

Sheet No 1 - 14c/18/S

Strength test. **FURNITURE FOR SEATING**

Name and symbol of furniture type: LUMI LM 103 armchair
Weight of furniture in N: 155
Dimensions of furniture in mm: height: 1230/1350 width: 510 depth: 700

Methodology: PN-EN 1335-3:2009

Requirements: PN-EN 16139:2013_07, PN-EN 1022:2007

Stand ard point	Type of test	Test parameters	Test result
7.1.2	Stability test. Forward overbalancing	Vertical load 60 kg Horizontal force 20 N	Positive
7.1.5	Stability test. Sideward overbalancing	Vertical load on seat 60 kg on armrests 0 kg Horizontal force 20 N	Positive
7.1.7	Stability test. Backward overbalancing Furniture with reclining backrest	Load 13 rings (130 kg)	Positive
7.2.1	Front seat edge static load test	Vertical force on seat 1600 N 10 cycles	Positive
7.2.2	Seat and backrest static load test	Vertical force on seat 1600 N, 10 cycles Force perpendicular to backrest 560 N, 10 cycles	Positive
7.2.3	Armrest downward static load test	Vertical force 900 N 10 cycles	Not applicable
7.2.4	Armrest downward static load test. Front armrest edge test	Vertical force 450 N 5 cycles	Not applicable
7.2.5	Armrest outward static load test	Horizontal force 400 N 10 cycles	Not applicable

Tests carried out by: Karol Łabęda, MSc Eng.

Results checked by: Rafał Westerski, MSc Eng.

Sheet No 2 - 14c/18/S
Strength test. **FURNITURE FOR SEATING**

Name and symbol of furniture type: LUMI LM 103 armchair

to be continued

Methodology: PN-EN 1335-3:2009

Requirements: PN-EN 16139:2013_07, PN-EN 1022:2007

7.3.1	Seat fatigue test. In point A	Vertical force on seat 1500 N, 120,000 cycles	Positive
7.3.1	Seat and backrest fatigue test. In points C-B	Vertical force on seat 1200 N, 100,000 cycles Force perpendicular to backrest 320 N, 100,000 cycles	Positive
7.3.1	Seat and backrest fatigue test. In points J-E	Vertical force on seat 1200 N, 20,000 cycles Force perpendicular to backrest 320 N, 20,000 cycles	Positive
7.3.1	Seat fatigue test. In points D-G	Vertical force on seat 1200 N, 20,000 cycles Force perpendicular to backrest 320 N, 20,000 cycles	Positive
7.3.2	Armrest fatigue test	Vertical force 300 N, 50,000 cycles	Not applicable

Tests carried out by: Karol Łabęda, MSc Eng.
Results checked by: Rafał Westerski, MSc Eng.

Sheet No 3 - 14c/18/S

Determination of functional dimensions. **FURNITURE FOR SEATING**

Name and symbol of furniture type: LUMI LM 103 armchair

Methodology and requirements: PN-EN 1335-1:2004

Standard point	Name of component	Dimensions	Measurement result
6.1	Height of seat, a	Min. 450 mm Max. 570 mm	Positive
6.2	Depth of seat, b	510 mm	Positive
6.3	Depth of seat surface, c	460 mm	Positive
6.4	Width of seat, b	490 mm	Positive
6.5	Inclination of seat, e	- 1 °	Positive
6.6	Height of back support points above seat level, f	200 mm	Positive
6.7	Height of backrest pillow, g	810 mm	Positive
6.8	Height of upper backrest edge above seat level, h	810 mm	Positive
6.9	Width of backrest, i	400 mm	Positive
6.10	Curvature radius of backrest, k	1200 mm	Positive
6.11	Adjustment range of backrest inclination, l	320 mm	Positive
6.12	Usable length of armrests, n	350 mm	Not applicable
6.13	Usable width of armrest, o	25 mm	Not applicable
6.14	Usable width of armrests above seat, p	from 160 mm to 280 mm	Not applicable
6.15	Distance from usable armrest front to front seat edge, q	30 mm	Not applicable
6.16	Width of clearance between armrests, r	530 mm	Not applicable
6.17	Maximum arm of swivelling chair base, s	390 mm	Positive
6.18	Stability dimension, t	250 mm	Positive

Tests carried out by: Karol Łabęda, MSc Eng.

