed, or the angle can open up by simultaneous movement of the seat pad and the backrest in a pre-set ratio greater than one.</p>		

Clause	Requirement - Test	Result - Remark	Verdict		
	<p>'e' Seat pad angle</p>	<p>Ability to change seat pad angle encourages dynamic sitting and variety of postures. Extremes may have negative consequences depending on the contours of the seat and corresponding backrest. Forward tilt seat pads allow opening the angle between the torso and the thighs hence reducing the compression of the abdomen and improving the work posture.</p>	<p>A suitable angle to support natural and balanced dynamic postures to aid comfort and productivity.</p>	<p>If the fixed rearward angle is too reclined, slouching is more likely which increases the risk of discomfort short-term and more serious spinal implications longer term when working at a horizontal table. With a fixed forward tilt (greater than approximately 0 degrees) sitters may feel that they are sliding off the chair. Certain seat designs combined with a taller gas lift allow thighs to point downwards unobstructed without changing the angle of the seat pad.</p>	<p>P</p>
	<p>'r' Hip breadth clearance when armrests in widest position</p>	<p>Needs to be a minimum distance to allow clearance for larger users to get in and out of the chair.</p>	<p>Allowing comfortable and safe egress and ingress for larger users.</p>	<p>Slimmer users may need the armrest pads to adjust closer for them to be effective.</p>	
	<p>'z' adjustable clearance between armrest pads</p>	<p>Need to be adjustable to cater for maximum hip breadth and minimum elbow width when upper limbs are relaxed by the users side and forearms are at right angles.</p>	<p>Allowing comfortable support of the arms without being too far away from the trunk.</p>	<p>This is an estimated dimension and assumes elbows tucked to the side of the body. In practise, when users are relaxed this distance increases by 30mm to 50 mm. Ideally this should be adjustable, if fixed it has to be the same as hip breadth clearance.</p>	
	<p>'p' Height of armrests</p>	<p>Armrests are not essential for sitting and working comfortably at a desk but when adjusted properly can assist in resting arms when leaning back and for using hand-held devices to support the weight of the arms and reduce fatigue in the shoulders.</p>	<p>An average armrest at elbow height for fixed arm.</p>	<p>There is no correlation between tall people and short/long upper arms. The variation could be larger than the adjustment range of the armrest height in this standard. Fixed arms may increase the risk of dimensional misfit and poor posture. Mechanical restrictions prevent accommodating a broad range of users.</p>	



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Clause	Requirement - Test	Result - Remark	Verdict
	<p>'d' Seat pad width</p> <p>This is important to assist the sensation of safe and comfortable sitting and should be designed to cater for larger users. Comfort is increased if the seat pad width is wider especially for longer periods of sitting.</p>	Needs to be a minimum that supports the ischial tuberosities to avoid cutting into the crotch region.	Depending on the task and duration of the sitting period, some seat widths might be narrower or more contoured to allow for the thighs to tilt down uncompressed and unhindered and for users to adopt more of a perch position.
	<p>'c' Seat pad depth</p> <p>This is important to support the trunk and thighs and assist in the sensation of safe, supported and comfortable sitting.</p>	Needs to be a minimum for the smallest user.	If the seat is adjustable, ensure a large gap at the back is avoided when the seat is forward to ensure the body is adequately supported.
	<p>'h' Backrest height</p> <p>The backrest should be capable of providing support to the back of the user in a variety of sitting positions. Backrests should be designed to give support particularly for the lumbar region of the body. Postural changes should also be accommodated by movement of the user. A low-level backrest should commence at a level which clears the major protuberances of the buttocks, have a maximum prominence in the midlumbar region (to aid lordosis and to prevent kyphosis); and conclude below the level of the shoulder blades, so as not to inhibit upper body movement.</p>	Needs to be a minimum to assist in the support of the back and/or pelvis so that the user can rest safely and comfortably.	For some types of work where reclining posture is essential, higher backrests which also provide support for the shoulder blades are recommended. Higher backrests should have a forward convexity in the lumbar region which gently merges into a plane surface or concavity. Low backrests give freedom to move the upper body and arms.
	<p>'j' Backrest width</p> <p>Important to provide support for the spine.</p>	Minimum width to feel supported.	There is no anthropometric data for this requirement. Narrower backrests give freedom to move.
	<p>'k' Radius of backrest</p> <p>Important to provide feeling of comfort and support to follow the natural contours of the back.</p>	400mm radius minimum as an estimate.	There is no anthropometric data for this requirement. If too small users can feel squashed and restrained.



