TÜVRheinland®

Prüfbericht - Nr.: 21149936_002
Test Report No.:

Auftraggeber: *Client:*	**Chairsupply.eu; De Factorij 12a; 1689 AL Zwaag; Netherlands**
Gegenstand der Prüfung: *Test item:*	**Office work chairs**
Bezeichnung: *Identification:*	**A320; 706CS and 707CS see page 3 and following of the report**
Serien-Nr.: *Serial No.:*	
Wareneingangs-Nr.: *Receipt No.:*	**10638 / 1065131**
Eingangsdatum: *Date of receipt:*	**2010/06/22**
Prüfort: *Testing location:*	**TÜV Rheinland LGA Products GmbH; Wilhelm-Franke-Str. 66; 01219 Dresden; Deutschland**
Prüfgrundlage: *Test specification:*	**DIN EN 1335-1 / 2002** **DIN EN 1335-2 / 01.2010** **DIN EN 1335-3 / 08.2009** **DIN 4550 / 12.2004**
Prüfergebnis: *Test Result:*	**Der Prüfgegenstand entspricht oben genannter Prüfgrundlage.** The a. m. test item passed.
Prüflaboratorium: *Testing Laboratory:*	**Product Safety Testing Body Dresden**

geprüft/*tested by:*

Datum / *Date*	Name/Stellung / *Name/Position*	Unterschrift / *Signature*
2010/08/09	E. Marusch (SV)	

kontrolliert/*checked by:*

Datum / *Date*	Name/Stellung / *Name/Position*	Unterschrift / *Signature*
2010/08/09	A. Henning (SV)	

Sonstiges/*Other Aspects:*

The gas spring must fulfill the requirements of DIN 4550:2004.

Figures are attached to the report.

Abkürzungen:				*Abbreviations:*			
	P(ass)	=	*entspricht Prüfgrundlage*		*P(ass)*	=	*passed*
	F(ail)	=	*entspricht nicht Prüfgrundlage*		*F(ail)*	=	*failed*
	N/A	=	*nicht anwendbar*		*N/A*	=	*not applicable*
	N/T	=	*nicht getestet*		*N/T*	=	*not tested*

Messung /test equipment	Tool number Inventory – No. Serial number	Next Calibration
Determination of dimensions	90702	02.11
	DD 1162	01.12
	DD 1161	01.12
	DD 1165	01.12
	DD 1166	01.12
	DD 1167	01.12
	DD 1168	01.12
	DD 1169	01.12
Determination of shear and squeeze points	DD 1001	02.12
	DD 1003	02.12
Stability tests	DD 1162	01.12
	DD 1167	01.12
	DD 1168	01.12
	DD 1170	01.12
	DD 1171	01.12
	DD 1184	01.12
	AST 52780	09.11
Strength and durability tests	AST05-4481	09.11
	AST05-4722	09.11

Brief description: type A 320

1. material (manufacturer)

base frame: plastic base
seat: foam material, covered with textiles, mechanism: metal
back rest: foam material, covered with textiles
arm rests: plastic base

2. function

base frame: 5 supports
castors: castors, diameter 64 mm, no marking (type H acc. EN 1335-2)
seat: height adjustment with gas spring lever at the right side under the seat / adjustment of the force for the synchronic mechanism at the right side under the seat - knob / locking of the synchronic mechanism knob at the left side under the seat / adjustment of the seat depth – lever at the left side under the seat
back rest: locking of the synchronic mechanism knob at the left side under the seat / height adjustment in 5 steps by a mechanism

3. weight: 20,0 kg

The dimensions of the work chair: please see page 14 of test report.

Gas spring: MDI FU LUONG
HIGH PRESSURE!
DO NOT OPEN
OR HEAT UP
E017 DIN 4550-2
09 29

Brief description: type 706CS

1. material (manufacturer)

base frame: aluminium base

seat: foam material, covered with textiles, mechanism: metal

back rest: net back rest

arm rests: metal base with plastic parts

2. function

base frame: 5 supports

castors: castors, diameter 64 mm, no marking (type H acc. EN 1335-2)

seat: height adjustment with gas spring lever at the right side under the seat / adjustment of the force for the synchronic mechanism at the right side under the seat - knob / locking of the synchronic mechanism knob at the left side under the seat / adjustment of the seat depth – lever at the left side under the seat

back rest: locking of the synchronic mechanism knob at the left side under the seat

3. weight: 19,0 kg

The dimensions of the work chair: please see page 15 of test report.

Gas spring: MDI FU LUONG
HIGH PRESSURE!
DO NOT OPEN
OR HEAT UP
E017 DIN 4550-2
09 29

Brief description: type 707CS

1. material (manufacturer)

base frame: aluminium base

seat: foam material, covered with textiles, mechanism: metal

back rest: net back rest

arm rests: metal base with plastic parts

2. function

base frame: 5 supports

castors: castors, diameter 64 mm, no marking (type H acc. EN 1335-2)

seat: height adjustment with gas spring lever at the right side under the seat / adjustment of the force for the synchronic mechanism at the right side under the seat - knob / locking of the synchronic mechanism knob at the left side under the seat / adjustment of the seat depth – lever at the left side under the seat

back rest: locking of the synchronic mechanism knob at the left side under the seat / adjustment of depth “c” (see En 1335-1) of the seat – knob, at the right side, in the middle under the seat

3. weight: 21,5 kg

The dimensions of the work chair: please see page 16 of test report.

Gas spring: MDI FU LUONG
HIGH PRESSURE!
DO NOT OPEN
OR HEAT UP
E017 DIN 4550-2
09 51

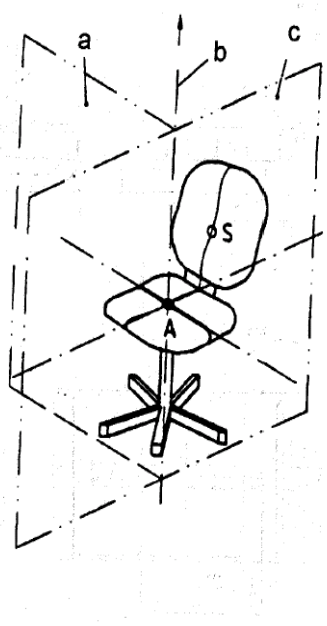
Prüfgrundlage: DIN EN 1335-1:2002 – Dimensions
Standard:

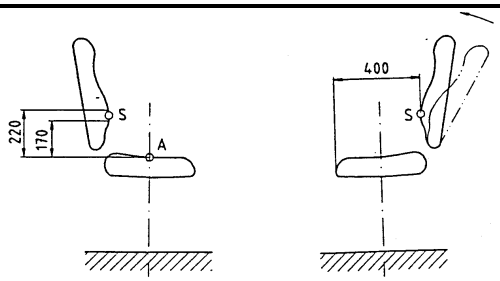
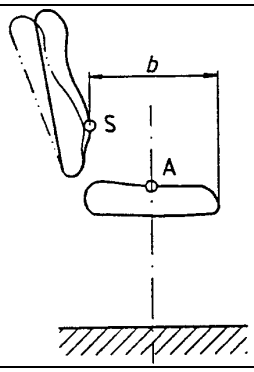
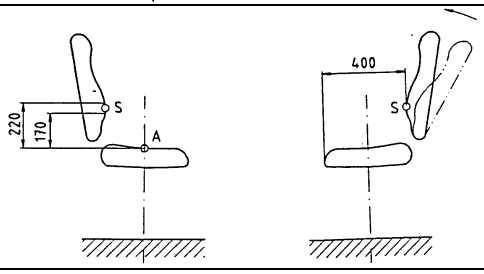
Basis of dimensions and reference seating posture

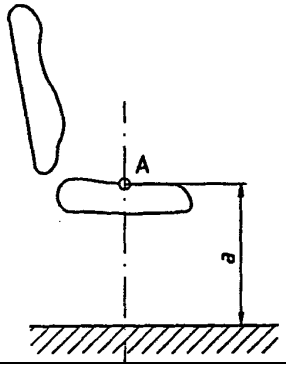
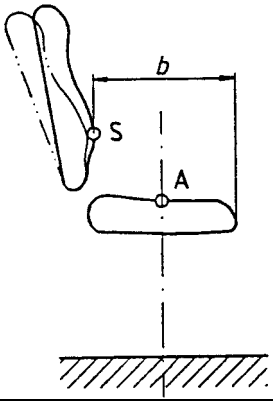
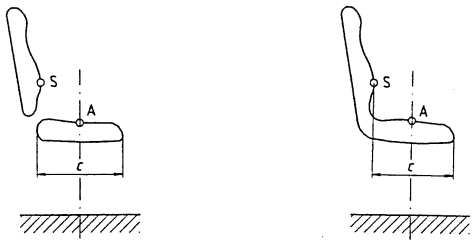
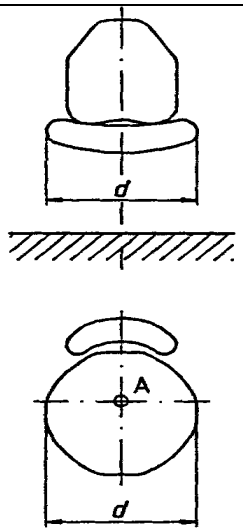
The dimensions in this standard are based on the conflicting requirements of anthropometric measurements, mechanical design, subjective preference and other factors. In general, they should be suitable for people between 1510 mm and 1920 mm in body height. People with body height outside this range may need furniture of different dimensions or a footrest. Due to the variation in population heights in different countries, there will be variation in the percentage of the office population which the dimensions will accommodate in each country.
In order to be able to specify acceptable dimensional requirements, a theoretical reference seating posture has been adopted. This posture does, however, not automatically correspond to the ideal or optimum seating posture.