Results checked by: Rafał Westerski, MSc Eng.

Sheet No 4 - 14c/18/S
Strength test. FURNITURE FOR SEATING

Name and symbol of furniture type: LUMI LM 660 chair
Weight of furniture in N: 120
Dimensions of furniture in mm: height: 1030, width: 500, depth: 685

Methodology: PN-EN 1728:2012

Requirements: PN-EN 16139:2013_07 - level 2

Stand ard point	Type of test	Test parameters	Test result
6.4	Seat and backrest static load test	Vertical force on seat 2000 N, 10 cycles Force perpendicular to backrest 700 N, 10 cycles	Positive
6.5	Front seat edge static load test	Vertical force on seat 1600 N 10 cycles	Positive
6.6	Backrest static load test with downward vertical force	Vertical force 900 N 10 cycles	Positive
6.7	Backrest static load test with forward horizontal force	Horizontal force 450 N 10 cycles	Positive
6.10	Armrest outward static load test	Horizontal force 900 N 10 cycles	Not applicable
6.11	Armrest downward static load test	Horizontal force 900 N 10 cycles	Not applicable
6.15	Front leg static load test	Force on seat 1800 N Horizontal force 620 N 10 cycles	Positive
6.16	Side leg static load test	Force on seat 1800 N Horizontal force 620 N 10 cycles	Positive

Tests carried out by: Karol Łabęda, MSc Eng.

Results checked by: Rafał Westerski, MSc Eng.

Sheet No 5 - 14c/18/S
Strength test. **FURNITURE FOR SEATING**

Name and symbol of furniture type: LUMI LM 660 chair

Methodology: PN-EN 1728:2012

Requirements: PN-EN 16139:2013_07 - level 2

Stand ard point	Type of test	Test parameters	Test result
6.17	Seat and backrest fatigue test	Vertical force on seat 1000 N Force perpendicular to backrest 300 N 200,000 cycles	Positive
6.18	Front seat edge fatigue test	Vertical force on seat 800 N, 100,000 cycles	Positive
6.20	Armrest fatigue test	Force at 10° Force 400 N 60,000 cycles	Not applicable
6.24	Seat impact test	Drop height 300 mm 10 cycles	Positive
6.25	Backrest impact test	Drop height 330 mm 10 cycles	Positive
6.26	Armrest impact test	Drop height 330 mm 10 cycles	Not applicable
6.27	Free drop test	Drop height 450 mm 2 x 5 cycles	Positive
6.28	Free backward overturn test	5 cycles	Positive
6.30	Rolling resistance test	1000 cycles	Positive

Tests carried out by: Karol Łabęda, MSc Eng.

Results checked by: Rafał Westerski, MSc Eng.

Sheet No 6 - 14c/18/S
Stability test. **FURNITURE FOR SEATING**

Name and symbol of furniture type: LUMI LM 660 chair
Height of seat h_s in mm: 460

Methodology and requirements: PN-EN 1022:2007

Stand ard point	Type of test	Test parameters	Test result
6.2	Forward overbalancing, all furniture for seating	Vertical force 600 N Horizontal force 20 N 5 sec.	Positive
6.4	Sideward overbalancing, all furniture for seating without armrests	Vertical force 600 N Horizontal force 20 N 5 sec.	Positive
6.5	Sideward overbalancing, all furniture for seating with armrests	Vertical force 250 N + 350 N Horizontal force 20 N 5 sec.	Not applicable
6.6*	Backward overbalancing, all furniture for seating with backrest	Vertical force 600 N Horizontal force 160 N 5 sec.	Positive

*(6.6) Horizontal force: $F = (1000 - h_s) \cdot 0.2857$ [N] (rounded up to the nearest whole 10N)
Seat height $h_s \geq 720$ mm $F = 80$ N

Tests carried out by: Karol Łabęda, MSc Eng.
Results checked by: Rafał Westerski, MSc Eng.