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Clause	Requirement - Test	Result - Remark	Verdict
	<p>'x' Neck/head rest height</p> <p>Provide support for the head, especially when reclined postures greater than 15 –20 degrees from the vertical to avoid strain on the neck and shoulder muscles and to keep the head up for visual comfort.</p>	Based on cervical sitting height.	Adjustable in height and protrusion desirable. Fixed headrests may increase the risk of dimensional misfit and poor posture.
	<p>'n' Armrest length</p> <p>Desirable to support fleshy part of forearm from the elbow forwards rather than the wrist. Armrests that are too long could interfere with the desk front edge or backrest.</p>	Enough to provide supported periods of rest and to encourage changes in posture.	This dimension is more related to preference rather than a specific anthropometric measure. The requirement in the standard is an estimate for support of the forearm. It is acceptable to use work surfaces to rest forearms when using keyboards.
	<p>'o' Armrest width</p> <p>Some users find it comfortable to have forearm support.</p>	Minimum 30 mm.	This dimension is more related to preference rather than a specific anthropometric measure.
	<p>'s' Offset of the underframe</p> <p>Important to prevent stumbling/tripping.</p>		There is no anthropometric data for this requirement. Greater seat depth adjustment may force this dimension to become larger.
	<p>Backrest inclination "x"</p> <p>Important to facilitate variation in sitting and comfort.</p>		This dimension is more related to preference rather than a specific anthropometric measure.
	<p>Tall chairs</p> <p>These chairs allow users to work at high work surfaces when seated by lifting the seat up and providing a foot support to replace the floor.</p>	Seat height is the distance between the foot support and the seat.	It is desirable with a wider foot support as more stability is provided and it becomes easier to change position.
Annex B	Example of how to read Table 2		—
	Example with seat depth.		N/A
	A chair with adjustable seat depth from 425mm to 495mm complies with the dimensional requirement for a Type A chair.		N/A
	A chair with adjustable depth from 425mm to 475mm does not comply with the dimensional requirement for a Type A chair as the range is lower than the required minimum range of 70 mm.		N/A



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Clause	Requirement - Test	Result - Remark	Verdict																																																											
	A chair with adjustable seat depth from 435mm to 505mm does not comply with the dimensional requirement for a Type A chair as the minimum required dimension of is 425 mm.		N/A																																																											
	A chair with a fixed seat depth of 420 mm does not comply with the dimensional requirement for a TypeB chair as the dimension is less than the minimum required dimension of 425 mm.		N/A																																																											
	A chair with a fixed seat depth of 450 mm complies with the dimensional requirement for a Type B chair as the dimension is between the minimum and maximum required dimensions of 425 mm and 485mm.		N/A																																																											
Annex C	Dimensions of neck rests and headrests		—																																																											
	Table C.1 below provides dimensions for only the height of neck rests and headrests. The protrusion and the angle of headrests are factors that should be considered in the design and purchasing processes, but as there are no anthropometric data available for them, dimensions for them are not provided		P																																																											
	<p style="text-align: center;">Table C.1 — dimensions for neck rests and headrests</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th>Allow (-)</th> <th>min</th> <th>max</th> <th>Allow (+)</th> <th>Minimum range</th> </tr> </thead> <tbody> <tr> <td rowspan="4" style="text-align: center;">x</td> <td rowspan="4" style="text-align: center;">Height of adjustable neck rest or head rest</td> <td>Type Ax</td> <td style="text-align: center;">no</td> <td style="text-align: center;">550</td> <td style="text-align: center;">740</td> <td style="text-align: center;">yes</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Type A</td> <td style="text-align: center;">no</td> <td style="text-align: center;">550</td> <td style="text-align: center;">740</td> <td style="text-align: center;">yes</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Type B</td> <td style="text-align: center;">no</td> <td style="text-align: center;">590</td> <td style="text-align: center;">-</td> <td style="text-align: center;">yes</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Type C</td> <td style="text-align: center;">no</td> <td style="text-align: center;">590</td> <td style="text-align: center;">-</td> <td style="text-align: center;">yes</td> <td style="text-align: center;">-</td> </tr> <tr> <td rowspan="4"></td> <td rowspan="4" style="text-align: center;">Height of fixed neck rest or head rest</td> <td>Type Ax</td> <td colspan="5" style="text-align: center;">no</td> </tr> <tr> <td>Type A</td> <td colspan="5" style="text-align: center;">no</td> </tr> <tr> <td>Type B</td> <td style="text-align: center;">no</td> <td style="text-align: center;">590</td> <td style="text-align: center;">-</td> <td style="text-align: center;">yes</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Type C</td> <td style="text-align: center;">no</td> <td style="text-align: center;">590</td> <td style="text-align: center;">-</td> <td style="text-align: center;">yes</td> <td style="text-align: center;">-</td> </tr> </tbody> </table>			Allow (-)	min	max	Allow (+)	Minimum range	x	Height of adjustable neck rest or head rest	Type Ax	no	550	740	yes	-	Type A	no	550	740	yes	-	Type B	no	590	-	yes	-	Type C	no	590	-	yes	-		Height of fixed neck rest or head rest	Type Ax	no					Type A	no					Type B	no	590	-	yes	-	Type C	no	590	-	yes	-		P
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Annex D	Measurement uncertainty		—																																																											
	Table D.1 below provides values for the maximum measurement uncertainties according to ISO 24496:2017.		P																																																											
	The measurement of uncertainty data provided in Table D.1 is from an old round robin ISO measurement of uncertainty study. There have been many changes made to the standard. Therefore, the measurement of uncertainty values are not up-to-date. Test laboratories should establish their own measurement uncertainties, which should for some measurements be much smaller than the values given in Table D.1.		P																																																											