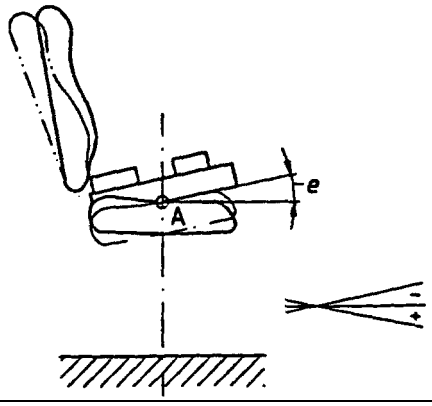
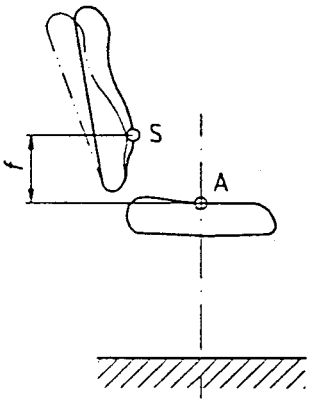
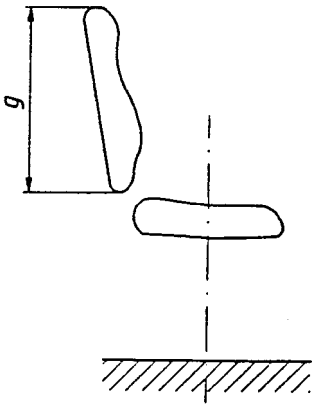
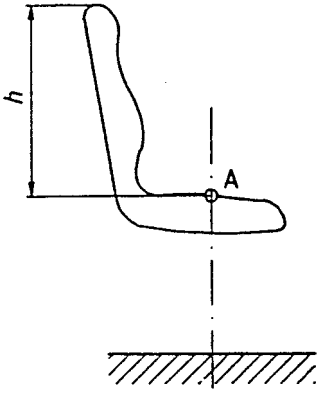
The reference seating posture is as follows:

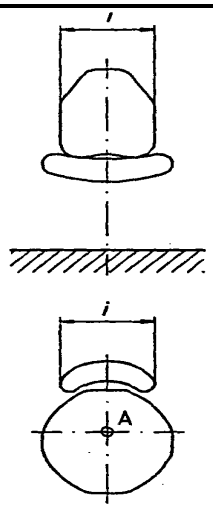
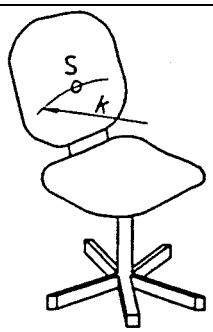
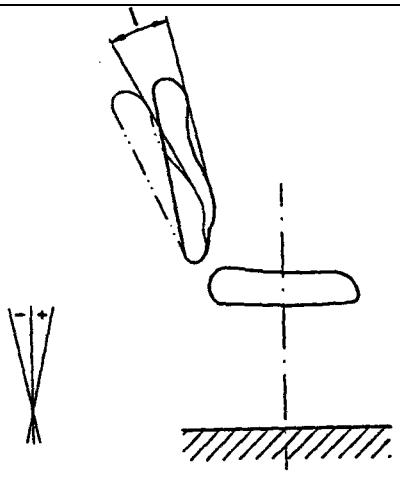
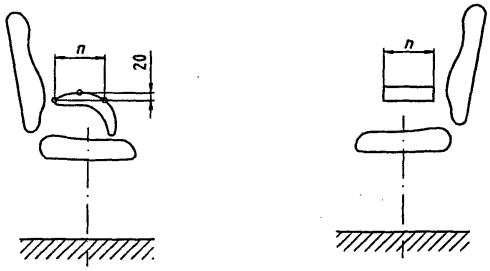
- The sole of the foot placed on the floor.
- The foot forms an angle of approximately 90° with the lower leg.
- The lower leg is approximately vertical.
- The lower leg forms an angle of approximately 90° with the thigh.
- The thigh is almost horizontal.
- The thigh forms an angle of approximately 90° with the trunk.
- The trunk is erect.

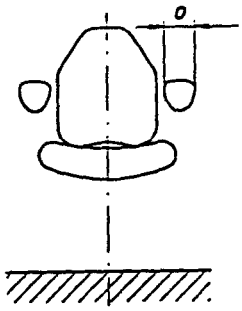
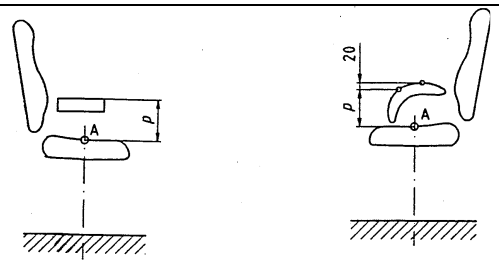
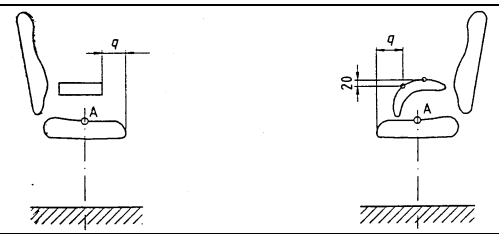
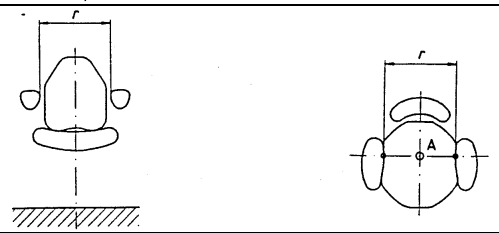
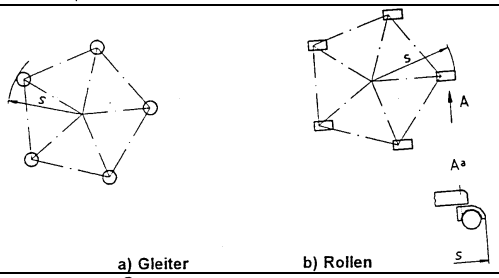
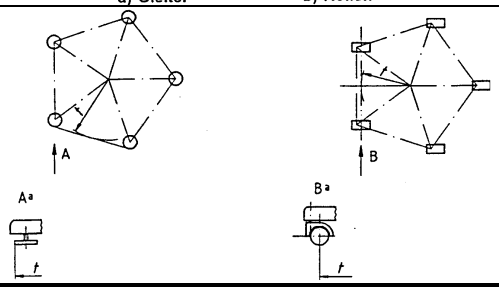
Requirement **EN 1335-1**	Result / Evaluation
1 Scope This part of the EN 1335:1999 applies to office work chairs. It specifies dimensions of three types of chairs as well as test methods for their determination.	The dimensional requirements were fulfilled, see page 14 to 16 of the report.
2 Normative references This European Standard incorporates by dated or undated reference, provision from other publications.	**P**
3 Terms and definitions For the purposes of this standard, the following terms and definitions apply: **3.1 office work chair:** a piece of seating furniture for one person, with a back rest, with or without arm rests. The upper part of the chair, which includes the seat, can rotate in the horizontal plane and can be adjusted in height. There are three types A, B and C. **3.2 Axes of rotation:** the vertical axis around which the upper part of the chair rotates (see figure 1). **3.3 point "A":** the point in which the chair's axes of rotation intersects with seat surface loaded by a 64 kg dummy (see figures 1 and 2). **3.4 Median plane:** the vertical plane passing through point "A" and dividing the chair into two generally symmetrical parts (see figure 1) **3.5 transverse plane:** the vertical plane passing through point "A" perpendicular to the median plane (See figure 1).	 a Transverse Plane b Axis of Rotation c Median Plane Figure 1 - Diagram of reference points, axes and planes