Sheet No 7 - 14c/18/S
Strength test. FURNITURE FOR SEATING

Name and symbol of furniture type: LUMI LM 660 P chair
Weight of furniture in N: 135
Dimensions of furniture in mm: height: 1030, width: 600, depth: 665

Methodology: PN-EN 1728:2012

Requirements: PN-EN 16139:2013_07 - level 2

Stand ard point	Type of test	Test parameters	Test result
6.4	Seat and backrest static load test	Vertical force on seat 2000 N, 10 cycles Force perpendicular to backrest 700 N, 10 cycles	Positive
6.5	Front seat edge static load test	Vertical force on seat 1600 N 10 cycles	Positive
6.6	Backrest static load test with downward vertical force	Vertical force 900 N 10 cycles	Positive
6.7	Backrest static load test with forward horizontal force	Horizontal force 450 N 10 cycles	Positive
6.10	Armrest outward static load test	Horizontal force 900 N 10 cycles	Positive
6.11	Armrest downward static load test	Horizontal force 900 N 10 cycles	Positive
6.15	Front leg static load test	Force on seat 1800 N Horizontal force 620 N 10 cycles	Positive
6.16	Side leg static load test	Force on seat 1800 N Horizontal force 620 N 10 cycles	Positive

Tests carried out by: Karol Łabęda, MSc Eng.

Results checked by: Rafał Westerski, MSc Eng.

Sheet No 8 - 14c/18/S
Strength test. **FURNITURE FOR SEATING**

Name and symbol of furniture type: LUMI LM 660 P chair

Methodology: PN-EN 1728:2012

Requirements: PN-EN 16139:2013_07 - level 2

Stand ard point	Type of test	Test parameters	Test result
6.17	Seat and backrest fatigue test	Vertical force on seat 1000 N Force perpendicular to backrest 300 N 200,000 cycles	Positive
6.18	Front seat edge fatigue test	Vertical force on seat 800 N, 100,000 cycles	Positive
6.20	Armrest fatigue test	Force at 10° Force 400 N 60,000 cycles	Not applicable
6.24	Seat impact test	Drop height 300 mm 10 cycles	Positive
6.25	Backrest impact test	Drop height 330 mm 10 cycles	Positive
6.26	Armrest impact test	Drop height 330 mm 10 cycles	Positive
6.27	Free drop test	Drop height 450 mm 2 x 5 cycles	Positive
6.28	Free backward overturn test	5 cycles	Positive
6.30	Rolling resistance test	1000 cycles	Positive

Tests carried out by: Karol Łabęda, MSc Eng.

Results checked by: Rafał Westerski, MSc Eng.

Sheet No 9 - 14c/18/S
Stability test. **FURNITURE FOR SEATING**

Name and symbol of furniture type: LUMI LM 660 P chair
Height of seat h_s in mm: 460

Methodology and requirements: PN-EN 1022:2007

Stand ard point	Type of test	Test parameters	Test result
6.2	Forward overbalancing, all furniture for seating	Vertical force 600 N Horizontal force 20 N 5 sec.	Positive
6.4	Sideward overbalancing, all furniture for seating without armrests	Vertical force 600 N Horizontal force 20 N 5 sec.	Not applicable
6.5	Sideward overbalancing, all furniture for seating with armrests	Vertical force 250 N + 350 N Horizontal force 20 N 5 sec.	Positive
6.6*	Backward overbalancing, all furniture for seating with backrest	Vertical force 600 N Horizontal force 160 N 5 sec.	Positive

*(6.6) Horizontal force: $F = (1000 - h_s) \cdot 0.2857$ [N] (rounded up to the nearest whole 10N)
Seat height $h_s \geq 720$ mm $F = 80$ N

Tests carried out by: Karol Łabęda, MSc Eng.
Results checked by: Rafał Westerski, MSc Eng.