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Clause	Requirement - Test	Result - Remark	Verdict																																																											
	A CEN-wide measurement of uncertainty study for measuring chairs in accordance with this standard is underway and this study will provide up-to-date data.		P																																																											
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Clause	Requirement - Test	Result - Remark	Verdict
4	Safety requirements		—
4.1	General The chair shall be so designed as to minimise the risk of injury to the user.		P
	All parts of the chair with which the user comes into contact during intended use, shall be so designed that physical injury and damage to property are avoided.		P
	These requirements are fulfilled when:		P
	a) the edges of the seat, back rest and arm rests which are in contact with the user when sitting in the chair are rounded with minimum 2 mm radius;		P
	b) the edges of handles are rounded or chamfered in the direction of the force applied;		P
	c) all other edges and corners are free from burrs and rounded or chamfered;		P
	d) the ends of accessible hollow components are closed or capped.		P
	Movable and adjustable parts shall be designed so that injuries and inadvertent operation are avoided.		P
	It shall be possible to operate the adjusting devices from sitting position in the chair.		P
	It shall not be possible for any load bearing part of the chair to come loose unintentionally		P
4.2	Shear and squeeze points		P
4.2.1	Shear and squeeze points under influence of powered mechanisms		P
	There shall be no accessible shear and squeeze points created by parts of the chair operated by powered mechanisms, i.e. springs, gas lifts and motorized systems.		P
4.2.2	Shear and squeeze points during use		P
	There shall be no accessible shear and squeeze points created by loads applied during normal use.		P
	Shear and squeeze points are not acceptable if there is a risk of injury created by the weight of the user during normal movements and actions, e.g. manipulating levers and crank handles.		P
4.3	Sequence of testing		P
	All applicable tests shall be carried out on the same sample.		P
	The chair shall be tested for stability according to EN 1022:2018, 7.3 and in the order of Table 1.		P
	The chair shall be tested for strength and durability according to EN 1728:2012, Clause 7 and in the order of Table 2.		P