Requirement **EN 1335-1**	Result / Evaluation
3.6 Back supporting point "S": Non tiltable back rest: The foremost point on the back rest in the median plane between 170 mm and 220 mm above point "A" (see figure 3 a) Tiltable back rest: The foremost point on the back rest in the median plane which intersects the vertical line 400 mm from the front edge of the seat when the back rest is tilted forward from the rearwards position (see figure 3 b).	 figure 3a and 3b: Back supporting point "S"
4 Dimensions The chair shall provide support to the thighs and the lumbar region which sufficient depth and height to provide all users with a sitting position suited to their activity and their height. The dimension of the chair shall comply with one of the types of annex A. An exception is made in the case of the stability dimension *t*, provided that the chair passes the rearwards stability test according to 5.4.2 and 5.4.3 of EN 1335-3:1999.	**P**
5 Determination of reference points The chair shall be positioned on a flat, rigid and horizontal test surface.	**P**
5.1 Point "A" The dummy (see figure 2) shall be placed on the seat surface symmetrically to the median plane in such a way that the centre of gravity of the main mass coincides with the axis of rotation. The seat shall be set as close as possible to the horizontal and the back rest shall be set as close as possible to the vertical. The movable mass shall be positioned so that the lower edge of the groove coincides with the vertical line tangential to the front edge of the seat. Before measuring, the seat shall be loaded and unloaded five times for a short period.	
5.2 Back supporting point "S" In the case of chairs with a back rest rotatable around a horizontal axes the upper and lower edges of the back rest shall be positioned vertically one above the other midway in the median plane before measurements are made. If this is not possible the closest possible position to it shall be chosen.	
6 Determination of dimensions The chair shall be positioned on a flat, rigid and horizontal test surface. The seat shall be set as close as possible to the horizontal and the back rest shall be set as close as possible to the vertical. Linear dimensions shall have an accuracy of ±2 mm and all angles an accuracy of ±1 °. Unless otherwise specified, all dimensions shall be measured loading at the measurement point. Where point "A" is used as reference point the seat shall be loaded by the dummy in accordance with 5.1. All adjustable dimensions and angles shall be measured both in the smallest an largest position.	**P**

Requirement **EN 1335-1**	Result / Evaluation
6.1 Seat height [a] The seat height [a] is the vertical distance between the floor and the point "A" (see figure 4) NOTE: The height is determined by measurement, either at the front edge of the seat in combination with the slope of the dummy or directly at point "A".	
6.2 seat depth [b] The seat depth [b] is the horizontal distance from the front edge of the seat to the vertical projection of the back supporting point "S", measured in the median plane (See figure 5). Before determining the seat depth of chairs with height adjustable back rests, the back supporting point "S" shall be set at a height of 220 mm above point "A" (See figure 9). If the seat depth and back rest are adjusted simultaneously, i.e. when the seat depth is increased, the back rest height is automatically increased, the minimum seat depth shall be measured with back rest in its lowest position, and the maximum seat depth with the back rest in its highest position.	
6.3 depth [c] of seat surface The depth [c] of seat surface is the maximum horizontal distance between vertical lines through the front and rear edges of the seat surface (See figure 6 a). If the shape of the seat makes it impossible to define a rear edge, the maximum horizontal distance shall be measured from the rear of the seat surface below the back supporting point "S" (see 3.6) to the front edge of the seat surface (see figure 6 b). The measurement shall be carried out with the back rest set to the forward tilt.	
6.4 Seat width [d] The seat width [d] is the horizontal distance between vertical lines through the side edges of the seat surfaces measured in the transverse plane (see figure 7).	

Requirement **EN 1335-1**	Result / Evaluation
6.5 Inclination [e] of seat surface The inclination [e] of the seat surface is the angle in the median plane between the lower edge of the dummy and a horizontal line. Rearwards slope is designated "-" otherwise "+" (see figure 8).	
6.6 Height [f] of the back supporting point "S" above the seat surface The height [f] of the back supporting point "S" above the seat surface is the vertical distance between the point "S" and point "A" (See figure 9).	
6.7 Height [g] of the back pad The height [g] of the back pad is the vertical distance between the upper and lower edges of the back pad, measured in the median plane (see figure 10).	
6.8 Height [h] of the upper edge of the back rest above the seat surface The height [h] of the upper edge of the back rest above the seat surface is the vertical distance between the upper edge of the hack rest and the point "A" measured in the median plane (See figure 11).	

Requirement **EN 1335-1**	Result / Evaluation
6.9 Back rest width [i] The back rest width [i] is the maximum horizontal distance between its side edges (see figure 12).	
6.10 Horizontal radius [k] of back rest The horizontal radius [k] of the back rest is the radius measured at the height of the back supporting point "S" (see figure 13).	
6.11 Back rest inclination adjustment range [l] ("tilt") The back rest inclination is the angle between the transverse plane and the back rest determined at point "S". Rearwards slope is designated "-" otherwise "+". The back rest inclination adjustment range [l] is the angle between the foremost and the rearmost position of the inclined back rest (see figure 14).	
6.12 Length [n] of the useful area of the arm rest The length [n] of the useful area of the arm rest is the horizontal distance between vertical lines through its front and rear edges (see figure 15 b). In the case of an arm rest which is not horizontal or which is rounded at the ends or is of non-rigid material, the dimension [n] shall be measured in a plane 20 mm below the highest point of the useful area of the arm rest (see figure 15 a).	

Requirement **EN 1335-1**	Result / Evaluation
6.13 Width [o] of the useful area of the arm rest The width [o] of the useful area of the arm rest is the horizontal distance between vertical lines through the inner and outer edges of the arm rest, (see figure 16). If the shape of the arm rest does not allow for an exact measurement of this width, it shall be measured 20 mm below the top edge.	
6.14 Height [p] of the useful area of the arm rest above the seat The height [p] of the useful area of the arm rest above the seat is for horizontal arm rests the vertical distance between the upper surface of the arm rest and point "A" (see figure 17 a). In the case of an arm rest which is not horizontal or which is rounded at the ends or is of non-rigid material, the dimension [p] is the vertical distance between the horizontal plane 20 mm below the highest point of the arm rest and point "A" (see figure 17 b).	
6.15 Distance [q] from the front of the useful area of the arm rests to the front edge of the seat The distance [q] from the front of the useful area of the arm rests to the front edge of the seat surface is the horizontal distance between the front edge of the arm rests (see figure 6.12) and a line extended vertically above the front edge of the seat surface in the median plane (see figures 18 a and 18 b).	
6.16 Clear width [r] between the useful area of the arm rests The clear width [r] between the useful area of the arm rests is the horizontal distance between vertical lines through the inner edges of the arm rests, measured in the transverse plane (see figures 19 a and 19 b).	
6.17 Maximum offset [s] of the underframe The maximum offset [s] of the underframe is the maximum between the outermost point of the underframe including castors (see figure 20 b) or glides (see figure 20 a) and the axis of rotation.	
6.18 Stability dimension [t] The stability dimension [t] is the smallest distance between the overbalancing axes on the floor and the axes of rotation of the chair (see figure 21a). Where castors are used, the most unfavourable castor position shall be used for the measurement (see figure 21 b).	

classification according the type classes following EN 1335-1

Dimension	[Symbol]	Adjustability		Type A			Measured value	Pass/fail
			(-) allow.	Min.[a)]	Max.[a)]	(+) allow.		N/A
SEAT								
Seat Height (b)	**[a]**	Adjustable	yes	400	510	yes		N/A
		Adjustment range	no	120	⊕	yes		N/A
Seat depth	**[b]**	Non-adjustable		no	no			N/A
		Adjustable	yes	400	420	yes		N/A
		Adjustment range	no	50	⊕	yes		N/A
Depth of seat surface	**[c]**		no	380	⊕	yes		N/A
Seat width	**[d]**		no	400	⊕	yes		N/A
Inclination of seat surface	**[e]**	Non-adjustable		no	no			N/A
		Adjustable	yes	-2^0	-7^0	yes		N/A
		Adjustment range	no	6^0	⊕	yes		N/A
BACK REST								
Height of the back Supporting point "S" above the seat surface	**[f]**	Non-adjustable		no	no			N/A
		Adjustable	yes	170	220	yes		N/A
		Adjustment range	no	50	⊕	yes		N/A
Height of the back pad	**[g]**							
- adjustable in height			no	220	⊕	yes		N/A
- non-adjustable in height			no	260	⊕	yes		N/A
Height of the upper edge of the back rest above the seat surface	**[h]**		no	360	⊕	yes		N/A
Back rest width	**[i]**		no	360	⊕	yes		N/A
Horizontal radius of the back rest	**[k]**		no	400	⊕	yes		N/A
Back rest inclination	**[l]**	Adjustment range	no	15^0	⊕	yes		N/A
Armrest								
Length of arm rest	**[n]**		no	200	⊕	yes		N/A
Width of arm rest[(C)]	**[o]**		no	40	⊕	yes		N/A
Height of arm rest above the seat	**[p]**	Non adjustable	no	200	250	no		N/A
		Adjustable	yes	200	250	yes		N/A
Distance from the front of the arm rest to the front edge of the seat surface[d)]	**[q]**		no	100	⊕	yes		N/A
Clear width between the arm rests[e)]	**[r]**		no	460	510	no		N/A
UNDERFRAME								
Maximum offset of the underframe (anti-stumbling –dimension)	**[s]**		yes	⊕	365[f)]	no		N/A
Stability dimension[h)]	**[t]**		no	195	⊕	yes		N/A

a) For adjustable functions the Min. and Max. values must be obtained.
b) The minimum range of adjustment is suitable for working surface heights between at least 680 mm and 780 mm. For some part of the user group a foot rest is required.
c) The requirement applies over the minimum value *n* (See clause 6.13).
d) The requirement applies from a height of 170 mm above point "A" (See clause 6.15).
e) The requirement applies to ¾ of the seat depth b (Measured from the front edge of the seat) with the back rest in its foremost position (see clause 6.16).
f) If swivel castors are fitted the requirement is 415 mm.
g) x is the maximum horizontal distance between parts of the upper part of the chair and the axis of rotation (see clause 6)
h) See clause 4.
⊕ No requirement specified