Sheet No 10 - 14c/18/S
Strength test. FURNITURE FOR SEATING

Name and symbol of furniture type: Lumi LM 427P chair
Weight of furniture in N: 130
Dimensions of furniture in mm: height: 835, width: 600, depth: 660

Methodology: PN-EN 1728:2012

Requirements: PN-EN 16139:2013_07 - level 2

Stand ard point	Type of test	Test parameters	Test result
6.4	Seat and backrest static load test	Vertical force on seat 2000 N, 10 cycles Force perpendicular to backrest 700 N, 10 cycles	Positive
6.5	Front seat edge static load test	Vertical force on seat 1600 N 10 cycles	Positive
6.6	Backrest static load test with downward vertical force	Vertical force 900 N 10 cycles	Positive
6.7	Backrest static load test with forward horizontal force	Horizontal force 450 N 10 cycles	Positive
6.10	Armrest outward static load test	Horizontal force 900 N 10 cycles	Positive
6.11	Armrest downward static load test	Horizontal force 900 N 10 cycles	Positive
6.15	Front leg static load test	Force on seat 1800 N Horizontal force 620 N 10 cycles	Positive
6.16	Side leg static load test	Force on seat 1800 N Horizontal force 620 N 10 cycles	Positive

Tests carried out by: Karol Łabęda, MSc Eng.

Results checked by: Rafał Westerski, MSc Eng.

Sheet No 11 - 14c/18/S
Strength test. FURNITURE FOR SEATING

Name and symbol of furniture type: Lumi LM 427P chair

Methodology: PN-EN 1728:2012

Requirements: PN-EN 16139:2013_07 - level 2

Stand ard point	Type of test	Test parameters	Test result
6.17	Seat and backrest fatigue test	Vertical force on seat 1000 N Force perpendicular to backrest 300 N 200,000 cycles	Positive
6.18	Front seat edge fatigue test	Vertical force on seat 800 N, 100,000 cycles	Positive
6.20	Armrest fatigue test	Force at 10° Force 400 N 60,000 cycles	Positive
6.24	Seat impact test	Drop height 300 mm 10 cycles	Positive
6.25	Backrest impact test	Drop height 330 mm 10 cycles	Positive
6.26	Armrest impact test	Drop height 330 mm 10 cycles	Positive
6.27	Free drop test	Drop height 450 mm 2 x 5 cycles	Positive
6.28	Free backward overturn test	5 cycles	Positive
6.30	Rolling resistance test	1000 cycles	Positive

Tests carried out by: Karol Łabęda, MSc Eng.

Results checked by: Rafał Westerski, MSc Eng.

Sheet No 12 - 14c/18/S
Stability test. **FURNITURE FOR SEATING**

Name and symbol of furniture type: Lumi LM 427P chair
Height of seat h_s in mm: 450

Methodology and requirements: PN-EN 1022:2007

Stand ard point	Type of test	Test parameters	Test result
6.2	Forward overbalancing, all furniture for seating	Vertical force 600 N Horizontal force 20 N 5 sec.	Positive
6.4	Sideward overbalancing, all furniture for seating without armrests	Vertical force 600 N Horizontal force 20 N 5 sec.	Not applicable
6.5	Sideward overbalancing, all furniture for seating with armrests	Vertical force 250 N + 350 N Horizontal force 20 N 5 sec.	Positive
6.6*	Backward overbalancing, all furniture for seating with backrest	Vertical force 600 N Horizontal force 160 N 5 sec.	Positive

*(6.6) Horizontal force: $F = (1000 - h_s) \cdot 0.2857$ [N] (rounded up to the nearest whole 10N)
Seat height $h_s \geq 720$ mm $F = 80$ N

Tests carried out by: Karol Łabęda, MSc Eng.
Results checked by: Rafał Westerski, MSc Eng.