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Clause	Requirement - Test	Result - Remark	Verdict																																
	With the exception of the armrest downward static load test – central test, which shall be performed before and after the stability test according to Table 1, the chair shall be tested for stability after the strength and durability tests according to Table 2.		P																																
4.4	Stability tests and requirements		P																																
	When tested according to Table 1, the seating shall not overturn.		P																																
	Table 1 — Stability tests and parameters		P																																
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4.5	Structural safety requirements		P																																
	The structural safety requirements are met when the requirements according to 5.2 are fulfilled.		P																																
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Clause	Requirement - Test	Result - Remark	Verdict																															
	Table 2 — Test sequence and parameters		P																															
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Tests</th> <th style="width: 20%;">Reference</th> <th style="width: 30%;">Loads and cycles</th> <th style="width: 20%;">Test parameters</th> </tr> </thead> <tbody> <tr> <td>1. Combined seat and back static load test</td> <td>EN 1728:2012, 7.3</td> <td>Seat force F1, N Back rest force F2, N Cycles</td> <td>1600 560 10</td> </tr> <tr> <td>2. Seat front edge static load test</td> <td>EN 1728:2012, 7.4</td> <td>Force, N Cycles</td> <td>1600 10</td> </tr> <tr> <td>3. Foot rest static load test</td> <td>EN 1728:2012, 7.8</td> <td>Force, N Cycles</td> <td>1300 10</td> </tr> <tr> <td>4. Seat and back durability</td> <td>EN 1728:2012, 7.9</td> <td>Step 1: Force, N, at point A Cycles Step 2: Force, N, at point C Force, N, at point B Cycles Step 3: Force, N, at point J Force, N, at point E Cycles Step 4: Force, N, at point F Force, N, at point H Cycles Step 5 a : Force, N, at point D and G Cycles</td> <td>1 500 120 000 1 200 320 80 000 1 200 320 20 000 1 200 320 20 000 1 100 20 000</td> </tr> <tr> <td>5. Armrests durability</td> <td>EN 1728:2012, 7.10</td> <td>Force, N Cycles</td> <td>400 60 000</td> </tr> <tr> <td>6.1 Armrest downward static load test – central b</td> <td rowspan="2">EN 1728:2012, 7.5</td> <td>Force, N Cycles</td> <td>750 5</td> </tr> <tr> <td>6.2 Armrest downward static load test – central c</td> <td>Force, N Cycles</td> <td>900 5</td> </tr> </tbody> </table>	Tests	Reference	Loads and cycles	Test parameters	1. Combined seat and back static load test	EN 1728:2012, 7.3	Seat force F1, N Back rest force F2, N Cycles	1600 560 10	2. Seat front edge static load test	EN 1728:2012, 7.4	Force, N Cycles	1600 10	3. Foot rest static load test	EN 1728:2012, 7.8	Force, N Cycles	1300 10	4. Seat and back durability	EN 1728:2012, 7.9	Step 1: Force, N, at point A Cycles Step 2: Force, N, at point C Force, N, at point B Cycles Step 3: Force, N, at point J Force, N, at point E Cycles Step 4: Force, N, at point F Force, N, at point H Cycles Step 5 a : Force, N, at point D and G Cycles	1 500 120 000 1 200 320 80 000 1 200 320 20 000 1 200 320 20 000 1 100 20 000	5. Armrests durability	EN 1728:2012, 7.10	Force, N Cycles	400 60 000	6.1 Armrest downward static load test – central b	EN 1728:2012, 7.5	Force, N Cycles	750 5	6.2 Armrest downward static load test – central c	Force, N Cycles	900 5		
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	The strength and durability requirements are fulfilled when, after testing in accordance with Table 2:		P																															
	a) there are no fractures of any member, joint or component;		P																															
	b) there is no loosening of joints intended to be rigid; and		P																															
	c) the chair fulfils its functions after removal of the test loads.		P																															
5.3	Rolling resistance test and requirements		P																															



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Clause	Requirement - Test	Result - Remark	Verdict
	The rolling resistance test shall be carried out after the stability (according to Table 1) and after the strength and durability tests (according to Table 2).		P
	The unloaded chair shall be tested for rolling resistance according to EN 1728:2012, 6.30 and shall fulfill the following requirements:		P
	a) the castors shall be of identical construction;		P
	b) the rolling resistance shall be ≥ 12 N.		P
6	Information for use		—
	Information for use shall be available in the language of the country in which the product will be available to the end user. It shall contain at least the following details:		P
	a) information regarding the intended use;		P
	b) information regarding possible adjustments;		P
	c) instruction for operating the adjusting mechanisms;		P
	d) instruction for the care and maintenance of the chair;		P
	e) information for chairs with seat height adjustments with energy accumulators that only trained personnel may replace or repair seat height adjustment components with energy accumulators;		P
	f) information on the choice of castors in relation to the floor surface.		P
7	Test report		—
	The test report shall include at least the following information:		P
	a) reference to this European Standard (EN 1335-2:2018);		P
	b) description of the piece of furniture tested;		P
	c) details of defects observed before testing;		P
	d) any variation from the specified temperature range;		P
	e) test results;		P
	f) name and address of the test facility;		P
	g) date of test.		P
Annex A	Loads, masses and cycles for functional tests - Suggested loads, masses and cycles		—
	Tests included in Table A.1 are not safety tests but may be useful for testing functions of the chair.		P
	If the functional tests listed in Table A.1 of Annex A (informative) are carried out, they can be carried out on a separated sample.		P