Dimension	[Symbol]	Adjustability		Type B			Measured value	Pass/fail
			(-) allow.	Min.[a)]	Max.[a)]	(+) allow.		N/A
SEAT								
Seat Height (b)	[a]	Adjustable Adjustment range	yes no	420 100	510 ⊕	yes yes		N/A N/A
Seat depth	[b]	Non-adjustable Adjustable Adjustment range	no yes no	380 400 50	440 420 ⊕	no yes yes		N/A N/A N/A
Depth of seat surface	[c]		no	380	⊕	yes		N/A
Seat width	[d]		no	400	⊕	yes		N/A
Inclination of seat surface	[e]	Non-adjustable Adjustable Adjustment range	no yes	-2^0 -2^0 ⊕	-7^0 -7^0 ⊕	no yes		N/A N/A N/A
BACK REST								
Height of the back Supporting point “S” above the seat surface	[f]	Non-adjustable Adjustable Adjustment range	no yes No	170 170 50	220 220 ⊕	no yes yes		N/A N/A N/A
Height of the back pad - adjustable in height - non-adjustable in height	[g]		 no no	 220 260	 ⊕ ⊕	 yes yes		 N/A N/A
Height of the upper edge of the back rest above the seat surface	[h]		no	360	⊕	yes		N/A
Back rest width	[i]		no	360	⊕	yes		N/A
Horizontal radius of the back rest	[k]		no	400	⊕	yes		N/A
Back rest inclination	[l]	Adjustment range	no	15^0	⊕	yes		N/A
Armrest								
Length of arm rest	[n]		no	200	⊕	yes		N/A
Width of arm rest[(C)]	[o]		no	40	⊕	yes		N/A
Height of arm rest above the Seat	[p]	Non adjustable Adjustable	no yes	200 200	250 250	no yes		N/A N/A
Distance from the front of the arm rest to the front edge of the seat surface[d)]	[q]		no	100	⊕	yes		N/A
Clear width between the arm rests[e)]	[r]		no	460	510	no		N/A
UNDERFRAME								
Maximum offset of the underframe (anti-stumbling –dimension)	[s]		yes	⊕	365[f)]	no		N/A
Stability dimension[h)]	[t]		no	195	⊕	yes		N/A

a) For adjustable functions the Min. and Max. values must be obtained.
b) The minimum range of adjustment is suitable for working surface heights between at least 680 mm and 780 mm. For some part of the user group a foot rest is required.
c) The requirement applies over the minimum value n (See clause 6.13).
d) The requirement applies from a height of 170 mm above point “A” (See clause 6.15).
e) The requirement applies to ¾ of the seat depth b (Measured from the front edge of the seat) with the back rest in its foremost position (see clause 6.16).
f) If swivel castors are fitted the requirement is 415 mm.
g) X is the maximum horizontal distance between parts of the upper part of the chair and the axis of rotation (see clause 6)
h) See clause 4

⊕ No requirement specified

Dimension	[Symbol]	Adjustability		Type C			Measured value	Pass/fail
Model: A320			(-) allow.	Min.[a)]	Max.[a)]	(+) allow.		**N/A**
SEAT								
Seat Height (b)	**[a]**	Adjustable	yes	420	480	yes	418 – 556	P
		Adjustment range	no	80	⊕	yes	116	P
Seat depth	**[b]**	Non-adjustable	no	380	⊕	yes		N/A
		Adjustable	yes	400	⊕	yes	393 - 467	P
		Adjustment range		⊕	⊕		74	P
Depth of seat surface	**[c]**		no	380	⊕	yes	475	P
Seat width	**[d]**		no	400	⊕	yes	475	P
Inclination of seat surface	**[e]**	Non-adjustable	no	-2^0	-7^0	no		N/A
		Adjustable	yes	-2^0	-7^0	yes	0° to -20°	P
		Adjustment range		⊕	⊕		20°	P
BACK REST								
Height of the back Supporting point “S” above the seat surface	**[f]**	Non-adjustable	no	170	220	no		N/A
		Adjustable		⊕	⊕		195 - 254[1]	P
		Adjustment range		⊕	⊕		59	P
Height of the back pad - adjustable in height	**[g]**			⊕	⊕			N/A
- non-adjustable in height			no	260	⊕	yes	560	P
Height of the upper edge of the back rest above the seat surface	**[h]**		no	360	⊕	yes	517 - 576	P
Back rest width	**[i]**		no	360	⊕	yes	470	P
Horizontal radius of the back rest	**[k]**		no	400	⊕	yes	700	P
Back rest inclination	**[l]**	Adjustment range		⊕	⊕		30° (-23° to -53°)	P
Armrest								
Length of arm rest	**[n]**		no	200	⊕	yes	240	P
Width of arm rest[(C)]	**[o]**		no	40	⊕	yes	90	P
Height of arm rest above the seat	**[p]**	Non adjustable	no	200	250	no		N/A
		Adjustable	yes	200	250	yes	197 - 268	P
Distance from the front of the arm rest to the front edge of the seat surface[d)]	**[q]**		no	100	⊕	yes	182	P
Clear width between the arm rests[e)]	**[r]**		no	460	⊕	yes	460 - 490	P
UNDERFRAME								
Maximum offset of the underframe (anti-stumbling –dimension)	**[s]**		yes	⊕	x[g)]+50	no	384 (x = 380)	P
Stability dimension[h)]	**[t]**		no	195	⊕	yes	242	P

a) For adjustable functions the Min. and Max. values must be obtained.
b) The minimum range of adjustment is suitable for working surface heights between at least 680 mm and 780 mm. For some part of the user group a foot rest is required.
c) The requirement applies over the minimum value n (See clause 6.13).
d) The requirement applies from a height of 170 mm above point “A” (See clause 6.15).
e) The requirement applies to ¾ of the seat depth b (Measured from the front edge of the seat) with the back rest in its foremost position (see clause 6.16).
f) If swivel castors are fitted the requirement is 415 mm.
g) X is the maximum horizontal distance between parts of the upper part of the chair and the axis of rotation (see clause 6)
h) See clause 4
⊕ No requirement specified

[1] It could be adjusted in 5 steps.

Dimension	**[Symbol]**	Adjustability		**Type C**			Measured value	**Pass/fail**
Model: 706CS			(-) allow.	Min.[a)]	Max.[a)]	(+) allow.		**N/A**
SEAT								
Seat Height (b)	**[a]**	Adjustable	yes	420	480	yes	420 – 544	P
		Adjustment range	no	80	⊕	yes	124	P
Seat depth	**[b]**	Non-adjustable	no	380	⊕	yes		N/A
		Adjustable	yes	400	⊕	yes	394 - 450	P
		Adjustment range		⊕	⊕		56	P
Depth of seat surface	**[c]**		no	380	⊕	yes	475	P
Seat width	**[d]**		no	400	⊕	yes	470	P
Inclination of seat surface	**[e]**	Non-adjustable	no	-2^0	-7^0	no		N/A
		Adjustable	yes	-2^0	-7^0	yes	0° to -21°	P
		Adjustment range		⊕	⊕		21°	P
BACK REST								
Height of the back Supporting point “S” above the seat surface	**[f]**	Non-adjustable	no	170	220	no	-	N/A
		Adjustable		⊕	⊕		233 - 250	P
		Adjustment range		⊕	⊕		27	P
Height of the back pad	**[g]**							
- adjustable in height				⊕	⊕			N/A
- non-adjustable in height			no	260	⊕	yes	510	P
Height of the upper edge of the back rest above the seat surface	**[h]**		no	360	⊕	yes	558	P
Back rest width	**[i]**		no	360	⊕	yes	440	P
Horizontal radius of the back rest	**[k]**		no	400	⊕	yes	700	P
Back rest inclination	**[l]**	Adjustment range		⊕	⊕		28° (-12° to -40°)	P
Armrest								
Length of arm rest	**[n]**		no	200	⊕	yes	236	P
Width of arm rest[(C)]	**[o]**		no	40	⊕	yes	77	P
Height of arm rest above the seat	**[p]**	Non adjustable	no	200	250	no		N/A
		Adjustable	yes	200	250	yes	200 - 295	P
Distance from the front of the arm rest to the front edge of the seat surface[d)]	**[q]**		no	100	⊕	yes	148	P
Clear width between the arm rests[e)]	**[r]**		no	460	⊕	yes	465	P
UNDERFRAME								
Maximum offset of the underframe (anti-stumbling –dimension)	**[s]**		yes	⊕	x[g)]+50	no	388 (x = 360)	P
Stability dimension[h)]	**[t]**		no	195	⊕	yes	248	P

i) For adjustable functions the Min. and Max. values must be obtained.
j) The minimum range of adjustment is suitable for working surface heights between at least 680 mm and 780 mm. For some part of the user group a foot rest is required.
k) The requirement applies over the minimum value n (See clause 6.13).
l) The requirement applies from a height of 170 mm above point “A” (See clause 6.15).
m) The requirement applies to ¾ of the seat depth b (Measured from the front edge of the seat) with the back rest in its foremost position (see clause 6.16).
n) If swivel castors are fitted the requirement is 415 mm.
o) X is the maximum horizontal distance between parts of the upper part of the chair and the axis of rotation (see clause 6)
p) See clause 4
⊕ No requirement specified