Sheet No 13 - 14c/18/S
Strength test. FURNITURE FOR SEATING

Name and symbol of furniture type: Lumi LM 429P chair
Weight of furniture in N: 130
Dimensions of furniture in mm: height: 835, width: 600, depth: 660

Methodology: PN-EN 1728:2012

Requirements: PN-EN 16139:2013_07 - level 2

Stand ard point	Type of test	Test parameters	Test result
6.4	Seat and backrest static load test	Vertical force on seat 2000 N, 10 cycles Force perpendicular to backrest 700 N, 10 cycles	Positive
6.5	Front seat edge static load test	Vertical force on seat 1600 N 10 cycles	Positive
6.6	Backrest static load test with downward vertical force	Vertical force 900 N 10 cycles	Positive
6.7	Backrest static load test with forward horizontal force	Horizontal force 450 N 10 cycles	Positive
6.10	Armrest outward static load test	Horizontal force 900 N 10 cycles	Positive
6.11	Armrest downward static load test	Horizontal force 900 N 10 cycles	Positive
6.15	Front leg static load test	Force on seat 1800 N Horizontal force 620 N 10 cycles	Positive
6.16	Side leg static load test	Force on seat 1800 N Horizontal force 620 N 10 cycles	Positive

Tests carried out by: Karol Łabęda, MSc Eng.

Results checked by: Rafał Westerski, MSc Eng.

Sheet No 14 - 14c/18/S
Strength test. **FURNITURE FOR SEATING**

Name and symbol of furniture type: Lumi LM 429P chair

Methodology: PN-EN 1728:2012

Requirements: PN-EN 16139:2013_07 - level 2

Stand ard point	Type of test	Test parameters	Test result
6.17	Seat and backrest fatigue test	Vertical force on seat 1000 N Force perpendicular to backrest 300 N 200,000 cycles	Positive
6.18	Front seat edge fatigue test	Vertical force on seat 800 N, 100,000 cycles	Positive
6.20	Armrest fatigue test	Force at 10° Force 400 N 60,000 cycles	Positive
6.24	Seat impact test	Drop height 300 mm 10 cycles	Positive
6.25	Backrest impact test	Drop height 330 mm 10 cycles	Positive
6.26	Armrest impact test	Drop height 330 mm 10 cycles	Positive
6.27	Free drop test	Drop height 450 mm 2 x 5 cycles	Positive
6.28	Free backward overturn test	5 cycles	Positive
6.30	Rolling resistance test	1000 cycles	Positive

Tests carried out by: Karol Łabęda, MSc Eng.

Results checked by: Rafał Westerski, MSc Eng.

Sheet No 15 - 14c/18/S
Stability test. **FURNITURE FOR SEATING**

Name and symbol of furniture type: Lumi LM 429P chair
Height of seat h_s in mm: 450

Methodology and requirements: PN-EN 1022:2007

Stand ard point	Type of test	Test parameters	Test result
6.2	Forward overbalancing, all furniture for seating	Vertical force 600 N Horizontal force 20 N 5 sec.	Positive
6.4	Sideward overbalancing, all furniture for seating without armrests	Vertical force 600 N Horizontal force 20 N 5 sec.	Not applicable
6.5	Sideward overbalancing, all furniture for seating with armrests	Vertical force 250 N + 350 N Horizontal force 20 N 5 sec.	Positive
6.6*	Backward overbalancing, all furniture for seating with backrest	Vertical force 600 N Horizontal force 160 N 5 sec.	Positive

*(6.6) Horizontal force: $F = (1000 - h_s) \cdot 0.2857$ [N] (rounded up to the nearest whole 10N)
Seat height $h_s \geq 720$ mm $F = 80$ N

Tests carried out by: Karol Łabęda, MSc Eng.
Results checked by: Rafał Westerski, MSc Eng.