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Clause	Requirement - Test	Result - Remark	Verdict																							
	The suggested loads, masses and cycles in this informative Annex are based upon use for 8 h a day by persons weighing up to 110 kg.		P																							
	Table A.1 — Loads, masses and cycles for functional tests		P																							
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Size test (Unit:mm)						
Test item	a	b	c	d	—	f
Test data	451 adjustment range: 90	455	510	491	—	196
Requirement	$430 \leq a \leq 480$ Minimum range: 80	$425 \leq b$	$380 \leq c$	$400 \leq d$	—	$170 \leq f \leq 300$
Verdict	Pass	Pass	Pass	Pass	—	Pass
Test item	z	h	j	k	—	n
Test data	—	594	471	405	—	246
Requirement	$460 \leq z \leq 510$	$360 \leq h$	$360 \leq j$	$400 \leq k$	—	$150 \leq n$
Verdict	—	Pass	Pass	Pass	—	Pass
Test item	o	p	q	r	s	—
Test data	95	212	177	461	384	—
Requirement	$40 \leq o$	$200 \leq p \leq 250$	$q \leq 400$	$460 \leq r$	$s \leq 415$	—
Verdict	Pass	Pass	Pass	Pass	Pass	—

Corner stability test			
Requirements	Loads and cycles	Test result	Verdict
When tested according to Table 1, the seating shall not overturn.	Force F1: 300N Cycle: 1	The seating no overturn.	Pass

Forward overturning test			
Requirements	Loads and cycles	Test result	Verdict
When tested according to Table 1, the seating shall not overturn.	Force F1: 600N Force F2: 20N Cycle: 1	The seating no overturn.	Pass

Sideways overturning for chairs with arm rests test			
Requirements	Loads and cycles	Test result	Verdict
When tested according to Table 1, the seating shall not overturn.	Force F1: 250N Force F2: 350N Force F3: 20N Cycle: 1	The seating no overturn.	Pass

Rearwards overturning for chairs with back rest inclination test			
Requirements	Loads and cycles	Test result	Verdict
When tested according to Table 1, the seating shall not overturn.	Number of Discs: 13 Cycle: 1	The seating no overturn.	Pass

Combined seat and back static load test			
Requirements	Loads and cycles	Test result	Verdict
The strength and durability	Seat force F1: 1600N	a) there are no fractures	Pass

requirements are fulfilled when, after testing in accordance with Table 2: a) there are no fractures of any member, joint or component; b) there is no loosening of joints intended to be rigid; and c) the chair fulfils its functions after removal of the test loads.	Back rest force F2: 560N Cycles: 10	of any member, joint or component; b) there is no loosening of joints intended to be rigid; c) the chair fulfils its functions after removal of the test loads.	
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Seat front edge static load test			
Requirements	Loads and cycles	Test result	Verdict
The strength and durability requirements are fulfilled when, after testing in accordance with Table 2: a) there are no fractures of any member, joint or component; b) there is no loosening of joints intended to be rigid; and c) the chair fulfils its functions after removal of the test loads.	Force: 1600N Cycles: 10	a) there are no fractures of any member, joint or component; b) there is no loosening of joints intended to be rigid; c) the chair fulfils its functions after removal of the test loads.	Pass

Seat and back durability test			
Requirements	Loads and cycles	Test result	Verdict
The strength and durability requirements are fulfilled when, after testing in accordance with Table 2: a) there are no fractures of any member, joint or component; b) there is no loosening of joints intended to be rigid; and c) the chair fulfils its functions after removal of the test loads.	Step 1: Force: 1 500N, at point A Cycles: 120 000 Step 2: Force: 1 200N, at point C Force: 320N, at point B Cycles: 80 000 Step 3: Force: 1 200N, at point J Force: 320N, at point E Cycles: 20 000 Step 4: Force: 1 200N, at point F Force: 320N, at point H Cycles: 20 000 Step 5 a : Force: 1 100N, at point D and G Cycles: 20 000	a) there are no fractures of any member, joint or component; b) there is no loosening of joints intended to be rigid; c) the chair fulfils its functions after removal of the test loads.	Pass