Dimension	**[Symbol]**	Adjustability		**Type C**			Measured value	**Pass/fail**
Model: 707CS			(-) allow.	Min.[a)]	Max.[a)]	(+) allow.		**N/A**
SEAT								
Seat Height (b)	**[a]**	Adjustable	yes	420	480	yes	413 - 533	P
		Adjustment range	no	80	⊕	yes	120	P
Seat depth	**[b]**	Non-adjustable	no	380	⊕	yes		N/A
		Adjustable	yes	400	⊕	yes	400 - 460	P
		Adjustment range		⊕	⊕		60	P
Depth of seat surface	**[c]**		no	380	⊕	yes	485	P
Seat width	**[d]**		no	400	⊕	yes	470	P
Inclination of seat surface	**[e]**	Non-adjustable	no	-2^0	-7^0	no		N/A
		Adjustable	yes	-2^0	-7^0	yes	0° to -20°	P
		Adjustment range		⊕	⊕		20°	P
BACK REST								
Height of the back Supporting point “S” above the seat surface	**[f]**	Non-adjustable	no	170	220	no		N/A
		Adjustable		⊕	⊕		156 - 230	P
		Adjustment range		⊕	⊕		74	P
Height of the back pad	**[g]**							
- adjustable in height				⊕	⊕			N/A
- non-adjustable in height			no	260	⊕	yes	545	P
Height of the upper edge of the back rest above the seat surface	**[h]**		no	360	⊕	yes	495 - 569	P
Back rest width	**[i]**		no	360	⊕	yes	455	P
Horizontal radius of the back rest	**[k]**		no	400	⊕	yes	1200	P
Back rest inclination	**[l]**	Adjustment range		⊕	⊕		28° (-12° to -40°)	P
Armrest								
Length of arm rest	**[n]**		no	200	⊕	yes	240	P
Width of arm rest[(C)]	**[o]**		no	40	⊕	yes	118	P
Height of arm rest above the seat	**[p]**	Non adjustable	no	200	250	no		N/A
		Adjustable	yes	200	250	yes	197 - 293	P
Distance from the front of the arm rest to the front edge of the seat surface[d)]	**[q]**		no	100	⊕	yes	153	P
Clear width between the arm rests[e)]	**[r]**		no	460	⊕	yes	460 - 484	P
UNDERFRAME								
Maximum offset of the underframe (anti-stumbling –dimension)	**[s]**		yes	⊕	x[g)]+50	no	388 (x = 370)	P
Stability dimension[h)]	**[t]**		no	195	⊕	yes	248	P

q) For adjustable functions the Min. and Max. values must be obtained.
r) The minimum range of adjustment is suitable for working surface heights between at least 680 mm and 780 mm. For some part of the user group a foot rest is required.
s) The requirement applies over the minimum value n (See clause 6.13).
t) The requirement applies from a height of 170 mm above point “A” (See clause 6.15).
u) The requirement applies to ¾ of the seat depth b (Measured from the front edge of the seat) with the back rest in its foremost position (see clause 6.16).
v) If swivel castors are fitted the requirement is 415 mm.
w) X is the maximum horizontal distance between parts of the upper part of the chair and the axis of rotation (see clause 6)
x) See clause 4
⊕ No requirement specified

Prüfgrundlage: DIN EN 1335-2:2010 – Safety requirements
Standard:

Absatz *Clause*	**Ergebnis** *Result*	**Bemerkung** *Remarks* / **Messergebnisse** *Readings*
1. Scope This part of EN 1335 specifies the mechanical safety requirements for office work chairs. The requirements are based upon use for 8 h a day by persons weighing up to 110 kg. For more severe conditions of use, increased requirements will be necessary. Annex A (normative) includes loads, masses and cycles for safety tests. Additional loads, masses and cycles for functional tests can be found in EN 1335-3:2009, Annex C.		
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. EN 1335-1:2000, *Office furniture — Office work chair — Part 1: Dimensions — Determination of dimensions* EN 1335-3:2009, *Office furniture — Office work chair — Part 3: Test methods* EN 12529:1998, *Castors and wheels — Castors for furniture — Castors for swivel chairs — Requirements*		
3 Terms and definitions For the purposes of this document, the following terms and definitions apply.		
3.1	**P**	**Requirement** **Castor** assembly comprising a housing, one or more wheels, an axle and, if required, accessories [EN 12529:1998]
		Remarks The office work chairs are equipped with type H castors (see clause 3.1 in EN 1335-2:2000).

Absatz *Clause*	**Ergebnis** *Result*	**Bemerkung** *Remarks* / **Messergebnisse** *Readings*
4 **4.1** **4.1.1**	**P**	**Requirement** **Safety requirements** **General design requirements** **Corners and edges, trapping, pinching and shearing** The chair shall be so designed as to minimise the risk of injury to the user. 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. These requirements are met when: a) the safety distance of accessible movable parts is either ≤ 8 mm or ≥ 25 mm in any position during movement; b) accessible corners are rounded with minimum 2 mm radius; c) 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; d) the edges of handles are rounded with minimum 2 mm radius in the direction of the force applied; e) all other edges are free from burrs and rounded or chamfered; f) the ends of accessible hollow components are closed or capped.
		Remarks The holes in the mechanism (see Fig. 31 in annex 1 to report 21149936_001) were opened (Fig. 1 in annex 1). There are no shear and squeeze points. All other edges and corners in which the user may be come in contact are rounded with at least 2 mm. Other edges are free from burrs and rounded. Open tube ends were not detected.
4.1.2	**P**	**Requirement** **Adjusting devices** Movable and adjustable parts shall be designed so that injuries and inadvertent operation are avoided. It shall be possible to operate the adjusting devices from sitting position in the chair.
		Remarks Inadvertent operation is not possible. The user could adjust the office work chair in sitting position.
4.1.3	**P**	**Requirement** **Connections** It shall not be possible for any load bearing part of the chair to come loose unintentionally.
		Remarks The requirement is met.

Absatz *Clause*	Ergebnis *Result*	Bemerkung / Messergebnisse *Remarks* / *Readings*
4.1.4	P	**Requirement** **Avoidance of soiling** All parts which are lubricated to assist sliding (greasing, lubricating, etc.) shall be designed to protect users from lubricant stains when in normal use.
		Remarks The requirement is met.
4.2	P	**Requirement** **Test sequence** The same chair shall be tested in the following sequence: a) stability tests (optional); b) rolling resistance test (optional); c) seat and back rest tests; d) foot rest static load test; e) arm rests durability test; f) arm rest downward static load test - central (see Table A.2, Footnote a); g) stability tests; h) arm rest downward static load test - central (see Table A.2, Footnote b); i) rolling resistance test.
		Remarks The tests were performed in the above mentioned sequence.
4.3	P	**Requirement** **Stability during use** The chair shall not overbalance under the following conditions: a) by pressing down on the front edge of the seat surface in the most adverse position; b) by leaning out over the arm rests; c) by leaning against the back rest; d) by sitting on the front edge. Requirement a) is fulfilled if the chair does not overbalance when tested according to 7.1.1 of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.1 of this standard. Requirements b) and d) are fulfilled if the chair does not overbalance when tested according to 7.1.2, 7.1.3, 7.1.4 and 7.1.5 of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.1 of this standard. Requirement c) is fulfilled if the chair does not overbalance when tested according to 7.1.6 or 7.1.7 of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.1 of this standard.
		Remarks The office work chairs does not overturn (modifications: the angle of the backrest to a vertical line was reduced).

Absatz *Clause*	Ergebnis *Result*	Bemerkung / Messergebnisse *Remarks / Readings*
4.4	**P**	**Requirement** **Rolling resistance of the unloaded chair** The unloaded chair shall not roll unintentionally. This requirement is met when: a) the castors are of identical construction; b) the rolling resistance is ≥ 12 N when tested according to EN 1335-3:2009, 7.4.
		Remarks The office work chairs are equipped with 5 identical castors. The rolling resistance is 24 N.
4.5	**P**	**Requirement** **Strength and durability** The chair shall be constructed to ensure that it does not create a risk of injury to the user of the chair under the following conditions: a) sitting on the seat, both centrally and off-centre; b) moving forward, backwards, and sideways while sitting in the chair; c) leaning over the arm rests; d) pressing down on the arm rests while getting up from the chair.
		Remarks The above mentioned requirements were met.
	P	**Requirement** These requirements are fulfilled when after the tests specified in 7.2.1, 7.2.2, 7.2.6, 7.3.1 and 7.3.2 of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.2 of this standard: e) there are no fractures of any member, joint or component, and f) there is no loosening of joints intended to be rigid, and g) no major structural element is significantly deformed and the chair fulfils its functions after removal of the test loads h) and when: after the test in 7.2.3 of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.2 of this standard, the arm rests show no fracture.
		Remarks The above mentioned requirements were met.