Sheet No 16 - 14c/18/S
Strength test. FURNITURE FOR SEATING

Name and symbol of furniture type: LUMI LM 211 chair
Weight of furniture in N: 120
Dimensions of furniture in mm: height: 880, width: 555, depth: 640

Methodology: PN-EN 1728:2012

Requirements: PN-EN 16139:2013_07 - level 2

Stand ard point	Type of test	Test parameters	Test result
6.4	Seat and backrest static load test	Vertical force on seat 2000 N, 10 cycles Force perpendicular to backrest 700 N, 10 cycles	Positive
6.5	Front seat edge static load test	Vertical force on seat 1600 N 10 cycles	Positive
6.6	Backrest static load test with downward vertical force	Vertical force 900 N 10 cycles	Positive
6.7	Backrest static load test with forward horizontal force	Horizontal force 450 N 10 cycles	Positive
6.10	Armrest outward static load test	Horizontal force 900 N 10 cycles	Not applicable
6.11	Armrest downward static load test	Horizontal force 900 N 10 cycles	Not applicable
6.15	Front leg static load test	Force on seat 1800 N Horizontal force 620 N 10 cycles	Positive
6.16	Side leg static load test	Force on seat 1800 N Horizontal force 620 N 10 cycles	Positive

Tests carried out by: Karol Łabęda, MSc Eng.

Results checked by: Rafał Westerski, MSc Eng.

Sheet No 17 - 14c/18/S
Strength test. **FURNITURE FOR SEATING**

Name and symbol of furniture type: LUMI LM 211 chair

Methodology: PN-EN 1728:2012

Requirements: PN-EN 16139:2013_07 - level 2

Stand ard point	Type of test	Test parameters	Test result
6.17	Seat and backrest fatigue test	Vertical force on seat 1000 N Force perpendicular to backrest 300 N 200,000 cycles	Positive
6.18	Front seat edge fatigue test	Vertical force on seat 800 N, 100,000 cycles	Positive
6.20	Armrest fatigue test	Force at 10° Force 400 N 60,000 cycles	Not applicable
6.24	Seat impact test	Drop height 300 mm 10 cycles	Positive
6.25	Backrest impact test	Drop height 330 mm 10 cycles	Positive
6.26	Armrest impact test	Drop height 330 mm 10 cycles	Not applicable
6.27	Free drop test	Drop height 450 mm 2 x 5 cycles	Positive
6.28	Free backward overturn test	5 cycles	Positive
6.30	Rolling resistance test	1000 cycles	Positive

Tests carried out by: Karol Łabęda, MSc Eng.

Results checked by: Rafał Westerski, MSc Eng.

Sheet No 18 - 14c/18/S
Stability test. **FURNITURE FOR SEATING**

Name and symbol of furniture type: LUMI LM 211 chair
Height of seat h_s in mm: 440

Methodology and requirements: PN-EN 1022:2007

Stand ard point	Type of test	Test parameters	Test result
6.2	Forward overbalancing, all furniture for seating	Vertical force 600 N Horizontal force 20 N 5 sec.	Positive
6.4	Sideward overbalancing, all furniture for seating without armrests	Vertical force 600 N Horizontal force 20 N 5 sec.	Positive
6.5	Sideward overbalancing, all furniture for seating with armrests	Vertical force 250 N + 350 N Horizontal force 20 N 5 sec.	Not applicable
6.6*	Backward overbalancing, all furniture for seating with backrest	Vertical force 600 N Horizontal force 160 N 5 sec.	Positive

*(6.6) Horizontal force: $F = (1000 - h_s) \cdot 0.2857$ [N] (rounded up to the nearest whole 10N)
Seat height $h_s \geq 720$ mm $F = 80$ N

Tests carried out by: Karol Łabęda, MSc Eng.
Results checked by: Rafał Westerski, MSc Eng.