Armrests durability test			
Requirements	Loads and cycles	Test result	Verdict
The strength and durability requirements are fulfilled when, after testing in accordance with Table 2: a) there are no fractures of any member, joint or component; b) there is no loosening of joints intended to be rigid; and	Force: 400N Cycles: 60 000	a) there are no fractures of any member, joint or component; b) there is no loosening of joints intended to be rigid; c) the chair fulfils its functions after removal of the test loads.	Pass



c) the chair fulfils its functions after removal of the test loads.			
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6.1 Armrest downward static load test – central^b test			
Requirements	Loads and cycles	Test result	Verdict
The strength and durability requirements are fulfilled when, after testing in accordance with Table 2: a) there are no fractures of any member, joint or component; b) there is no loosening of joints intended to be rigid; and c) the chair fulfils its functions after removal of the test loads.	Force: 750N Cycles: 5	a) there are no fractures of any member, joint or component; b) there is no loosening of joints intended to be rigid; c) the chair fulfils its functions after removal of the test loads.	Pass

6.2 Armrest downward static load test – central^c test			
Requirements	Loads and cycles	Test result	Verdict
The strength and durability requirements are fulfilled when, after testing in accordance with Table 2: a) there are no fractures of any member, joint or component; b) there is no loosening of joints intended to be rigid; and c) the chair fulfils its functions after removal of the test loads.	Force: 900N Cycles: 5	a) there are no fractures of any member, joint or component; b) there is no loosening of joints intended to be rigid; c) the chair fulfils its functions after removal of the test loads.	Pass

Rolling resistance test and requirements test			
Requirements	Test method	Test result	Verdict
a) the castors shall be of identical construction; b) the rolling resistance shall be \geq 12 N.	The unloaded chair shall be tested for rolling resistance according to EN 1728:2012, 6.30	a) the castors were of identical construction; b) the rolling resistance :13.9 N.	Pass

Arm rest downward static load test – front			
Loads and cycles	Test result	Verdict	
Force: 450N Cycles: 5	The seating no overturn. a) there are no fractures of any member, joint or component; b) there is no loosening of joints intended to be rigid; c) the chair fulfils its functions after removal of the test loads.	Pass	

Arm rest sideways static load test			
Loads and cycles	Test result	Verdict	
Force: 400N Cycles: 10	The seating no overturn. a) there are no fractures of any member, joint or component; b) there is no loosening of joints intended to be rigid; c) the chair fulfils its functions after removal of the test loads.	Pass	



Swivel test		
Loads and cycles	Test result	Verdict
Masse M1: 60kg Masse M2: 35kg Cycles: 120 000	The seating no overturn. a) there are no fractures of any member, joint or component; b) there is no loosening of joints intended to be rigid; c) the chair fulfils its functions after removal of the test loads.	Pass

Castor and chair base durability test		
Loads and cycles	Test result	Verdict
Masse M1: 110kg Cycles: 36 000	The seating no overturn. a) there are no fractures of any member, joint or component; b) there is no loosening of joints intended to be rigid; c) the chair fulfils its functions after removal of the test loads.	Pass

Photos
Details of: OfficePal C20

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: General view

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: General view

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: General view

View:

- general
- front
- rear
- right
- left
- top
- bottom



Details of: General view

<p>View:</p> <p><input type="checkbox"/> general</p> <p><input type="checkbox"/> front</p> <p><input type="checkbox"/> rear</p> <p><input type="checkbox"/> right</p> <p><input type="checkbox"/> left</p> <p><input type="checkbox"/> top</p> <p><input type="checkbox"/> bottom</p>		
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Details of: General view

<p>View:</p> <p><input type="checkbox"/> general</p> <p><input type="checkbox"/> front</p> <p><input type="checkbox"/> rear</p> <p><input type="checkbox"/> right</p> <p><input type="checkbox"/> left</p> <p><input type="checkbox"/> top</p> <p><input type="checkbox"/> bottom</p>		
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The end of report