Absatz *Clause*	**Ergebnis** *Result*	**Bemerkung** *Remarks* / **Messergebnisse** *Readings*
5	**P**	**Requirement** **Information for use** Each chair shall be accompanied by information for use in the language of the country in which it will be delivered to the end user. It shall contain at least the following details: a) information regarding the intended use: b) information regarding possible adjustments and chair type (see EN 1335-1:2000); c) instruction for operating the adjusting mechanisms; d) instruction for the care and maintenance of the chair; e) information regarding adjustment of the seat and back rest; f) in case of chairs with seat height adjustment with energy accumulators, an additional note is required pointing out, that only trained personnel may replace or repair seat height adjustment components with energy accumulators; g) information on the choice of castors in relation to the floor surface. **Remarks** The information for use met the requirements.

Annex A
(normative)

Loads, masses and cycles for safety tests

Table A.1 — Loads, masses and cycles for stability tests

Clauses given in EN 1335-3:2009	Test		Loads	Cycle
7.1.1	Front edge overturning	M_1	27 kg	1
7.1.2	Forward overturning	F_1	600 N	1
		F_2	20 N	
7.1.3	Forward overturning for chairs with foot rests	F_1	1 100 N	1
		F_2	20 N	
7.1.4	Sideways overturning for chairs without arm rests	F_1	600 N	1
		F_2	20 N	
7.1.5	Sideways overturning for chairs with arm rests	F_1	250 N	1
		F_2	350 N	
		F_3	20 N	
7.1.6	Rearwards overturning of chairs without back rest inclination	F_1	600 N	1
		F_2	192 N	
7.1.7	Rearwards overturning of chairs with back rest inclination	Number of discs:	13	1

Table A.2 — Loads and cycles for strength and durability tests

Clauses given in EN 1335-3:2009	Test		Loads	Cycles
7.2.1	Seat front edge static load test	F_1	1 600 N	10
7.2.2	Combined seat and back static load test	F_1	1 600 N	10
		F_2	560 N	
7.2.6	Foot rest static load test	F	1 300 N	10
7.3.1	Seat and back durability			
	Step 1 – Loading Point A	F	1 500 N	120 000
	Step 2 – Loading Point C	F	1 200 N	80 000
	Loading Point B	F	320 N	
	Step 3 – Loading Point J	F	1 200 N	20 000
	Loading Point E	F	320 N	
	Step 4 – Loading Point F	F	1 200 N	20 000
	Loading Point H	F	320 N	
	Step 5 – Loading Point D and G (alternating)	F	1 100 N	20 000
7.3.2	Arm rest durability	F	400 N	60 000
7.2.3	Arm rest downward static load test – central	F	750 N [a]	5
		F	900 N [b]	5

[a] This test shall be carried out before the stability tests

[b] This test shall be carried out after the stability tests

Prüfgrundlage: DIN EN 1335-3 / 08.2009– Test methods

Standard:

Absatz *Clause*	Ergebnis *Result*	Bemerkung *Remarks*	/	Messergebnisse *Readings*

1 Scope

This European Standard specifies mechanical test methods for determining the stability, strength and durability of office work chairs.

This European Standard does not specify type approval tests for chair components.

The tests are designed to be applied to an article of furniture that is fully assembled and ready for use.

The tests consist of the application, to various parts of the item, of forces simulating normal functional use, as well as misuse that might reasonably be expected to occur.

The tests are designed to evaluate properties without regard to materials, design/construction or manufacturing processes.

The test results are only valid for the article tested. When the test results are intended to be applied to other similar articles, it is important that the test specimen be representative of the production model.

Tests carried out according to this standard are intended to demonstrate the ability of the item to give satisfactory service in its intended environment. The safety requirements are specified in EN 1335-2 and additional loads, masses and cycles for functional tests can be found in Annex C (informative).

The tests have been developed for units/components that have not been in use. However, when properly justified, they may be used for fault investigation.

Assessment of ageing and degradation is not included. The tests are not intended to assess the durability of upholstery, i.e. filling materials and covers.

Data are given for the design of seat-loading pads in Annex A (normative) and for the design of stability loading pad in Annex B (normative).

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.

EN 1335-2:2009, *Office furniture — Office work chair — Part 2: Safety requirements*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1	**P**	**Requirement** **office work chair** piece of seating furniture for one person, with a back rest, with or without arm rests, whose upper part, which includes the seat, can rotate in the horizontal plane and can be adjusted in height NOTE Other adjustments may be included.
		Remarks The test items were office work chairs.

Absatz *Clause*	**Ergebnis** *Result*	**Bemerkung** *Remarks* / **Messergebnisse** *Readings*
3.2	**P**	**Requirement** **column** office work chair component that connects the base and the seat structure NOTE A column normally incorporates a seat height adjustment and swivel mechanism. **Remarks** Gas spring type E017 manufactured by MDI FU LUONG (see page 3 to 5).
3.3	**P**	**Requirement** **locking device** device which inhibits the movement of the seat action and/or the back rest **Remarks** The synchronic mechanism could be blocked by a locking device.
3.4	**P**	**Requirement** **arm rest length** distance between vertical lines through its front and rear edges NOTE In the case of an arm rest, which is not horizontal or which is curved, the length is measured in a horizontal plane 20 mm below the highest point of the arm rest. **Remarks** See page 14 to 16 of the report.
3.5	**P**	**Requirement** **supporting point** castor or glide **Remarks** 5 castors.

Absatz *Clause*	Ergebnis *Result*	Bemerkung / Messergebnisse *Remarks* / *Readings*
4 **4.1**	**P**	**Requirement** **General test conditions** **Preliminary preparation** The unit shall be assembled and/or configured according to the instructions supplied with it. The most adverse configuration shall be used for each test, see Table 1. For testing a range of related chair models, only worst case(s) need to be tested. If mounting or assembly instructions are not supplied, the mounting or assembly method shall be recorded in the test report. Fittings shall not be re-tightened unless specifically required by the manufacturer. If the configuration must be changed to produce the worst case conditions, any retightening of the fittings shall be recorded in the test report.
		Remarks The office work chairs were delivered fully assembled.
	P	**Requirement** Unless otherwise stated all tests shall be carried out on the same sample. The tests shall be carried out in indoor ambient conditions. If during a test the temperature is outside of the range of 15 °C to 25 °C, the maximum and/or minimum temperature shall be recorded in the test report. In the case of designs not addressed in the test procedures, the test shall be carried out as far as possible as described, and deviations from the test procedure recorded in the test report. Before beginning the testing, visually inspect the unit thoroughly. Record any defects so that they are not assumed to have been caused by the tests. Carry out measurements if specified.
		Remarks The test items were delivered with no defects. The test were carried out in indoor ambient conditions as described.

4.2 Test equipment

Unless otherwise specified, the tests may be applied by any suitable device because results are dependent only upon correctly applied forces and not on the apparatus.

The equipment shall not inhibit deformation nor cause unnatural deformation of the unit/component, i.e. it shall be able to move so that it can follow the deformation of the unit/component during testing.

All loading pads shall be capable of pivoting in relation to the direction of the applied force. The pivot point shall be as close as practically possible to the load surface.

If a loading pad tends to slide use a slip resistant material between the loading pad and the surface being tested.

Absatz *Clause*	**Ergebnis** *Result*	**Bemerkung** *Remarks* / **Messergebnisse** *Readings*
4.3	**P**	**Requirement** **Application of forces** The forces in the static load tests shall be applied sufficiently slowly to ensure that negligible dynamic force is applied. Each force shall be maintained for not less than 10 s and not more than 15 s.
		Remarks Time to rise: 10 s Time to hold: 10 s Time to fall: 10 s
	P	**Requirement** The forces in durability tests shall be applied at a rate to ensure that excessive heating does not occur. Each force shall be maintained for (2 ± 1) s. The forces may be applied using masses.
		Remarks Heating was not occurred.
4.4	**P**	**Requirement** **Tolerances** Unless otherwise stated, the following tolerances are applicable: Forces: ± 5 % of the nominal force Masses: ± 1 % of the nominal mass Dimensions: ± 5 mm of the nominal dimension on soft surfaces ± 1 mm of the nominal dimension on all other surfaces Angles: ± 2° of the nominal angle The accuracy for the positioning of loading pads shall be ± 5 mm. The tests specify the application of forces. Masses may, however, be used. The relation 10 N for 1 kg may be used for this purpose.
		Remarks The a. m. tolerances were observed.

Absatz *Clause*	**Ergebnis** *Result*	**Bemerkung** *Remarks* / **Messergebnisse** *Readings*
4.5	**P**	**Requirement** **Sequence of testing** All applicable tests shall be carried out on the same sample. The sequence of the safety tests shall be as specified in EN 1335-2:2009, 4.2. If functional tests shall be carried out, this shall be done in the sequence of Table C.1 after completing all the safety tests specified in EN 1335-2.
		Remarks The tests were carried out as specified in 4.2 of EN 1335-2:2009.
4.6	**P**	**Requirement** **Inspection and assessment of results** After completion of each test, inspect the unit again. Record any changes including: a) fracture of any component or joint; b) loosening of any joint intended to be rigid, which can be demonstrated by hand pressure; c) deformation or wear of any part or component such that its function is impaired; d) loosening of any means of fixing components to the unit; e) changes that may affect stability.
		Remarks The above mentioned requirements are met.