Sheet No 19 - 14c/18/S
Strength test. FURNITURE FOR SEATING

Name and symbol of furniture type: LUMI LM 212 P chair
Weight of furniture in N: 135
Dimensions of furniture in mm: height: 1100, width: 515, depth: 665

Methodology: PN-EN 1728:2012

Requirements: PN-EN 16139:2013_07 - level 2

Stand ard point	Type of test	Test parameters	Test result
6.4	Seat and backrest static load test	Vertical force on seat 2000 N, 10 cycles Force perpendicular to backrest 700 N, 10 cycles	Positive
6.5	Front seat edge static load test	Vertical force on seat 1600 N 10 cycles	Positive
6.6	Backrest static load test with downward vertical force	Vertical force 900 N 10 cycles	Positive
6.7	Backrest static load test with forward horizontal force	Horizontal force 450 N 10 cycles	Positive
6.10	Armrest outward static load test	Horizontal force 900 N 10 cycles	Positive
6.11	Armrest downward static load test	Horizontal force 900 N 10 cycles	Positive
6.15	Front leg static load test	Force on seat 1800 N Horizontal force 620 N 10 cycles	Positive
6.16	Side leg static load test	Force on seat 1800 N Horizontal force 620 N 10 cycles	Positive

Tests carried out by: Karol Łabęda, MSc Eng.

Results checked by: Rafał Westerski, MSc Eng.

Sheet No 20 - 14c/18/S
Strength test. **FURNITURE FOR SEATING**

Name and symbol of furniture type: LUMI LM 212 P chair

Methodology: PN-EN 1728:2012

Requirements: PN-EN 16139:2013_07 - level 2

Stand ard point	Type of test	Test parameters	Test result
6.17	Seat and backrest fatigue test	Vertical force on seat 1000 N Force perpendicular to backrest 300 N 200,000 cycles	Positive
6.18	Front seat edge fatigue test	Vertical force on seat 800 N, 100,000 cycles	Positive
6.20	Armrest fatigue test	Force at 10° Force 400 N 60,000 cycles	Not applicable
6.24	Seat impact test	Drop height 300 mm 10 cycles	Positive
6.25	Backrest impact test	Drop height 330 mm 10 cycles	Positive
6.26	Armrest impact test	Drop height 330 mm 10 cycles	Positive
6.27	Free drop test	Drop height 450 mm 2 x 5 cycles	Positive
6.28	Free backward overturn test	5 cycles	Positive
6.30	Rolling resistance test	1000 cycles	Positive

Tests carried out by: Karol Łabęda, MSc Eng.

Results checked by: Rafał Westerski, MSc Eng.

Sheet No 21 - 14c/18/S
Stability test. **FURNITURE FOR SEATING**

Name and symbol of furniture type: LUMI LM 212 P chair
Height of seat h_s in mm: 440

Methodology and requirements: PN-EN 1022:2007

Stand ard point	Type of test	Test parameters	Test result
6.2	Forward overbalancing, all furniture for seating	Vertical force 600 N Horizontal force 20 N 5 sec.	Positive
6.4	Sideward overbalancing, all furniture for seating without armrests	Vertical force 600 N Horizontal force 20 N 5 sec.	Not applicable
6.5	Sideward overbalancing, all furniture for seating with armrests	Vertical force 250 N + 350 N Horizontal force 20 N 5 sec.	Positive
6.6*	Backward overbalancing, all furniture for seating with backrest	Vertical force 600 N Horizontal force 160 N 5 sec.	Positive

*(6.6) Horizontal force: $F = (1000 - h_s) \cdot 0.2857$ [N] (rounded up to the nearest whole 10N)
Seat height $h_s \geq 720$ mm $F = 80$ N

Tests carried out by: Karol Łabęda, MSc Eng.
Results checked by: Rafał Westerski, MSc Eng.

Sheet No 22 - 14c/18/S
Strength test. FURNITURE FOR SEATING

Name and symbol of furniture type: LUMI LM 212 P chair
Weight of furniture in N: 135
Dimensions of furniture in mm: height: 1100, width: 515, depth: 665

Methodology: PN-EN 1335-3:2009

Requirements: PN-EN 16139:2013_07, PN-EN 1022:2007

Stand ard point	Type of test	Test parameters	Test result
7.1.2	Stability test. Forward overbalancing	Vertical load 60 kg Horizontal force 20 N	Positive
7.1.5	Stability test. Sideward overbalancing	Vertical load on seat 60 kg on armrests 0 kg Horizontal force 20 N	Positive
7.1.7	Stability test. Backward overbalancing Furniture with reclining backrest	Load 13 rings (130 kg)	Positive
7.2.1	Front seat edge static load test	Vertical force on seat 1600 N 10 cycles	Positive
7.2.2	Seat and backrest static load test	Vertical force on seat 1600 N, 10 cycles Force perpendicular to backrest 560 N, 10 cycles	Positive
7.2.3	Armrest downward static load test	Vertical force 900 N 10 cycles	Not applicable
7.2.4	Armrest downward static load test. Front armrest edge test	Vertical force 450 N 5 cycles	Not applicable
7.2.5	Armrest outward static load test	Horizontal force 400 N 10 cycles	Not applicable

Tests carried out by: Karol Łabęda, MSc Eng.
Results checked by: Rafał Westerski, MSc Eng.

Sheet No 23 - 14c/18/S
Strength test. **FURNITURE FOR SEATING**

Name and symbol of furniture type: LUMI LM 212 P chair

to be continued

Methodology: PN-EN 1335-3:2009

Requirements: PN-EN 16139:2013_07, PN-EN 1022:2007

7.3.1	Seat fatigue test. In point A	Vertical force on seat 1500 N, 120,000 cycles	Positive
7.3.1	Seat and backrest fatigue test. In points C-B	Vertical force on seat 1200 N, 100,000 cycles Force perpendicular to backrest 320 N, 100,000 cycles	Positive
7.3.1	Seat and backrest fatigue test. In points J-E	Vertical force on seat 1200 N, 20,000 cycles Force perpendicular to backrest 320 N, 20,000 cycles	Positive
7.3.1	Seat fatigue test. In points D-G	Vertical force on seat 1200 N, 20,000 cycles Force perpendicular to backrest 320 N, 20,000 cycles	Positive
7.3.2	Armrest fatigue test	Vertical force 300 N, 50,000 cycles	Not applicable

Tests carried out by: Karol Łabęda, MSc Eng.
Results checked by: Rafał Westerski, MSc Eng.

Sheet No 24 - 14c/18/S

Determination of functional dimensions. **FURNITURE FOR SEATING**

Name and symbol of furniture type: LUMI LM 212 P chair

Methodology and requirements: PN-EN 1335-1:2004

Standard point	Name of component	Dimensions	Measurement result
6.1	Height of seat, a	440 mm	Positive
6.2	Depth of seat, b	480 mm	Positive
6.3	Depth of seat surface, c	480 mm	Positive
6.4	Width of seat, b	500 mm	Positive
6.5	Inclination of seat, e	- 1 °	Positive
6.6	Height of back support points above seat level, f	220 mm	Positive
6.7	Height of backrest pillow, g	610 mm	Positive
6.8	Height of upper backrest edge above seat level, h	610 mm	Positive
6.9	Width of backrest, i	410 mm	Positive
6.10	Curvature radius of backrest, k	1200 mm	Positive
6.11	Adjustment range of backrest inclination, l	120 mm	Positive
6.12	Usable length of armrests, n	235 mm	Positive
6.13	Usable width of armrest, o	30 mm	Positive
6.14	Usable width of armrests above seat, p	230 mm	Positive
6.15	Distance from usable armrest front to front seat edge, q	200 mm	Positive
6.16	Width of clearance between armrests, r	470 mm	Positive
6.17	Maximum arm of swivelling chair base, s	360 mm	Positive
6.18	Stability dimension, t	260 mm	Positive

Tests carried out by: Karol Łabęda, MSc Eng.

Results checked by: Rafał Westerski, MSc Eng.