Table 1 — Positioning of chair components

Clause	Test	Seat height	Seat	Back rest in height	Back rest in depth	Tilt stiffness adjustment	Castors and base	Arm rest	Foot rest
7.1.1	Front edge overturning	highest position	foremost position	highest position	foremost position	maximum tension	most likely to cause overturning	most likely to cause overturning	
7.1.2	Forward overturning	highest position	foremost position	highest position	foremost position	maximum tension	most likely to cause overturning	most likely to cause overturning	---
7.1.3	forward overturning for chairs with foot rest	highest position	foremost position	lowest position	foremost position	maximum tension	most likely to cause overturning	most likely to cause overturning	most likely to cause overturning
7.1.4	Sideways overturning for chairs without arm rests	highest position	foremost position	highest position	foremost position	maximum tension	most likely to cause overturning	---	---
7.1.5	Sideways overturning for chairs with arm rests	highest position	foremost position	highest position	foremost position	maximum tension	most likely to cause overturning	most likely to cause overturning	---
7.1.6	Rearwards overturning of chairs without back rest inclination	highest position	rearmost position	highest position	rearmost position	minimum tension	most likely to cause overturning	most likely to cause overturning	---
7.1.7	Rearwards overturning of chairs with back rest inclination	highest position	rearmost position	highest position	rearmost position	minimum tension	most likely to cause overturning	most likely to cause overturning	---
7.2.1	Seat front edge static load test	highest position	foremost position	---	---	---	---	---	---
7.2.2	Combined seat and back static load	highest position	most adverse position	highest position	rearmost position	mid range	least likely to cause overturning	---	---
7.2.3	Arm rest downward static load test – central	lowest position	horizontal	---	---	---	---	most likely to cause failure	---
7.2.4	Arm rest downward static load test – front	lowest position	horizontal	---	---	---	---	highest, foremost position	---
7.2.5	Arm rest sideways static load test	lowest position	horizontal	---	---	---	---	highest, widest position	---
7.2.6	Foot rest static load test	---	---	---	---	---	least likely to cause overturning	---	highest position
7.3.1	Seat and back durability	highest position	horizontal	highest position	most likely to cause failure	mid range	90° to the base arm	---	---
7.3.2	Arm rest durability	lowest position	horizontal	---	---	maximum tension	---	highest, widest position	---
7.3.3	Swivel test	highest position	horizontal, foremost position	highest position	rearmost position	---	---	---	---
7.3.4	Foot rest durability	---	---	---	---	---	least likely to cause overturning	---	lowest position
7.3.5	Castor durability	lowest position	horizontal	---	---	---	---	---	---

Absatz *Clause*	Ergebnis *Result*	Bemerkung *Remarks*	/	Messergebnisse *Readings*

5 Test apparatus
See test specification.

6 Loading points

6.1 Loading point "A"
The point in which the chair's axis of rotation intersects with the seat surface with the seat in a position as close as possible to the horizontal.

6.2 Loading point "B"
The point on the centreline of the back rest, 300 mm above loading point “A” (6.1) measured when the seat is loaded with 640 N through the seat loading pad.

6.3 Loading point "C"
A point in front of loading point “A” (6.1) along the centre line of the seat, 100 mm from the edge of the load bearing structure of the seat.

6.4 Loading point "D"
The point 150 mm to the right of loading point “A” (6.1).

6.5 Loading point "E"
The point 50 mm to the right of loading point “B” (6.2).

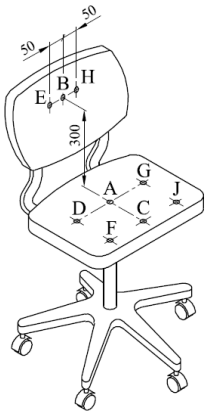
6.6 Loading point "F"
A point in front of loading point "D" (6.4) on a line parallel to the centre line, 100 mm from the edge of the load bearing structure of the seat.

6.7 Loading point "G"
The point 150 mm to the left of loading point “A” (6.1).

6.8 Loading point "H"
The point 50 mm to the left of loading point “B” (6.2).

6.9 Loading point "J"
A point in front of loading point "G" (6.7) on a line parallel to the centre line, 100 mm from the structure of the seat edge.

Dimensions in millimetres



Key
A loading point "A" D loading point "D" G loading point "G"
B loading point "B" E loading point "E" H loading point "H"
C loading point "C" F loading point "F" J loading point "J"

Figure 6 — Loading points

Absatz *Clause*	**Ergebnis** *Result*	**Bemerkung** *Remarks* / **Messergebnisse** *Readings*
7 **7.1**	**P**	**Requirement** **Tests methods** **Stability** Position the chair on the test surface (see 5.1) with its components as specified in 4.1 and Table 1. Record whether the chair overturns during the tests in 7.1.1 to 7.1.7.
		Remarks The requirements were met.
7.1.1	**P**	**Requirement** **Front edge overturning** Do not position the chair with the stops against the supporting points (3.5). Fix the strap (5.8) to the chair as shown in Figure 7, i.e. the force is applied at the point on the front edge that is furthest from the axis of rotation, and allow the mass M_1 to hang freely (see Figure 7).
		Remarks The office work chairs do not overturn.
7.1.2	**P**	**Requirement** **Forwards overturning** Position the chair with two adjacent supporting points (3.5) on the front against the stops (5.2). Apply by means of the stability loading device (5.9) a vertical force F_1 acting 60 mm from the front edge of the load bearing structure of the seat at those points most likely to result in overturning. Apply for at least 5 s a horizontal outwards force F_2 from the point on the seat surface where the vertical force is applied (see Figure 8).
		Remarks $F_{vertical}$ = 600 N $F_{horizontal}$ = 20 N The office work chairs do not overturn.

Absatz *Clause*	Ergebnis *Result*	Bemerkung / Messergebnisse *Remarks* / *Readings*
7.1.3	**N/A**	**Requirement** **Forwards overturning for chairs with footrest** For chairs with footrests repeat the principle of 7.1.2 on the footrest. For round cross section ring shaped footrests, the vertical force F_1 shall be applied through the centre of the ring cross section.
		Remarks A foot rest is not available.
7.1.4	**N/A**	**Requirement** **Sideways overturning for chairs without arm rests** Position the chair with two adjacent supporting points (3.5) on one side against the stops (5.2). Apply by means of the stability loading device (5.9) a vertical force F_1 acting 60 mm from the side edge of the load bearing structure of the seat at those points most likely to result in overturning. Apply for at least 5 s a horizontal sideways force F_2 outwards from the point on the seat surface where the vertical force is applied, (see Figure 9).
		Remarks The office work chairs are equipped with arm rests (see figures in annex 1).
7.1.5	**P**	**Requirement** **Sideways overturning for chairs with arm rests** Position the chair with two adjacent supporting points (3.5) on one side against the stops (5.2). Apply by means of the stability loading device (5.9) a vertical force F_1 acting at a point 100 mm from the fore and aft centre line of the seat at the side where the supporting points (3.5) are restrained (see Figure 10) and between 175 mm and 250 mm forward of the rear edge of the seat. Apply a vertical downward force F_2 acting at points on the arm rest which is on the same side as the restrained supporting points (3.5) up to a maximum 40 mm inwards from the outer edge of the upper surface of the arm rest, but not beyond the centre of the arm rest, and at the most adverse position along its length. Apply a horizontal sideways force F_3 outwards from the same point for at least 5 s (see Figure 10).
		Remarks $F_{arm\ rest}$ = 350 N F_{seat} = 250 N $F_{horizontal}$ = 20 N The office work chairs do not overturn.

Absatz *Clause*	**Ergebnis** *Result*	**Bemerkung** *Remarks* / **Messergebnisse** *Readings*
7.1.6	**N/A**	**Requirement** **Rearwards overturning for chairs without back rest inclination** Position the chair with two adjacent supporting points (3.5) on the back against the stops (5.2). When an independent lumbar adjustment is fitted it shall be set in the most adverse configuration. A vertical force F_1 shall be applied at point "A" (6.1) and a horizontal force F_2 shall be applied at point "B" (6.2), (see Figure 11). If the back rest pad is pivoting around a horizontal axis above the height of the seat and is free to move, the horizontal force shall be applied on the axis. If height adjustable, the axis shall be set as close as possible to 300 mm above point "A" (6.1).base and the centre column. Record any fracture or damage to the chair. **Remarks** See clause 7.1.7.
7.1.7	**P**	**Requirement** **Rearwards overturning for chairs with adjustable back rest inclination** Do not position the chair with the supporting points (3.5) against the stops (5.2). When an independent lumbar adjustment is fitted it shall be set in the most adverse configuration. Load the chair with discs (5.10) so that the discs are firmly settled against the back rest (see Figure 12). If the height of the stack of discs exceeds the height of the back rest, prevent the upper discs from sliding off by the use of a light support. **Remarks** The office work chairs do not overturn when they are loaded with 13 discs.

Absatz *Clause*	**Ergebnis** *Result*	**Bemerkung** *Remarks* / **Messergebnisse** *Readings*
7.2	**P**	**Requirement** **Static load tests** Position the chair and its components as specified in 4.1 and Table 1 on the test surface (5.1).
		Remarks The office work chairs were positioned as described above.
7.2.1	**P**	**Requirement** **Seat front edge static load test** Position the smaller seat loading pad (5.4) at loading point "F" or "J" (6.6 or 6.9). Apply a vertical downward force F1 through the centre of the loading pad.
		Remarks $F_{vertical}$ = 1.600 N 10 cycles The test items met the requirements. There is no failure after the test.
7.2.2	**P**	**Requirement** **Combined seat and back static load test** Prevent the chair from moving rearwards by placing stops (5.2) behind two adjacent supporting points (3.5) at the rear of the chair. Chairs with a locking device(s) for seat and/or back rest angle movements shall be tested first with the device(s) locked for half of the cycles and then with the device(s) unlocked for the other half of the cycles. For the first half of the cycles the back rest shall be in the upright position. Apply a vertical force F_1 through the seat loading pad (5.3) at point "A" (6.1). Keep the seat loaded and apply a force F_2 through the centre of the back loading pad (5.6) at point "B" (6.2). When fully loaded the force shall act at 90° ± 10° to the back rest plane (see Figure 13). If the chair tends to overturn reduce the back rest force and report the actual force. Remove the back force and then the seat force.
		Remarks F_{seat} = 1.600 N $F_{back\ rest}$ = 560 N The test items met the requirements. There is no failure after the test.

Absatz *Clause*	Ergebnis *Result*	Bemerkung *Remarks* / Messergebnisse *Readings*
7.2.3	**P**	**Requirement** **Arm rest downward static load test – central** The arm rests shall be loaded vertically by means of the local loading pads (5.5). The loading points shall be at the mid point of the arm rest length (3.4) and centred side to side. Apply the force to both arm rests simultaneously (see Figure 14).
		Remarks $F_{vertical}$ = 750 N (before stability tests) The office work chairs A320, 706CS and 707CS met the requirements. $F_{vertical}$ = 950 N (after stability tests) The office work chairs A320, 706CS and 707CS met the requirements. Office work chair A320: The arm rest of this chair was reinforced (see Fig. 2 in annex 1). Office work chair 707CS: The chair is equipped with the arm rests from type 706 CS (modification). The arm rests were successfully tested with report 21149936_001.
7.2.4	**N/A**	**Requirement** **Arm rest downward static load test – front** The arm rests shall be loaded vertically by means of the local loading pads (5.5). The loading points shall be 75 mm from the front edge and centred side to side. Apply the force to both arm rests simultaneously (see Figure 15).
		Remarks Test not necessary, just informative (see annex C of EN 1335-3:2009).
7.2.5	**N/A**	**Requirement** **Arm rest sideways static load test** Apply an outward horizontal force to both arm rests simultaneously. Apply the forces to the edge of the arm rest at the point along the arm rest most likely to cause failure but not less than 75 mm from the front or rear edge (see Figure 16).
		Remarks Test not necessary, just informative (see annex C of EN 1335-3:2009).

Absatz *Clause*	Ergebnis *Result*	Bemerkung *Remarks* / Messergebnisse *Readings*
7.2.6	**N/A**	**Requirement** **Foot rest static load test** Apply a vertical force acting 80 mm from front edge of the load bearing structure of the foot rest at those points most likely to cause failure. For round cross section ring shaped footrests, the force shall be applied through the centre of the ring cross section. If the chair tends to overturn load the seat to prevent overturning and report this.
		Remarks Foot rests are not available.
7.3	**P**	**Requirement** **Durability tests** Position the chair and its components as specified in 4.1 and Table 1 on the test surface (5.1) except for the castor and chair base durability test (7.3.5).
		Remarks The above mentioned requirement was observed.
7.3.1	**P**	**Requirement** **Seat and back durability** The upper part of the chair shall be positioned so that the centre of the back rest is midway between two adjacent supporting points (3.5) of the base with stops (5.2) against these supporting points. The seat load shall be applied vertically using the seat loading pad (5.3). The back rest force shall be applied at an angle of 90° ± 10° to the back rest when fully loaded (see Figure 17) using the back loading pad (5.6).
		Remarks The above mentioned requirement was observed.

Absatz *Clause*	**Ergebnis** *Result*	**Bemerkung** *Remarks* / **Messergebnisse** *Readings*
	P	**Requirement** All chairs shall be tested to steps 1 to 5 (see Table 2). Chairs with a locking device(s) for seat and/or back rest angle movements shall be tested in step 2 first with the device(s) locked for half of the cycles and then with the device(s) unlocked for the other half of the cycles. For the first half of the cycles the back rest shall be in the upright position. In steps 3, 4 and 5 the mechanism shall be set free to move. One cycle shall consist of the application and removal of the force(s) at the respective loading point(s). Each step shall be completed before going to the next.
		Remarks The office work chairs have a locking system. It was locked for half of the cycles and then with the device unlocked for the other half of the cycles.
	P	**Requirement** First the seat force shall be applied and maintained while the back rest force is applied. If the back rest pad is pivoting around a horizontal axis above the height of the seat and is free to move, the horizontal force shall be applied on the axis. If height adjustable, the axis shall be set as close as possible to 300 mm above point "A" (6.1). If the axis cannot be adjusted to 300 mm, adjust the force to produce the same bending moment. **Table 2 — Seat and back durability test** **Step** / **Loading point** (see Figure 6) 1 – A 2 – C-B 3 – J-E 4 – F-H 5 – D-G
		Remarks After the durability tests there were no failures detected.

Absatz *Clause*	**Ergebnis** *Result*	**Bemerkung** *Remarks* / **Messergebnisse** *Readings*
7.3.2	**P**	**Requirement** **Arm rest durability** Apply simultaneously and cyclically the force on each arm rest at points 100 mm behind the foremost point of the arm rest length (see 3.4). Apply a force of (10 ± 5) N through a loading device in principle functioning as shown in Figure 4. With this force applied adjust the apparatus so that each "arm" of the test apparatus has an angle of 10° ± 1° to the vertical. The length of the "arm" of the test apparatus shall be 600 mm ± 10 mm. The arm rests shall be allowed to deform freely.
		Remarks 60.000 cycles F = 400 N After the test there was no failure detected.
7.3.3	**N/A**	**Requirement** **Swivel test** The base of the chair shall be secured on a rotating table with a test surface (see 5.1) so that the rotating axis of the chair coincides with the rotating axis of the table. The upper part of the chair shall be loosely fixed in such a way as not to hinder the rotation of the base. Load the seat in loading point A (6.1) with a mass M_1 and in loading point C (6.3) with a mass M_2 or any equivalent loading which will result in the same downwards force and bending moment on the chair. The angle of rotation shall be 360° at a rate of (10 ± 5) cycles/minute. Change direction after each rotation.
		Remarks Test not necessary, just informative (see annex C of EN 1335-3:2009).
7.3.4	**N/A**	**Requirement** **Foot rest durability** Using the local loading pad (5.5) apply a vertical downward force to the foot rest at the point most likely to cause failure but not less than 80 mm from the front edge. For round cross section ring shaped foot rests, the force shall be applied through the centre of the ring cross section.
		Remarks Foot rests are not available.

Absatz *Clause*	**Ergebnis** *Result*	**Bemerkung** *Remarks* / **Messergebnisse** *Readings*
7.3.5	**N/A**	**Requirement** **Castor and chair base durability** This test does not apply to chairs with castors which are braked when the chair is loaded. The chair shall be placed on a rotating table with a test surface (see 5.11) so that the rotating axis of the chair coincides with the rotating axis of the table. Load the seat in point A with M_1. The base shall be loosely fixed in such a way that there is no rotation of the base but that the natural movements of the castors during testing are not prevented. The castors shall be left free to swivel, the table shall be rotated with a rate of 6 cycles per minute. The angle of rotation shall be from 0° to 180° and back. One rotation forward and one rotation backward constitutes one cycle.
		Remarks Test not necessary, just informative (see annex C of EN 1335-3:2009).
		Requirement Alternatively attach the chair to a device that provides a linear movement of (1 000 ± 250) mm and a test surface (see 5.11). Load the seat in point "A" with M_1. The base shall be loosely fixed in such a way that there is no rotation of the base but that the natural movements of the castors during testing are not prevented. The castors shall be left free to swivel, the device shall move with a rate of 6 cycles per minute. One movement forward and one movement backward constitutes one cycle. NOTE For both alternatives it is recommended to perform the test with a speed as slow as possible with a short break when the device changes direction.
		Remarks Test not necessary, just informative (see annex C of EN 1335-3:2009).
7.4	**P**	**Requirement** **Rolling resistance of the unloaded chair** The chair shall be placed on the test surface (see 5.1) and shall be pushed or pulled over a distance of at least 550 mm. A speed of (50 ± 5) mm/s shall be maintained over the measuring distance. The force shall be applied at a height of (200 ± 50) mm above the test surface. Record the force used to push or to pull the chair over the distance from 250 mm to 500 mm as the rolling resistance.
		Remarks See clause 4.4, page 20 of the report.

Absatz *Clause*	**Ergebnis** *Result*	**Bemerkung** *Remarks* /	**Messergebnisse** *Readings*
8	**Requirement** **Test report** The test report shall include at least the following information: a) reference to this standard; b) details of the chair tested; c) any defects observed before testing; d) test results according to Clause 7; e) details of any deviations from this standard; f) name and address of the test facility; g) dates of tests.		
	N/A	**Requirement** **Miscellaneous:**	